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ВЕСТНИК

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NAS RK is pleased to announce that Bulletin of NAS RK scientific journal has been accepted for indexing in the Emerging Sources Citation Index, a new edition of Web of Science. Content in this index is under consideration by Clarivate Analytics to be accepted in the Science Citation Index Expanded, the Social Sciences Citation Index, and the Arts & Humanities Citation Index. The quality and depth of content Web of Science offers to researchers, authors, publishers, and institutions sets it apart from other research databases. The inclusion of Bulletin of NAS RK in the Emerging Sources Citation Index demonstrates our dedication to providing the most relevant and influential multidiscipline content to our community.

Қазақстан Республикасы Ұлттық ғылым академиясы "ҚР ҰҒА Хабаршысы" ғылыми журналының Web of Science-тің жаңаланған нұсқасы Emerging Sources Citation Index-те индекстелуге қабылданғанын хабарлайды. Бұл индекстелу барысында Clarivate Analytics компаниясы журналды одан әрі the Science Citation Index Expanded, the Social Sciences Citation Index және the Arts & Humanities Citation Index-ке қабылдау мәселесін қарастыруда. Web of Science зерттеушілер, авторлар, баспашылар мен мекемелерге контент тереңдігі мен сапасын ұсынады. ҚР ҰҒА Хабаршысының Emerging Sources Citation Index-ке енуі біздің қоғамдастық үшін ең өзекті және беделді мультидисциплинарлы контентке адалдығымызды білдіреді.

НАН РК сообщает, что научный журнал «Вестник НАН РК» был принят для индексирования в Emerging Sources CitationIndex, обновленной версии Web of Science. Содержание в этом индексировании находится в стадии рассмотрения компанией Clarivate Analytics для дальнейшего принятия журнала в the Science Citation Index Expanded, the Social Sciences Citation Index и the Arts & Humanities Citation Index. Web of Science предлагает качество и глубину контента для исследователей, авторов, издателей и учреждений. Включение Вестника НАН РК в Emerging Sources Citation Index демонстрирует нашу приверженность к наиболее актуальному и влиятельному мультидисциплинарному контенту для нашего сообщества.

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**O. Mamyrbayev[1,2], A. Akhmediyarova[1,2], A. Kydyrbekova[1,2],
N. O. Mekebayev[1,2], B. Zhumazhanov[1]**

[1]Institute of Information and Computing Technologies, Almaty, Kazakhstan;
[2]Kazakh National University named after Al-Farabi, Almaty, Kazakhstan.
E-mail: morkenj@mail.ru, aat.78@mail.ru, kas.aizat@mail.ru, nurbapa@mail.ru, bagasharj@mail.ru

BIOMETRIC HUMAN AUTHENTICATION SYSTEM THROUGH SPEECH USING DEEP NEURAL NETWORKS (DNN)

Abstract. Biometrics offers more security and convenience than traditional methods of identification. Recently, DNN has become a means of a more reliable and efficient authentication scheme. In this work, we compare two modern teaching methods: these two methods are methods based on the Gaussian mixture model (GMM) (denoted by the GMM i-vector) and methods based on deep neural networks (DNN) (denoted as the i-vector DNN). The results show that the DNN system with an i-vector is superior to the GMM system with an i-vector for various durations (from full length to 5s). DNNs have proven to be the most effective features for text-independent speaker verification in recent studies. In this paper, a new scheme is proposed that allows using DNN when checking text using hints in a simple and effective way. Experiments show that the proposed scheme reduces EER by 24.32% compared with the modern method and is evaluated for its reliability using noisy data, as well as data collected in real conditions. In addition, it is shown that the use of DNN instead of GMM for universal background modeling leads to a decrease in EER by 15.7%.

Key words: biometrics, speaker verification, short sentences, i-vector, DNN.

1. Introduction. Biometry is the development of statistical and mathematical methods applicable to the problems of data analysis in the biological sciences. The introduction of this technology brings new approaches to the security of computer systems. Identification and verification are two ways to use biometrics to authenticate a person. Biometrics refers to the use of physical or physiological, biological or behavioral characteristics to establish a person's identity. These characteristics are unique to each person and remain partially unchanged during the course of a person's life [1]. A biometric security system is becoming a powerful tool compared to electronic security [2]. Any physiological or behavioral characteristic of a person can be used as a biometric characteristic, provided that it has the following properties: universality, distinctiveness, constancy, collectability, bypass, acceptability and performance [3]. Physiological biometry is associated with body shape. Behavioral biometrics related to human behavior. Speech is a unique biometric feature that falls into both categories [4]. Based on the application, choosing the right biometrics is a crucial part. For example, speech is a biometric feature whose characteristics will differ significantly if a person is affected by a cold or other emotional status. Some of these problems can be solved using a biometric system. Although some of the features offer good performance in terms of reliability and accuracy, none of the biometric features are 100% accurate. With the growing global need for security, the need for reliable face recognition systems is becoming apparent.

For applications related to the flow of confidential information, the accuracy of system authentication is always a priority. Examples of such applications include secure access to buildings, computer systems, laptops, cell phones and ATMs. In the absence of reliable personality recognition schemes, these systems are vulnerable to the cunning of an impostor. The aim of this work is to develop a biometric system using speech technologies for personal identification.

The present work is mainly devoted to the implementation of a biometric system using speech and we use i-vector DNNs, which are usually used to recognize a speaker in a VP.

In this work, various methods are proposed for improving the speaker's gender classification based on the i-vector and deep neural networks (DNN) as an attribute extractor and classifier. First, a model is proposed for generating new functions from DNN. DNN with a bottleneck layer is trained in an uncontrolled way to calculate the initial weights between the layers, then it is trained and not controlled in a controlled way to generate converted low frequency cepstral coefficients (T-MFCC). Secondly, the label method of general classes is introduced among incorrectly classified classes to regularize weights in DNN. Thirdly, DNN-based speaker models using the SDC feature set are offered. A speaker-supported model can more effectively capture the speaker's age and gender characteristics than a model representing a group of speakers. Moreover, the new T-MFCC feature set is used as input to a two-system merger model. The first system is a class model based on the GNN vector, and the second system is a speaker model based on the DNN i-vector [5]. Using T-MFCC as input and combining the final grade with the grade model based on the DNN vector improved the classification accuracy.

2. Human authentication system through speech. Like any other pattern recognition system, a speech-based personality authentication system also consists of three components: (1) feature extraction, which converts the speech waveform into a set of parameters that carry essential information about the speaker; (2) Generating a template that generates a template representing an individual speaker from the object's parameters: and (3) Matching and classifying a template that compares the similarity between the extracted objects and the previously saved template or the number of previously saved templates, respectively providing the speaker's identity. The speaker recognition system consists of two stages: training and testing. At the training stage, speaker models (or patterns) are generated from speech patterns using some selection and modeling methods. At the testing stage, feature vectors are generated from the speech signal using the same extraction procedure as during training. Then a classification decision is made using some matching method. Identity authentication is a binary classification task [6]. The characteristics of the test signal are compared with the claimed speaker circuit, and a decision is made to accept or reject the claim [7]. Depending on the operating mode, speaker recognition can be classified as text-dependent recognition and independent text recognition. Text-dependent recognition requires that the speaker make a speech over the same text both during training and testing, while independent text recognition does not affect the specific text spoken. In this paper, we use the method of recognition of text-dependent texts. In this paper, we use feature extraction methods based on (1) Mel frequency coefficient coefficients (MFCC) obtained from Cepstral speech analysis, and (2) wavelet-octave remainder coefficients (WOCOR) obtained from Linear Prediction (LP) residual. A time-frequency analysis of the LP residual signal is performed to obtain WOCOR [8]. WOCORs are generated by applying a pitch-synchronous wavelet transform to the residual signal. Experimental results show that WOCOR parameters provide additional information to the usual MFCC functions for speaker recognition [9]. Vector quantization (VQ) and Gaussian mixture modeling (GMM) are used to model information about a person from these MFCC and WOCOR functions [10,11]. The modern system uses MFCC derived from speech as feature vectors, and GMM as a modeling method.

2.1 Pretreatment. Voice activity detection (VAD) is an important step in most speech processing applications, especially if there is background noise. The importance of VAD is that it improves intelligibility and speech recognition. Since the speech utterances used in this work were recorded in a public call center, the recording utterances were exposed to noise and other interference. As a result, the VAD algorithm is needed to reduce background noises and quiet eras in utterances in order to prepare them for identifying features. In addition, normalization of cepstral mean dispersion (CMVN) is used to eliminate convolutional distortions and linear channel effects. CMVN can be applied globally or locally. In this work, it is applied globally to obtain a normal distribution with zero mean and unit dispersion. The

MFCC set is one of the most famous sets of spectral characteristics and is widely used in many speech applications [12].

2.2 Extracting functions from speech information. Information about the dynamics is present both in the vocal tract and in the excitation parameters. The voice path system can correspond to speech processing in short (10-30ms) overlapping (5-15ms) windows. It is assumed that the vocal tract system is stationary within the window and can be modeled as an all-pole filter using analysis. The most used form of speech for feature extraction is Cepstrum. Various forms of presentation of Cepstral include complex Cepstral coefficients (CCC), real Cepstral coefficients (RCC), Mel frequency Cepstral coefficients (MFCC) and Linear Prediction Cepstral Coefficients (LPCC). Among them, the most commonly used MFCC [13].

2.3 Extracting MFCC Feature Vectors. The state of the system builds a unimodal system by analyzing speech in blocks of 10-30ms with a shift of half the block size. MFCCs are used as feature vectors extracted from each of the blocks. MFCCs are mainly the voice path of the speaker's information and therefore only care about the physiological aspect of the biometric characteristics of speech. The speech signal is obtained by convolution of the voice parameters $v(n)$ and excitation parameters $x(n)$ given by equation (1). We cannot separate these parameters in the time domain. Hence we go for the cepstral domain. Cepstral analysis is used to separate the speech path parameter v (n) and the excitation parameters $x(n)$ from the speech signal $s(n)$.

$$s(n) = v(n) * x(n) \tag{1}$$

Cepstral analysis provides a fundamental convolution property used to separate the parameters of the vocal tract and the excitation parameters. Cepstral coefficients C of length M can be obtained using equation (3.2).

$$C = real(IFFT(log|FFT(s(n))|)) \tag{2}$$

A non-linear scale, that is, the relationship between the Mel frequency (f_{Mel}) and the physical frequency (fH_z), is used to extract spectral information from the speech signal using Cepstral analysis.

$$f_{Mel} = 2595\, log_{10}\left(1 + \frac{fH_z}{700}\right) \tag{3}$$

Using equation (3), we construct a spectrum with critical bands that are overlapping triangular banks, i.e. we map the linearly spaced frequency spectrum (fH_z) to the nonlinearly spaced frequency spectrum (f_{Mel}). In this way, we can imitate the human auditory system and, based on this concept, MFCC feature vectors are obtained. Window control eliminates the Gibbs vibrations that occur by cutting the speech signal. Using equation (4), Hamming window coefficients are generated with which the corresponding frame speech is scaled.

$$w(n) = 5.54 - 0.46cos\left(\frac{2\pi n}{N-1}\right) \tag{4}$$

But due to working with the Hamming window, samples that are on the verge of the window are weighed with lower values. To compensate for this, we will try to block the frame by 50%. After the window, we calculate the logarithmic spectrum of each frame to find the energy coefficients using equation (5).

$$Y(i) = \sum_{k=0}^{\frac{N}{2}} \log\ |S(k,m)| Hi\left(k\frac{2\pi}{N-1}\right) \tag{5}$$

where $Hi\left(k\frac{2\pi}{N}\right)$ is the ith spectrum of the critical Mel bank, and N is the number of points used to calculate the discrete Fourier transform (DFT). The number M of frequency coefficients Mel calculated using discrete cosine transforms (DCT) using equation (6), which is nothing more than a real IDFT critical-band filter that records the output energy.

$$C(n,m) = \left(\frac{2}{N}\right) \sum_{k=1}^{\frac{N}{2}-1} Y(k) cos\left(k\frac{2\pi}{N}n\right) \tag{6}$$

where n = 1, 2, 3 ……… ..M.

2.4 Fully connected neural network modeling. The neural network used in this work is a fully connected neural network with a straightened linear unit [14] as an activation function. A straightened linear unit is essentially a piecewise function that turns all negative values into 0, while positive values remain unchanged. This practice is called one-way inhibition and makes neurons rarely activated. Its advantage is that the preliminary preparation process can be omitted without the problem of the disappearance of the gradient. In addition, a straightened linear unit only requires addition and multiplication, so it is faster and more efficient than other functions such as sigmoid and tang. The basic unit of a neural network is a neuron, and the direction of data flow in a neuron using a straightened linear unit is shown in figure 1.

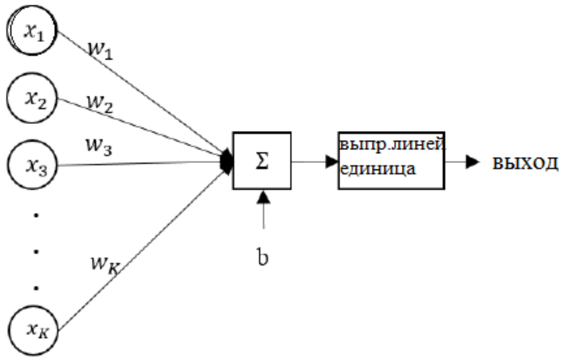

Figure 1 – Schematic diagram of the data flow in a neuron

The calculation formula corresponding to figure 2:

$$y = ВЛЕ(x) = \max(0, x) \tag{7}$$

$$x = b + \sum_K w_k x_k \tag{8}$$

A large number of neurons form a neural network through an extensive relationship, and its structure is shown in figure 2.

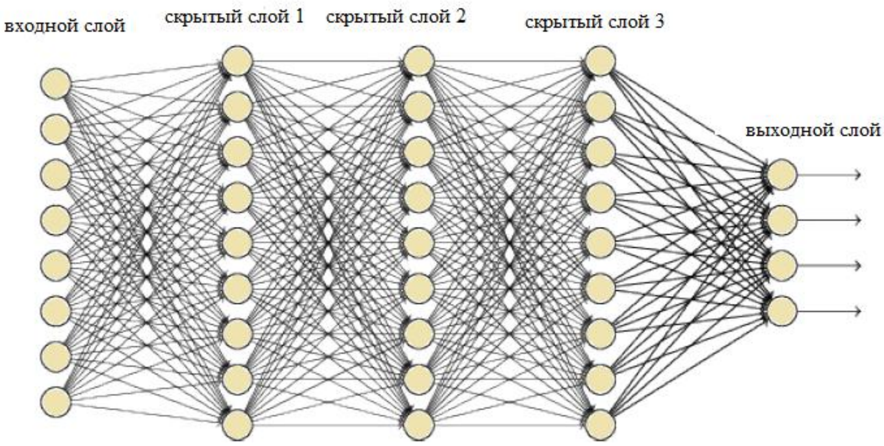

Figure 2 – Fully connected neural network structure

As input to a neural network, the i-vector function is best suited for a linear classifier. However, for neural networks, more hidden layers mean a weaker degree of linearity. Therefore, we use fewer hidden layers in this work. At the same time, when there are too many network parameters and too few training samples, it is very likely that re-equipment will occur [15,16]. Retooling means that the model has small losses and high accuracy of forecasting training data, but large losses and low accuracy of forecasting test data. The dropout strategy is currently an effective method of suppressing retooling. Dropout means that when training a neural network, the values of activation of neurons change by 0 at a certain ratio v, that is, they cancel part of the nodes of the hidden layer in accordance with the ratio v. During testing, the output values of the hidden nodes of the layer should be reduced to $(1-v)$ times, for example, if the normal output signal is a, it should be reduced to$(1-v)$. Screening can be considered as a method of averaging a model that averages estimates or forecasts from different models by a certain weight, which is also referred to as a combination of models in some literature. In each learning process, since the nodes are accidentally ignored, the resulting network is different and can be considered as a "new" model. In addition, the nodes are activated randomly with a certain probability, therefore there is no guarantee that every 2 nodes will be valid together every time, then the update of the weights no longer depends on the joint action of the nodes with fixed relations, which prevents a situation where some functions are effective only if there are other functions [17].

3. Experimental Results

3.1 Comparison of recognition results for GMM vector systems and DNN i-vector. In this section, we show the mapping results for the GMM i-vector system. From table 1 we see that the proposed mapping methods provide a significant improvement for both systems. After mapping, DNN i-vector systems still outperform GMM i-vector systems, and the superiority of DNN i-vector systems becomes even more significant. We also compare mapping results when adding phoneme vectors. The table shows that the effect of adding phoneme information is more important for GMM-i-vectors, and it can achieve a relative improvement of 10% compared to the best basic level of DNN mapping. The reason is that DNN-i-vectors already contain some information about phonemes, while GMM-i-vectors can greatly benefit from adding phoneme vectors. As a result, we summarize the baseline and the best mapping results for both systems in figure 3. Curves DET (Trade Error Error Tradeo) are presented for both women and men. The numbers show that the proposed mapping algorithms provide a significant improvement over the baseline at all operating points.

Table 1 – Results for GMM i-vector systems and i-vector DNNs

	female		male	
	EER (Rel Imp)	DCF08/DCF10	EER (Rel Imp)	DCF08/DCF10
GMM i-vector				
A basic level of	13,6	0,063/0,097	14,3	0,057/0,099
DNN mapping	20,27%	0,054/0,095	22,37%	0,051/0,096
DNN mapping + phoneme information	25,54%	0,053/0,094	27,90%	0,048/0,096
i-vector DNN				
A basic level of	13,4	0,054/0,093	11,5	0,048/0,095
DNN mapping	26,53%	0,046/0,091	27,57%	0,038/0,089
DNN mapping + phoneme information	28,75%	0,046/0,090	29,47%	0,037/0,090

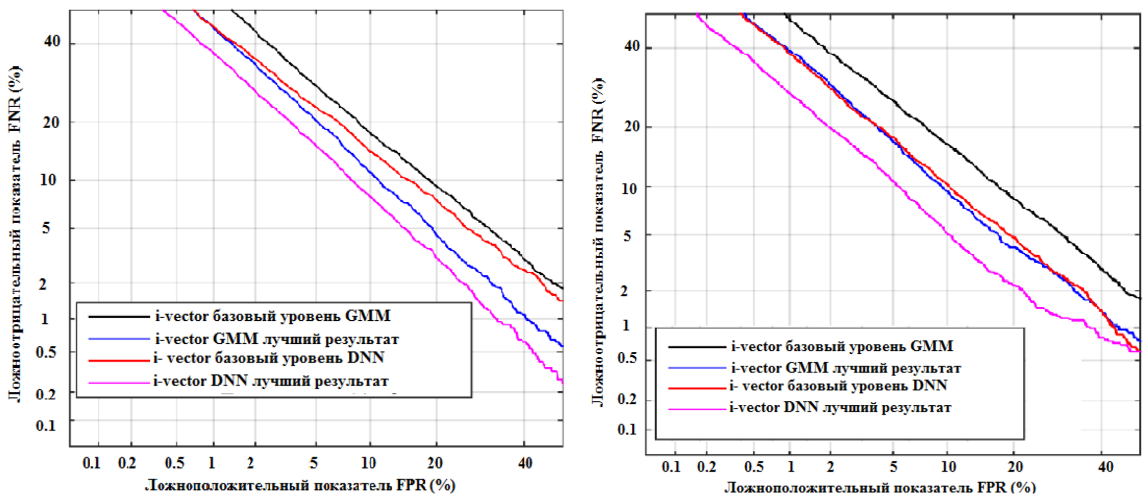

Figure 3 – DET curves for the mapping results of GMM i-vector systems and i-vector DNNs. The left digit corresponds to the female language, and the right one corresponds to the male language

3.2 Database performance. In this subsection, we apply our technique to a database that contains real audio files collected from open media channels with significant discrepancies. To generate a large number of short statements of random duration, we first combined the dev and eval datasets, and then selected 250 statements from a relatively clean state. We truncated each of 250 statements into several non-overlapping short statements lasting 5 seconds, 3.5 seconds, 2.5 seconds (including both speech and non-speech parts). As a result, 1956 statements were received. In total, we developed 664,746 tests for our task of verifying a speaker with an arbitrary word length. For each short statement, we first lower the sampling frequency of the audio files to a sampling frequency of 8 kHz, and then extract the i-vectors using the previously trained DNN i-vector system. To display the i-vector, we use the most tested models in the SRE10 data set (condition 5s) to apply to the SITW data set. The results of the EER and minDCF estimates are shown in table 2. The table shows that the best models tested on the SRE10 dataset generalize the SITW dataset well, which gives a relative EER improvement of 24.32% for women speaking and 22.87% relative improvement for talking men. The results also show that the proposed methods can be used in real conditions, such as smart home and forensic applications.

Table 2 – DNN-based mapping results for SITW using arbitrary durations of short sentences

	female		male	
	EER (Rel Imp)	DCF10	EER (Rel Imp)	DCF10
Custom Duration				
basic level	16,35	0,079	11,9	0,084
DNN mapping (best models from SRE10)	14,2	0,076	10,8	0,081

3.3 Cartographic effects. To investigate the effect of the proposed i-vector mapping algorithms, we first calculate the mean square Euclidean distance between the short and long pairs of the sentence i-vector in the assessment data set before and after the mapping. The RMS Euclidean distance D_{sl} between the short and long pronunciation i −vector is determined as follows:

$$D_{sl} = \frac{1}{N}\sum_{s=1}^{N}\left(\sum_{i=1}^{L}\left(w_s(i) - w_l(i)\right)^2\right) \tag{9}$$

where w_s and w_l represent the i-vector of the short statement and the long statement, respectively, L is the length of the i-vector, and N is the number of short and long pairs of the i-vector. We compare the D_{sl}values for 10-second and 5-second i-vectors with short sentences, as well as the associated 10-second and 5-second vector expressions for women and men in table 3. From the table we see that after displaying the displayed i- short pronunciation vectors have significantly lower D_{sl}values compared to what they were before the display. After displaying D_{sl} in state 10s less than in state 5s. In addition, we calculate and compare the J-factor of short-pronounced i-vectors before and after the comparison in table 4, which measures the ability to split votes. Given the i-vectors for M votes, the J-coefficient can be calculated using equations 10-12:

$$S_w = \frac{1}{M}\sum_{s=1}^{M} R_i \tag{10}$$

$$S_w = \frac{1}{M}\sum_{s=1}^{M}(w_i - w_0)((w_i - w_0)^T \tag{11}$$

$$J = Tr((S_b + S_w)^{-1}S_b) \tag{12}$$

where S_w is the scattering matrix inside the class, S_b is the scattering matrix between classes, w_i is the average i-vector for the i-th speaker, w_o the average value of all w_i, and R_i is the covariance matrix for the i-th speaker (note that more high J-ratio means better separation). From table 4 we can observe that the mapped i-vectors have significantly higher J-ratios compared to the original i-vectors with short intervals for conditions of 5s and 10s. These results indicate that the proposed DNN-based mapping methods can generalize well to invisible speakers and utterances and improve the ability of i-vectors to split voices.

Table 3 – Square Euclidean distance (D_{sl}) between short and long pairs of sentence i-vectors from SRE10 before and after display

	D_{sl}			
	10 s		5 s	
	original	mapped	original	mapped
female	549,7	304,9	618,8	357,3
male	492,4	305,8	557,4	339,9

Table 4 – J-factor for short-term i-vectors before and after mapping

	J-ratio			
	10 s		5 s	
	original	mapped	original	mapped
female	86,39	94,81	81,85	86,91
male	88,25	91,37	81,15	86,51

4. Conclusion. In this paper, we show how the performance of GMM and DNN-based i-vector speaker verification systems deteriorates rapidly with a decrease in the duration of evaluative statements. This work explains and analyzes the causes of deterioration and offers several DNN-based methods for teaching non-linear mapping of short-sentence i-vectors to their long version in order to improve the performance of short sentence estimation. The proposed mapping method based on DNN is used to model joint representations of i-vectors with short and long statements.

When evaluated using a dataset, mapped short i-vectors can provide a relative improvement of about 24.32% to test short sentences in inappropriate learning conditions, and also exceed the learning conditions of an agreed PLDA using short sentences. We studied several key factors of DNN models and conclude the following: 1) for a trained DNN model with semi-control, uncontrolled learning plays a more important role than controlled learning in the speaker verification task; 2) by increasing the depth of neural networks using residual blocks, we can alleviate the problem of tight optimization of deep neural networks and get an improvement over a shallow network, especially for DNN; 3) the addition of phoneme information can help in the study of nonlinear mapping and provide further improvement in performance, and this effect is more significant for GMM i-vectors; 4) the proposed DNN-based mapping methods work well for short sentences with different and mixed durations; 5) the proposed models can also improve the GMM i-vector system and DNN i-vector, and after matching, the DNN i-vector system still works better than the GMM-i-vector system; and 6) the best-tested models are well generalized to a dataset and provide significant improvement for short sentences of arbitrary length.

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О. Ж. Мамырбаев[1,2], А. Т. Ахмедиярова[1,2], А. С. Кыдырбекова[1,2], Н. О. Мекебаев[1,2], Б. Ж. Жумажанов[1]

[1]ҚР БҒМ БК Ақпараттық және есептеуіш технологиялар институты, Алматы, Қазақстан;
[2]Әл-Фараби атындағы ҚазҰУ, Алматы, Қазақстан

ТЕРЕҢ НЕЙРОНДЫҚ ЖЕЛІЛЕРДІ (DNN) ҚОЛДАНУ АРҚЫЛЫ АДАМНЫҢ СӨЙЛЕУ АУТЕНТИФИКАЦИЯСЫНЫҢ БИОМЕТРИЯЛЫҚ ЖҮЙЕСІ

Аннотация. Биометрика дәстүрлі сәйкестендіру әдістеріне қарағанда қауіпсіз әрі қолайлы болып келеді. Биометрия – биологиялық ғылымдардағы деректерді талдау мәселелеріне қолданылатын статистикалық және математикалық әдістердің дамуы. Бұл технологияны енгізу компьютерлік жүйе қауіпсіздігіне жаңа көзқарас-тар әкеледі. Идентификация және растау – жеке куәлікті растау үшін биометриканы қолданудың екі әдісі

болып саналады. Биометрика дегеніміз адамның жеке басын анықтау үшін физикалық немесе физиологиялық, биологиялық немесе мінез-құлық сипаттамаларын пайдалануды білдіреді. Соңғы уақытта DNN сенімді және тиімді аутентификация схемасының құралына айналды. Бұл жұмыста келесідей оқытудың екі заманауи әдісін салыстырамыз: Гаусс араласу моделіне негізделген әдіс (GMM) (GMM i-векторымен белгіленеді) және терең нейрондық желілерге негізделген әдістер (DNN) (i-векторлық DNN депбелгіленген). Нәтижелер i-векторы бар DNN жүйесінің әртүрлі ұзындықтарға (толық ұзындығынан 5 сек дейін) арналған *i*-векторы бар GMM жүйесінен жоғары екенін көрсетеді. Соңғы зерттеулерде DNN мәтіндік тәуелсіз дауыстарды тексерудің тиімді функциялары екендігі дәлелденді. Бұл жұмыста мәтінді қарапайым және тиімді әдіспен тексеру кезінде DNN қолдануға мүмкіндік беретін жаңа схема ұсынылған. Тәжірибе көрсеткендей, ұсынылған схема EER технологиясын заманауи әдіспен салыстырғанда 24,32%-ға төмендетеді және оның сенімділігі даулы мәліметтерді, сондай-ақ нақты жағдайда жиналған деректерді пайдалану арқылы бағаланады. Сонымен қатар, әмбебап фондық модельдеу үшін GMM орнына DNN қолдану EER деңгейінің 15,7% төмендейтіні көрсетілген.

Биометриялық қауіпсіздік жүйесі электрондық қауіпсіздікпен салыстырғанда мықты құралға айналуда [2]. Адамның кез-келген физиологиялық немесе мінез-құлық сипаттамасын биометриялық сипаттама ретінде пайдалануға болады, ол үшін келесідей сипаттасы болуы қажет: әмбебаптылық, ерекшелілік, тұрақтылық, жинақталу, айналып өту, қабылдану және өнімділік [3]. Физиологиялық биометрия дене пішінімен байланысты. Адамның мінез-құлқына байланысты мінез-құлық биометрикасы. Сөйлеу – екі санатқа жататын ерекше биометриялық ерекшелік [4]. Қосымша негізінде дұрыс биометрияны таңдау маңызды бөлік болып саналады. Мәселен, сөйлеу дегеніміз – биометриялық сипат, егер адамға суық немесе басқа эмоционалды жағдай әсер етсе, оның сипаттамалары айтарлықтай ерекшеленеді. Осы мәселелердің кейбірін биометриялық жүйенің көмегімен шешуге болады.

Бұл жұмыста атрибуттың экстракторы және жіктеуіші ретінде i-векторлы және терең нейрондық желілерге (DNN) негізделген спикердің гендерлік классификациясын жақсартудың түрлі әдістері ұсынылған. Біріншіден, DNN-ден жаңа функцияларды құру үшін модель ұсынылады. Тығыз қабаты бар DNN қабаттар арасындағы бастапқы салмақты есептеу үшін бақыланбайтын әдіспен оқытылады, содан кейін ол төмен жиілікті цептралды коэффициенттерді (T-MFCC) құру үшін бақыланады және бақыланбайды. Екіншіден, жалпы сыныптардың этикеткалық әдісі DNN-де салмақтарды реттеу үшін қате жіктелген сыныптар арасында енгізіледі. Үшіншіден, SDC мүмкіндіктер жинағын пайдаланатын DNN-негізделген динамик модельдері ұсынылады. Динамик қолдайтын модель спикердің тобын білдіретін модельге қарағанда динамиктің жас және жыныстық сипаттамаларын анағұрлым тиімді көрсете алады. Сонымен қатар, T-MFCC жаңа жиынтығы екі жүйелік біріктіру моделіне кіріс ретінде қолданылады. Бірінші жүйе – GNN векторына негізделген сыныптық модель, ал екінші жүйе – DNN i-векторына негізделген динамикалық модель [5]. T-MFCC енгізу және қорытынды бағаны DNN векторына негізделген градация моделімен біріктіру жіктеудің дәлдігін жақсартты.

Түйін сөздер: биометрика, дауысты тану, қысқа сөйлемдер, i-вектор, DNN.

О. Ж. Мамырбаев[1,2], А. Т. Ахмедиярова[1,2], А. С. Кыдырбекова[1,2],
Н. О. Мекебаев[1,2], Б. Ж. Жумажанов[1]

[1]Института информационных и вычислительных технологий, Алматы, Казахстан;
[2]Казахский национальный университет им. аль-Фараби, Алматы, Казахстан

БИОМЕТРИЧЕСКАЯ СИСТЕМА АУТЕНТИФИКАЦИИ ЧЕЛОВЕКА ЧЕРЕЗ РЕЧИ С ИСПОЛЬЗОВАНИЕМ ГЛУБОКИХ НЕЙРОННЫХ СЕТЕЙ (DNN)

Аннотация. Биометрия предлагает большую безопасность и удобство, чем традиционные методы идентификации личности. Биометрия – это развитие статистических и математических методов, применимых к задачам анализа данных в биологических науках. Внедрение этой технологии приносит новые подходы к безопасности компьютерных систем. Идентификация и проверка – это два способа использования биометрии для аутентификации человека. Биометрия относится к использованию физических или физиологических, биологических или поведенческих характеристик для установления личности человека. В последнее время DNN стала средством более надежной и эффективной схемы аутентификации личности. В этой работе мы сравниваем два современных метода обучения: этими двумя методами являются методы, основанные на модели гауссовой смеси (GMM) (обозначаемые -вектором GMM) и методы, основанные на глубоких нейронных сетях (DNN) (обозначаемые как i-вектор DNN). Результаты показывают, что система DNN с

-вектором превосходит систему GMM с i-вектором при различной длительности (от полной длины до 5с). DNN оказались наиболее эффективными функциями для независимой от текста проверки говорящего в последних исследованиях. В этой работе предлагается новая схема, позволяющая использовать DNN при проверке текста с помощью подсказок простым и эффективным способом. Эксперименты показывают, что предлагаемая схема снижает EER на 24,32% по сравнению с современным методом и оценивается на предмет ее надежности с использованием зашумленных данных, а также данных, собранных в реальных условиях. Кроме того, показано, что использование DNN вместо GMM для универсального фонового моделирования приводит к снижению EER на 15,7%.

Биометрическая система безопасности становится мощным инструментом по сравнению с электронной безопасностью [2]. Любая физиологическая или поведенческая характеристика человека может быть использована в качестве биометрической характеристики при условии, что она обладает следующими свойствами: универсальность, отличительность, постоянство, собираемость, обход, приемлемость и производительность [3]. Физиологическая биометрия связана с формой тела. Поведенческая биометрия связана с поведением человека. Речь является уникальной биометрической характеристикой, которая подпадает под обе категории [4]. Основываясь на приложении, выбор правильной биометрии является важной частью. Например, речь - это биометрический признак, характеристики которого будут значительно отличаться, если на человека влияет холод или другой эмоциональный статус. Некоторые из этих проблем можно решить с помощью биометрической системы.

В этой работе предлагаются различные методы улучшения гендерной классификации говорящего на основе i-вектора и глубоких нейронных сетей (DNN) в качестве экстрактора атрибутов и классификатора. Сначала предлагается модель для генерации новых функций из DNN. DNN со слоем узкого места обучается неконтролируемым образом для вычисления начальных весов между слоями, затем оно обучается и не контролируется контролируемым образом для генерации преобразованных низкочастотных кепстральных коэффициентов (T-MFCC). Во-вторых, метод меток общих классов вводится среди неправильно классифицированных классов для регуляризации весов в DNN. В-третьих, предлагаются модели динамиков на базе DNN, использующие набор функций SDC. Модель с поддержкой динамиков может более эффективно отражать возрастные и гендерные характеристики говорящего, чем модель, представляющая группу говорящих. Более того, новый набор функций T-MFCC используется в качестве входных данных для двухсистемной модели слияния. Первая система представляет собой модель класса, основанную на векторе GNN, а вторая система представляет собой модель динамика, основанную на i-векторе DNN [5]. Использование T-MFCC в качестве входных данных и объединение итоговой оценки с моделью оценки, основанной на векторе DNN, повысило точность классификации.

Ключевые слова: биометрия, верификация диктора, короткие высказывания, вектор, DNN.

Information about authors:

Mamyrbayev O.Zh., PhD, Associate Professor, head of the Laboratory of computer engineering of intelligent systems at the Institute of Information and Computational Technologies, Almaty, Kazakhstan; morkenj@mail.ru; https://orcid.org/0000-0001-8318-3794

Akhmediyarova A.T., PhD, Institute of Information and Computational Technology, Almaty, Kazakhstan; aat.78@mail.ru; https://orcid.org/0000-0003-4439-7313

Kydyrbekova A.S., PhD doctoral student, al-Farabi Kazakh National University, Almaty, Kazakhstan; kas.aizat@mail.ru;

Mekebayev N.O., PhD doctoral student al-Farabi Kazakh National University, Almaty, Kazakhstan; nyrbapakas.aizat@mail.ru; https://orcid.org/0000-0002-9117-4369

Zhumazhanov B., PhD, institute of Information and Computational Technology, Almaty, Kazakhstan; bagasharj@mail.ru; https://orcid.org/0000-0002-5035-9076

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Nazym Zhumangaliyeva[1], Aliya Doszhanova[2], Anna Korchenko[3], Svitlana Kazmirchuk[3], Zhadyra Avkurova[4], Dauriya Zhaxygulova[5]

[1]Satbayev University, Almaty, Kazakhstan;
[2]Almaty University of Power Engineering and Telecommunications, Kazakhstan;
[3]Department of Information Technology Security, National Aviation, Kiev, Ukraine;
[4]L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan;
[5]Shakarim State University of Semey, Kazakhstan.
E-mail: nazym_k.81@mail.ru, d_alia.81@mail.ru, annakor@ukr.net,
sv.kazmirchuk@gmail.com, zhadyra.avkurova.83@mail.ru, daurija_zd@mail.ru

METHOD OF LINGUISTIC VARIABLE STANDARDS FORMATION FOR HONEYPOT CLASSIFICATION

Abstract. Nowadays, one of the relevant areas that is developing in the field of information security is associated with the use of Honeypot (virtual lures, online traps), and the selection of criteria for determination of the most effective Honeypot and their further classification is an urgent task. There are presented the main products in which virtual lures technology is implemented. Often they are used to study the behavior, approaches and methods that an unauthorized party uses for unauthorized access to information system resources. Online traps can imitate any resource, but more often they look like real production servers and workstations. There are known a number of fairly effective developments that are used to solve the problems of identifying attacks on the information systems resources, which are based on the fuzzy sets apparatus. They showed the effectiveness of using the appropriate mathematical apparatus, the use of which, for example, to formalize the approach for the formation of a set of criteria, will improve the process of determining the most effective Honeypot. For this purpose, there have been proposed criteria that characterize online traps, with the use of which there has been developed a method of linguistic variable standards formation for choosing the most effective Honeypot. The method is based on the formation of a set of Honeypot, subsets of characteristics and identifier values of linguistic estimates of Honeypot characteristics, a base and derivative frequency matrix, as well as on the construction of fuzzy terms and standard fuzzy numbers with their visualization. This will allow further classification and selection of them osteffective virtual lures.

Key words: honeypot classification, online traps classification, virtual lures, fuzzy standards, linguistic standards formation method, intrusion detection systems.

The rapid development of information systems (IS) and technologies affects all areas of society. A significant number of modern public and private enterprises use IS to manage production processes, to support decision making, to find the necessary data, and etc. Along with this, there is increasing the amount of IS vulnerabilities and threats, and therefore, there is a need in specialized security tools to ensure their normal operation and to prevent intrusions. It should be noted that one of the current areas that is actively developing in the field of information security is associated with the use of Honeypot (virtual lures, online traps). The purpose of the operation of such lures is to be attacked or scanned by an unauthorized party (UNP) in order to study the protection strategy, to determine the range of their means by which attacks on real security objects can be conducted. Honeypot and methods used to their implementation are different, for example, it is a specially developed integrated network or one single emulated network service, the main task of which is to attract UNP attention [1]. Therefore, the selection of criteria for determining the most effective Honeypot and their further classification is an urgent task.

$$VS_{DTKИ} = \left\| vs_{DTKИq} \right\| = \left\| vs_{DTKИ1}, vs_{DTKИ2}, vs_{DTKИ3} \right\| = \left\| \bigcup_{q=1}^{3} \sum_{s=1}^{3} f_{DTKИsq} \right\| = \left\| 8,8,10 \right\|, (q = \overline{1,3}).$$

Then, taking into account (16) in [21,22] from $VS_{ДТКУН}, VS_{ДТКИП}, VS_{ДТКСД}, VS_{ДТКП}$, and $VS_{ДТКИ}$ define the maximum element $vsm_{ДТКУН} = \bigvee_{q=1}^{3} vs_{ДТКУНq} = vs_{ДТКУН1} \vee vs_{ДТКУН2} \vee vs_{ДТКУН3} = 6 \vee 9 \vee 4 = vsm_{ДТКУН} = 9$, $vsm_{ДТКИП} = \bigvee_{q=1}^{3} vs_{ДТКИПq} = vs_{ДТКИП1} \vee vs_{ДТКИП2} \vee vs_{ДТКИП3} = 6 \vee 5 \vee 5 = vsm_{ДТКИП} = 6$, $vsm_{ДТКСД} = \bigvee_{q=1}^{3} vs_{ДТКСДq} = vs_{ДТКСД1} \vee vs_{ДТКСД2} \vee vs_{ДТКСД3} = 7 \vee 14 \vee 9 = vsm_{ДТКСД} = 14$, $vsm_{ДТКП} = \bigvee_{q=1}^{3} vs_{ДТКПq} = vs_{ДТКП1} \vee vs_{ДТКП2} \vee vs_{ДТКП3} = 7 \vee 7 \vee 5 = vsm_{ДТКП} = 7$ and $vsm_{ДТКИ} = \bigvee_{q=1}^{3} vs_{ДТКИq} = vs_{ДТКИ1} \vee vs_{ДТКИ2} \vee vs_{ДТКИ3} = 8 \vee 8 \vee 10 = vsm_{ДТКИ} = 10.$ and according to (17) in [21,22] we obtain a derivative frequency matrix, $F'_{ДТКУН} = (vsm_{ДТКУН} / vsm_{ДТКУНq})F_{ДТКУН} = \begin{Vmatrix} 3{,}33 & 2 & 0 \\ 0{,}67 & 6 & 0 \\ 0 & 1 & 1{,}78 \end{Vmatrix}$,

$$F'_{ДТКИП} = (vsm_{ДТКИП} / vsm_{ДТКИПq})F_{ДТКИП} = \begin{Vmatrix} 4 & 0{,}83 & 0 \\ 2 & 2{,}5 & 0{,}83 \\ 0 & 0{,}83 & 3{,}33 \end{Vmatrix},$$

$$F'_{ДТКСД} = (vsm_{ДТКСД} / vsm_{ДТКСДq})F_{ДТКСД} = \begin{Vmatrix} 2{,}5 & 3 & 0 \\ 1 & 7 & 0{,}64 \\ 0 & 4 & 5{,}14 \end{Vmatrix}, \ F'_{ДТКП} = (vsm_{ДТКП} / vsm_{ДТКПq})F_{ДТКП} = \begin{Vmatrix} 6 & 1 & 0 \\ 1 & 5 & 1{,}43 \\ 0 & 1 & 2{,}14 \end{Vmatrix},$$

$$F'_{ДТКИ} = (vsm_{ДТКИ} / vsm_{ДТКИq})F_{ДТКИ} = \begin{Vmatrix} 5{,}6 & 0{,}8 & 0 \\ 0{,}8 & 4{,}8 & 2 \\ 0 & 0{,}8 & 8 \end{Vmatrix}.$$

The creation of fuzzy terms and standard FN. Stage 5–the creation of fuzzy terms and standard FN.Firslty, according to (22) in [21,22] let form the subset of fuzzy terms $\mathbf{T_{ДТКУН}}$, $\mathbf{T_{ДТКИП}}$, $\mathbf{T_{ДТКСД}}$, $\mathbf{T_{ДТКП}}$, $\mathbf{T_{ДТКИ}}$ if $n = 1$ (i.e. for Honeypotwith ID $H_{DTK} = DTK$), $m_1 = 5$, $r_1 = r_2 = r_3 = r_4 = r_5 = 3$.

$$\{\bigcup_{i=1}^{1} \mathbf{T_i}\} = \{\bigcup_{i=1}^{n} \{\bigcup_{j=1}^{m_i} \mathbf{T_{ij}}\}\} = \{\bigcup_{i=1}^{n} \{\bigcup_{j=1}^{m_i} \{\bigcup_{s=1}^{r_j} \underset{\sim}{T}_{ijs}\}\}\} = \{\{\underset{\sim}{T}_{ДТКУН1}, \underset{\sim}{T}_{ДТКУН2}, \underset{\sim}{T}_{ДТКУН3}\}, \{\underset{\sim}{T}_{ДТКИП1}, \underset{\sim}{T}_{ДТКИП2}, \underset{\sim}{T}_{ДТКИП3}\},$$
$$\{\underset{\sim}{T}_{ДТКСД1}, \underset{\sim}{T}_{ДТКСД2}, \underset{\sim}{T}_{ДТКСД3}\}, \{\underset{\sim}{T}_{ДТКП1}, \underset{\sim}{T}_{ДТКП2}, \underset{\sim}{T}_{ДТКП3}\}, \{\underset{\sim}{T}_{ДТКИ1}, \underset{\sim}{T}_{ДТКИ2}, \underset{\sim}{T}_{ДТКИ3}\}\} =$$
$$\{\{\underset{\sim}{ПР}_{ДТКУН}, \underset{\sim}{СР}_{ДТКУН}, \underset{\sim}{СЛ}_{ДТКУН}\}, \{\underset{\sim}{ПР}_{ДТКИП}, \underset{\sim}{СР}_{ДТКИП}, \underset{\sim}{СЛ}_{ДТКИП}\}, \{\underset{\sim}{ОГ}_{ДТКСД}, \underset{\sim}{ПМ}_{ДТКСД}, \underset{\sim}{РР}_{ДТКСД}\},$$

$\{\underset{\sim}{ОГ}_{ДТКП}, \underset{\sim}{ПМ}_{ДТКП}, \underset{\sim}{РР}_{ДТКП}\}, \{\underset{\sim}{Н}_{ДТКИ}, \underset{\sim}{СР}_{ДТКИ}, \underset{\sim}{В}_{ДТКИ}\}\}$.According to (23) in [21], [22] on corresponding lines of $F'_{ДТКУН}$, $F'_{ДТКИП}$, $F'_{ДТКСД}$, $F'_{ДТКП}$ and $F'_{ДТКИ}$ let create construct the vectors of maximum i.e.

$$FM_{ДТКУН} = \| fm_{ДТКУНs} \| = \| fm_{ДТКУН1}, fm_{ДТКУН2}, fm_{ДТКУН3} \| = \| 3{,}33; 6; 1{,}78 \|, \ FM_{ДТКИП} = \| fm_{ДТКИПs} \| =$$
$$\| fm_{ДТКИП1}, fm_{ДТКИП2}, fm_{ДТКИП3} \| = \| 4; 2{,}5; 3{,}33 \|, \ FM_{ДТКСД} = \| fm_{ДТКСДs} \| =$$
$$\| fm_{ДТКСД1}, fm_{ДТКСД2}, fm_{ДТКСД3} \| = \| 2{,}5; 7; 5{,}14 \|, \ FM_{ДТКП} = \| fm_{ДТКПs} \| =$$
$$\| fm_{ДТКП1}, fm_{ДТКП2}, fm_{ДТКП3} \| = \| 6; 5; 2{,}14 \|, \ FM_{ДТКИ} = \| fm_{ДТКИs} \| =$$
$$\| fm_{ДТКИ1}, fm_{ДТКИ2}, fm_{ДТКИ3} \| = \| 5{,}6; 4{,}8; 8 \|.$$

On the basis of $FM_{ДТКУН}, FM_{ДТКИП}, FM_{ДТКСД}, FM_{ДТКП}$ and $FM_{ДТКИ}$ according to the expression (24) in [21,22] let form matrices of membership function:

$$M_{ДТКУН} = \left\| \mu_{ДТКУНsq} \right\| = \left\| \begin{matrix} 1 & 0,33 & 0 \\ 0,2 & 1 & 0 \\ 0 & 0,17 & 1 \end{matrix} \right\|,$$

$$M_{ДТКИП} = \left\| \mu_{ДТКИПsq} \right\| = \left\| \begin{matrix} 1 & 0,33 & 0 \\ 0,5 & 1 & 0,25 \\ 0 & 0,33 & 1 \end{matrix} \right\|, \; M_{ДТКСД} = \left\| \mu_{ДТКСДsq} \right\| = \left\| \begin{matrix} 1 & 0,43 & 0 \\ 0,4 & 1 & 0,12 \\ 0 & 0,57 & 1 \end{matrix} \right\|,$$

$$M_{ДТКП} = \left\| \mu_{ДТКПsq} \right\| = \left\| \begin{matrix} 1 & 0,2 & 0 \\ 0,17 & 1 & 0,67 \\ 0 & 0,2 & 1 \end{matrix} \right\|, \; M_{ДТКИ} = \left\| \mu_{ДТКИsq} \right\| = \left\| \begin{matrix} 1 & 0,17 & 0 \\ 0,14 & 1 & 0,25 \\ 0 & 0,17 & 1 \end{matrix} \right\|,$$

where $\mu_{ДТКУНsq} = f'_{ДТКУНsq} / fm_{ДТКУНs}$, $(s,q = \overline{1,3})$, $\mu_{ДТКИПsq} = f'_{ДТКИПsq} / fm_{ДТКИПs}$, $(s,q = \overline{1,3})$, $\mu_{ДТКСДsq} = f'_{ДТКСДsq} / fm_{ДТКСДs}$, $(s,q = \overline{1,3})$, $\mu_{ДТКПsq} = f'_{ДТКПsq} / fm_{ДТКПs}$, $(s,q = \overline{1,3})$, $\mu_{ДТКИsq} = f'_{ДТКИsq} / fm_{ДТКИs}$, $(s,q = \overline{1,3})$.

According to the obtained data, $\mu_{ДТКУНsq}, \mu_{ДТКИПsq}, \mu_{ДТКСДsq}, \mu_{ДТКПsq}, \mu_{ДТКИsq}$ and calculated by the expression (26) in [21,22] $x_{ДТКУНsq}, x_{ДТКИПsq}, x_{ДТКСДsq}, x_{ДТКПsq}, x_{ДТКИsq}$ let define sets of fuzzy terms according to (25) in [21,22] $\underset{\sim}{T}_{ДТКУНs} = \{ \mu_{ДТКУНs1} / x_{ДТКУНs1}, \mu_{ДТКУНs2} / x_{ДТКУНs2}, \mu_{ДТКУНs3} / x_{ДТКУНs3} \}$, $(s,q = \overline{1,3})$, where according to (26) in [21,22] $X_{ДТКУНsq} = N^{max}_{ДТКУНq} / N^{max}_{ДТКУНr}$, $(q = \overline{1,3})$ or $\{\bigcup_{q=1}^{3} X_{ДТКУНsq}\} = \{0,03;0,19;1\}$, $\underset{\sim}{T}_{ДТКИПs} = \{\mu_{ДТКИПs1} / x_{ДТКИПs1}, \mu_{ДТКИПs2} / x_{ДТКИПs2}, \mu_{ДТКИПs3} / x_{ДТКИПs3}\}$, $(s,q = \overline{1,3})$, where according to (26) in [21,22] $X_{ДТКИПsq} = N^{max}_{ДТКИПq} / N^{max}_{ДТКИПr}$, $(q = \overline{1,3})$ or $\{\bigcup_{q=1}^{3} X_{ДТКИПsq}\} = \{0,2;0,6;1\}$, $\underset{\sim}{T}_{ДТКСДs} = \{ \mu_{ДТКСДs1} / x_{ДТКСДs1}, \mu_{ДТКСДs2} / x_{ДТКСДs2}, \mu_{ДТКСДs3} / x_{ДТКСДs3} \}$, $(s,q = \overline{1,3})$, where according to (26) in [21,22] $X_{ДТКСДsq} = N^{max}_{ДТКСДq} / N^{max}_{ДТКСДr}$, $(q = \overline{1,3})$ or $\{\bigcup_{q=1}^{3} X_{ДТКСДsq}\} = \{0,2;0,6;1\}$, $\underset{\sim}{T}_{ДТКПs} = \{ \mu_{ДТКПs1} / x_{ДТКПs1}, \mu_{ДТКПs2} / x_{ДТКПs2}, \mu_{ДТКПs3} / x_{ДТКПs3} \}$, $(s,q = \overline{1,3})$, where according to (26) in [21,22] $X_{ДТКПsq} = N^{max}_{ДТКПq} / N^{max}_{ДТКПr}$, $(q = \overline{1,3})$ or $\{\bigcup_{q=1}^{3} X_{ДТКПsq}\} = \{0,006;0,25;1\}$, $\underset{\sim}{T}_{ДТКИs} = \{ \mu_{ДТКИs1} / x_{ДТКИs1}, \mu_{ДТКИs2} / x_{ДТКИs2}, \mu_{ДТКИs3} / x_{ДТКИs3} \}$, $(s,q = \overline{1,3})$, where according to (26) in [21,22] $X_{ДТКИsq} = N^{max}_{ДТКИq} / N^{max}_{ДТКИr}$, $(q = \overline{1,3})$ or $\{\bigcup_{q=1}^{3} X_{ДТКИsq}\} = \{0,05;0,1;1\}$.

Therefore, the resulting members of the subset $\mathbf{T_{ДТКУН}}, \mathbf{T_{ДТКИП}}, \mathbf{T_{ДТКСД}}, \mathbf{T_{ДТКП}}, \mathbf{T_{ДТКИ}}$ (numerical form), respectively, are the reflection of the members of the subset $\mathbf{LE_{ДТКУН}}, \mathbf{LE_{ДТКИП}}, \mathbf{LE_{ДТКСД}}$, $\mathbf{LE_{ДТКП}}, \mathbf{LE_{ДТКИ}}$ (linguistic form) and are presented in the following form:

$\underset{\sim}{T}_{ДТКУН1} = \underset{\sim}{ПР}_{ДТКУН1} = \{1 / 0,03; 0,33 / 0,19; 0 / 1\}$; $\underset{\sim}{T}_{ДТКУН2} = \underset{\sim}{СР}_{ДТКУН2} = \{0,2 / 0,03; 1 / 0,19; 0 / 1\}$;

$\underset{\sim}{T}_{ДТКУН3} = \underset{\sim}{СЛ}_{ДТКУН3} = \{0 / 0,03; 0,17 / 0,19; 1 / 1\}$, $\underset{\sim}{T}_{ДТКИП1} = \underset{\sim}{ПР}_{ДТКИП1} = \{1 / 0,2; 0,33 / 0,6; 0 / 1\}$;

$$\underset{\sim}{T}_{DTKИП2} = \underset{\sim}{CP}_{DTKИП2} = \{0,5 / 0,2; 1 / 0,6; 0,25 / 1\}; \underset{\sim}{T}_{DTKИП3} = \underset{\sim}{СЛ}_{DTKИП3} = \{0 / 0,2; 0,33 / 0,6; 1 / 1\},$$

$$\underset{\sim}{T}_{DTKСД1} = \underset{\sim}{ОГ}_{DTKСД1} = \{1 / 0,2; 0,43 / 0,6; 0 / 1\}; \underset{\sim}{T}_{DTKСД2} = \underset{\sim}{ПМ}_{DTKСД2} = \{0,4 / 0,2; 1 / 0,6; 0,12 / 1\};$$

$$\underset{\sim}{T}_{DTKСД3} = \underset{\sim}{PP}_{DTKСД3} = \{0 / 0,2; 0,57 / 0,6; 1 / 1\}, \underset{\sim}{T}_{DTKП1} = \underset{\sim}{ОГ}_{DTKП1} = \{1 / 0,006; 0,2 / 0,25; 0 / 1\};$$

$$\underset{\sim}{T}_{DTKП2} = \underset{\sim}{ПМ}_{DTKП2} = \{0,17/0,006; 1/0,25; 0,67/1\}; \underset{\sim}{T}_{DTKП3} = \underset{\sim}{PP}_{DTKП3} = \{0 / 0,006; 0,2 / 0,25; 1 / 1\},$$

$$\underset{\sim}{T}_{DTKИ1} = \underset{\sim}{H}_{DTKИ1} = \{1 / 0,05; 0,17 / 0,1; 0 / 1\}; \underset{\sim}{T}_{DTKИ2} = \underset{\sim}{CP}_{DTKИ2} = \{0,14 / 0,05; 1 / 0,1; 0,25 / 1\};$$

$$\underset{\sim}{T}_{DTKИ3} = \underset{\sim}{B}_{DTKИ3} = \{0 / 0,05; 0,17 / 0,1; 1 / 1\}.$$

Then, secondly, according to (29) in [21,22] let form standard FN $\mathbf{T^e_{ДТКУН}} \subseteq \mathbf{T^e}, \mathbf{T^e_{ДТКИП}} \subseteq \mathbf{T^e}$, $\mathbf{T^e_{ДТКСД}} \subseteq \mathbf{T^e}, \mathbf{T^e_{ДТКП}} \subseteq \mathbf{T^e}$, $\mathbf{T^e_{ДТКИ}} \subseteq \mathbf{T^e}$:

$$\mathbf{T^e_{ДТКУН}} = \{\bigcup_{s=1}^{3} \underset{\sim}{T}^e_{DTKУНs}\} = \{\underset{\sim}{T}^e_{DTKУН1}, \underset{\sim}{T}^e_{DTKУН2}, \underset{\sim}{T}^e_{DTKУН3}\} = \{\underset{\sim}{ПР}^e_{DTKУН1}, \underset{\sim}{CP}^e_{DTKУН2}, \underset{\sim}{СЛ}^e_{DTKУН3}\}, \ (s = \overline{1,3}),$$

$$\mathbf{T^e_{ДТКИП}} = \{\bigcup_{s=1}^{3} \underset{\sim}{T}^e_{DTKИПs}\} = \{\underset{\sim}{T}^e_{DTKИП1}, \underset{\sim}{T}^e_{DTKИП2}, \underset{\sim}{T}^e_{DTKИП3}\} = \{\underset{\sim}{ПР}^e_{DTKИП1}, \underset{\sim}{CP}^e_{DTKИП2}, \underset{\sim}{СЛ}^e_{DTKИП3}\}, \ (s = \overline{1,3}),$$

$$\mathbf{T^e_{ДТКСД}} = \{\bigcup_{s=1}^{3} \underset{\sim}{T}^e_{DTKСДs}\} = \{\underset{\sim}{T}^e_{DTKСД1}, \underset{\sim}{T}^e_{DTKСД2}, \underset{\sim}{T}^e_{DTKСД3}\} = \{\underset{\sim}{ОГ}^e_{DTKСД1}, \underset{\sim}{ПМ}^e_{DTKСД2}, \underset{\sim}{PP}^e_{DTKСД3}\}, \ (s = \overline{1,3}),$$

$$\mathbf{T^e_{ДТКП}} = \{\bigcup_{s=1}^{3} \underset{\sim}{T}^e_{DTKПs}\} = \{\underset{\sim}{T}^e_{DTKП1}, \underset{\sim}{T}^e_{DTKП2}, \underset{\sim}{T}^e_{DTKП3}\} = \{\underset{\sim}{ОГ}^e_{DTKП1}, \underset{\sim}{ПМ}^e_{DTKП2}, \underset{\sim}{PP}^e_{DTKП3}\}, \ (s = \overline{1,3}),$$

$$\mathbf{T^e_{ДТКИ}} = \{\bigcup_{s=1}^{3} \underset{\sim}{T}^e_{DTKИs}\} = \{\underset{\sim}{T}^e_{DTKИ1}, \underset{\sim}{T}^e_{DTKИ2}, \underset{\sim}{T}^e_{DTKИ3}\} = \{\underset{\sim}{H}^e_{DTKИ1}, \underset{\sim}{CP}^e_{DTKИ2}, \underset{\sim}{B}^e_{DTKИ3}\}, \ (s = \overline{1,3}),$$

where: the members of a subset $\mathbf{T^e_{ДТКУН}} = -$ $\underset{\sim}{ПР}^e_{DTKУН1}$, $\underset{\sim}{CP}^e_{DTKУН2}, \underset{\sim}{СЛ}^e_{DTKУН3}$; $\mathbf{T^e_{ДТКИП}}$ – $\underset{\sim}{ПР}^e_{DTKИП1}$, $\underset{\sim}{CP}^e_{DTKИП2}$, $\underset{\sim}{СЛ}^e_{DTKИП3}$; $\mathbf{T^e_{ДТКСД}}$ – $\{\underset{\sim}{ОГ}^e_{DTKСД1}, \underset{\sim}{ПМ}^e_{DTKСД2}, \underset{\sim}{PP}^e_{DTKСД3}\}$; $\mathbf{T^e_{ДТКП}}$ – $\underset{\sim}{ОГ}^e_{DTKП1}$, $\underset{\sim}{ПМ}^e_{DTKП2}$, $\underset{\sim}{PP}^e_{DTKП3}$; $\mathbf{T^e_{ДТКИ}}$ – $\{\underset{\sim}{H}^e_{DTKИ1}, \underset{\sim}{CP}^e_{DTKИ2}, \underset{\sim}{B}^e_{DTKИ3}\}$ are standard FN. Next, let convert the fuzzy terms $\underset{\sim}{ПР}^e_{DTKУН1}, \underset{\sim}{CP}^e_{DTKУН2}, \underset{\sim}{СЛ}^e_{DTKУН3}$ in such a way, that for all $\underset{\sim}{T}_{DTKУНs}$ the relation order is fair, i.e. $\forall x_{DTKУНsq} : x_{DTKУНsq} < x_{DTKУНsq+1}$, $(q = \overline{1,3})$ (according to the step 1, stage 5 in [21,22]). If we use the specific values obtained in the example above as components of such terms, then for them such relation will be true. So, for example, for $\underset{\sim}{ПР}^e_{DTKУН1}$ it is $x_{DTKУН1} < x_{DTKУН2} < x_{DTKУН3} = 0,03 < 0,19 < 1$. Also, the relation for all other given standard FN will be similarly true.

Further, according to the step 2 of the stage 5 in [21,22] we will carry out the absorption procedure for each $\underset{\sim}{T}_{DTKУНs}$. Since the condition U_1 and U_2 is not satisfied for any of FN, the absorption operation is not carried out. Therefore, the standard FN will remain unchanged, and the formed intermediate terms will have the form: $\underset{\sim}{T}'_{D\ \ У} = \underset{\sim}{T}_{Т\ \ Н} = \underset{\sim}{ПР}_{К\ \ Т} = \{\ 1\ /\ 0;$ $\underset{\sim}{T}'_{DTKУН2} = \underset{\sim}{T}_{DTKУН2} = \underset{\sim}{CP}_{DTKУН2} = \{0,2 / 0,03; 1 / 0,19; 0 / 1\}$; $\underset{\sim}{T}'_{DTKУН3} = \underset{\sim}{T}_{DTKУН3} = \underset{\sim}{СЛ}_{DTKУН3} =$ $\{0 / 0,03; 0,17 / 0,19; 1 / 1\}$. According to the step 3 of the stage 5 in [21], during the implementation of the second step in the expression (28) for a set of intermediate terms $\underset{\sim}{ПР}^e_{DTKУН1}$ $\exists \underset{\sim}{T}_{DTKУН1} : \{0 / x^{min}_{DTKУН1}\} \in \varnothing$ (i.e. $\mu_{DTKУН1} = 1 \neq 0$), and for $\underset{\sim}{СЛ}^e_{DTKУН3}$ $\exists \underset{\sim}{T}_{DTKУН3} : \{0 / x^{max}_{DTKУН3}\} \in \varnothing$ (i.e. $\mu_{DTKУН3} = 1 \neq 0$), then the formation of the subsets $\underset{\sim}{T}^e_{DTKУН1}$ and $\underset{\sim}{T}^e_{DTKУН3}$ will be carried out by expanding $\underset{\sim}{T}^e_{DTKУН1}$ and

$\underset{\sim}{T}^{e}_{ДТКУН3}$ (see (28) in [21]) through the introduction of additional $\mu_{ДТКУН1\beta\text{-}1} / x_{ДТКУН1\beta\text{-}1} = 0/0{,}03$, and $\mu_{ДТКУН3r_j\text{-}\gamma+2} / x_{ДТКУН3r_j\text{-}\gamma+2} = 0/1$ respectively, after that in the FN there is carried out rein doxing of the components starting from the first one.With this in mind, a set of intermediate terms for $\underset{\sim}{ПР}^{e}_{ДТКУН1}$ will have the following form $\underset{\sim}{T}'_{ДТКУНs} = \underset{\sim}{ПР}'_{ДТКУН1} = \{\mu_{ДТКУН1}/x_{ДТКУН1}, \mu_{ДТКУН2}/x_{ДТКУН2}, \mu_{ДТКУН3}/x_{ДТКУН3}, \mu_{ДТКУН4}/x_{ДТКУН4}\} = \{0/\ 0{,}03; 1/0{,}03; 0{,}33/0{,}19; 0/1\}$, where $\mu_{ДТКУН1\beta\text{-}1} = 0$. In a simil arway, weobtain intermediate terms for $\underset{\sim}{СР}^{e}_{ДТКИП2}$ and $\underset{\sim}{СЛ}^{e}_{ДТКУН3}$, where $\mu_{ДТКУН2\beta\text{-}1} = \mu_{ДТКУН3r_j\text{-}\gamma+2} = 0$.Thus, the components of the subset of standards $\underset{\sim}{T}^{e}_{ДТКУН1}$ according to (29) in [21] will be defined as $\mu^{e}_{ДТКУН1}/x^{e}_{ДТКУН1} = 0/0{,}03$, $\mu^{e}_{ДТКУН2}/x^{e}_{ДТКУН2} = 1/0{,}03$, $\mu^{e}_{ДТКУН3}/x^{e}_{ДТКУН3} = 0{,}33/0{,}19$, $\mu^{e}_{ДТКУН4}/x^{e}_{ДТКУН4} = 0/1$ and similarly for $\underset{\sim}{T}^{e}_{ДТКУН2}$, $\underset{\sim}{T}^{e}_{ДТКУН3}$.

Then according to (29) in [21] for $\underset{\sim}{ПР}'_{ДТКУН1}, \underset{\sim}{СР}'_{ДТКУН2}, \underset{\sim}{СЛ}'_{ДТКУН3}$ let form the standard values, i.e.: $\underset{\sim}{T}^{e}_{ДТКУН1} = \underset{\sim}{ПР}^{e}_{ДТКУН1} = \{0/0{,}03; 1/0{,}03; 0{,}33/0{,}19; 0/1\}$; $\underset{\sim}{T}^{e}_{ДТКУН2} = \underset{\sim}{СР}^{e}_{ДТКУН2} = \{0/0{,}03; 0{,}2/0{,}03; 1/0{,}19; 0/1\}$; $\underset{\sim}{T}^{e}_{ДТКУН3} = \underset{\sim}{СЛ}^{e}_{ДТКУН3} = \{0/0{,}03; 0{,}17/0{,}19; 1/1; 0/1\}$.Also, by analogy, the following standard values are formed: $\underset{\sim}{T}^{e}_{ДТКИП1} = \underset{\sim}{ПР}^{e}_{ДТКИП1} = \{0/0{,}2; 1/0{,}2; 0{,}33/0{,}6; 0/1\}$; $\underset{\sim}{T}^{e}_{ДТКИП2} = \underset{\sim}{СР}^{e}_{ДТКИП2} = \{0/0{,}2; 0{,}5/0{,}2; 1/0{,}6; 0{,}25/1; 0/1\}$;

$$\underset{\sim}{T}^{e}_{ДТКИП3} = \underset{\sim}{СЛ}^{e}_{ДТКИП3} = \{0/0{,}2; 0{,}33/0{,}6; 1/1; 0/1\}, \underset{\sim}{T}^{e}_{ДТКСД1} = \underset{\sim}{ОГ}^{e}_{ДТКСД1} =$$

$$\{0/0{,}2; 1/0{,}2; 0{,}43/0{,}6; 0/1\}; \underset{\sim}{T}^{e}_{ДТКСД2} = \underset{\sim}{ПМ}^{e}_{ДТКСД2} = \{0/0{,}2; 0{,}4/0{,}2; 1/0{,}6; 0{,}12/1; 0/1\};$$

$$\underset{\sim}{T}^{e}_{ДТКСД3} = \underset{\sim}{РР}^{e}_{ДТКСД3} = \{0/0{,}2; 0{,}57/0{,}6; 1/1; 0/1\}, \underset{\sim}{T}^{e}_{ДТКП1} = \underset{\sim}{ОГ}^{e}_{ДТКП1} =$$

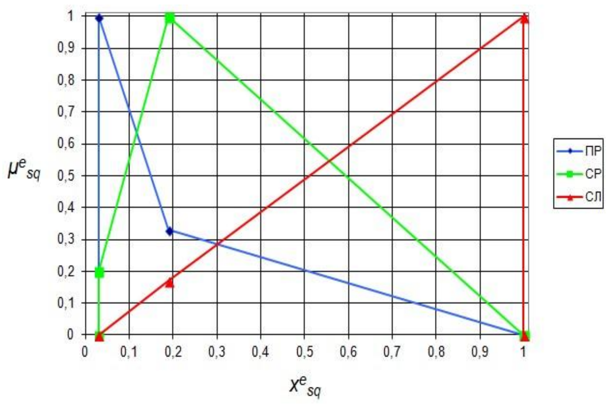
$$\{0/0{,}006; 1/0{,}006; 0{,}2/0{,}25; 0/1\}; \underset{\sim}{T}^{e}_{ДТКП2} = \underset{\sim}{ПМ}^{e}_{ДТКП2} =$$

$$\{0/0{,}006; 0{,}17/0{,}006; 1/0{,}25; 0{,}67/1; 0/1\}; \underset{\sim}{T}^{e}_{ДТКП3} = \underset{\sim}{РР}^{e}_{ДТКП3} = \{0/0{,}006; 0{,}2/0{,}25; 1/1; 0/1\},$$

$$\underset{\sim}{T}^{e}_{ДТКИ1} = \underset{\sim}{Н}^{e}_{ДТКИ1} = \{0/0{,}05; 1/0{,}05; 0{,}17/0{,}1; 0/1\}; \underset{\sim}{T}^{e}_{ДТКИ2} = \underset{\sim}{СР}^{e}_{ДТКИ2} =$$

$$\{0/0{,}05; 0{,}14/0{,}05; 1/0{,}1; 0{,}25/1; 0/1\}; \underset{\sim}{T}^{e}_{ДТКИ3} = \underset{\sim}{В}^{e}_{ДТКИ3} = \{0/0{,}05; 0{,}17/0{,}1; 1/1; 0/1\}.$$

The visualization of standard FN. Stage 6 – the visualization of standard FN. For a subset of standards $\mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКУН}}, \mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКИП}}, \mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКСД}}, \mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКП}}$ and $\mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКИ}}$ taking into account the obtained specific values, it is possible to realize their graphical interpretation (see figure 1-4) using the corresponding FN standards.



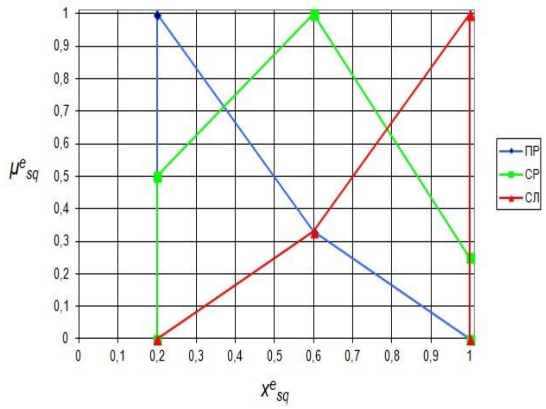
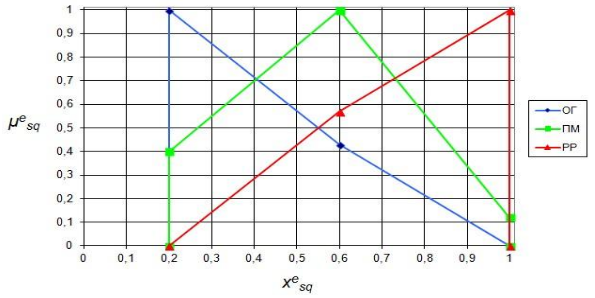


Figure 1 – Linguistic standards for $\mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКУН}}$

Figure 2 – Linguistic standards for $\mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКИП}}$



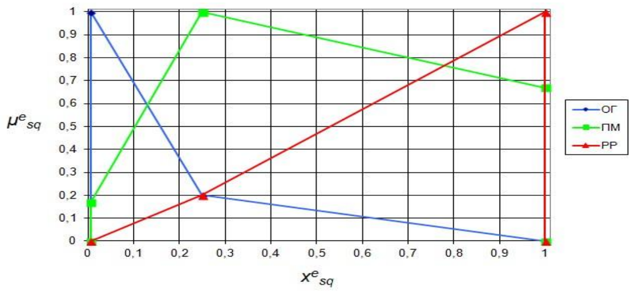


Figure 3 – Linguistic standards for $\mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКСД}}$

Figure 4 – Linguistic standards for $\mathbf{T}^{\mathbf{e}}_{\mathbf{ДТКП}}$

Conclusions. Based on certain values of IC, US, DC, L, S, and their formed standard values, it is possible to classify further and to select the most effective Honeypot. For this, it is necessary, by analogy with [1, 23-25], to determine the current estimates of the values relative to the standard values created in the work, as well as to form the necessary set of rules which allow to obtain the final result.

Н. К. Жумангалиева[1], А. А. Досжанова[2], А. А. Корченко[3],
С. В. Казмирчук[3], Ж. Авкурова[4], Д. Д. Жаксыгулова[5]

[1]Satbayev University, Алматы, Қазақстан;
[2]Алматы Энергетика және байланыс университеті, Алматы, Қазақстан;
[3]Ұлттық авиациалық университет, Украина, Киев;
[4]Л. Н. Гумилев атындағы Еуразия ұлттық университеті, Нұр-Сұлтан, Қазақстан;
[5]Семей қаласының Шәкәрім атындағы мемлекеттік университеті, Қазақстан

HONEYPOT ЖІКТЕУГЕ АРНАЛҒАН ЛИНГВИСТИКАЛЫҚ АЙНЫМАЛЫ СТАНДАРТТАРДЫ ҚАЛЫПТАСТЫРУ ТӘСІЛІ

Аннотация. Қазіргі уақытта ақпараттық қауіпсіздік саласында дамып келе жатқан маңызды бағыттың бірі – Honeypot (виртуалды еліктіру, онлайн тұзақтар) қолдануға, сонымен қатар ең тиімді Honeypot анықтау және оларды одан әрі жіктеу өлшемдерін таңдауға байланысты. Мақалада виртуалды тұзаққа түсіру технологиясы іске асырылатын негізгі өнімдер ұсынылған. Honeypot көбінесе рұқсат етілмеген жағдайда, ақпараттық жүйе ресурстарына рұқсатсыз қол жеткізу үшін қолданатын тәсілдер мен әдістерді зерттеу үшін қолданылады. Желілік тұзақтар кез-келген ресурстарға еліктей алады, алайда көбінесе олар нақты өндірістік серверлер мен жұмыс станциялары секілді көрінеді. Нақты емес жиынтық аппарат негізінде ақпараттық жүйе ресурстарына жасалған шабуылды анықтау мәселелерін шешу үшін қолданылатын бірқатар тиімді әзірлемелер белгілі. Олар тиісті математикалық аппаратты қолдану тиімділігін көрсетті әрі қолдану барысында, мысалы, критерий жиынтығын жасау тәсілін қалыптастырады және ең тиімді Honeypot анықтау үдерісін жақсартады. Осы мақсатта интернеттегі еліктіру үдерісін сипаттайтын критерийлер ұсынылды, тиімді Honeypot таңдау үшін тілдік айнымалы стандарттар қалыптастыру әдісі жасалды.

Бұл әдіс Honeypot жиынтығын, Honeypot сипаттамаларының ішкі жиынтығын, жиілік матрицаларының базалық және туынды жиынтығын қалыптастыруға, сондай-ақ оларды визуализациялай отырып нақты емес терминдер мен стандартты анық емес сандарды құруға негізделген. Бұл ең тиімді виртуалды тұзақты одан әрі жіктеуге және таңдауға мүмкіндік береді.

Ақпараттық жүйелер (АЖ) мен технологиялардың қарқынды дамуы қоғам өмірінің барлық салаларына әсер етеді. Қазіргі заманғы мемлекеттік және жеке кәсіпорындардың белгілі бір мөлшері өндірістік үдерістерді басқару, шешім қабылдауды қолдау, қажетті деректерді іздеу және т.б. үшін пайдаланады.

Ақпараттық қауіпсіздік саласында белсенді дамып келе жатқан өзекті бағыттардың Honeypot (виртуалды еліктіру, онлайн тұзақтар) қолдануға байланысты екенін атап өткен жөн. Мұндай тұзақты қолға түсіру жұмысының мақсаты қорғаныс стратегиясын зерделеу, нақты қауіпсіздік нысандарына шабуыл жасалуы ықтимал құралдарының ауқымын анықтау мақсатында рұқсат етілмеген тарап (UNP) шабуылы немесе сканерлеуі болып саналады.

Honeypot және оларды жүзеге асыруда қолданылатын әдістер әртүрлі, мысалы, арнайы әзірленген интеграцияланған желі немесе негізгі міндеті UNP назарын аудару болып саналатын бірден бір эмуляцияланған желі қызметін атаймыз. Сондықтан ең тиімді жағын анықтау үшін өлшемдерді таңдау және оларды одан әрі жіктеу өзекті мәселе болып есептеледі.

Түйін сөздер: еліктіру классификациясы, онлайн-тұзақ классификациясы, виртуалды еліктіргіш, анық емес стандарттар, тілдік стандарттарды қалыптастыру әдісі, басып кіруді анықтау жүйесі.

Н. К. Жумангалиева[1], А. А. Досжанова[2], А. А. Корченко[3], С. В. Казмирчук[3], Ж. Авкурова[4], Д. Д. Жаксыгулова[5]

[1]Satbayev University, Алматы, Казахстан;
[2]Алматинский университет энергетики и связи, Казахстан;
[3]Национальный авиационный университет, Украина, Киев;
[4]Евразийский национальный университет им. Л. Н. Гумилева, Нур-Султан, Казахстан;
[5]Государственный университет им. Шакарима города Семей, Казахстан

СПОСОБ ФОРМИРОВАНИЯ ЛИНГВИСТИЧЕСКИХ ПЕРЕМЕННЫХ СТАНДАРТОВ ДЛЯ КЛАССИФИКАЦИИ HONEYPOT

Аннотация. В настоящее время одна из важных областей, которая развивается в области информационной безопасности, связана с использованием Honeypot (виртуальные приманки, онлайн-ловушки), а также выбором критериев для определения наиболее эффективного Honeypot и их дальнейшей классификации. Представлены основные продукты, в которых реализована технология виртуальных приманок. Honeypot они используются для изучения поведения, подходов и методов, которые несанкционированная сторона использует для несанкционированного доступа к ресурсам информационной системы. Сетевые ловушки могут имитировать любой ресурс, но чаще всего они выглядят как реальные рабочие серверы и рабочие станции. Известен ряд достаточно эффективных разработок, которые используются для решения задач идентификации атак на ресурсы информационных систем, основанных на аппарате нечетких множеств. Они показали эффективность использования соответствующего математического аппарата, использование которого, например, формализует подход к формированию набора критериев, позволит улучшить процесс определения наиболее эффективного Honeypot. Для этой цели были предложены критерии, которые характеризуют онлайн-ловушки, с помощью которых был разработан метод формирования стандартов языковых переменных для выбора наиболее эффективного Honeypot. Метод основан на формировании набора Honeypot, подмножеств характеристик и значений идентификаторов лингвистических оценок характеристик Honeypot, базовой и производной частотных матриц, а также на построении нечетких терминов и стандартных нечетких чисел с их визуализацией. Это позволит провести дальнейшую классификацию и отбор наиболее эффективных виртуальных приманок.

Стремительное развитие информационных систем (ИС) и технологий затрагивает все сферы жизни общества. Значительное число современных государственных и частных предприятий используют его для управления производственными процессами, поддержки принятия решений, поиска необходимых данных и т.д. Наряду с этим увеличивается количество уязвимостей и угроз ИС, а значит, возникает необходимость в специализированных средствах безопасности для обеспечения их нормального функционирования и предотвращения вторжений. Следует отметить, что одно из актуальных направлений, которое активно развивается в сфере информационной безопасности, связано с использованием медоносных горшочков (виртуальных приманок, онлайн-ловушек). Целью работы таких приманок является атака или сканирование неавторизованной стороной (УНП) с целью изучения стратегии защиты, определения диапазона их средств, с помощью которых могут проводиться атаки на реальные объекты безопасности. Honeypot и методы, используемые для их реализации, различны, например, это специально разработанная интегрированная сеть или один единственный эмулируемый сетевой сервис, основной задачей которого является привлечение внимания UNP [1]. Поэтому выбор критериев для определения наиболее эффективных медоносов и их дальнейшая классификация является актуальной задачей.

Ключевые слова: классификация приманок, классификация онлайн-ловушек, виртуальные приманки, нечеткие стандарты, метод формирования языковых стандартов, системы обнаружения вторжений.

Information about authors:

Zhumangaliyeva Nazym, PhD student, Satbayev University, Almaty, Kazakhstan; nazym_k.81@mail.ru; https://orcid.org/0000-0003-1130-3405

Doszhanova Aliya, PhD, Associate professor, Almaty University of Power Engineering and Telecommunications, Almaty, Kazakhstan; d_alia.81@mail.ru; https://orcid.org/0000-0002-6932-6282

Korchenko Anna, candidate of technical Sciences, associate Professor, National aviation University, Department of information technology Security, Kiev, Ukraine; annakor@ukr.net; https://orcid.org/0000-0003-0016-1966

Kazmirchuk Svitlana, Dr Eng (Information security), Head of Computerised Information Security Systems Academic Department, National Aviation University, Kyiv, Ukraine; sv.kazmirchuk@gmail.com; https://orcid.org/0000-0001-6083-251X

Avkurova Zhadyra, PhD student L.N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan; zhadyra.avkurova.83@mail.ru; https://orcid.org/0000-0002-0706-6075

Zhaxygulova Dauriya, Senior Lecturer, Shakarim State University of Semey, Kazakhstan; daurija_zd@mail.ru; https://orcid.org/0000-0002-2347-9857

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**S. D. Fazylov[1], O. A. Nurkenov[1], A. E. Arinova[1], A. M. Gazaliev[1],
R. E. Bakirova[2], M. K. Ibraev[3], A. T. Takibayeva[3], A. S. Fazylov[3]**

[1]Institute of Organic Synthesis and Coal Chemistry of the Republic of Kazakhstan, Karaganda, Kazakhstan;
[2]«Karaganda Medical University» non-commercial joint-stock company, Karaganda, Kazakhstan;
[3]Karaganda State Technical University, Karaganda, Kazakhstan.
E-mail: iosu8990@mail.ru, nurkenov_oral@mail.ru, mkibr@mail.ru

INDICATORS OF CELL METABOLISM *IN VITRO* IN RESEARCHES OF ANTI-INFLAMMATORY AND CYTOTOXIC EFFECTS OF FULLEROPYRROLIDINES C60 AND THEIR INITIAL SUBSTRATES

Abstract. The article considers data on the *in vitro* study of new fulleropyrrolidine compounds for anti-inflammatory and cytotoxic activity in cultures of human monocyte cell *lines MonoMac-6* and *THP-1Blue* and also as inhibitors of human neutrophil elastase. This enzyme is a regulator of inflammation. In different situations, it can act both as a pro-inflammatory and as an anti-inflammatory agent. An imbalance in the regulation of elastase activity plays an important role in the pathogenesis of cystic fibrosis, acute respiratory distress syndrome, bronchiectasis, chronic obstructive pulmonary disease, type 2 diabetes mellitus, atherosclerosis and hypertension. In the future, such studies should lead to the creation of optimal *in vitro* models that most adequately reflect the situation in vivo and establish the relationship between the structure and activity of the studied drugs. It is noted that the presence of lipophilic properties in fullerene C60 derivatives is especially important in the development of pharmaceuticals for the control of pathogens of various infectious diseases. Fullerene C60 derivatives have the ability to easily penetrate lipid membranes, overcome the blood-brain barrier, and modulate ion transport. Compounds were tested for anti-inflammatory and cytotoxic activity (in vitro) on cultures of human monocytic cell lines *MonoMac-6* and *THP-1Blue*. Modified fullerene compounds of various structures were tested for their inhibitory ability against neutrophil elastase enzyme (*in vitro*). Elastase activity was evaluated by the ability of fulleropyrrolidine compounds to hydrolyze the synthetic substrate *N-methylsuccinyl-Ala-Ala-Pro-Val-7-amino-4-me-thylcoumarin* (*Calbiochem*). The results of studies of fullerene compounds in relation to their anti-inflammatory and cytotoxic activity are obtained. The analysis of the fluorescence kinetics of the compounds was carried out. The cytotoxic activity of the samples was investigated in the *Brine Schrimp* test using *Artemia salina*. All compounds have cytotoxicity, which suggests a lack of selectivity of chemotherapeutic action. In general, the presence of a cytotoxic effect confirms the reality of antimicrobial action. The results of the study of the antibacterial and antifungal activity of the synthesized new fulleropyrrolidines and their starting substrates are described (*S. aureus 505, Bacillus subtilis, Str.agalactiae, E. Coli M-17, Ps.aeruginosa, Candida albicans, Penicillium citrinum, Aspergillus niger, Aspergillus flavus, Trichophyton mentagraphytos, Epidermophyton fioccosum*). As a result of the study of the potential antifungal activity of the compounds, it was found that only two drugs inhibit the growth of test cultures in vitro. All other studied samples have practically no activity against the yeast fungi *Candida albicans*. In general, the presence of a cytotoxic effect in the studied fullerene compounds confirms the reality of the antimicrobial action.

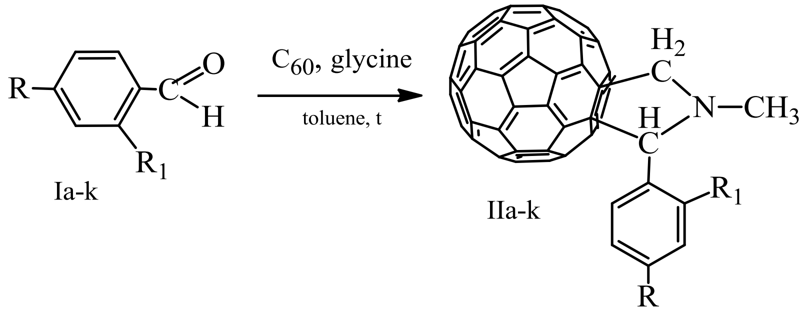
Key words: fulleropyrrolidines, fullerene C60, neutrophil elastase inhibitors, anti-inflammatory activity, cytotoxicity.

Introduction. Nowadays, using of fullerene C60 in the field of biology and medicine is of particular interest. Fullerenes themselves are extremely hydrophobic and not very suitable for introduction into a living organism. However, the methods developed in recent years for the chemical modification of fullerenes using water-soluble and lipophilic adducts have revealed the widest range of their biological effects [1]. It was found that many organic derivatives of fullerene C60 have the ability to penetrate through lipid membranes, overcome the blood-brain barrier and modulate ion transport [2]. First of all, it is the absorption of free radicals and protection against oxidative stress. Secondly, fullerenes can serve as carriers, for example, for HIV proteases [3]. Finally, fullerenes can produce singlet oxygen and cause DNA damage to transformed (tumor) cells [4]. The presence of lipophilic properties in fullerene C60 derivatives is especially important in the development of pharmaceuticals for the control of pathogens of various infectious diseases. The possibility of using C60 as a cytoprotective agent is one of the most developed areas due to fundamental research by Dugan and other authors [5-7], who established the ability of fullerene to trap superoxide radicals. Fullerene derivatives using in medical practice is necessary to understand the causes and mechanisms of the direct and long-term consequences of their in vivo and in vitro effects, based on the introduction of proliferation and apoptosis of cell necrosis into the regulation. A great influence on the subsequent properties of fullerene nanoparticles has a method for their preparation and functionalization, as well as morphology - their size, shape, surface topography, affinity for cellular structures, i.e. parameters depending on which the biological effects of nanoparticles can vary from cytoprotective to cytotoxic. The proposed article considers the possibility of such an approach for the quantitative assessment of anti-inflammatory and cytotoxic activity in cultures of human mono-monocytic cell lines MonoMac-6 and THP-1 Blue, as well as human neutrophil elastase inhibitors using some fulleropyrrolidines C60 and its structural fragments as an example.

In the future, such studies should lead to the creation of optimal models in vitro that most adequately reflect the in vivo situation and establish the characteristics of the relationship between the structure and activity of the studied drugs. Assessment of the anti-inflammatory and cytotoxic effects of potentially bioactive substances is a necessary step in the study at the preclinical stage in the framework of the GLP system [8]. This enzyme is a regulator of inflammation, and in different situations it can act both as a pro-inflammatory and as an anti-inflammatory agent. Imbalance of elastase activity regulation plays an important role in the pathogenesis of cystic fibrosis, acute respiratory distress syndrome, bronchiectasis, chronic obstructive pulmonary disease, type 2 diabetes, atherosclerosis, arterial hypertension. The results of a study of a number of compounds on antibacterial and antifungal activity with various test cultures are presented

Materials and methods. Synthesis methods and data on the synthesis, structure and physicochemical properties of fulleropyrrolidines (IIa-e) and their tartrate salts are described in [9-12], are presented in figures 1, 2 and table 1. The antibacterial and antifungal activity of the newly synthesized fulleropyrrolidines (IIa-d) was held at the Department of Microbiology of the Karaganda Medical University. Compounds (IIa-e) were tested for anti-inflammatory and cytotoxic activity (*in vitro*) in cultures of human monocytic cell lines *MonoMac-6* and *THP-1 Blue*. The anti-inflammatory effect was evaluated by the ability of the compounds to suppress lipopolysaccharide (LPS) -induced production of anti-inflammatory cytokines interleukin-6 (IL-6) and as a tumor necrosis factor (TNF) in *MonoMac-6* cells, as well as NF-κB-dependent production of alkaline phosphatase (ALP) in transfected THP-1 Blue cells. Cells were treated with the compound for 30 min, then 0.5 Lg / ml LPS was added to the cell culture. Cytokine or alkaline phosphatase levels were evaluated after 24-hour incubation.

Cytokines were measured in cell supernatants using an enzyme immunoassay (Elisa). AP production was measured using a specific Quanti-BlueTM substrate. The level of cytotoxicity was evaluated using the chemiluminescent CellTiter-Glo kit. The effective concentration causing a 50% suppression of the response (IC_{50}) was found using regression analysis using dose-dependent curves (at least 5 concentrations).



I, IIa: R = F, R_1 = H; I, IIb: R = CI, R_1 = H; I, IIc: R = Br, R_1 = OH; I, IId: R = $(C_2H_5)_2N$-, R_1 = H; I, IIe: R = $(C_2H_5)_2N$-, R_1 = OH;

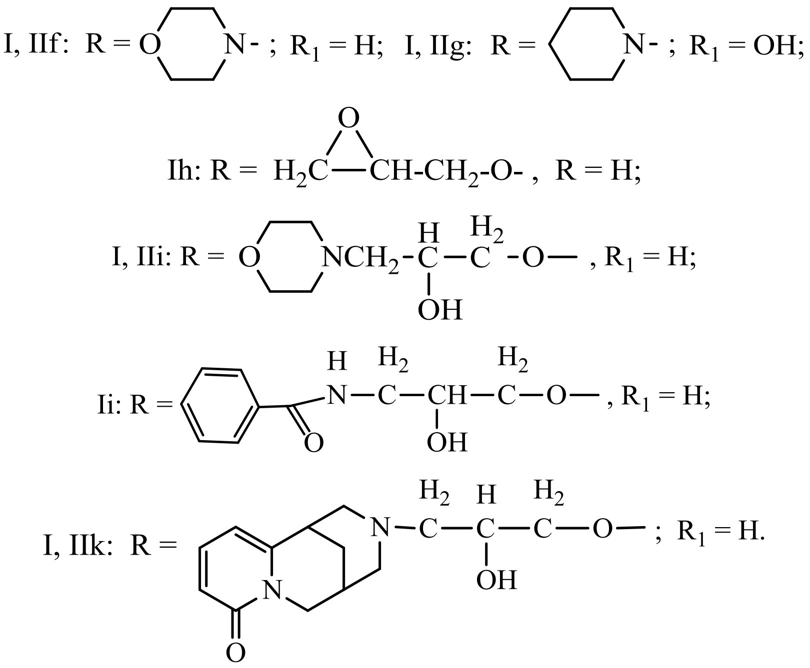
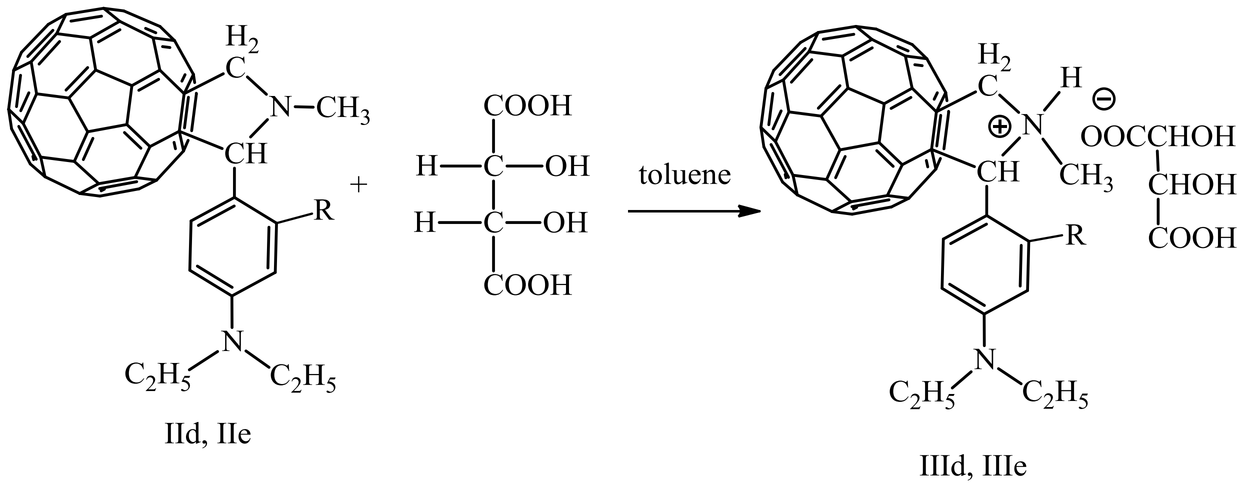


Figure 1 – The reaction of the formation of fulleropyrrolidines (IIa-e)



R = H (IId, IIId); R = OH (IIe, IIIe).

Figure 2 – The synthesis of tartrate salts of fulleropyrrolidines

Results and discussion. Compounds (I, II d-k) were tested to evaluate their inhibitory effect on the activity of the neutrophil elastase enzyme (EC 3.4.21.37). Elastase activity was assessed by the ability of the compounds to hydrolyze the synthetic substrate N-methylsuccinyl-Ala-Ala-Pro-Val-7-amino-4-methylcoumarin (Calbiochem). The formation of a florescent product was measured with excitation of 355 nm and emission of 460 nm with a Fluoroskan-Ascent FL instrument. An effective concentration causing a 50% inhibition of enzyme activity (IC_{50}) was found by regression analysis. The inhibitory activity of compounds with relation to human neutrophil elastase is shown in table 1.

Table 1 – Inhibitory activity of the compounds (Id-k) in relation with human neutrophil elastase

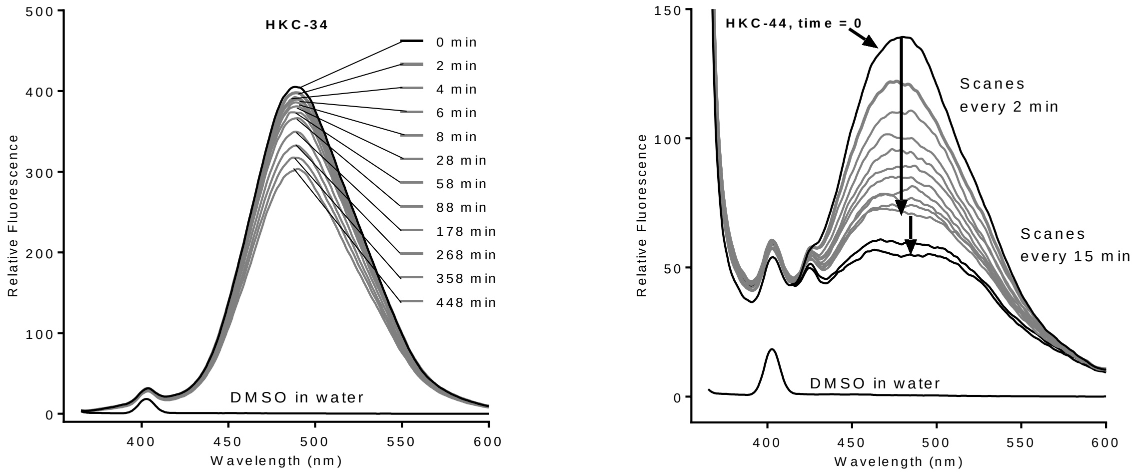
Compounds	IC_{50}, μM
Id	NA[a]
Ie	NA[a]
If	NA[b]
Ih	NA[c]
Ii	NA[b]
Ij	33,3±0,13
Ik	NA[a]
IIa	0,09±0,10
IIb	0,10±0,01
IIc	0,18±0,15
IId	0,02±0,02
IIe	0,09±0,23
IIf	0,12±0,10
IIh	0,07±0,04
IIi	0,15±0,12
IIk	0,03±0,02
IIIe	0,12±0,05

[a] Compound is rapidly hydrolyzed, which is accompanied by either a decrease or an increase in intrinsic fluorescence at 460 nm; [b] no inhibition of enzyme activity at a concentration of <100 μM; adhesion has a high level of intrinsic fluorescence.

As follows from the data in table 1, only compound (Ij) showed the highest activity with an IC_{50} of about 33.3 μMb, while fullerene derivatives showed weak activity.

The rapid hydrolysis of most compounds does not allow the correct registration of the kinetics of the hydrolysis of the fluorescent substrate with N-methylsuccinyl-Ala-Ala-Pro-Val-7-amino-4-methyl-coumarin by the elastase enzyme at the same fluorescence parameters (λ_{ex} = 355 nm, λ_{em} = 460 nm) Although compound (Ih) is sufficiently stable for the 5 min necessary for registration of the enzymatic reaction, it has a high basic autofluorescence, which also negatively affects the correct registration of the reaction kinetics. The kinetics of the compound (Ih) and (Ik)fluorescence spectra, which are noted above as compounds with a high level of intrinsic fluorescence, were recorded on a Perkin Elmer LS50B instrument at λ_{ex} = 355 nm. Compound (Ih) has a specific fluorescence peak (λ_{ex} = 355 nm; λ_{em} = 489 nm). In an aqueous medium, compound (Ih) is slowly hydrolyzed, which is accompanied by a decrease in fluorescence (figure 3A). Compound (Ik) has a specific fluorescence peak (λ_{ex} = 355 nm; λ_{em} = 475 nm). In an aqueous medium, compound (Ik) is almost completely hydrolyzed in 60 minutes, which is accompanied by a decreasing in fluorescence in the region of 460-475 nm (figure 3B).

Compounds (Ih-k) of various structures were tested in relation to their anti-inflammatory and cytotoxic activity and inhibitory ability against neutrophil elastase enzyme (in vitro). The results of compounds (Ih-k) studies in relation to their anti-inflammatory and cytotoxic activity are presented in table 2.



A **B**

A. Spectra (Ih) were taken at the indicated time after adding it to water. B. Spectra (Ik) were taken for the first 20 minutes every 2 minutes; the last 2 spectra were recorded with an interval of 15 min

Figure 3 – Kinetics of the fluorescence spectra of compounds (Ih) and (Ik) (25 μM solution in water with 0.25% dimethyl sulfoxide) at λex = 355 nm (gap width 5 nm).

Table 2 – Effect of the compounds (Ih-k) on LPS-induced production of cytokines (TNF and IL-6) and alkaline phosphatase (AP) in a cell culture and an estimation of their cytotoxicity

Compounds	MonoMac-6 cells			THP-1 Blue cells	
	TNF	IL-6	Toxicity	Alkaline phosphatase	Toxicity
	IC_{50}, μM				
Ih	NA	NA	NT	NA	NT
Ii	NA	NA	NT	NA	NT
Ij	NA	0,11	NT	NA	NT
Ik	NA	NA	NT	NA	NT
IIe	NA	NA	NT	NA	NT
IIf	NA	NA	NT	NA	NT
IIg	NA	NA	NT	NA	NT
IIk	NA	0,03	NT	NA	NT
NA and NT - no inhibition of production or cytotoxicity at concentrations <100 μM.					

From the data presented in table 2 it follows that the studied compounds do not have cytotoxicity, but Ij and Iik in low concentrations are able to suppress the production of IL-6, but not TNF. This property seems to be very interesting, since the production of IL-6 and TNF in cells is regulated by various mechanisms [15-17.

The results are present in a table 3 of a study a number of compounds for antibacterial and antifungal activity. Test method for antimicrobial and antifungal activity - disco-diffuse in agar with test cultures: S. aureus 505, Bacillussubtilis, Str. agalactiae, E. ColiM-17, Ps. aeruginosa, Candida albicans, Penicillium citrinum, Aspergillus niger, Aspergillus flavus, Trichophytonmentagraphytos, Epidermophytonfioccosum.

Benzylpenicillin sodium salt was chosen as the standard for antimicrobial activity, and nystatin was chosen for antifungal activity. The concentrations of the tested drugs were 1 μg for antibacterial activity, 10 μg for antifungal activity. The concentration of the reference preparations was 1 mg. The antimicrobial activity of the samples was evaluated by the diameter of the zones of growth inhibition of the test strains (mm). The diameters of the zones are less than 10 mm and the continuous growth in the cup was evaluated as the absence of antimicrobial activity, 10-15 mm - weak activity, 15-20 mm - moderately pronounced activity, over 20 mm - pronounced. Each sample was tested in three parallel experiments. Statistical processing was performed using parametric statistics methods with calculation of arithmetic mean and standard error.

Table 3 – Antimicrobial activity of the samples

Compounds	Staphylococcus aureus (mm)	Bacillus subtilis (mm)	Escherichia coli (mm)	Candida albicans (mm)
IId	11,3±1,1	10,1±1,2	10,1±1,3	9,1±1,2
IIe	14,2±1,2	16,4±1,1	14,3±1,2	12,4±1,1
Ij	16,1±1,3	15,2±1,3	15,1±1,0	13,2±1,3
IIId	9,7±0,3	10,0±1,1	9,0±0,4	8,6±1,0
IIIe	12,3±1,1	14,3±1,3	15,1±1,3	10,2±1,1
Ih	15,2±1,3	15,2±1,1	17,2±1,4	11,3±1,3
IIi	11,5±0,4	10,2±0,5	9,2±1,1	10,0±0,1
IIj	15,2±1,2	14,3±0,1	16,0±0,9	14,3±1,1
IIk	10,1±0,5	9,1±1,4	8,0±0,7	7,8±1,4
Benzylpenicillin sodium salt	14,4±1,2	16,1±1,2	13,3±1,2	–
Nystatin				18,2±1,0

The cytotoxic activity of the samples was investigated in the Brine Schrimp test using artemiasalina 2-day-old shrimp larvae. The average lethal dose of the samples and the upper and lower toxic limits were calculated using the Finney program.

In the study of antimicrobial activity, dilution was carried out at the rate of 1 mg of substance per 1 ml of solvent, 4 types of bacteria were used: Staphylococcusaureus, Bacillussubtilis, Escherichiacoli and Candida-albicans. These cultures were sown using the lawn method, respectively, on the following nutrient media: Lauryl Sulphate Agar, Endo medium, nutrient agar, and Saburo medium. Then Petri dishes were incubated for one day at 37 ° C. The results of the identified growth retardation in the media are shown in table 3.

In a result of the study of the potential antifungal activity of the compounds it was found that only IIe and IIIe inhibit the growth of test cultures in vitro. An exception is the culture of yeast Candida albicans, which does not respond to the studied compounds (table 4). All other studied samples have practically no activity against fungi.

Table 4 – Antifungal activity of the samples (Ie) и (IIIe)

Compounds	Diameter of growth inhibition zones, mm				
	Penicillium citrinum	Aspergillus niger	Aspergillus flavus	Trichophyton mentagraphytos	Epidermophyton fioccosum
IIe	13,3±1,1	12,4±1,1	14,2±2,1	–	11,4±1,3
IIIe	15,2±1,3	12,3±2,2	13,3±1,4	10,3±3,1	14,1±1,2
Nystatin	16,2±3,1	12,3±1,1	15,1±3,2	14,2±2,2	12,3±1,2

The cytotoxic activity of the samples was investigated in the BrineSchrimp test using Artemiasalina 2-day-old shrimp larvae. The medium for the removal of sea crustaceans was a 3.3% solution of sea salt. Larvae were grown by immersing eggs of sea crustaceans in artificial sea water and incubated for 48 h at a temperature of 37°C. Then, 10 pieces of Artemiasalina sea crustaceans were caught in each vial, and the studied pharmacological substances were added separately in dissolved form. Sea crustaceans in bottles with the addition of N-methyl-1-[(4-diethylamino-2-hydroxyphenyl)]-fullerene-C60-[1,9c] pyrrolidine (IIe) and N-methyl-1-[(4-diethylamino-2-hydroxyphenyl)]-fullerene-C60-[1,9c] -pyrrolidinium tartrate (IIIe), immediately died. Vials with substances Ih, Ij, IIf, IIi, IIk were stayed at room temperature in the light for 24 hours. After 24 hours, an average of 1-2 dead larvae were found.

As a result of studies, it was found that the presented substances, which showed weak antimicrobial and antifungal activity, have cytotoxicity, which are suggested have a lack of selectivity of the chemotherapeutic effect. In general, the presence of a cytotoxic effect confirms the reality of antimicrobial action.

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С. Д. Фазылов[1], О. А. Нүркенов[1], А. Е. Әрінова[1], А. М. Ғазалиев[1],
Р. Е. Бакирова[2], М. К. Ибраев[3], А. Т. Такибаева[3], А. С. Фазылов[3]

[1]ҚР Органикалық синтез және көмірхимия институты, Қарағанды, Қазақстан;
[2]«Қарағанды медицина университеті» коммерциалық емес акционерлік қоғамы, Қарағанды, Қазақстан;
[3]Қарағанды мемлекеттік техникалық университеті, Қарағанды, Қазақстан

ФУЛЛЕРОПИРРОЛИДИНДЕР МЕН ОЛАРДЫҢ БАСТАПҚЫ СУБСТРАТТАРЫНЫҢ ҚАБЫНУҒА ҚАРСЫ ЖӘНЕ ЦИТОУЫТТЫ ӘСЕРІН ЗЕРТТЕУДЕГІ *IN VITRO* КЛЕТКАЛЫҚ МЕТАБОЛИЗМ КӨРСЕТКІШТЕРІ

Аннотация. Мақалада MonoMac-6 және THP-1Blue адам моноцитарлы клетка сызықтарының өсіндісінде *in vitro* қабынуға қарсы және цитоуытты белсенділігіндегі жаңа фуллеропирролидин қосылыстарын, сондай-ақ адам нейтрофилдерінің эластаза ингибиторлары ретінде зерттеу туралы мәліметтер қарастырылған. Бұл қарастырылған фермент қабынудың реттеушісі болып саналады. Әртүрлі жағдайларда олар қабынуға әсер етуші немесе қабынуға қарсы агент ретінде де белсенділік көрсетеді. Эластазаның осындай жағдайға байланысты әсер ететін белсенділігі муковисцидоза патогенезінде әсері жылдам респираторлық дистресс-синтдром, қант диабетінің екіншілік түрінде және артериалық гипертензия кезінде маңызды қызмет атқарады. Болашақта мұндай зерттеулер in vivo жағдайын неғұрлым барабар көрсететін in vitro оңтайлы үлгілерін құруға және зерттелетін препараттардың құрылымы мен белсенділігі арасындағы арақатынас ерекшелігін анықтауы тиіс. Фуллерен С60 туындыларының липофильді қасиеттерінің болуы түрлі инфекциялық ауру қоздырғышына қарсы фармацевтика өндірісінде дәрі-дәрмек жасауда өте маңызды қасиет болып саналатыны айқындалды. Фуллерен С60 туындылары липофильді адам клеткасының мембранасынан, сонымен бірге гематоэнцефалитикалық кедергіден оңай шыға алады және иондарды тасымалдау қасиеттері бар. Синтезделіп алынған жаңа фуллерендік заттар адамның моноцитарлы сызықты *MonoMac-6* және *THP-1Blue* клеткаларында қабынуға және цитотокскологиялық белсенділікке қарсы (*in vitro*) жағдайында зерттелді. Құрылысы түрлі фуллерендік түрлендірілген қосылыс нейтрофильдерінің ферментті эластазасына қарсы тежеуші, цитоуытты және қабынуға қарсы (*in vitro* жағдайында) әсерін тексеру нәтижелері қарастырылды. Эластаза белсенділігі фуллеропирролидинді қосылыстардың синтетикалық *N-methylsuccinyl-Ala-Ala-Pro-Val-7-amino-4-me-thylcoumarin* (*Calbiochem*) субстратті гидролиздеу қабілеттілігіне байланысты бағаланды. Фуллерендік туындылардың қабынуға және цитоуытқа белсенділік қасиеттері бойынша зерттеу мәліметтері алынды. Құрылысы әртүрлі фуллерендік қосылыстардың флуоресценциялық кинетикасына талдау жасалды. Синтезделіп алыған жаңа фуллеропирролиндер мен олардың бастапқы субстраттарының бактерияларға және грибтарға қарсы әсерін зерттеу нәтижелері сипатталады. Кейбір заттардың бактерия мен грибке қарсы белсенділігін зерттеу нәтижелері келтірілген (*S. aureus 505, Bacillus subtilis, Str.agalactiae, E. Coli M-17, Ps.aeruginosa, Candida albicans, Penicillium citrinum, Aspergillus niger, Aspergillus flavus, Trichophyton mentagraphytos, Epidermophyton fioccosum*). Фуллерендік туындылардың цитоуытты белсенділігі *Brine Schrimp* тексеру жүйесі арқылы теңіз креветкаларының *Artemia salina* кішкене құрттарын қолдану негізінде зерттелді. Грибтерге қарсы фуллеренді туындылар белсенділігін зерттеу нәтижесінде тек қана екі жаңа заттың *in vitro* жағдайында тестілік өсінділердің жетілу үдерісін тоқтататыны анықталды. Қалған барлық зерттелетін заттар *Candida albicans* грибіне қарсы белсенділік танытпады. Жалпы айтқанда зерттелген заттарда цитоуыттың болуы олардың микробтарға қарсы белсенділік көрсетуге мүмкіндігінің бар екенін көрсетеді.

Түйін сөздер: фуллеропирролидиндер, фуллерен С60, нейтрофильдер эластазасының тежеуіші, қабынуға қарсы белсенділік, цитоуыт.

С. Д. Фазылов[1], О. А. Нуркенов[1], А. Е. Аринова[1], А. М. Газалиев[1],
Р. Е. Бакирова[2], М. К. Ибраев[3], А. Т.Такибаева[3], А. С. Фазылов[3]

[1]Институт органического синтеза и углехимии РК, Караганда, Казахстан;
[2]Некоммерческое акционерное общество «Медицинский университет Караганды», Караганда, Казахстан;
[3]Карагандинский государственный технический университет, Караганда, Казахстан

ПОКАЗАТЕЛИ КЛЕТОЧНОГО МЕТАБОЛИЗМА *IN VITRO* В ИССЛЕДОВАНИИ ПРОТИВОВОСПАЛИТЕЛЬНЫХ И ЦИТОТОКСИЧЕСКИХ ЭФФЕКТОВ ФУЛЛЕРОПИРРОЛИДИНОВ И ИХ ИСХОДНЫХ СУБСТРАТОВ

Аннотация. В статье рассмотрены данные по изучению новых фуллеропирролидиновых соединений на противовоспалительную и цитотоксическую активности *in vitro* на культурах человеческих моноцитарных линий клеток *MonoMac-6* и *THP-1Blue*, а также в качестве ингибиторов эластазы нейтрофилов человека. Этот фермент является регулятором воспаления. В разных ситуациях он может выступать и как провоспалительный, и как противовоспалительный агент. Дисбаланс в регулировании активности эластазы играет важную роль в патогенезе муковисцидоза, острого респираторного дистресс-синдрома, бронхоэктатической болезни, хронической обструктивной болезни легких, сахарного диабета второго типа, атеросклероза и артериальной гипертензии. В перспективе подобные исследования должны привести к созданию оптимальных моделей *in vitro*, наиболее адекватно отражающих ситуацию *in vivo* и установлению особенностей соотношения между структурой и активностью исследуемых препаратов. Отмечено, что наличие у производных фуллерена C_{60} липофильных свойств особенно важно при разработке фармацевтических препаратов для борьбы с возбудителями различных инфекционных заболеваний. Производные фуллерена C_{60} обладают способностью легко проникать через липидные мембраны, преодолевать гематоэнцефалитический барьер и модулировать транспорт ионов. Соединения были исследованы на противовоспалительную и цитотоксическую активности (*in vitro*) на культурах человеческих моноцитарных линий клеток *MonoMac-6* и *THP-1Blue*. Цитотоксическая активность образцов исследовалась в тесте *Brine Schrimp* с использованием личинок морских креветок *Artemia salina*. Проводились тестирования модифицированных фуллереновых соединений различной структуры в отношении ингибирующей способности против фермента эластазы из нейтрофилов (*in vitro*). Активность эластазы была оценена по способности фуллеропирролидиновых соединений гидролизовать синтетический субстрат *N-methylsuccinyl-Ala-Ala-Pro-Val-7-amino-4-me-thylcoumarin* (*Calbiochem*). Получены результаты исследований фуллереновых соединений в отношении их противовоспалительной и цитотоксической активности. Цитотоксическая активность фуллереновых образцов исследовалась в тесте *Brine Schrimp* с использованием личинок морских креветок *Artemia salina*. Все соединения обладают цитотоксичностью, что позволяет говорить об отсутствии избирательности химиотерапевтического действия. Проведен анализ кинетики флуоресценции фуллереновых соединений различной структуры. Представлены результаты изучения ряда соединений на антибактериальную и противогрибковую активности с различными тест-культурами (*S. aureus 505, Bacillus subtilis, Str.agalactiae, E. Coli M-17, Ps.aeruginosa, Candida albicans, Penicillium citrinum, Aspergillus niger, Aspergillus flavus, Trichophyton mentagraphytos, Epidermophyton fioccosum*). В результате исследования потенциала противогрибковой активности соединений установлено, что только два препарата тормозят рост тестовых культур *in vitro*. Все остальные исследованные образцы практически не обладают активностью против дрожжевых грибов *Candida albicans*. В целом наличие цитотоксического эффекта у изученных фуллереновых соединений подтверждает реальность антимикробного действия.

Ключевые слова: фуллеропирролидины, фуллерен С60, ингибиторы эластазы нейтрофилов, противовоспалительная активность, цитотоксичность.

Information about authors:

Fazylov S.D., corresponding member of NAS RK, Doctor of chemical sciences, Professor, Institute of Organic Synthesis and Coal Chemistry of the Republic of Kazakhstan, Karaganda, Kazakhstan; iosu8990@mail.ru; https://orcid.org/0000-0002-4240-6450

Nurkenov O.A., Doctor of chemical sciences, Professor, Institute of Organic Synthesis and Coal Chemistry of the Republic of Kazakhstan, Karaganda, Kazakhstan; nurkenov_oral@mail.ru; https://orcid.org/0000-0003-1878-2787

Gazaliev Arstan Maulenovich, Academician of the National Academy of Sciences of the Republic of Kazakhstan, Deputy Director for Research, Institute of Organic Synthesis and Coal Chemistry of the Republic of Kazakhstan, Karaganda, Kazakhstan; https://orcid.org/0000-0003-2161-0329

Ibraev Marat Kerimbaevich, Doctor of chemical sciences, Professor, Karaganda State Technical University, Karaganda, Kazakhstan; mkibr@mail.ru; https://orcid.org/0000-0003-0798-5562

Takibayeva Altynaray Temirbekovna, Ph. D., head of the Department "Chemistry and chemical technology", Karaganda State Technical University, Karaganda, Kazakhstan; altynarai81r@mail.ru; https://orcid.org/0000-0003-0536-0817

Bakirova Ryszhan Emelevna, Doctor of medical sciences, Professor, «Karaganda Medical University» non-commercial joint-stock company, Karaganda, Kazakhstan; bakir15@mail.ru; https://orcid.org/0000-0002-1592-8579

Arinova Anar Erikovna, Doctoral student of Buketov Karaganda State University, Karaganda, Kazakhstan; arinova-anar@mail.ru; https://orcid.org/0000-0002-7780-4555

Fazylov Arman Serikovich**,** undergraduate of the Karaganda State Technical University, Karaganda, Kazakhstan; arman1708@yahoo.com; https://orcid.org /0000-0003-2905-9121

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B. K. Yelikbayev[1], Marcela C. Pagano[2], G. A. Jamalova[1]

[1]Satbaev University, Almaty, Kazakhstan;
[2]Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.
E-mail: bek29k@gmail.com, marpagano@gmail.com, j.ga@bk.ru

HYPERACCUMULATOR PLANTS FOR PHYTOREMEDIATION OF SOIL CONTAMINATED WITH HEAVY METALS

Abstract. Environmental pollution, including pollution of urban soils by heavy metals causes serious environmental concern around the world. Heavy metals accumulate relatively quickly in soil but their removal rate is very slow. Hyperaccumulator plants help cleanse the environment from heavy metals. Phytoremediation is cleansing of soils contaminated with heavy metals, using plants that accumulate significant amounts of metals. An important environmental problem in large industrial cities is pollution by toxic compounds, including heavy metals. Due to the potential toxicity and high resistance of metals, soils contaminated with these elements are an environmental problem that requires effective and affordable solution. In soils heavy metals are in varying degrees of accessibility to plants. Water-soluble forms of heavy metals, as a rule, are presented in the form of various salts and organic complex compounds. Phytoremediation of urban soils from heavy metals is an important environmental challenge. Among the wild species, a special group of heavy metal hyperaccumulator plants is highlighted. Some of the land plants that can accumulate abnormally high levels of potentially toxic trace elements are known as “hyperaccumulators” and their number includes about 500 taxa. Phytoremediation is much more environmentally friendly and cheaper than other techniques, so recently it has received widespread use in various countries.

Key words: Phytoremediation, heavy metals, hyperaccumulators, phytoextraction, urban soils.

Introduction. Recently, there has been an increased interest in study of ecological state of environmental object located in urban areas. Study of soil and soil cover takes an important place in such research. Urban soils are poorly studied biological systems that differ in some properties from natural ones. They are characterized by high mosaic and irregularity of profile, significant compaction, alkaline reaction, pollution with various toxic substances. Thus, an important environmental problem in large industrial cities is pollution by toxic compounds, including heavy metals [1-3]. In soils, heavy metals are in varying degrees of accessibility to plants. Water-soluble forms of heavy metals, as a rule, are represented by chlorides, nitrates, sulfates and organic complex compounds. Heavy metals accumulate relatively quickly in soil and are very slowly removed from it: the half-removal period of zinc is up to 500 years, cadmium - up to 1100 years, copper - up to 1500 years, lead - up to several thousand years [4]. Heavy metals are highly toxic substances due to their high lethality; they are not biodegradable and have low mobilization ability in the environment. Therefore, they cause soil and water pollution, as well as toxic, genotoxic, teratogenic and mutagenic effects in living organisms, causing endocrine and neurological disorders even at low concentrations [5-7].

Regarding phytoremediation technology. Restoring the environment with plants is of great interest around the world due to the possibilities that phytoremediation technology opens up for cleansing upper layers of contaminated soils [4,15]. Phytoremediation is the most suitable alternative to traditional technologies of physical and chemical rehabilitation, which are very expensive and technically more suitable for small areas, create secondary pollution and impair soil fertility. Phytoremediation method does not require large expenditures, it is simple in practical implementation, and is applicable in any environmentally unfavorable zones [10-13].

The effect of nickel hyperaccumulation by plants was first noted in the seventies of the twentieth century [8.9]. Since then, study of hyperaccumulators has attracted attention of plant physiologists, molecular biologists and biotechnologists. Advances in study of hyperaccumulators have led to identification of about 500 taxa capable to hyperaccumulate various elements [14]. Some of the land plants that can accumulate abnormally high levels of potentially toxic trace elements are known as “hyperaccumulators” [15]. These plants have been the subject of intensive research in recent decades, which has led to their widespread use in biotechnologies for soil cleaning [16], phytoproduction [17] and nanotechnology [18,19].

Studies show that plants can cleanse the environment from metals, and phytoremediation allows use of green plants for removing pollutants from surface layer of soils or turn the latter into harmless compounds, making it a promising method. Among wild-growing species, a special group of heavy metal hyperaccumulator plants is distinguished. Their shoots are able to accumulate from 1,000 to 30,000 mg of metal per kilogram of dry mass of plant without visible signs of damage [20,14]. Cultivation of heavy metal hyperaccumulator plants in contaminated areas allows to cleanse soil of excess metals [21-23].

Hyperaccumulation of heavy metals in soil. The first threshold values for hyperaccumulation of trace elements were determined as follows: 1000 mg / kg for Ni, Co, Cu, Cr, Pb and > 10000 mg / kg for Zn and Mn [20, 24]. According to Yang et al. [25], the threshold value for Zn should be reduced to 3000 mg / kg. Sun et al. [26] suggested that the threshold for Cd should be 100 mg / kg. A new updated and revised proposal for thresholds considers a plant a candidate for hyperaccumulator if its dry matter of aboveground tissue contains more than 100 mg / kg Se, Cd and Tl, 300 mg / kg Cu, Co, Cr, 1000 mg / kg Ni and Pb, 3000 mg / kg Zn and 10000 mg / kg Mn [14]. In addition, Pratas et al. [27 suggested a threshold level of 1 mg / kg for Ag.

Critical evaluations of hyperaccumulation reports mentioned that hyperaccumulative plants are now broadly divided into eight groups: (i) plants from ultrabasic soils showing hyperaccumulation of Ni (and rarely Co); (ii) plants from soils enriched with chalcophilic elements, such as Zn, Pb, Cd and Tl, which may exhibit hyperaccumulation of any of these elements; (iii) plants from soils rich in Cu and Co, exhibiting hyperaccumulation of one or both of these elements; (iv) plants exhibiting hyperaccumulation of Mn, which may arise from some ultrabasic soils and from some other substrates; (v) plants with unusually high concentration of Se from soils with increased concentrations of this element; (vi) plants that have been identified as hyperaccumulators based on the absorption of elements from industrially contaminated soils, which include many of the elements listed above, as well as reports of hyperaccumulation of Cr and As; (vii) plants reported to accumulate light rare earth elements such as Ce and La; and (viii) plants reported to be hyperaccumulating basic soil elements (that is, those that are higher than concentration of microelements), such as Fe or Al, a category that we will not discuss further [14,28,29,12,30].

Since the decorative flower crops used to create flower beds are practically not considered as means of soil remediation, but rather for decorative purposes and so far haven’t been taken much into account, studying their accumulating abilities is also very important [31].

Due to the potential toxicity and high durability of metals, soils contaminated with these elements are an environmental problem that requires an effective and affordable solution. Phytoextraction has been developed as part of intensive research for more efficient, cheaper and less hazardous methods to remove contaminated soils. It is based on removal of metals by plants through absorption and accumulation in biomass [32].

Hyperaccumulative plants. Hyperaccumulators have found their widest application in phytoextraction, which is one of the phytoremediation strategies [33,24,35]. The ideal plant kinds to be used in this process should have: (i) high biomass production, rapid growth and easy assembly (the short time needed to effectively reduce the concentration of elements in phytoremedic soils, [36-38] (ii) the ability to exist outside its native region [33,39,40]. The second feature is often problematic because hyperaccumulators are often endemic and their appearance is limited to contaminated sites. It is estimated that almost 90% of known hyperaccumulators are endemic for metal-containing soils, such as serpentine soil [41].

Along with hyperaccumulative herbaceous plants, several species of tree species are considered promising for further study. Since many woody plants grow quickly, have deep roots, produce abundant biomass, and several species show some ability to tolerate and accumulate heavy metals. In recent years, significant progress has been made in identifying native plants and developing genetically modified woody plants to restore the environment contaminated with heavy metals. On a large scale, metal uptake by trees can be more efficient, mainly because of a deeper root system and higher biomass yields [42,43].

Phytoremediation is based on removal of contaminants from soil by using mechanisms such as phytoextraction, phytodegradation, rhizofiltration, phytostabilization and phytovolysis [44,45,6,12], but the mechanisms involved in heavy metals regeneration are limited by absorption, adsorption, transport and translocation, sequestration in vacuoles, supersaturation and, in some cases, volatilization [46].

Two main areas of interest for the study of new hyperaccumulators include: (i) identification of new indigenous plant species that demonstrate tremendous ability to bind elements [47,48] and (ii) search for multi-element hyperaccumulators called coaccumulators [49] that can be used during phytoremediation of contaminated soils.

Use of synthetic chelators and mineral fertilizers effectively stimulates accumulation of heavy metals in plant organs by increasing bioavailability and productivity [50-55,45]. The addition of certain PGPR - bacterial strains and mycorrhizal fungi to plants rhizosphere also stimulates accumulation of heavy metals in plant organs [56-59].

One of the promising areas of phytoremediation of soils contaminated with heavy metals is usage of transgenic plants specially designed as hyperaccumulators [51,55,11,6].

Phytoremediation methods are developed and implemented in Bulgaria, the USA, Great Britain, Spain, Canada, China, Mexico, New Zealand and other countries [15,16]. However, implementation of this environmental protection technology in the CIS countries is largely hindered by the need to search for heavy metal accumulator plants adaptable to our environmental conditions or use of introducers. Nevertheless, the work of researchers from Kazakhstan and the CIS on accumulation of heavy metals by wild-growing and cultivated plants provides sufficient grounds for finding plants suitable for introducing phytoremediation technology in Kazakhstan and the CIS [55,60-66]. In Kazakhstan, scientists from the Institute of Biology and Biotechnology of the MES RK and other organizations are actively involved in improving phytoremediation methods [55,63,64].

Conclusion. Heavy metals are highly toxic substances, they are not biodegradable and have low mobilization ability in the environment. Therefore, restoration of the environment through plants is of great interest throughout the world, which opens possibilities for phytoremediation technology for cleaning the upper layers of contaminated soils. The phytoremediation method does not require large expenditures, is simple in practical implementation, and is applicable in any environmentally unfavorable zones. Advances in study of hyperaccumulators have led to the identification of about 500 taxa capable of hyperaccumulation of various elements. The phytoremediation method does not require large expenditures, is simple in practical implementation and is applicable in any environmentally unfavorable zones. Almost 90% of known hyperaccumulators are endemic. The use of synthetic chelators and mineral fertilizers effectively stimulates accumulation of heavy metals in plant organs by increasing bioavailability and productivity. Among promising areas of phytoremediation of soils contaminated with heavy metals is use of transgenic plants specially designed as hyperaccumulators. Phytoremediation methods are developed and implemented in different countries of the world, including Kazakhstan.

Б. К. Еликбаев[1], Марсела К. Пагано[2], Г. А. Жамалова[1]

[1]Satbayev University, Алматы, Қазақстан;
[2]Минас-Жерайс федералды университеті, Бело Оризонте, Минас-Жерайс, Бразилия

АУЫР МЕТАЛДАРМЕН ЛАСТАНҒАН ТОПЫРАҚ ФИТОРЕМЕДИАЦИЯСЫНА АРНАЛҒАН ӨСІМДІК-ГИПЕРАКУМУЛЯТОРЛАР

Аннотация. Соңғы уақытта қала аумағындағы қоршаған орта объектілерінің экологиялық жай-күйін зерттеуге қызығушылық артып келеді. Қала топырағы – аз зерттелген биологиялық жүйе. Олар улы қосылыстар, оның ішінде ауыр металдармен ластанады деп сипатталады. Ауыр металдар топырақта тез жиналады және өте баяу, яғни бірнеше мың жылға дейін шығарылады.

Фиторемедиация физикалық-химиялық оңалтудың дәстүрлі технологияларына ең қолайлы балама және үлкен шығынды талап етпейді, іс жүзінде жүзеге асыру жеңіл және кез келген экологиялық қолайсыз аймақтарда қолдануға болады. Зерттеулер көрсеткендей, кейбір өсімдіктер қоршаған ортаны металдан тазарта алады. Ластанған жерлерде ауыр металл гипераккумуляторларын өсіру топырақты ауыр металдардан тазартуға мүмкіндік береді.

Өсімдік гипераккумуляторлар қазіргі уақытта ауыр металдардың шоғырлану қабілетіне байланысты сегіз топқа бөлінеді. Осы процесте қолданылатын өсімдік түрлері биомассаның жоғары өнімі, жылдам өсуі және жеңіл жиналуы, сондай-ақ өзінің жергілікті аймағынан тыс жерлерде өсетін қабілеті болуы тиіс. Өйткені ашылған гипераккумуляторлардың 90% құрамында металл бар топырақ үшін эндемикалық түрлер болып саналады.

Фиторемедиация фитоэкстракция, фитодеградация, ризофильтрация, фитостабилизация және фитоволизаттау сияқты тетік көмегімен топырақтан ластаушы заттарды шығаруға негізделген, бірақ ауыр металдарды регенерациялауға қатысатын механизмдер сіңіру, адсорбция, көлік және транлокация, вакуольдардағы секвестрация, аса қанығу және кейбір жағдайда ұшып кету арқылы шектелген. Сондықтан жаңа гипераккумуляторларды табу өте маңызды.

Синтетикалық хелаторлар мен минералдық тыңайтқыштарды қолдану биожетімділігі мен өнімділігін арттыру есебінен өсімдік органдарында ауыр металдың шоғырлануын тиімді ынталандырады. Кейбір pgpr - бактериялық штаммдар мен микоризді саңырауқұлақтардың өсімдік ризосферасына қосылуы, сондай-ақ өсімдік органдарында ауыр металдардың шоғырлану жағдайын ынталандырады.

Ауыр металдармен ластанған топырақты фиторемедиациялаудың перспективалық бағыттарының біріне гипераккумулятор ретінде арнайы жобаланған трансгендік өсімдіктерді пайдалану жатады.

Гипераккумуляторларды зерттеудегі жетістіктер әртүрлі элементтерді гипераккумуляциялауға қабілетті 500-ге жуық таксон анықталған. Фиторемедитация әдістері әлемнің түрлі елінде, соның ішінде Қазақстанда әзірленіп, енгізілуде.

Түйін сөздер: фиторемедиация, ауыр металдар, гипераккумуляторлар, фитоэкстракция, қала топырағы.

Б. К. Еликбаев[1], Марсела К. Пагано[2], Г. А. Жамалова[1]

[1]Satbayev University, Алматы, Казахстан;
[2]Federal University of Minas Gerais, Бело Оризонте, Минас-Жерайс, Бразилия

РАСТЕНИЯ-ГИПЕРАККУМУЛЯТОРЫ ДЛЯ ФИТОРЕМЕДИАЦИИ ЗАГРЯЗНЕННЫХ ТЯЖЕЛЫМИ МЕТАЛЛАМИ ПОЧВ

Аннотация. В последнее время отмечается повышенный интерес к исследованию экологического состояния объектов окружающей среды городских территорий. Городские почвы – это малоизученные биологические системы, отличные по ряду свойств от природных. Они характеризуются загрязненными токсичными соединениями, в том числе тяжелыми металлами. Тяжелые металлы сравнительно быстро накапливаются в почве и крайне медленно из нее выводятся до периода в несколько тысяч лет.

Фиторемедиация – наиболее подходящая альтернатива традиционным технологиям физико-химической реабилитации и не требует больших затрат, проста в практическом осуществлении и применима в любых экологически неблагоприятных зонах. Исследования показывают, что некоторые растения позволяют очистить окружающую среду от металлов. Культивирование растений-гипераккумуляторов тяжелых металлов на загрязненных территориях позволяет очистить почву от избытка металлов.

Растения гипераккумуляторы в настоящее время подразделяются на восемь групп в зависимости от способности аккумуляции тяжелых металлов. Идеальные виды растений, которые будут использоваться в этом процессе должны иметь высокое производство биомассы, быстрый рост и легкую сборку, а также способность расти вне своей аборигенной области, так как почти 90% известных гипераккумуляторов являются эндемичными для металлосодержащих почв.

Фиторемедиация основана на удалении загрязнений из почвы с помощью таких механизмов, как фитоэкстракция, фитодеградация, ризофильтрация, фитостабилизация и фитоволизатирование, но механизмы, участвующие в регенерации тяжелых металлов, ограничены поглощением, адсорбцией, транспортом и транслокацией, секвестрацией в вакуолях, сверхнасыщением и, в некоторых случаях, улетучиванием. Поэтому поиск новых гипераккумуляторов очень важен.

Применение синтетических хелаторов и минеральных удобрений эффективно стимулирует аккумуляцию тяжелых металлов в органах растений за счет увеличения биодоступности и урожайности. Добавления некоторых PGPR – бактериальных штаммов и микоризных грибов в ризосферу растений также стимулирует аккумуляцию тяжелых металлов в органах растений.

Одним из перспективных направлений фиторемедиации загрязненных тяжелыми металлами почв является использования трансгенных растений, специально спроектированных в качестве гипераккумуляторов.

Успехи в изучении гипераккумуляторов привели к идентификации около 500 таксонов, способных к гипераккумуляции различных элементов. Методы фиторемедиации разрабатывают и внедряют в разных странах мира, в том числе и в Казахстане.

Ключевые слова: фиторемедиация, тяжелые металлы, гипераккумуляторы, фитоэкстракция, городские почвы.

Information about authors:

Yelikbayev Bakhytzhan Koshkinbayevich, Professor of Satbayev University, Almaty, Kazakhstan; bek29k@gmail.com; http://orcid.org/0000-0002-1262-6524

Pagano Marcela Claudia, Association professor of Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil; marpagano@gmail.com; https://orcid.org/0000-0003-4764-6450

Jamalova Gulya Abaevna, Association professor of Satbayev University. Almaty, Kazakhstan; j.ga@bk.ru; https://orcid.org/0000-0002-4285-7390

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I. Iancu[1], N. Cătană[1], V. Popa[2], J. Degi[1], C. Pascu[1], V. Herman[1], G. Ilgekbayeva[3]

[1]Banat's University of Agricultural Sciences and Veterinary Medicine;
"King Michael I of Romania", Timisoara, Romania;
[2]Pasteur Institute, Bucharest, Romania;
[3]Kazakh National Agrarian University, Almaty, Kazakhstan.
E-mail: ionicavet@gmail.com, epirovet.tm@yahoo.com, virgilia.popa@gmail.com,
janos.degi@gmail.com, corina.pascu.ro@yahoo.co.uk, viorel.herman@fmvt.ro, gulnaz66@mail.ru

DETECTION OF MYCOPLASMA SYNOVIAE ANTIBODIES IN SERA OF BROILER CHICKENS BY THE ELISA

Abstract. *Mycoplasma synoviae* (MS) infection most frequently occurs as a subclinical respiratory infection. Approximately 2-4 weeks are required for antibodies to develop in infected birds.

Clinical examination was made daily, in broilers after 10 days old, because at this age there were seen the first symptoms of disease.

Enzyme-linked immunosorbent assay is commonly used as a diagnostic test and for routine testing of flocks and may replace serum plate agglutination as the primary serologic test. The serologic exam carried out through ELISA test at 21 and 35 days evidenced the specific antibodies and sero-conversion phenomenon.

At 21 days old (B I), 22, 91% from the analysed sera were positive, and at 35 days old (B II), 26,66% were positive, until the age for slaughter (42 days).

The value of titrers geometrical mean of 10,92 times higher at 35 days old than at 21 days old and the higher proportion of the obtained positive titrers, reveal both the implication of *M. synoviae* in the etiology of disease, and her infectiousness, by horizontal transmission.

Key words: *Mycoplasma synoviae, broiler chicken, ELISA.*

Introduction. *M. synoviae* commonly causes inapparent respiratory infection but may result in airsacculitis and synovitis in chickens and turkeys. *M. synoviae* is responsible for avian infectious synovitis, a disease which occur to chicken and turkey, characterized by an inflamation of synovial membranes of joints and sinews, producing important economical losses by stopping the affected poultry growth [1,2].

Poultry serological monitoring should be perfomed periodicaly, whereas the cases suspected by an infection with *Mycoplasma* should be confirmed by agent isolation or by ELISA [1,2].

The existing data in the literature indicate that it is an infectious avian synovitis, the chickens, develop sporadically or endemic, the morbidity being between 2-75% and the mortality is 1-30%. Typically, in broiler chicken, the disease have synovial and respiratory locations. It is also possible to develop an evolution of respiratory mycoplasmosis that can have 80-90% morbidity and 30% mortality [3].

Symptoms appeared in chickens after 3 weeks of age. The sick chickens had reduced appetite, adynamy, difficult walking, stinging, uni- or bilateral arthritis in the tarsus-metatarsal joint. The joints were enlarged in volume, fluctuating and sensitive. For these reasons, the chicks refused to travel, to drink water and to feed, that is why the progressive weakening appeared. Some chickens, in addition to the locomotor symptoms, had dyspnea and tracheal rales.

Kleven and Fletcher observed the appearance of clinical signs, in the natural infection in the chickens, starting at the age of one week, although the acute infection usually occurs in the chicks between 4 and 16 weeks [4].

In the case of experimental infection with joint trituration, from chickens with clinical signs of disease, the incubation period ranged from 2 days, in the case of intravenous inoculation, to 21 days, in the case of aerosol infection [2,5].

In the specialized literature it is mentioned that the infection translates into an exudative synovitis, characterized in the first phases by an inflammation of the membranes of the synovial tissues in the region of the knees, phalanges, sternum and mandibles, externalized by the accumulation of an exudate with appearance. viscous, consistent, gray - yellow, which in the case of chronic infections turns into a chaotic mass [6].

Kerr and Olson revealed, in the experimental infections, the erosive character of the arthritis produced by M. synoviae: at 165 days post-infection the articular surfaces are completely destroyed and replaced by processes of fibrous organization, with adhesive tenosynovitis, which subsequently lead to joint ankylosis [7].

The presence of M. synoviae infection in the broiler chicken parents population was a source of infection for the day-old chicks resulting from them, as well as the presence of the adult poultry, in the same farm as the chickens, could be a reservoir of *M. synoviae* and *M. gallisepticum*.

Recording of increased levels of antibodies against M. synoviae and M. gallisepticum in chickens, at the age at which the outbreaks of disease evolved, confirms the existence of the post-infectious immune response.

Materials and methods. I this research were described an episode from the broilers farm in West of Roumanie, consisted of 2 sheds populated with broilers (the hybrid Ross 308), usually from import. In that case, there was suspected avian infectious synovitis.

For the confirmation of diagnosis, we have performed epidemiological, anatomic-pathological and serological examinations.

The epidemiological and anatomic-pathological exams were made in the farm and the laboratory exam was made in Infectious Diseases Department of FMV Timisoara and in S.N. Institutul Pasteur S.A. Bucureşti.

In the epidemiological examination, the main parameter supervised was represented by cumulative mortality.

Clinical examination was made daily, in broilers after 10 days old, because at this age were seen the first symptoms of disease. We have not performed determinations concerning the microclimatic parameters.

Serological examination was made to confirm the suspicion of avian infectious synovitis. There were collected blood samples from broiler chickens, randomly, in the next way:

- B I – at 21 days old (48 blood samples);
- B II – at 35 days old (30 blood samples).

The serum samples were decanted in Ependorf tubes, counted off and kept in the deepfreeze, until the serological exam.

The sera were assayed for detection of specific antibody, using commercial ELISA (Enzyme Linked Immunosorbent Assay) kit, named Mycoplasma Synoviae Antibody Test Kit from Affinitech Ltd. [8].

The serological exam was realised in S.N. Institutul Pasteur S.A. București.

Results and discussions. Serological examination had as purpouse the confirmation of avian infectious synovitis, epidemiological and anatomoclinical suspected, in the series of broiler chickens from the studied farm.

The results of epidemiological examination are expressed by the cumulative mortality recorded in broiler chickens was about 25%, up to the age of slaughter. These values correspond to the data from the literature, most of the authors considering that, in mycoplasmosis of broilers, the cumulative mortality exceeds 20% [6].

The results of anatomo-clinical examination showed that, after 4 weeks of age, in some chickens, the gastrocnemian tendon ruptured (figure 1), followed by the impossibility of displacement and extension of the affected limb. As a rule, this change was unilateral.

According to arthritis, in the early stage, the articular exudate in the age of gray-yellow, still during the chronic evolution, the exudate was caudal and contained a synovial tendon tissue.

Frequently, gastrocnemius tendon rupture and joint surface destruction have been reported.

In addition to the inflammatory lesions (figure 2) of the locomotory apparatus, hepatomegaly, splenomegaly and sternal bursitis have also been observed.

Figure 1 – Broiler chicken with unilateral tear of the gastrocnemius tendon

Figure 2 – Inflamation of the synovial sheaths

The results of this exam, made by ELISA test, are shown in table and figure 3. After the interpretation of reactions and the processing of results, according to the interpretation soft of the FlockChek® Avian MS Antibody Test Kit, there were asigned for every recoltation: the titre group, the minimum titre, the maximal titre and the geometrical mean (G.M.). The titrers are expressed in optical densities (O.D.).

The results of serological exam performed by ELISA

No. crt.	B 1/21 days		B 2/35 days	
	Titre group	Samples number	Titre group	Samples number
1	0	37	0	22
2	1	4	1	5
3	2	4	2	1
4	3	2	3	2
5	4	1	4	0
7	Maximal titre	3000 O. D.	Maximal titre	2293 O. D.
8	Minimum titre	0 O. D.	Minimum titre	15 O. D.
9	Titrers geometrical mean	13	Titrers geometrical mean	142

In the first bleeding, at 21 days old, were identified 5 titrers groups (0-4), minimum titre was of 0 O.D. and maximal titre was of 3000 O.D.

In the second bleeding, at 35 days, were identified 4 titrers groups (0-3), minimum titre was of 15 O.D. and maximal titre was of 2293 O.D.

From these results we observed that at 21 days old (B I), 22, 91% from the analysed sera were positive, and at 35 days old (B II), 26,66% were positive.

The results of serological exam showed that at 21 days of age the geometric mean of the titres had a value of 13 O.D. compared to the geometric mean titres at the age of 35 days, when it registered a significant increase, being 142 O.D.

At that age, the antibody titrers expressed in O.D. were much higher than the positive sera proportion: at 35 days old, was of 10,92 times higher than the titrers G.M. at 21 days old. That evolution of seroconversion suggests the aggressive character of mycoplasmas and their active implication in the pathological process.

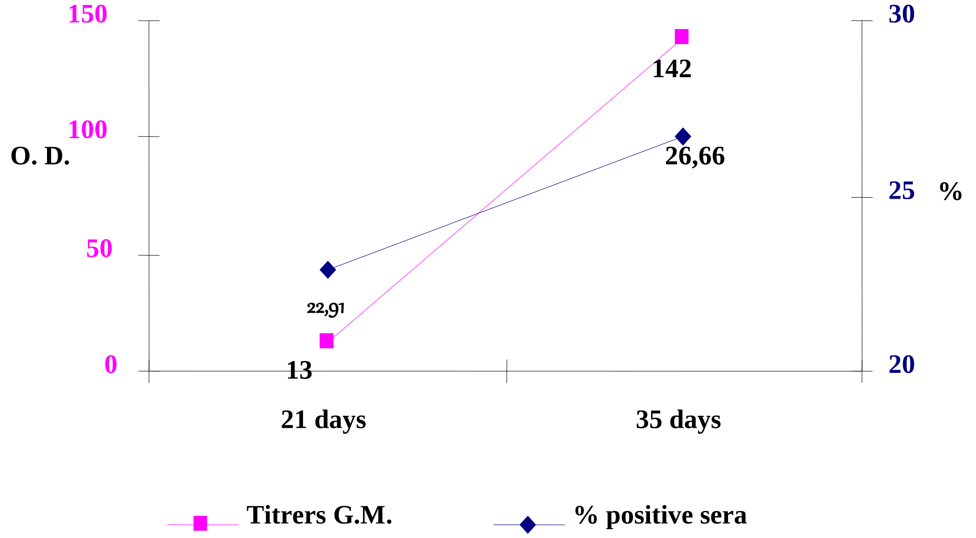

Figure 3 – Titrers geometrical mean, expressed in O.D., and the proportion of positive sera

The results of serological exam confirmed the presence of *M. synoviae* infection, which was suspected by the epidemiological and anatomoclinical exams.

In the same time, the results of this research demonstrated a postinfection specific immune response.

The values and the proportion of positive titrers obtained at 21 and 35 days old reveal both the implication of *M. synoviae* in the etiology of the disease, and her infectiousness, by horizontal transmission.

The values of the antibodies anti *M. synoviae* titrers, which are expressed in O.D., are similar to the values noted by other authors [6,9].

Analysis of the results obtained found that broiler chickens showed a high level of antibodies against *M. synoviae*.

The results suggest a high prevalence of *M. synoviae* in chickens aged 35 days. This could be an alarming sign in countries where there is no control / vaccination program targeting *M. synoviae*. High levels of anti-*M. synoviae* antibodies recorded in broiler chickens suggest that they are exposed to the infectious agent.

In accordance with the kit manufacturer's recommendations, all the sera collected from broiler chickens, which had a title value of less than 400, were considered negative.

In contrast, all serum samples from chickens were serologically positive for *M. synoviae*, with very high levels of antibodies and an average titer of 3000, assuming a severe infection with this pathogen, probably associated with some respiratory viruses.

Infection with Micoplasma synoviae is a threat to the economic evolution of poultry, because infected birds are an active reservoir of *M. synoviae*.

Our results are in line with those published in the poultry units located in Western Europe, where an increase of *Mycoplasma synoviae* infections was observed, the isolated strains being resistant to erythromycin and flumequin and sensitive to oxytetracycline, doxycycline, spiramicin, lincomycin, tylosin thiamine, enrofloxacin and spectinomycin [10-15].

Serological monitoring of poultry is the correct measure for controlling infections with the so-called preventive treatments required where necessary.

Conclusion:

- There was signaled the existence of one disease with symptoms specific to the infectious mycoplasmosis, the form of avian infectious synovitis.
- The confirmation of disease was made by the ELISA test, using *Mycoplasma Synoviae Antibody Test* kit.
- At 21 days old (B I), 22, 91% from the analysed sera were positive, and at 35 days old (B II), 26,66% were positive, until the age for slaughter (42 days).
- The value of titrers geometrical mean of 10,92 times higher at 35 days old than at 21 days old and the higher proportion of the obtained positive titrers, reveal both the implication of *M. synoviae* in the etiology of disease, and her infectiousness, by horizontal transmission.

И. Ианку[1], Н. Катана[1], В. Попа[2], Ж. Деги[1], К. Паску[1], В. Херман[1], Г. Ильгекбаева[3]

[1]«Румыния Майкл I Король» Банат ауылшаруашылық ғылымы
және ветеринариялық медицина университеті, Тимишоара, Румыния;
[1]Пастер университеті, Бухарест, Румыния;
[3]Қазақ ұлттық аграрлық университеті, Алматы, Қазақстан

ИФТ-ДА БРОЙЛЕР БАЛАПАНДАРЫ ҚАН САРЫСУЫНДА MYCOPLASMA SYNOVIAE-ГЕ ҚАРСЫ АНТИДЕНЕНІ АНЫҚТАУ

Аннотация. Құстардың жұқпалы синовит диагнозын растау үшін серологиялық зерттеу жүргізілді. Зерттелген шаруашылықта індеттанулық және анатомиялық-клиникалық деректер бойынша бройлер-балапандар күдік тудырды.

Эпизоотологиялық зерттеу нәтижелері бройлер балапандардың өлім-жітім жиыны сойыс жасына дейін 25% - ға жуық екендігін көрсетті.

Анатомиялық-клиникалық зерттеулер кейбір тауықтардың төрт аптадан кейін балтыр сіңірінің үзілгенін, олардың алдағы уақытта орнынан жылжу және зақымдалған аяғын бүге алмайтынын айқындады.

Артрит аумағында, ерте кезеңде буын экссудаты сұр-сары түсті болғанда тіптен созылмалы эволюция кезінде каудалды жалқаяқ болып, сіңірдің синовиалды ұлпасы анықталды.

Серологиялық реакция FlockChek® Avian MS Antibody Test Kit қойылып, оның нәтижесі бағдарламалық жасақтама арқылы өңделгеннен кейін әрбір талдау барысында келесі көрсеткіштер анықталды: топ титрі, минималды титр, максималды титр және орташа геометриялық титр. Титр оптикалық тығыздық негізінде (О.Т.) көрсетілді.

Бірінші зерттеуде 21 күндігінде титрдің 5 тобы (0-4) анықталып, минималды титр 0 О.Т. және максималды титр 3000 О.Т. болды. Екіншісінде 35 күннен кейін 4 титрлі топ (0-3) анықталды, минималды титр 15 О.Т. және максималды титр 2293 О.Т. болып анықтады.

21 күндіктерде (В I) талдау жасалғандардан 22,91% қан сарысуы оң нәтиже беріп, ал 35 күндіктерде (В II) тіпті сою уақытына дейін (42 күн) 26,66% оң нәтиже көрсетті.

Серологиялық зерттеулер нәтижесі титрлердің геометриялық орташа мәні 21 күндіктерде 35 күндіктерге қарағанда 13 О.Т. болды, ал 35 күндіктерде анағұрлым өсіп, 142 О.Т. көрсетті.

Титрлердің геометриялық орташа мәні 35 күндіктерде 21 күндіктерге қарағанда 10,92 есе жоғары болды және алынған оң титрдің жоғары үлесі M.synoviae-дің аурудың этиологиясымен қатар оның горизонталды жолмен де берілетінін көрсетеді.

Сероконверсияның бұл эволюциясы микоплазмалардың агрессиялық сипатын және олардың патологиялық процесте белсенді қатысу жағдайын бағамдайды. Үй құстарының серологиялық мониторингі инфекцияны бақылау үшін қажет кезде талап етілетін ем-домжық шаралар арқылы ақылға қонымды іс шара болып саналады.

Түйін сөздер: Mycoplasma synoviae, бройлер балапандар, ELISA.

И. Ианку[1], Н. Катана[1], В. Попа[2], Ж. Деги[1], К. Паскю[1], В. Херман[1], Г. Ильгекбаева[3]

[1]"Король Майкл I Румынии"Банатский университет сельскохозяйственных наук и Ветеринарной медицины, Тимишоара, Румыния;
[2]Институт Пастера, Бухарест, Румыния;
[3]Казахский национальный аграрный университет, Алматы, Казахстан

ОБНАРУЖЕНИЕ АНТИТЕЛ ПРОТИВ MYCOPLASMA SYNOVIAE В СЫВОРОТКЕ КРОВИ У БРОЙЛЕРНЫХ ЦЫПЛЯТ В ИФА

Аннотация. Серологическое исследование проводилось для подтверждения диагноза на инфекционный синовит птиц. По эпизоотологическим и анатомо-клиническим данным было подозрение в серии цыплят-бройлеров с изучаемой фермы.

Результаты эпизоотологического обследования были выражены в том, что совокупная смертность, зафиксированная у цыплят-бройлеров, составляла около 25%, вплоть до убойного возраста.

Анатомо-клинические обследования показали, что через 4 недели у некоторых кур разорвалось икроножное сухожилие с последующей невозможностью смещения и разгибания пораженной конечности. Как правило, это изменение было односторонним.

В зонах артрита, на ранней стадии экссудат сустава в возрасте серо-желтого цвета, еще во время хронической эволюции, выпот был каудальным и содержал синовиальную ткань сухожилия.

После интерпретации реакций и обработки результатов в соответствии с программным обеспечением для интерпретации FlockChek® Avian MS Antibody Test Kit были определены для каждого повторного анализа: группа титров, минимальный титр, максимальный титр и среднее геометрическое (GM). Титры были выражены в оптических плотностях (O.D.).

При первом исследовании, в возрасте 21 дня, было выявлено 5 групп титров (0-4), минимальный титр был 0 О.Д. и максимальный титр был 3000 О.Д. Во втором – через 35 дней, были выявлены 4 титрационные группы (0-3), минимальный титр был 15 О.Д. и максимальный титр был 2293 О.Д.

В возрасте 21 дня (B I), 22,91% исследованных сывороток были положительными, а в возрасте 35 дней (B II), 26,66% были положительными, вплоть до возраста убоя (42 дня).

Результаты серологического исследования показали, что в возрасте 21 дня среднее геометрическое значение титров имело значение 13 О.Д. по сравнению со средними геометрическими титрами в возрасте 35 дней, когда было зарегистрировано значительное увеличение, составившее 142 О.Д.

Геометрическое среднее значение титров в 10,92 раза выше в возрасте 35 дней, чем в возрасте 21 дня, и более высокая доля полученных положительных титров показывают как влияние M.synoviae на этиологию заболевания, так и ее инфекционность при горизонтальной передаче.

Эта эволюция сероконверсии предполагает агрессивный характер микоплазм и их активное участие в патологическом процессе. Серологический мониторинг домашней птицы является правильной мерой для контроля инфекций с помощью так называемых профилактических процедур, требуемых при необходимости.

Ключевые слова: Mycoplasma synoviae, цыплята-бройлеры, ИФА.

Information about authors:

Iancu I., Doctor of Veterinary Science, Lecturer, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", Timisoara, Romania; ionicavet@gmail.com; https://orcid.org/0000-0001-8913-4942

Cătană N., Doctor of Veterinary Sciences, Professor, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", Timisoara, Romania; epirovet.tm@yahoo.com; https://orcid.org/orcid.org/0000-0002-4242-2418.

Popa V., Doctor of Veterinary Science, Senior researcher, Pasteur Institute Bucuresti, Romania; virgilia.popa@gmail.com; https://orcid.org/0000-0003-0795-2410

Degi J., Doctor of Veterinary Science, Lecturer, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", Timisoara, Romania; janos.degi@gmail.com; https://orcid.org/ 0000-0002-5859-5057

Pascu C., Doctor of Veterinary Science, Assosiated Professor, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", Timisoara, Romania; corina.pascu.ro@yahoo.co.uk, https://orcid.org/ 0000-0002-1013-0437

Herman V., Doctor of Veterinary Science, Professor, Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania", Timisoara, Romania; viorel.herman@fmvt.ro; https://orcid.org/0000-0001-7118-6488

Ilgekbayeva G., Doctor of Veterinary Science, Professor, Kazakh National Agrarian University, Almaty, Kazakhstan; gulnaz66@mail.ru; https://orcid.org/0000-0001-7140-2961

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I. Kriukova[1], S. Gubar[1], I. Vladymyrova[1], T. Tishakova[2]

[1]National University of Pharmacy, Kharkiv, Ukraine;
[2]Kharkiv National Medical University, Kharkiv, Ukraine.
E-mail: kriukova92@gmail.com

STUDY OF AMINOACID COMPOSITION OF THE HARICOT BEAN SHELLS

Abstract. Commonly, the production of herbal medicines is more advantageous economically than chemical synthesis. Agricultural crops, having sufficient raw material base, are of main interest.

In this respect the shells of haricot bean (*Phaseolus vulgaris L.* (Fabaceae)), that are waste products of beans, are of special interest. Due to the absence of regulatory documents for this kind of drug raw material in Ukraine the development of standardization parameters for the raw material of haricot bean is a very topical. Pharmacotherapeutic action of this drug raw material is caused by the presence of amino acids, proteins, macro- and microelements as well as flavonoids.

There are medicines at the pharmaceutical market of Ukraine that was produced from the haricot bean: «Sadifit» (ZAO «Liktravy», Ukraine), «Arphazetin» (ZAO Pharmaceutical plant «Viola», Ukraine), «Hepatophyt» (LLC «Research and production pharmaceutical company «AIM», Ukraine), «Shells of haricot bean» (ZAO «Liktravy», Ukraine).

Medicines are introduced to the market in the form of medicinal herbs mixture that's why main method of application is a preparation of restorative drinks, tinctures, teas. In light of this, study of amino acid composition in the water extracts from raw material is reasonable.

Research of qualitative and quantitative amino acid composition of 5 lots of the shells of haricot bean was carried out by HPLC method. This raw material was harvested in different regions of Ukraine over a period of 2014 – 2016. 16 amino acids were identified in the water extracts of the shells of haricot bean. Glutamic acid (1.60 – 5.56 ′μg/100 mg), L-alanine (1.41 – 2.23 μg/100 mg), L-arginine (0.65 – 2.12 μg/100 mg) had the greatest content in the investigated samples. D-serine (0.04 – 0.13μg/100 mg) and D,L-methionine (0.02 – 0.43 μg/100 mg) had the lowest quantity in the investigated samples.

Sufficiently high content of amino acids makes it possible to consider them as potential substances-markers at the development of assay procedure for the standardization of raw material.

Key words: amino acids, shells of the haricot bean, chromatography-mass spectrometry.

Nowadays quality control of herbal raw material used for the manufacture of medicines is a key point of pharmaceutical segment of health service [1,2,3]. It makes necessary to develop universal procedures enabling to control content of biologically-active substances in the raw material as well as in medicines on its base [4,5].

That's why haricot bean is of research interest. This plant has sufficient raw materials base but there are not regulatory documents on the territory of Ukraine [6,7].

Haricot bean (*Phaseolus vulgaris L. (Fabaceae)*) is a crop that has been used in medicine for many years. Preparations, containing haricot bean as active substance, normalize carbohydrate metabolism and reduce sugar level due to the presence of amino acids, proteins macro- and microelements, flavonoids in this plant [8,9,10].

The study of the chemical composition of various types of beans was carried out by scientists of the National University of Pharmacy, Kovalev S.V. and Kovalev V.M. Scientists have determined quantitative composition of phenolic compounds (3.64 ± 0.09%), flavonoids (2.78 ± 0.12%), hydroxycinnamic acids (2.50 ± 0.13%), polyphenol compounds (3.68 ± 0.12%), ascorbic acid (0.023 ± 0.001%) and organic acids (1.12 ± 0.02%) in the herb of scarlet bean. Besides they studied qualitative and quantitative composition of amino acids and mineral components in the lots of common bean, black beans, sieva bean, scarlet bean, red mung, green mung [11]. 16 amino acids, 7 of which are essential, were identified in accordance with the results of abovementioned research. It was found that glutamic and asparaginic acids, phenilalanine, valine, methionine, alanine, glycine, leucine had the highest level of content in the shells of bean [12,13]. The presence of 19 macro- and microelements was also established in the herb of bean; among which calcium, potassium, magnesium and silicon prevailed. Obtained data was used to get the substance with hypoglycemic activity that is called glyphasine and obtained from the herb and shells of bean [14].

It is known from literature sources that amino acids are structural components of vegetable protein, cellular fluid and take part in the synthesis of enzymes, vitamins and alkaloids. In humans, amino acids play an important role at the synthesis of antibodies, enzymes, hormones, hemoglobin, provide energy for muscular tissue, enhance metabolic processes, reduce level of cholesterol, have powerful antioxidant action, restore tissues of liver and kidney [15,16].

Generally, methods used for amino acid analysis are based on the chromatographic separation of amino acids presented in the test sample (GC-MS and HPLC-MS) [17,18].

Table 1 includes medicines on the base of the shells of haricot bean that exist on the pharmaceutical market of Ukraine [19].

Table 1 – Haricot bean shells-based medicines

Sl.No.	Name of the medicine	Manufacturer	Dosage form	Pharmacological class
1	«Sadifit»	ZAO «Liktravy», Ukraine	Medicinal herbs mixture	Diabetes medication
2	«Arphazetin»	ZAO Pharmaceutical plant «Viola», Ukraine	Medicinal herbs mixture	Diabetes medication
3	«Hepatophyt»	LLC «Research and production pharmaceutical company «AIM», Ukraine	Medicinal herbs mixture	Medication for hepatic disorders and bile ducts disorders
4	«The shells of haricot bean»	ZAO «Liktravy», Ukraine	Shells of bean in the packs with internal package	Mild to moderately severe diabetes mellitus type I (as part of complex therapy)

According to the data given in the table 1, the shells of haricot bean are used to prepare medicinal herbs mixture, tinctures, and teas. Considering the method of application, it is rational to conduct a quality assessment in water extracts [20,21].

The aim of this research is the study of amino acid composition in the water extracts from the shells of haricot bean, growing on the territory of Ukraine, as one of the step of the standardization of raw material.

Materials and methods. The study was carried out on 5 lots of raw material from the shells of haricot bean, harvested in different regions of Ukraine during 2014-2016, using high performance liquid chromatography (HPLC) with mass spectrometric detection. High-performance liquid chromatograph, model Acquity H-class UPLC system (Waters, USA), equipped with triple-quadrupole mass-spectrometer (Xevo, Waters, USA) was used for qualitative and quantitative amino acid analysis.

Preparation of test solutions. Place about 100 mg (precisely weighed amount) of powdered raw material, poured through the sieve with the diameter of holes 355 µm, in the 20 ml volumetric flask, add 15 mL of *water P*. Ultrasonicate at the temperature 45°C for 10 minutes and leave it to cool. Bring the final solution volume to the mark with the addition of *water P*, mix and filter through the Q-max Syringe membrane filter (13 mm, 45 мкм, Nylon) into the vials.

Preparation of standard solutions. Standard sample (SS) of amino acids was used. This sample contained 17 amino acids dissolved in 0.1M hydrochloric acid solution: L-Alanine, L-Arginine, DL-Aspartic acid, L-Cystine, Glutamic acid, Glycine, L-Tryptophan, Isoleucine, DL-Leucine, L-Lysine, DL-Methionine, DL-Phenylalanine, L-Proline, D-Serine, L-Threonine, L-Tyrosine, Valine. Content of every amino acid was 2.5±0.01 mmol/L (Sigma-Aldrich, lot number BCBQ0950V, expiry date - 27.07.2019).

Contents of 1 vial (2 mL) of SS is shaked, bringed the temperature to 20°C and diluted 2-fold, 5-fold, 10-fold, 20-fold, 50- and 100-fold with water *P*, mixed and filtered through the Q-max Syringe membrane filter (13 mm, 45 μm, Nylon) in to the vial.

Chromatographic procedure. High-performance liquid chromatograph is equipped with triple-quadrupole mass-spectrometer (Xevo, Waters, USA) with electrospray source of ionization (ESI). Separation of amino acids in the samples was carried out using ZIC-HILIC column 150 mm × 2.10 mm, packed with silica gel for chromatography, octadecylsilyl P with size particle 3.5 μm.

Chromatographic conditions:

- Column temperature – 40°C;
- Injection volume – 1 μl;
- Flow Rate – 0.5 mL/min;

Triple quadrupole mass spectrometry detection

- Source Temperature – 150°C;
- Desolvation Temperature –400°C;
- Cone Gas Flow – 20 (L/Hr);
- Desolvation Gas Flow –1000 (L/Hr);
- Capillary – 3.50 (kV).

Gradient elution is performed using mobile phase A– 0.050 M ammonium acetate buffer solution with a pH 4.5± 0.05 which was adjusted using diluted acetic acid; mobile phase B – acetonitrile.

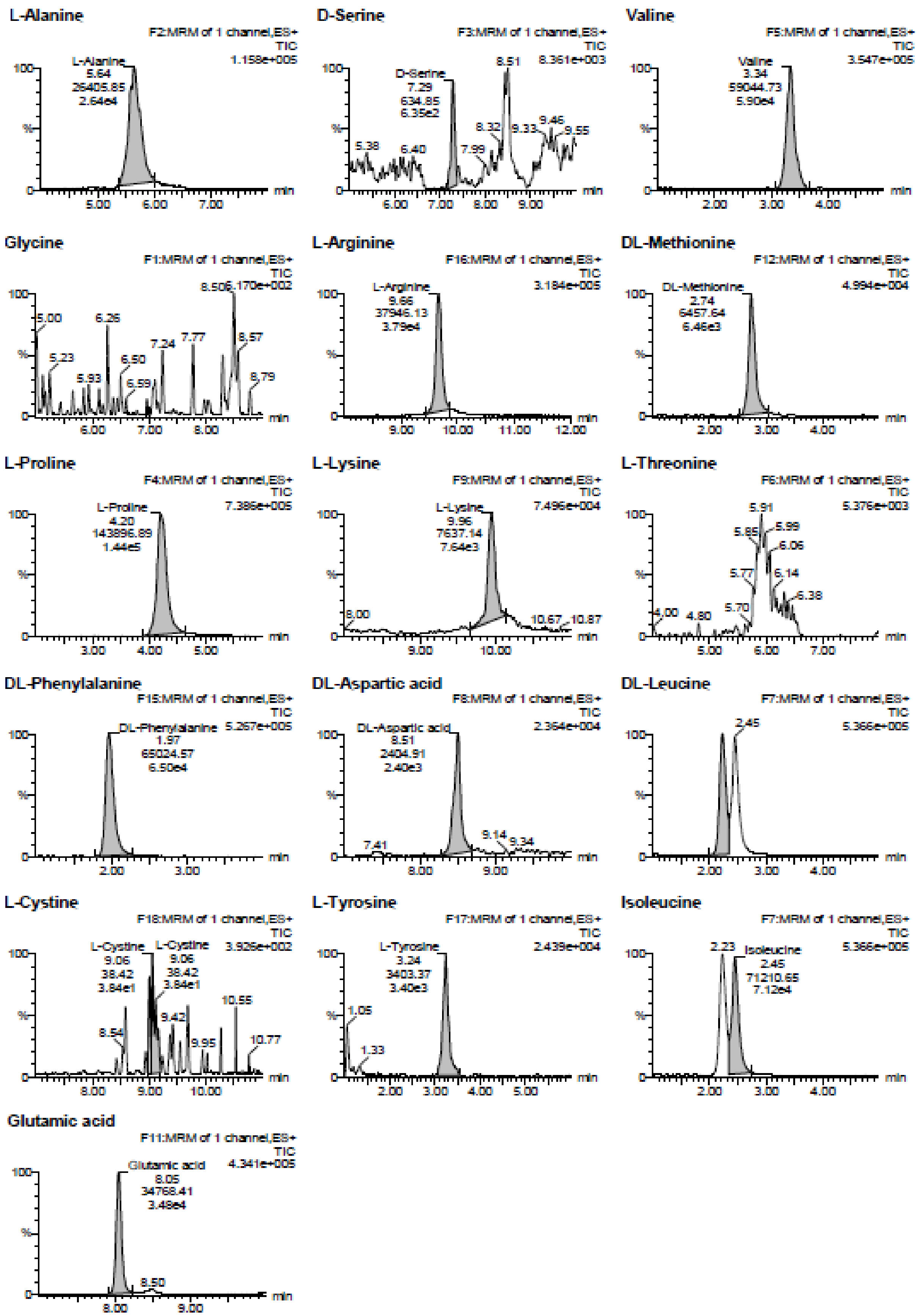
Chromatography is performed at the following gradient program (table 2).

Table 2 – Gradient program for chromatography

Time(min)	Mobile phase A (%, v/v)	Mobile phase B (%, v/v)
0-5	20%	80%
5-6	20→35%	80→65%
6-10	35→50%	65→50%
10-11	50%	50%
11-11,2	50→20	50→80%

Results. Identification of every substance was done by mass-spectra given on the following chromatograms (figure 1).

Quantitative composition of amino acids was calculated using calibration curves (method of calibrated function). Results are given in the table 3.



Example of chromatogramms of amino acid composition of the shells of haricot bean obtained by mass-spectrometry

Table 3 – Amino acid composition of water extracts of the shells of haricot bean (μg/100 mg)

Sl.No.	Name of amino acid	Content of amino acids, μg/100 mg				
		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
1	L-Alanine	1.57	2.23	2.05	2.11	1.41
2	D-Serine	0.12	0.13	0.04	0.13	0.06
3	Valine*	0.34	1.24	1.00	1.91	1.57
4	Glycine	–	–	–	–	–
5	L-Arginine	2.12	2.09	–	0.65	1.28
6	DL-Methionine*	0.02	0.11	–	0.05	0.43
7	L-Proline	0.33	1.22	1.46	1.46	0.32
8	L-Lysine*	0.54	0.42	0.19	0.60	0.74
9	L-Threonine	–	–	–	–	–
10	DL-Phenylalanine*	0.14	0.57	0.42	0.92	0.94
11	DL-Aspartic acid	1.63	2.08	0.96	1.79	2.79
12	DL-Leucine*	0.28	0.77	0.55	1.04	1.24
13	L-Cystine	0.06	0.01	0.00	0.00	0.00
14	L-Tyrosine	0.14	0.23	0.27	0.38	0.60
15	Isoleucine*	0.21	0.76	0.32	1.10	1.22
16	L-Tryptophan	–	–	–	–	–
17	Glutamic acid	3.04	5.56	2.76	4.22	1.60
Sum of essential amino acids		1.53	3.88	2.48	5.63	6.16
Sum of nonessential amino acids		9.01	13.57	7.54	10.75	8.07
Total sum of amino acids		10.54	17.45	10.02	16.38	14.23
Note: «*» – essential amino acids.						

Discussion. As a result of research 16 amino acids were identified, among which there are 6 nonessential amino acids: valine, DL-methionine, L-lysine, DL-phenylalanine, DL-leucine, isoleucine. Valine has a dominant content which varies from 0.34 to 1.91 μg/100 mg. Glutamic acid (1.60 - 5.56 μg/100 mg), L-alanine (1.41 - 2.23 μg/100 mg), L-arginine (0.65 - 2.12 μg/100 mg) prevailed over all samples of raw material according to the quantitative composition. Minor amino acids were D-serine (0.04 - 0.13 μg/100 mg), DL-methionine (0.02 – 0.43 μg/100 mg).

Biological activity of identified amino acids was thoroughly studied. In accordance with data of scientific literature L-alanine is an amino acid that takes part in energetic metabolism, stimulates immunity, and regulates level of sugar in the blood. Arginine takes part in the regulation of synthesis and secretion of hormones such as: insulin, prolactin, thyroid hormone, parathyroid hormone, adrenal hormones, and hormones of fertility cycle.

Sufficiently high content of discussed amino acids affords an opportunity to consider their as potential substances-markers at the development of assay procedure for standardization of raw materials.

Conclusion. The present study has been undertaken to determine the qualitative and qualitative analysis of the shells of haricot bean by the HPLC method. The three amino acids, glutamic acid, L-alanine and L-arginine, were found at the highest content: 1.60 – 5.56 μg/100 mg, 1.41 – 2.23 μg/100 mg, 0.65 – 2.12 μg/100 mg, respectively. The obtained results indicate the possibility of usage of the shells of haricot bean as an alternative raw material for preparation of easily digested forms of amino acids that regulate metabolic processes in the human body.

Due to sufficiently high content of found amino acids can be considered as substances-markers at the development of assay method for standardization of raw materials.

А. И. Крюкова, С. Н. Губарь, И. Н. Владимирова, Т. С. Тишакова

[1]Ұлттық фармацевтика университеті, Харьков, Украина;
[2]Харьков ұлттық медицина университеті, Харьков, Украина

КӘДІМГІ ҮРМЕБҰРШАҚ ЖЕМІСІ ЖАРМАСЫНЫҢ АМИНҚЫШҚЫЛДЫ ҚҰРАМЫН ЗЕРТТЕУ

Аннотация. Көптеген жағдайларда өсімдік шикізаттан дәрілік құралдарды алу химиялық синтезбен салыстырғанда экономикалық тұрғыдан тиімдірек болады. Аса көп сұранысқа жеткілікті шикізаттық қоры бар ауылшаруашылық дақылдар ие болады.

Бұл аспектіде кәдімгі үрмебұршақ – Phaseolus vulgaris L. (Fabaceae) өндірісіндегі қалдық болып саналатын бұршақ жемісі жармасы назар аудартады. Украинада осы ДӨШ түріне нормативтік құжаттаманың жоқ болуы кәдімгі үрмебұршақ шикізатына стандарттау параметрлерін әзірлеу өзектілігін айқындайды. Осы дәрілік шикізаттың фармакотерапиялық әсері құрамында амин қышқылдары, ақуыздар, макро және микроэлементтердің, сондай-ақ флаваноидтердің болуы арқылы түсіндіріледі.

Украинаның фармацевтика нарығында құрамында кәдімгі үрмебұршақ шикізаты бар дәрілік құралдар ұсынылған: «Садифит» («Лектравы» ЖАҚ, Украина), «Арфазетин» («Виола» фармацевтика фабрикасы» ЖАҚ, Украина), «Гепатофит» («ЭЙМ» ғылыми-өндірістік фармацевтика компаниясы» ЖШҚ, Украина), «Үрмебұршақ жемісі жармасы» («Лектравы» ЖАҚ, Украина).

Препараттар жинақ түрінде ұсынылған, сондықтан да негізгі қолдану әдісі – қайнатпа, тұнба, шай дайындау. Осыған байланысты шикізаттан нақты сулы бөлінділерінің аминқышқылды құрамын зерттеу ұтымды болып саналады. Масс-спектрометриялық детекторлау арқылы жүргізілетін ТЖСХ (ВЭЖХ) әдісі арқылы Украинаның түрлі аймағында 2014-2016 жж. аралығында дайындалған кәдімгі үрмебұршақ жемісі жармасындағы амин қышқылдарының 5 сериясын сапалық және сандық анықтау бойынша зерттеулер жүргізілді. Кәдімгі үрмебұршақ жемісі жармасының су сығындыларында 16 амин қышқылдары сәйкестендірілді. Зерттелетін үлгілерде құрамы жағынан басым болып глутамин қышқылы (1,60 бастап 5,56 мкг/100 мг дейін), L-аланин (1,41 бастап 2,23 мкг/100 мг дейін), L-аргинин (0,65 бастап 2,12 мкг/100 мг дейін) анықталды. Минорлық амин қышқылы ретінде D-серин (мөлшері 0,04 бастап 0,13 мкг/100 мг дейін) және DL-метеонин (мөлшері 0,02 бастап 0,43 мкг/100 мг дейін) есептеледі.

Аталған амин қышқылдарының жеткілікті жоғары мөлшері оларды шикізатты стандарттау үшін сандық анықтау әдістемесін әзірлеу кезінде ықтималды маркер-заттар ретінде қарастыру мүмкіндігін береді.

Түйін сөздер: амин қышқылдары, кәдімгі үрмебұршақ жемісі жармасы, хромато-масс-спектрометрия.

А. И. Крюкова, С. Н. Губарь, И. Н. Владимирова, Т. С. Тишакова

[1]National University of Pharmacy, Kharkiv, Ukraine;
[2]Kharkiv National Medical University, Kharkiv, Ukraine

ИССЛЕДОВАНИЕ АМИНОКИСЛОТНОГО СОСТАВА СТВОРОК ПЛОДОВ ФАСОЛИ ОБЫКНОВЕННОЙ

Аннотация. Получение лекарственных средств из растительного сырья в большинстве случаев экономически выгоднее химического синтеза. Наибольший интерес вызывают сельскохозяйственные культуры, обладающие достаточной сырьевой базой.

В данном аспекте внимание привлекают створки плодов фасоли обыкновенной – Phaseolus vulgaris L. (Fabaceae), которые являются отходом производства бобов фасоли. Отсутствие нормативной документации на данный вид ЛРС в Украине определяет актуальность разработки параметров стандартизации на сырье фасоли обыкновенной. Фармакотерапевтическое действие данного лекарственного растительного сырья обусловлено наличием аминокислот, белков, макро- и микроэлементов, а также флавоноидов.

На фармацевтическом рынке Украины представлены лекарственные средства, содержащие сырье фасоли обыкновенной: «Садифит» (ЗАО «Лектравы», Украина), «Арфазетин» (ЗАО Фармацевтическая фабрика «Виола», Украина), «Гепатофит» (ООО «Научно-производственная фармацевтическая компания «ЭЙМ»», Украина), «Фасоли створки плодов» (ЗАО «Лектравы», Украина).

Препараты представлены в виде сборов, поэтому основной способ применения – это приготовление отваров, настоек, чаев. Исходя из этого, рациональным является изучения аминокислотного состава именно водных извлечений сырья.

Методом ВЭЖХ с масс-спектрометрическим детектированием проведены исследования качественного и количественного определения аминокислот 5 серий створок плодов фасоли обыкновенной, заготовленной в разных регионах Украины на протяжении 2014-2016 гг. В водных экстрактах створок плодов фасоли обыкновенной идентифицировано 16 аминокислот. В исследуемых образцах доминирующими по содержанию установлены глутаминовая кислота (от 1,60 до 5,56 мкг/100 мг), L-аланин (от 1,41 до 2,23 мкг/100мг), L-аргинин (от 0,65 до 2,12 мкг/100 мг). Минорными аминокислотами являются D-серин (содержание от 0,04 до 0,13 мкг/100 мг) и DL-метеонин (содержание от 0,02 до 0,43 мкг/100 мг).

Достаточно высокое содержание данных аминокислот дает возможность рассматривать их как потенциальные вещества-маркеры при разработке методики количественного определения для стандартизации сырья.

Ключевые слова: аминокислоты, фасоли обыкновенной створки плодов, хромато-масс-спектрометрия.

Information about authors:

Kriukova Anna I., PhD, Assistant Professor of the Drug Technology Department NUPh, Kharkiv, Ukraine; kriukova92@gmail.com; https://orcid.org/0000-0002-9866-0976

Gubar Svitlana M., PhD, Associate Professor of the Department of pharmaceutical chemistry, head of state scientific-research laboratory of NUPh for medicinal substances quality control, Kharkiv, Ukraine; gubarsn@ukr.net; https://orcid.org/0000-0002-5434-9502

Vladymyrova Inna V., PhD, Associate Professor of the Department of Pharmacognosy, Head of scientific methodological (scientific research) laboratory on pharmaceutical education of NUPh, Kharkiv, Ukraine; inna.vladimirova2015@gmail.com; https://orcid.org/0000-0002-6584-4840

Tishakova Tetyana S., PhD, Associate professor, Medical and bioorganic chemistry department, Kharkiv National Medical University, Kharkiv, Ukraine; https://orcid.org/0000-0002-0257-7757

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G. J. Sultangazina[1], A. N. Kuprijanov[2], O. A. Kuprijanov[2] , R. S. Beyshov[1]

[1]A. Baitursynov Kostanay State University, Kostanay, Kazakhstan;
[2]Kuzbass Botanical garden, Federal Research Center of Coal and Coal Chemistry of SB RAS,
Kemerovo, Russia.
E-mail: gul_sultan@mail.ru, kupr-42@yandex.ru

ONTOGENESIS AND AGE STRUCTURE OF *ADONIS VERNALIS* L. POPULATIONS IN THE CONDITIONS OF NORTHERN KAZAKHSTAN

Abstract. The current article presents study results made on the coenoflora of *Adonis vernalis* L. in Northern Kazakhstan. The materials have been gathered in the course of field research taking into account the literary data. Ontogenesis and age structure of the coenopopulations are provided on the basis of detailed-route studies. The study of age-related stages was carried out on the territory of Northern Kazakhstan (Akmola and North Kazakhstan regions) in 2018-2019. *A. vernalis* is a short-stem grassy polycarpic plant, it is represented in Northern Kazakhstan by the populations of dry meadows (Kokshetau Upland) and real meadows (the forest-steppe of North Kazakhstan region). Ontogenesis of *A. vernalis* has three periods and 7 age stages. Plants have low seed productivity. Seeds have a long endogenous peace related to the underdevelopment of a seed germ. A characteristic feature is the presence of a long pregenerative period in plants of the "steppe" type coenopopulations and its reduction in the "meadow" type coenopopulations. There have been studied thirteen coenopopulations of *A. vernalis* located in Akmola and North Kazakhstan regions. Coenopopulations of *A. vernalis* are bound to four main habitats: forest edges, meadow steppes, meadows, artificial plantations. By age, young populations are formed on forest edges, and according to the "delta - omega" classification, there are mature coenopopulations. Mature coenopopulations are mostly formed in meadow steppes, but according to the "delta - omega" classification, all coenopopulations are aging. On meadows, there are many young coenopopulations, but according to the "delta - omega" classification, they are all mature. In artificial plantings, the majority of coenopopulations are aging, but according to the "delta - omega" classification, they are all mature. Thus, changes in habitual living conditions lead to the aging of *A. vernalis* coenopopulations. By density (pcs/100 m^2) all populations are divided into three groups: high, medium, low. All forest edge coenopopulations have a high density, in meadow steppes, the density is average, on meadows and in artificial plantings it is low. The recovery index in most coenopopulations is less than one which indicates a low recovery in *A. vernalis* populations. The range of age stages shows that in most coenopopulations they are normal, the exception is CP-5 (among artificial plantings) which indicates an old stage of the population and possibly its soon elimination.

Key words: *Adonis vernalis* L., Northern Kazakhstan, age stages, age structure, ontogenesis.

Introduction. *Adonis vernalis* L. is a fairly rare plant throughout its range [1] and in Appendix II of the CITES Convention (Convention of International Trade in Endangered Species of Wild Fauna and Flora) [3]. *A. vernalis* is protected in Ukraine [4] as well as in 36 regions of the Russian Federation [5].

Age features of *Adonis vernalis* were studied in different parts of the area [1,6-11]. The authors emphasized stenotopic characteristics of the species, poor vegetative mobility, complexity of seed reproduction, and a low level of competition with other species in plant communities.

Material and research methods. Age stages were worked out according to the guidelines [12-16]. A schematic diagram describing age-related stages is given according to Kupriyanov A.N. (2013) [17].

Ontogenetic structure and number of plants in the coenopopulation were studied on registry fields with the area of 1 m^2. A plant, a partial bush, and a partial shoot were used as counting units. The adoption of one or another counting unit was determined by the specific biomorph formed in a particular location.

Results and discussion. The study of age stages was conducted on the territory of Northern Kazakhstan (Akmola and North Kazakhstan regions) in 2018-2019.

Latent period. Seeds ripen in the first and the second decade of June. Seed productivity depends on spring conditions and age stages. The number of fruits on young generative stage is 14-29 pcs/plant and 122-212 pcs/plant on a mature generative stage. Seeds have a long endogenous dormancy because of the underdevelopment of a seed germ. The dormancy of seeds lasts 60-70 days [8]. *A. vernalis* is an autochoric plant. Its seeds do not have special devices for settlement and are concentrated mainly around the mother plant (figure 1).

Figure 1 – Fruits of *A. vernalis*: A - infructescence; B – fruits

Virginal period. Seedings (p). In natural conditions, seeds germinate at the end of April. As usual, the shoots are single or small. Since the seeds are almost on the soil surface, the germination is conventionally aboveground. The cotyledons are whole, oblong, up to 7 mm long and 3-4 mm wide with quite long stalks. In Northern Kazakhstan plants keep being in a seeding phase for a longer period, possibly, until the end of the vegetative period. The root system is represented by a stem-root of 5-7 cm with hairy roots of the second order.

The **juvenile stage** of plants (j) is seen well in the second year of life. This stage is characterized by scaly leaves. The maximum shoot growth is observed in May. At this time, there form long internodes of

Figure 2 – Age stages of *A. vernalis*: J - juvenile stage; im - immature stage; v1, v2 - virginal stage

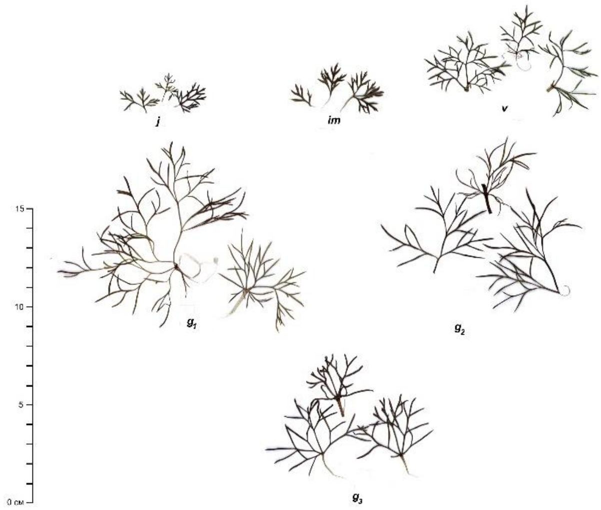

Figure 3 – Morphological features of *A. vernalis* leaves: J - juvenile stage; im - immature stage; v - virginal stage; g_1, g_2, g_3 - generative stage

3-4 cm. in June shoot growth is slowed down and leaf blades are located on shorter internodes. The plants retain monopodial growth of shoots and they reach 15 cm (figure 2, J). The leaves of juvenile plants are 1.5 cm long and 1.0-1.1 cm wide, thrice dissected, the lobes of the first order are dissected and pinnatipartite, the final ones are linear - 2-4 mm long and about 1 mm wide (figure 3, J).

Immature plants (im) get a sympodial branching: the renewal bud which forms a lateral shoot grows from the renewal buds located in the sinus of the lower true leaf. The leaves are almost rounded 1.7-2 cm long and 1.3-2 cm wide, tripartite, the first-order fractions are twice, sometimes thrice dissected. In this age leaf lobes are broadly linear, 3-7 mm long and about 2 mm wide, but not linear, which is a diagnostic sign of this age stage [11].

Plants form a short rhizome. The calendar age stage is quite difficult to determine, it depends on the tension of environmental factors: on the dry meadows of the Kokshetau Upland, it lasts for more than a year, on the meadows of the North Kazakhstan region the transition to a virginal stage occurs in the first half of summer of the second year of life.

Virginal stage (v) begins with the formation of a rhizome, with the appearance of large horizontal cord-like adventitious roots, and with the death of the primary root. Second-order shoots appear from the first leaves sinuses of the axial shoot. This stage is characterized by the formation of 2-4 axial shoots. The leaf blade is quite large, 3-4 cm long, and 2-4 cm wide, tripartite, first-order lobes are twice or thrice dissected into narrow threadlike segments of 3-7 mm long and less than 1 mm wide (figure 2, v). In Northern Kazakhstan virginal stage is normal and the calendar period depends on specific environmental conditions. It can last for several years and rhizomes with several axial shoots grow during this time.

Figure 4 – Age stages of *A. vernalis*: g_1, g_2, g_3 - generative stage

First flowers that characterize the transition of plants into a young generative stage (g_1) appear on one of the first axial shoots. In some cases (as Poshkurlat A.P. notes correctly, 2000), this flower remains underdeveloped and dries. Plants that grow in the meadows of forest-steppe zone have one axial shoot on this stage (figure 4, g_1) [11]. In steppe conditions, plants with several well-developed axial shoots have one flower on each of several shoots. In this age, leaves reach their maximum development, are 3.5-5.0 cm long and 3.5-12.0 cm wide, thrice dissected and pinnatipartite, the lobes of the second order are thrice dissected and pinnatipartite as well, the final lobes are linear of 7 mm long and 1-1.2 mm wide (figure 3, g_1). The rhizome begins to grow and has buds of new axial shoots on it.

During an average generative stage (g_2) in the meadow steppe conditions there are up to 7-10 axial shoots, but on meadows, there are 2-3 ones. Each axial shoot has up to 4-7 lateral shoots of the second-order and 2-4 shoots of the third order with flowers on them. Leaves are rounded, 4-5 cm in diameter, thrice dissected and pinnatipartite, second-order lobes are dissected into linear-hairy lobes of the third order of 12-18 mm long and 0.5-0.8 mm wide. Branching of the rhizomes and formation of a strong system of adventitious roots continue.

Old generative plants (g_3) form a complex system of rhizomes. In this age, the life form changes from a short-brush-root to a turf one, while generative plants form a pinnatipartite root system with numerous shoots forming a turf or a curtain. The system of underground organs is built in the way of "orthotropic-rhizome - brush-root" [21]. The structure of the leaf blade simplifies.

Subsenile plants (S) are represented by a system of dying rhizomes with single vegetative shoots. We have not found any senile plants.

It should be noted, that some changes in the ontogenetic structure of *A. vernalis* populations in Northern Kazakhstan. They are related to climatic features and as a response to the anthropogenic transformation of the flora on the studied areas.

A. vernalis is a short-stem grassy polycarpic plant, it is represented in Northern Kazakhstan by the populations of dry meadows (Kokshetau Upland) and real meadows (the forest-steppe of North Kazakhstan region). Ontogenesis of *A. vernalis* has three periods and 8 age stages. Plants have low seed productivity. Seeds have a long endogenous peace related to the underdevelopment of a seed germ. A characteristic feature is the presence of a long pregenerative period in plants of the "steppe" type coenopopulations and its reduction in the "meadow" type coenopopulations (CP).

Age structure is one of the significant signs of price population, as it provides the ability of the population system to self-sustain and determines its sustainability [15].

There have been studied 13 CP of *A. vernalis* located in Akmola and North Kazakhstan regions.

CP-1. "Burabay" SNNP. The poaceae-adonis meadow on the edge of the pine-birch forest. Total projective cover (TPC) is 90%, the TPC of *A. vernalis* is 2%, the community has 29 species. The vegetation is formed by *Artemisia latifolia* Ledeb., *Betula pendula* Roth, *Calamagrostis epigeios* (L.) Roth, *Fragaria viridis* Duch., *Pinus sylvestris* L., *Poa pratensis* L., *Ranunculus polyanthemus* L.

CP-2. "Burabay" SNNP. Sparse birch forest, the formula of the standing timber is 10B, fullness is 0.3, adonis and forb meadow. TPC is 100%, the TPC of *A. vernalis* is 0.5%, the community has 26 species. The vegetation is formed by *Betula pendula*, *Brachypodium pinnatum* (L.) Beauv., *Bromopsis inermis* (Leyss.) Holub, *Centaurea scabiosa* L., *Serratula coronata* L., *Veronica longifolia* L.

CP-3."Burabay" SNNP. The meadow steppe on the slope of a small hill, a narrow strip at the base of the hill. TPC is 70%, the TPC of *A. vernalis* is 0.5%, the community has 31 species. The vegetation is formed by *Galatella angustissima* (Tausch) Novopokr., *Medicago falcata* L., *Oxytropis pilosa* (L.) DC., *Peucedanum morisonii* Besser ex Spreng., *Phleum phleoides* (L.) H.Karst., *Stipa pennata* L.

CP-4."Burabay" SNNP. A shrub thicket on the edge of the birch forest. TPC is 100%, the TPC of *A. vernalis* is 1.5%, the community has 37 species. The vegetation is formed by *Caragana arborescens* Lam., *Phleum phleoides* (L.) H.Karst., *Poa angustifolia* L., *Rosa acicularis* Lindl., *Spiraea hypericifolia* L., *Stipa pennata* L.

CP-5. "Burabay" SNNP. Artificial pine plantations of 35-40 years old (maybe on the site of a dry meadow), the formula of the standing timber is 9C1B. TPC is 60%, the TPC of *A. vernalis* is 0.5%, the community has 19 species. The vegetation is formed by *Betula pendula* Roth, *Caragana arborescens* Lam., *Gypsophila altissima* L., *Otites wolgensis* (Hornem.) Grossh., *Pinus sylvestris* L., *Vicia cracca* L.

CP-6. "Burabay" SNNP. A meadow steppe on the edge of a sparse birch-pine forest, fullness is 0.2-0.3. TPC is 80%, the TPC of *A. vernalis* is 1.0%, the community has 32 species. The vegetation is formed by *Clausia aprica* (Stephan) Korn-Tr., *Dianthus versicolor* Fisch. ex Link, *Filipendula vulgaris* Moench, *Otites wolgensis* (Hornem.) Grossh., *Oxytropis pilosa* (L.) DC., *Polygala comosa* Schkuhr.

CP-7. "Burabay" SNNP. A meadow among the sparse birch forest, the formula of the standing timber is 9B1C, fullness is 0.3. TPC is 100%, the TPC of *A. vernalis* is 2.0%, the community has 32 species. The vegetation is formed by *Achillea asiatica* Serg., *Betula pendula* Roth, *Calamagrostis epigeios* (L.) Roth, *Conioselinum tataricum* Hoffm., *Hieracium umbellatum* L., *Koeleria cristata* (L.) Pers., *Pinus sylvestris* L.

CP-8. "Burabay" SNNP. A forb and calamagrostis meadow on the edge of a birch forest. TPC is 100%, the TPC of *A. vernalis* is 0.2%, the community has 28 species. The vegetation is formed by *Asparagus officinalis* L., *Bromopsis inermis* (Leyss.) Holub, *Calamagrostis epigeios* (L.) Roth, *Cirsium setosum* (Willd.) Bess., *Galium boreale* L., *Phlomoides tuberosa* (L.) Moench.

CP-9. "Burabay" SNNP. The steppe communities on the edge of a birch forest. TPC is 70%, the TPC of *A. vernalis* is 2.0%, the community has 35 species. The vegetation is formed by *Aster alpinus* L., *Festuca valesiaca* Gaudin, *Fragaria viridis* (Duchesne) Weston, *Helictotrichon desertorum* (Less.) Nevski, *Pilosella echioides* (Lumn.) F.Schultz & Sch.Bip., *Scorzonera purpurea* L., *Stellaria graminea* L.

CP-10. "Burabay" SNNP. A dry meadow with very rare pines (artificial plantings), the fullness is 0.2. TPC is 70%, the TPC of *A. vernalis* is 2.0%, the community has 25 species. The vegetation is formed by *Allium strictum* Schrad., *Carex supina* Willd. ex Wahlenb., *Festuca valesiaca* Gaudin, *Koeleria cristata* (L.) Pers., *Phleum phleoides* (L.) H.Karst., *Phlomoides tuberosa* (L.) Moench., *Verbascum phoeniceum* L.

CP-11. North Kazakhstan region. A wet meadow on the edge of a birch forest. TPC is 100%, the TPC of *A. vernalis* is 0.5%, the community has 21 species. The vegetation is formed by *Equisetum hyemale* L., *Filipendula ulmaria* (L.) Maxim., *Sedum telephium* L., *Thalictrum minus* L., *Urtica dioica* L.

CP-12. North Kazakhstan region. Young birch forest, the formula of the standing timber is 10B tree, fullness is 0.4-0.5. TPC is 50%, the TPC of *A. vernalis* is 0.1%, the community has 16 species. The vegetation is formed by *Betula pendula* Roth, *Chenopodium album* L., *Populus tremula* L., *Potentilla humifusa* Willd. ex Schltdl., *Rubus saxatilis* L., *Sanguisorba officinalis* L., *Urtica dioica* L.

CP-13. North Kazakhstan region. Kochkarny meadow on the edge of a birch forest TPC is 100%, the TPC of *A. vernalis* is 0.5%, the community has 33 species. The vegetation is formed by *Calamagrostis epigeios* (L.) Roth, *Filipendula ulmaria* (L.) Maxim., *Galium boreale* L., *Kadenia dubia* (Schkuhr) Lavrova et V.N.Tikhom., *Ranunculus polyanthemos* L., *Sanguisorba officinalis* L., *Seseli libanotis* (L.) W.D.J.Koch, *Urtica dioica* L.

The CP of *A. vernalis* are bound to four main habitats: forest edges (CP-1, CP-4, CP-8), meadow steppes (CP-3, CP-6, CP-9), meadows (CP-2, CP-7, CP-11, CP-13), artificial plantations (CP-5, CP-10, CP-12). By the age, young populations grow on forest edges, and according to the "delta - omega" classification, there are mature CP with $\Delta < 0.35$, a $\omega > 0{,}6$. Mature CP mostly grow in meadow steppes (except CP-6, which is young), and according to the "delta - omega" classification all CP are aging with $\Delta < 0.55$, a $\omega > 0{,}6$. Young CP mostly grow in meadows (except CP-2, which is old), and according to the "delta - omega" classification all CP are mature with $\Delta < 0.35$-0.54, a $\omega > 0{,}7$. Old CP mostly grow in artificial plantings (except CP-2, which is aging), and according to the "delta - omega" classification, all CP are mature (Table). Thus, changes in habitual living conditions lead to the aging of *A. vernalis* CP.

By density (pcs/100 m^2) all populations are divided into three groups: high – > 90 pcs/100 m^2, medium – 89-40 pcs/100 m^2, low – > 40. All forest edge CP have a high density, in meadow steppes, the density is average, on meadows and in artificial plantings, it is low (table).

Characteristics of *A. vernalis* coenopopulations

№	TPC, %	TPC of *A.vernalis*,%	Area of CP, m^2	Density of plants, pcs/100 m^2	Quantity of plants in CP, pcs	Δ	ω	I
CP-1	90	2	3000	142	4260	0.29	0.65	0.50
CP-2	100	0.5	1500	52	780	0.48	0.80	0.30
CP-3	70	0.5	6000	63	3780	0.45	0.82	0.31
CP-4	100	1.5	6000	90	5400	0.40	0.9	0.25
CP-5	60	0.5	1500	28	420	0.78	0.34	2.5
CP-6	80	1.0	1500	66	990	0.36	0.85	0.46
CP-7	100	0.2	2000	10	300	0.62	1.0	0
CP-8	100	2.0	5000	96	4800	0.39	0.81	0.14
CP-9	70	2.0	3000	60	1800	0.48	0.87	0.15
CP-10	70	0.5	1000	28	280	0.63	0.88	0
CP-11	100	0.5	2000	16	320	0.28	0.65	1.0
CP-12	50	0.1	2000	8	160	0.50	1.0	0
CP-13	100	0.5	3000	40	1200	0.32	0.73	0.67

The recovery index in most CP is less than one (except CP-11=1.0), which indicates a low recovery in *A. vernalis* populations.

The range of age stages shows that in most CP they are normal, the exception is CP-5 which indicates an old stage of the population and possibly its soon elimination.

The most optimal conditions for the formation of CP are edge areas occupied by dry meadows. These CP have the highest density of *A. vernalis* from 90 to 142 pcs/100m^2. They are young, but according to the "delta - omega" classification, are maturing. In more xerophytic conditions the density of *A. vernalis* decreases to an average of 89-40 pcs/100 m^2. They form mature CP. According to the "delta-omega" classification, they are aging. *A. vernalis* is a meadow-steppe plant. The typical habitats are meadow steppes, dry meadows, steppe communities [1,9,10,11]. Meadow CP of *A. vernalis* on the Kokshetau Upland and in Northern Kazakhstan are not characteristic habitats, so the density is lower there (less than 40 pcs/100 m^2). The CP are aging, according to the "delta - omega" classification "delta - omega" they are all mature.

Conclusion. *A. vernalis* is a short-stem grassy polycarpic plant, it is represented in Northern Kazakhstan by the populations of dry meadows (Kokshetau Upland) and real meadows (the forest-steppe of North Kazakhstan region). Ontogenesis of *A. vernalis* has three periods and 8 age stages. Plants have low seed productivity. Seeds have a long endogenous peace related to the underdevelopment of a seed germ. A characteristic feature is the presence of a long pregenerative period in plants of the "steppe" type coenopopulations and its reduction in the "meadow" type coenopopulations.

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Г. Ж. Сұлтанғазина[1], А. Н. Куприянов[2], О. А. Куприянов[2], Р. С. Бейшов[1]

[1]А. Байтұрсынов атындағы Қостанай мемлекеттік университеті, Қостанай, Қазақстан;
[2]Кузбасс ботаникалық бағы, РҒА СБ көмір және көмір химиясы
федеральді зерттеу орталығы, Кемерово, Ресей

СОЛТҮСТІК ҚАЗАҚСТАН ЖАҒДАЙЫНДА ADONIS VERNALIS L. ПОПУЛЯЦИЯ ОНТОГЕНЕЗІ ЖӘНЕ ЖАС ҚҰРЫЛЫМЫ

Аннотация. Мақалада Солтүстік Қазақстанда *Adonis vernalis* L. ценофлорасын зерттеу нәтижелері берілген. Материалдар далалық зерттеу нәтижесінде алынды, әдеби мәліметтер ескерілді. Егжей-тегжейлі бағыттық зерттеулер негізінде онтогенез және ценопопуляция жас құрылымы келтіріледі.

Adonis vernalis ареал бойынша сирек кездесетін өсімдік Қазақстанның Қызыл кітабына (2014) [1] және Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) Конвенцияның II қосымшасына енгізілген [2, 3]. *A. vernalis* Украинада, сондай-ақ РФ 36 субъектісінде қорғалады [5].

Жас жағдайын зерттеу Солтүстік Қазақстан аймағында (Ақмола және Солтүстік Қазақстан облысы (СҚО) 2018-2019 жж. жүргізілді.

A.vernalis – Солтүстік Қазақстандағы қысқа-өзекті шөпті поликарпті құрғақ шалғын (Көкшетау қыртысы) мен нағыз шабындықтар (Солтүстік Қазақстан облысының орманды даласы) құрамындағы популяция негізінде ұсынылған.

A. vernalis онтогенезінде үш кезең және 7 жас жағдайына бөлінген. Өсімдіктердің аз мөлшерде тұқымдық өнімі бар. Дамымаған ұрық тұқымына байланысты тұқым ұзақ эндогенді күйсіз сипатқа ие. «Дала» типіндегі ценопопуляция өсімдігінде ұзақ уақыт дегенеративтік кезеңнің болуы және оның «шалғындық» типіндегі ценопопуляцияда азаюы ерекшелігі болып саналады.

Жас құрылымы ценопопуляцияның маңызды белгілерінің бірі болып саналады, өйткені популяциялық жүйенің өзін-өзі ұстау қабілетін қамтамасыз етеді және оның тұрақтылығын анықтайды [15]. Өсімдіктерді зерттеудегі популяциялық тәсілді Т.А. Работнов (1960) ұсынды [20]. Негізгі термин «ценопопуляция» ұғымы – белгілі бір фитоценоз шекарасындағы жеке түрлердің жиынтығы.

A.vernalis: Ақмола және Солтүстік Қазақстан облыстарында орналасқан 13 ценопопуляция зерттелді. *A. vernalis* ценопопуляциясы негізгі төрт орынға негізделген: орман, шабындық дала, шабындық, жасанды екпелер. «Бурабай» МҰТП аумағында табиғи Қарағайлы екпелердің өте көп саны XIX мен XX ғасырдың басында кесілген, табиғи екпелердің бір бөлігі өрт салдарынан жойылды, сондықтан орманды қалпына келтірілді және мұндай жұмыстар кеңірек жүргізіледі.

Жас шамасы бойынша түкшемен қапталған жерлерде жас популяциялар қалыптасады, ал «дельта – омеганың» жіктелуіне сәйкес жетілген ЦП қалыптасқан, онда $\Delta < 0.35$, ал $\omega > 0{,}6$. Шалғынды далада негізінен жетілген ЦП қалыптасқан, ал «дельта – омега» жіктелуі бойынша барлық ЦП ескірген $\Delta > 0.55$, ал ω > 0.6 жатады. Шалғынды далаларда ЦП-ның көпшілігі жас болып келеді, ал «дельта – омега» жіктелуі бойынша барлық ЦП кемелденген Δ 0.35–0.54, мұнда ω >0.7. Жасанды екпелерде ЦП-ның көпшілігі ескірген, ал «дельта-омега» жіктелуі бойынша барлығы жетілген ЦП-ға жатады. Осылайша әдеттегі өмір сүру жағдайының өзгеруі A.vernalis ЦП тоздырады.

Көптеген ЦП қалпына келтіру индексі бірліктен аз, бұл *A. vernalis* популяцияларында қалпына келтірудің төмендігі байқалады.

Жас жағдайының спектрі көптеген ЦП-да олардың қалыпты екенін көрсетеді, ерекшелік ЦП-5 (жасанды екпе арасында) құрайды, бұл популяцияның бұрынғы жай-күйін және жедел элиминацияны куәландырады.

ЦП қалыптастыру үшін ең оңтайлы жағдай-құрғақ шалғынымен айналысатын түкше кеңістігі болып саналады, бұл ЦП тығыздығы *A. vernalis* 90-дан 142 дана/100м^2-ге дейін, олар жас «дельта-омега» жіктеуі бойынша пайда болады. Көп ксерофитті жағдайларда a.vernalis тығыздығы орташа 89-40 данаға/100 м^2 дейін азаяды, онда ескіргендерге жататын «дельта – омега» жіктемесі бойынша жетілген ЦП қалыптасады. *A. vernalis* шалғынды-дала өсімдігі, шалғынды дала, құрғақ шалғын, дала қоғамдастықтары [1,9-11], шалғынды ЦП. Көкшетау төбесінде және Солтүстік Қазақстан облысы vernalis мекені болатын жер емес және соның салдарынан «дельта – омега» жіктемесі бойынша жататын ЦП-да (40 дана/100 м^2-ден кем) ескірген даралық тығыздығының төмендігі жетілген ЦП-ға жатады.

Түйін сөздер: *Adonis vernalis* L., Солтүстік Қазақстан, жас ерекшелік жағдайы, жас құрылымы, онтогенез.

Г. Ж. Султангазина[1], А. Н. Куприянов[2], О. А. Куприянов[2], Р. С. Бейшов[1]

[1]Костанайский государственный университет имени А. Байтурсынова, Костанай, Казахстан;
[2]Кузбасский ботанический сад, Федеральный исследовательский центр Угля и углехимии СО РАН, Кемерово, Россия

ОНТОГЕНЕЗ И ВОЗРАСТНАЯ СТРУКТУРА ПОПУЛЯЦИЙ ADONIS VERNALIS L. В УСЛОВИЯХ СЕВЕРНОГО КАЗАХСТАНА

Аннотация. Изучены возрастные особенности онтогенеза и структура 13 ценопопуляций *Adonis vernalis* L. на территории Северного Казахстана. Материалы получены в результате полевых исследований, учтены литературные данные. На основании детально-маршрутных исследований приводится онтогенез и возрастная структура ценопопуляций.

Adonis vernalis L. – довольно редкое растение на протяжении всего ареала [1], внесен в Красную книгу Казахстана (2014) и в Приложение II Конвенции Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) [2,3]. *A. vernalis* охраняется в Украине [4], а также в 36 субъектах РФ [5].

Изучение возрастных состояний проводилось на территории Северного Казахстана (Акмолинская и Северо-Казахстанская области (СКО) в 2018-2019 гг.

A. vernalis – коротко-стержневой травянистый поликарпик в Северном Казахстане представлен популяциями в составе суходольных лугов (Кокшетауская возвышенность) и настоящих лугов (лесостепь Северо-Казахстанской области). В онтогенезе *A. vernalis* выделено три периода и 7 возрастных состояний. Растения обладают низкой семенной продуктивностью. Семена обладают длительным эндогенным покоем, связанным с недоразвитием зародыша семени. Характерной особенностью является наличие длительного предгенеративного периода у растений в ценопопуляциях «степного» типа и сокращение его в ценопопуляциях «лугового» типа.

Возрастная структура представляет собой один из существенных признаков ценопопуляции, так как обеспечивает способность популяционной системы к самоподдержанию и определяет ее устойчивость [15]. Популяционный подход к изучению растений был предложен Т.А. Работновым (1960) [20]. Ключевым термином является понятие «ценопопуляция» – совокупность особей вида, существующих в границах определенного фитоценоза.

Изучено 13 ценопопуляций *A. vernalis*: расположенных в Акмолинской и Северо-Казахстанской областях. Ценопопуляции *A. vernalis* приурочены к четырем основным местообитаниям: опушки леса, луговые степи, луга, искусственные насаждения. Необходимо отметить, что на территории ГНПП «Бурабай» очень большое количество естественных сосновых насаждений было вырублено в течение XIX, начала XX веков, часть естественных насаждений погибла в результате пожаров, поэтому лесовосстановление проводилось и проводится в широких масштабах. По возрастности в опушечных местообитаниях формируются молодые популяции, а согласно классификации «дельта – омега» сформированы зреющие ЦП, в которых Δ < 0.35, а ω > 0,6. В луговых степях в основном сформированы зрелые ЦП, а по классификации «дельта – омега» все ЦП относятся к стареющим, в которых Δ >0.55, а ω > 0.6. На лугах большинство ЦП относятся к молодым, а по классификации «дельта – омега» все ЦП относятся к зрелым, в которых Δ 0.35–0.54, а ω >0.7. В искусственных насаждениях большинство ЦП относятся к стареющим, а по классификации «дельта – омега» все ЦП относятся к зрелым. Таким образом, изменения привычных условий обитания приводит к старению ЦП *A. vernalis*.

По плотности (шт/100 м^2) все популяции разделены на три группы: высокая – > 90 шт/100 м^2, средняя – 89-40 шт/100 м^2, низкая > 40. Все опушечные ЦП имеют высокую плотность, в луговых степях плотность средняя, на лугах и в искусственных насаждениях – низкая.

Индекс восстановления в большинстве ЦП менее единицы, что свидетельствует о низкой восстанавливаемости в популяциях *A. vernalis.*

Спектр возрастных состояний показывает, что в большинстве ЦП они нормальные, исключение составляет ЦП-5 (среди искусственных насаждений), что свидетельствует о старческом состоянии популяции и, возможно, скорой элиминации.

Наиболее оптимальными условиями для формирования ЦП являются опушечные пространства, занятые суходольными лугами, эти ЦП имеют наибольшую плотность *A. vernalis* от 90 до 142 шт/100м^2, они являются молодыми, а по классификации «дельта – омега» – зреющими. В более ксерофитных условиях плотность *A. vernalis* уменьшается до средней 89-40 шт/100 м^2, в них формируются зрелые ЦП по классификации «дельта – омега» относящиеся к стареющими. *A. vernalis* лугово-степное растение, характерными местообитаниями являются луговые степи, суходольные луга, степные сообщества [1,9,10,11], луговые ЦП *A. vernalis* на Кокшетауской возвышенности и в Северо-Казахстанской области являются не- характерными местообитаниями и, как следствие, низкая плотность особей в ЦП (менее 40 шт/100 м^2) стареющие ЦП, относимые по классификации «дельта – омега» все ЦП, относящиеся к зрелым ЦП.

Ключевые слова: *Adonis vernalis* L., Северный Казахстан, возрастные состояния, возрастная структура, онтогенез.

Information about authors:

Sultangazina G.J., A. Baitursynov Kostanay State University, Kostanay, Kazakhstan; gul_sultan@mail.ru; https://orcid.org/0000-0002-4160-7090

Kuprijanov A.N., Kuzbass Botanical garden, Federal Research Center of Coal and Coal Chemistry of SB RAS, Kemerovo, Russia; kupr-42@yandex.ru; https://orcid.org/0000-0001-2129-3497

Kuprijanov O.A., Kuzbass Botanical garden, Federal Research Center of Coal and Coal Chemistry of SB RAS, Kemerovo, Russia; kuproa@gmail.com; https://orcid.org/0000-0003-2510-1484

Beyshov R.S., A. Baitursynov Kostanay State University, Kostanay, Kazakhstan; mr.rvs.kvn@mail.ru; https://orcid.org/0000-0002-9240-3856

Sultangazina Gulnar Zhalelovna, candidate of biological sciences, assistant professor, Head of the Department of Biology and Ecology of A. Baitursynov Kostanay State University.

Kuprijanov Andrej Nikolaevich, Doctor of Biological Sciences, professor, Chairman of the Council of Botanical Gardens of Siberia and the Far East, director of Kuzbass Botanical garden, Federal Research Center of Coal and Coal Chemistry of SB RAS.

Kuprijanov Oleg Andreevich, candidate of biological sciences, Researcher, Laboratory for Environmental Assessment and Biological Diversity Management, Kuzbass Botanical garden, Federal Research Center of Coal and Coal Chemistry of SB RAS.

Beishov Rustem Saltanovich, doctoral student 6D060700-Biology, A. Baitursynov Kostanay State University.

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**V. G. Semenov[1], A. I. Skvortsov [1], V. N. Sattarov[2],
D. A. Baimukanov[3,5], D. A. Doshanov[4], D. K. Karibayeva[5]**

[1]Chuvash State Agricultural Academy, Cheboksary, Chuvash Republic, Russia;
[2]Bashkir State Pedagogical University named after Akmulla, Ufa, Russia;
[3]Bayserke-Agro Educational Scientific and Production Center LLP, Talgar district, Almaty region, Kazakhstan;
[4]South Kazakhstan State University named after M. Auezov, Shymkent, Kazakhstan;
[5]Kazakh Scientific Research Institute of Animal Breeding and Fodder Production, Almaty, Kazakhstan.
E-mail: semenov_v.g@list.ru, skvorcovan48@mail.ru, wener591@yandex.ru,
dbaimukanov@mail.ru, dauliet70@mail.ru, dilya_boneym@mail.ru

MORPHOTYPIC STRUCTURE OF HONEY BEES AND THEIR MORPHOLOGICAL CHANGES

Abstract. One of the key aspects of the preservation of endemic populations of modern honey bee breeds is research in the identification of their morphological characters in apiaries, as an assessment of the cleanliness of queen bees and the potential for restoration of populations.

The research material was a sampling of summer generation bees. The volume amounted to 640 individuals from 16 bee families in three districts of the forest-steppe and steppe honey flow areas (Margaushsky (3 families - apiary of the K.I.Michurin farm firm), Krasnoarmeysky (6 families from Pchelovodcheskoe OOO) - forest-steppe zone; Batyrevsky district (7 families from Pirozhkova N.P. farm) - steppe honey flow area). The assessment was carried out according to the common method, during which 15 traits were measured.

The studies of the morphotypic structure of honey bees revealed the dominant conformity of the identified classes of workers and drones to the standard of the Central Russian subspecies. The research results showed that the morphotype of working bees is represented by the prevailing class - **O** and the minimum represented - **1R**. The drones morphotype is represented only by class O. At the same time, a complex methodology, including an analysis of the "purity" of working bees and drones, allows us to note the genetic safety, both on the maternal lineage and the paternal side, respectively. However, studies of morphological abnormalities in *Apis mellifera* revealed eye color changes only in drones, namely brown or pomegranate and white eyes.

The studies have revealed the potential for preservation of the population of the European dark (Central Russian) bee breed in Chuvashia. The decrease in the minimum tergite value recorded in the Morgaushsky district beyond the standard frames of the Central Russian breed does not indicate the ongoing hybridization processes since this is the only one and can be explained by some random factors affecting biophysiological processes.

Key words: honey bees, workers, drones, morphotypes, morphological changes, eye color.

Introduction. According to experts, of the currently known 30 subspecies or breeds of honey bee (*Apis mellifera*), only the European dark bee (*Apis mellifera mellifera*) is adapted to life in conditions of low The bees of the European dark (Central Russian) subspecies differ in a whole complex of traits from the bees of other taxa. Moreover, they are also heterogeneous within these categories, forming the isolated groups (populations) adapted to one or another specific condition [2,3]. In the modern studies of honey bees, experts distinguish various populations (Bashkir, Ural mountain-taiga, Altai, etc.), which, to one degree or another, have an official status [4,5,6,7]. Analysis of periodicals and monographs emphasizes the absence of any detailed studies of honey bee populations in the territory of the Republic of Chuvashia and the identification of their status.

The aim of this work is a study of the morphotypic structure of Apis mellifera and an assessment of the morphometric characteristics of the honey bee workers in the territory of the Republic of Chuvashia.

Materials and methods. To study the morphotypic structure of *Apis mellifera*, the sampling was carried out in five regions covering all three honey flow areas of the republic: forest-steppe (Margaushsky (3 families - apiary of the K.I.Michurin farm firm), Krasnoarmeysky (4 families from Pchelovodcheskoe OOO), Krasnochetaysky (4 families from private apiaries)), forest (Shumerlinsky district (2 families - private apiary)) and a steppe honey flow area (Batyrevsky (6 families from Pirozhkova N.P. farms)). The total number of investigated working bees and drones was 1140 individuals, 570 each.

During the work, the methodology for assessing the classes of honey bee morphotypes according to F. Ruttner was used [8]. Identification was carried out visually using a handheld magnifier; when photographing, a Macro lens attachment was used on the LG Ray smartphone.

The following classes are distinguished by the color of the chitinous cover of the workers: **O - Central Russian subspecies; e; E; 1R; 2R; 3R** [9].

When identifying drones, according to the methodology, there are classes: **O; I_i; I_s; I_{is}; I; 1R**. At the same time, drones of the Central Russian subspecies can be represented by both classes **O** and **I_s** [9].

When assessing the morphometric characteristics of the working individuals of the honey bees, the research material was a sample of summer generation bees. The volume amounted to 640 bees of 16 bee families from three districts of the forest-steppe and steppe honey flow zones (Margaushsky (3 families - apiary of the K.I.Michurin farm firm), Krasnoarmeysky (6 families from Pchelovodcheskoe OOO) - forest-steppe zone; Batyrevsky district (7 families from Pirozhkova N.P. farm) - steppe honey flow area).

The morphology of workers was estimated according to the common method [1,9,10], during which 15 exterior traits were measured. For identification assessment of traits, it was used the standard of the European dark bee breed according to N.I. Krivtsov, 1995 [6]. The measurement was carried out using the MBS - 10 binocular microscope.

Results. The studies have shown that in the territory of Chuvashia, the morphotype of working bees is represented by the predominant class **- O** and the least represented **- 1R.** The drones morphotype is represented only by class **O** (figure 1).

O **1R** **O**

A **B**

Figure 1 – Classes of honey bees morphotypes in the Republic of Chuvashia: A - workers, B - drones

In the sample of 19 families located in different honey flow areas, the bee morphotype corresponded to the standard of the Central Russian subspecies, both for working bees and for drones (table 1).

According to experts, one identified bee of the **1R** morphotype (0.2% of the sample of workers) cannot be an indicator of crossbreeding. Professor F. Ruttner noted that the sudden appearance of rings in bees of a uniform dark line is not a sign of crossbreeding [8].

Table 1 – Morphotypes of working bees and drones

District	Total number of bees	Number of workers	Morphotype class, units (%)		Number of drones	Morphotype class, units (%)
			O	1R		O
The forest-steppe honey flow area						
Krasnoarmeysky	240	120	120 (100%)	–	120	120 (100%)
Krasnochetaisky	240	120	120 (100%)	–	120	120 (100%)
Margaushsky	180	90	90 (100%)	–	90	90 (100%)
Total for the area	**660**	**330**	**330 (100%)**	**–**	**330**	**330 (100%)**
Steppe honey flow area						
Batyrevsky	360	180	179 (99.5%)	1	180	180 (100%)
Total for the area	**360**	**180**	**179 (99.4%)**	**1 (0.6%)**	**180**	**180 (100%)**
Forest honey flow area						
Shumerlinsky	120	60	60 (100%)	–	60	60 (100%)
Total for the area	**120**	**60**	**60 (100%)**	**–**	**60**	**60 (100%)**
Total in the Republic	**1140**	**570**	**569 (99.8%)**	**1 (0.2%)**	**570**	**570 (100%)**

Given the importance of studies of nontypical morphological changes in living organisms, the work was carried out to identify eye color abnormalities in workers and drones (table 2).

Table 2 – Morphological changes in the eyes of drones

District	Number of drones	Morphological state of eyes		
		Normal	brown or pomegranate	white
The forest-steppe honey flow area				
Krasnoarmeysky	120	63 (52.5%)	57 (47.5%)	–
Krasnochetaisky	120	77 (64.2%)	42 (35.0%)	1 (0.8%)
Margaushsky	90	80 (88.9%)	10 (11.1%)	–
Total for the area	**330**	**220 (66.7%)**	**109 (33.0%)**	**1 (0.3%)**
Steppe honey flow area				
Batyrevsky	180	157 (87.2%)	23 (12.8%)	–
Total for the area	**180**	**157 (87.2%)**	**23 (12.8%)**	**–**
Forest honey flow area				
Shumerlinsky	60	42 (70%)	18 (30%)	–
Total for the area	**60**	**42 (70%)**	**18 (30%)**	**–**
Total in the Republic	**570**	**419 (73.5%)**	**150 (26.3%)**	**1 (0.2%)**

At the same time, color changes were not detected in workers, and two types of deviations were recorded in drones, namely, brown or pomegranate and white eyes (figure 2).

Figure 2 – Morphological anomalies of the eyes of drones: 1 - normal eyes; 2 - brown or pomegranate eyes; 3 - white eyes

In numerical ratio, the maximum number (33.0%) of drones with brown or pomegranate eyes was registered in the forest-steppe area (Table 2). Also, one drone with white eyes (0.3%) was recorded in the apiary of this territory. In the steppe and forest honey flow areas, drones with only brown or pomegranate eyes were observed - 12.8% (steppe zone) and 26.3% (forest zone).

Consequently, studies of the morphotypic structure of honey bees in the Chuvash Republic revealed the dominant conformity of the identified classes of workers and drones to the standard of the Central Russian subspecies. At the same time, a comprehensive methodology, including an analysis of the "purity" of working bees and drones, allows noting the genetic safety, both on the maternal and paternal lineages. In the opinion of some specialists, the drones belonging to the standard of one subspecies, with competent selective and breeding work (creating a “drone barrier”), allows in the future to form a purebred breeding area, and further to create an array or area with purebred bees.

However, investigations of morphological abnormalities in *Apis mellifera* revealed eye color changes only in drones. This fact allows us to note possible changes in the environmental situation that causes mutational processes. Even F. Ruttner (1981) noted that there were mutations that interfered with the normal color of point and facet eyes. Since the formation of pigments depends on many hereditary foundations, there is the possibility of the appearance of various eye mutations.

Analysis of the research results of the morphometric characteristics of working individuals revealed the presence of Central Russian bees in the territory of Chuvashia, this fact suggests the presence of a separate population of European dark breed in this area.

The indicators of the average value of the proboscis length of the bees, as well as the *Lim* limits in all the studied administrative districts, corresponded to the European dark breed: 6.28 mm - Krasnoarmeysky, 6.20 mm - Batyrevsky and 6.28 mm - Morgaushsky (standard - 5.75-6.80 mm).

Data on the length of the right front wing of the workers also emphasize the presence of Central Russian bees at all sampling places: 9.30 mm - Krasnoarmeysky, 9.21 mm - Batyrevsky and 9.25 mm - Morgaushsky (standard - 9.1-10.2 mm). A similar situation is observed in terms of the width of the wing. The investigated trait in all bees does not go beyond the limits of the corresponding standard (2.0-3.2 mm).

According to the cubital honeycomb, given the lack of standards for the length and width of the forming veins, the taxonomic affiliation of honey bees can be regarded only by the cubital index. In this case, as in the previously considered indicators, the index corresponds to the standard of the European dark breed: 62.3±2.39 - Krasnoarmeysky, 61.5±1.62 - Batyrevsky, and 62.3±1.43 - Morgaushsky (standard - 60-65%).

By the length of tergite, the working bees of all administrative districts correspond to the standard, but according to the *Lim* width of this trait, in the Morgaushsky district, a decrease in the minimum indicator for the sample beyond the standard frames (4.5-5.1 mm) of the Central Russian breed is noted - 4.10-4.84 mm.

The indicators of the sternite length (average values and *Lim*) as well as the considered characteristics are aligned with the standards of indigenous bees (2.6-3.2 mm). The same was recorded in terms of width, i.e. the bees from the studied sample corresponded to the Central Russian breed (standard is 4.75-5.50).

Wax mirrors, which are one of the main vital structures of the body, were characterized by average lengths and Lim values corresponding to Central Russian bees: 1.74 ± 0.01 (1.73-1.75 mm) -

Krasnoarmeysky, 1.69 ± 0.08 (1.55-1.75 mm) - Batyrevsky and 1.64 ± 0.05 (1.51-1.70) - Morgaushsky (standard - 1.5-1.75 mm). According to the values of the width of the wax plate, the workers also corresponded to the standard of this breed (2.35-2.75 mm).

According to the parameters of the right rear leg, as well as the cubital honeycomb, there are no standards for the length and width of tarsus in literary sources. The results of estimating the average values of the tarsal index and Lim revealed the compliance of bees of all samples with the standard of the European dark breed: 54.1±0.54 - Krasnoarmeysky, 53.3±0.92 - Batyrevsky and 52.4±0.31 - Morgaushsky (standard according to N .I. Krivtsov - 52-58%, 50-55% according to the common standards).

Conclusion. These studies carried out as part of an inventory of the taxonomic belonging of the bee population in the Chuvash Republic, as well as an assessment of morphological abnormalities, revealed the preservation of the Central Russian subspecies in this territory and some distribution of eye color anomalies. Further scientifically based breeding and veterinary measures, as well as the collection of information on other administrative regions, will help maintain stability, quantitative and qualitative composition of the population of the Central Russian subspecies in the republic. Most importantly, the research results would allow planning activities in the beekeeping and cultivation of certain types of cereal crops, in particular triticale [12,13], throughout the Chuvash Republic.

Studies of the morphometric characteristics of Apis mellifera workers in apiaries, primarily engaged in selection and breeding and subsequently distributing the breeding material to commodity apiaries in the Chuvash Republic, found the presence of genetically and biologically “clean” material for maintaining and preserving the population of Central Russian honey bees in this territory. In our opinion, a decrease in the minimum value of bee tergite length in the Morgaushsky district beyond the standard of the Central Russian breed does not indicate the ongoing hybridization processes taking into account that this fact is the only one and can be explained by some random factors affecting the biophysiological processes.

At the same time, the carried out work and the results are of scientific and practical importance in creating an information base on the honeybee population of the Central Russian breed in Chuvashia, i.e. according to the literature [4,5,6,12], only detailed studies of the morphometric traits of bees of Vladimir, Tatar, Vologda, Oryol, Novosibirsk, Chelyabinsk, Bashkir and some other populations are known.

В. Г. Семенов[1], А. И. Скворцов[1], В. Н. Саттаров[2],
Д. А. Баймұқанов[3,5], Д. А. Дошанов[4], Д. К. Карибаева[5]

[1]Чуваш мемлекеттік ауылшаруашылық академиясы, Чебоксары, Чуваш Республикасы, Ресей;
[2]Ақмолла атындағы Башкир мемлекеттік педагогикалық университеті, Уфа, Ресей;
[3]Қазақ ұлттық аграрлық университеті, Алматы, Қазақстан;
[4]М. Әуезов атындағы Оңтүстік Қазақстан мемлекеттік университеті, Шымкент, Қазақстан;
[5]«Қазақ малшаруашылығы және жем өндірісі ғылыми-зерттеу институты» ЖШС, Алматы, Қазақстан

БАЛ АРАСЫНЫҢ МОРФОТИКАЛЫҚ ҚҰРЫЛЫМЫ МЕН МОРФОЛОГИЯЛЫҚ ӨЗГЕРІСТЕРІ

Аннотация. Жұмыстың мақсаты – Apis mellifera-ның морфотиптік құрылымын зерттеу және Чуваш Республикасындағы жұмысшы бал араларының морфометриялық сипаттамаларын бағалау.

Жұмыс істейтін аралардың морфологиясы жалпы қабылданған әдіс бойынша бағаланды, 15 сыртқы белгілер өлшенді. Таңбаларды сәйкестендіру үшін Н.И. Кривцов (1995 ж.) негіздеген орталық орыс ара тұқымының стандарты пайдаланылды. Өлшем MBS-10 бинокулярлы микроскоп арқылы жүзеге асырылды.

Бал арасының морфотиптік құрылымын зерттеу барысында жұмысшы және аталық ара класының орталық орыс ара тұқымының стандартына сәйкес келетіні анықталды. Зерттеу нәтижелері жұмысшы аралардың морфотипі басым класы – **О** және ең азы – **1R.** Еркек аралардың морфотипі тек **О** класы арқылы ұсынылған. Сонымен қатар, күрделі жұмыс әдісі, жұмыс істейтін ара мен аталыө ара «тазалығын» талдау аналық жағынан да, аталық жағынан да гендік информацияның сақталатынын ескеру қажеттігі айқындалды. Алайда Apis mellifera-ны зерттеуде морфологиялық ауытқуы тек аталық араның көзінің қоңыр немесе анар түске және ақ түске өзгерісі барысында анықталды.

Араның тұмсық ұзындығының орташа мәні, сондай-ақ барлық зерттелген әкімшілік аудандардағы *Lim* орталық орыс ара тұқымына сәйкес келді: 6,28 мм – Красноармейский, 6,20 мм – Батыревский және 6,28 мм – Моргаушский (стандарт – 5.75-6.80 мм).

Жұмысшы аралардың оң жақ алдыңғы қанатының ұзындығы туралы мәліметтер, сонымен қатар, барлық іріктеу пункттерінде орталық орыс арасының болғандығын көрсетеді: 9,30 мм - Красноармейский, 9,21 мм - Батыревский және 9,25 мм - Моргаушский (стандартты - 9.1-10.2 мм)) Ұқсас жағдай қанаттың ені бойынша байқалады. Барлық аралардағы зерттелетін белгілер тиісті нормадан аспайды (2,0-3,2 мм).

Кубиталды клетка, қалыптасатын тамырлардың ұзындығы мен ені бойынша стандарттардың жоқтығына байланысты бал араларының таксономиялық құрамын тек кубиталды индекс бойынша қарастыруға болады. Бұл жағдайда бұрын қаралған индикаторлардағыдай, индекс Орталық Ресей тұқымының стандартына сәйкес келеді: 62,3 ± 2,39 - Красноармейский, 61,5 ± 1,62 - Батыревский және 62,3 ± 1,43 - Моргаушский (стандартты - 60-65%).

Тергиттің ұзындығы бойынша барлық әкімшілік аудандарда жұмысшы аралар стандартқа сәйкес келеді, бірақ Моргаушский ауданында осы белгі ені *Lim-ге* сәйкес, орталық орыс тұқымының стандартынан тыс (4,5-5,1 мм) үлгі бойынша минималды көрсеткіштің төмендегені байқалды – 4,10-4,84 мм.

Стернит ұзындығының индикаторлары (орташа мән және *Lim*), сондай-ақ қарастырылған сипаттамалар отандық ара стандарттарына сәйкес келеді (2,6-3,2 мм). Ені бойынша ұқсастығы анықталды. Зерттелген үлгідегі аралар орталық орыс тұқымына сәйкес келді (стандарт 4.75-5.50).

Балауыз айнасы дененің негізгі өмірлік құрылымдарының бірі болып саналады және орташа ұзындығы бойынша және *Lim,* орташа орыс аралықтарына сәйкес келетін мәні бойынша сипатталды: 1,74 ± 0,01 (1,73-1,75 мм) - Красноармейский, 1,69 ± 0,08 (1,55-1,75 мм) - Батыревский және 1,64 ± 0,05 (1.51-1.70) – Моргауш-ский (стандартты - 1,5-1,75 мм). Балауыз айна енінің мәніне сәйкес жұмыс істейтін аралар да осы тұқымның стандартына сәйкес келді (2.35-2.75 мм).

Оң жақ артқы аяқтың, сондай-ақ кубиталды жасуша параметрлеріне сәйкес әдеби дереккөздерде төменгі аяғының ұзындығы мен ені бойынша нормалар жоқ. Тарсаль индексі мен Лимнің орташа мәнін бағалау нәтижелері барлық үлгілердің ара балының орталық орыс ара тұқымының стандартына сәйкестігін анықтады: 54,1 ± 0.54 - Красноармейский, 53,3 ± 0,92 - Батыревский және 52,4 ± 0,31 - Моргаушский (N стандартты). Кривцов жалпы қабылданған стандарттарға сәйкес 52-58%, 50-55%).

Түйін сөздер: бал аралары, жұмысшы аралар, аталық аралар, морфотиптер, морфологиялық өзгерістер, көзінің түсі.

В. Г. Семенов[1], А. И. Скворцов[1], В. Н. Саттаров[2], Д. А. Баймуканов[3,5], Д. А. Дошанов[4], Д. К. Карибаева[5]

[1]Чувашская государственная сельскохозяйственная академия, Чебоксары, Чувашская Республика, Россия;
[2]Башкирский государственный педагогический университет им. Акмуллы, Уфа, Россия;
[3]Казахский национальный аграрный университет, Алматы, Казахстан;
[4]Южно-Казахстанский государственный университет им. М. Ауэзова, Шымкент, Казахстан;
[5]ТОО «Казахский научно-исследовательский институт животноводства и кормопроизводства», Алматы, Казахстан

МОРФОТИПНАЯ СТРУКТУРА МЕДОНОСНЫХ ПЧЕЛ И ИХ МОРФОЛОГИЧЕСКИЕ ИЗМЕНЕНИЯ

Аннотация. Цель настоящей работы – изучение морфотипной структуры *Apis mellifera* и оценка морфометрических признаков рабочих особей медоносной пчелы на территории Республики Чувашия.

Оценку морфологии рабочих пчел проводили по общепринятой методике, в ходе которой измеряли 15 экстерьерных признаков. Для идентификационной оценки признаков использовали стандарт среднерусской породы пчел по Н.И. Кривцову (1995 г). Измерение проводили с помощью бинокулярного микроскопа МБС – 10.

Проведенные исследования морфотипной структуры медоносных пчел позволили выявить доминантное соответствие идентифицированных классов рабочих особей и трутней стандарту среднерусского подвида. Результаты исследований показали, что морфотип рабочих пчел представлен преобладающим классом – **О** и минимально представленным – **1R.** Морфотип трутней представлен только классом **О**. При этом комплексная методология, включающая анализ «чистоты» рабочих пчел и трутней, позволяет отметить генетическую сохранность как по материнской линии, так и по отцовской, соответственно. Вместе с тем исследования морфологических отклонений у *Apis mellifera* выявили цветовые изменения глаз только у трутней, а именно: коричневые или гранатовые глаза и белые.

Показатели среднего значения длины хоботка пчел, как и пределы *Lim*, во всех исследованных административных районах соответствовали среднерусской породе: 6,28 мм – Красноармейский, 6,20 мм – Батыревский и 6,28 мм – Моргаушский (стандарт – 5,75-6,80 мм).

Данные по длине правого переднего крыла рабочих особей также подчеркивают наличие среднерусских пчел во всех точках взятия проб: 9,30 мм – Красноармейский, 9,21 мм – Батыревский и 9,25 мм – Моргаушский (стандарт – 9,1-10,2 мм). Аналогичная ситуация наблюдается и по показателям ширины крыла. Исследованный признак у всех пчел не выходит за пределы соответствующего стандарта (2,0-3,2 мм). По кубитальной ячейке, в виду отсутствия стандартов длины и ширины образующих жилок, таксономическую принадлежность медоносных пчел можно рассматривать только по кубитальному индексу. В данном случае так же, как и по ранее рассмотренным показателям индекс соответствует стандарту среднерусской породы: 62,3±2,39 – Красноармейский, 61,5±1,62– Батыревский и 62,3±1,43 – Моргаушский (стандарт – 60-65 %).

По длине тергита рабочие пчелы всех административных районов соответствуют стандарту, но по *Lim* ширины данного признака в Моргаушском районе отмечается снижение минимального показателя по выборке за рамки стандарта (4,5-5,1 мм) среднерусской породы – 4,10-4,84 мм.

Показатели длины стерниты (средние значения и *Lim*) так же как и рассмотренные признаки соответствуют стандартам аборигенных пчел (2,6-3,2 мм). Аналогичная ситуация зарегистрирована и по показателям ширины, т.е. пчелы из исследованной выборки соответствовали среднерусской породе (стандарт 4,75-5,50).

Восковые зеркальца, являющиеся одним из основных жизненно важных структур организма, характеризовались показателями средних значений длины и *Lim* соответствующими среднерусским пчелам: 1,74±0,01 (1,73-1,75 мм) – Красноармейский, 1,69±0,08 (1,55-1,75 мм) – Батыревский и 1,64±0,05 (1,51-1,70) – Моргаушский (стандарт – 1,5-1,75 мм). По значениям ширины воскового зеркальца рабочие пчелы соответствовали также стандарту данной породы (2,35-2,75 мм).

По параметрам правой задней ножки, так же как и по кубитальной ячейке, стандарты длины и ширины голени в литературных источниках отсутствуют. Результаты оценки средних значений тарзального индекса и *Lim* выявили соответствие пчел всех проб стандарту среднерусской породы: 54,1±0,54 – Красноармейский, 53,3±0,92 – Батыревский и 52,4±0,31 – Моргаушский (стандарт по Н.И.Кривцову – 52-58 %, 50-55 % по общепринятым стандартам).

Ключевые слова: медоносные пчелы, рабочие пчелы, трутни, морфотипы, морфологические изменения, цвет глаз.

Information about the authors:

Semenov Vladimir Grigoryevich, Doctor of Biological Sciences, professor, Honored Worker of Science of the Chuvash Republic, professor of the Department of Morphology, Obstetrics and Therapy, Chuvash State Agricultural Academy, Cheboksary, Chuvash Republic, Russia; semenov_v.g@list.ru; https://orcid.org/0000-0002-0349-5825

Skvortsov Anatoly Ivanovich, Candidate of agricultural sciences, degree seeker of the Department of Morphology, Obstetrics and Therapy, Chuvash State Agricultural Academy, Cheboksary, Chuvash Republic, Russia; skvorcovan48@mail.ru; https://orcid.org/0000-0001-9357-8765

Sattarov Vener Nurullovich,Doctor of Biological Sciences, Associate Professor of the Department of Bioecology and Biological Education, Bashkir State Pedagogical University named after Akmulla, Ufa, Russia; wener5791@yandex.ru; https://orcid.org/0000-0001-6331-4398

Baimukanov Dastanbek Asylbekovich, Doctor of Agricultural Sciences, Professor, Corresponding Member of the National Academy of Sciences of the Republic of Kazakhstan, chief researcher of the Bayserke-Agro Educational Scientific and Production Center LLP, Talgar district, Almaty region, Kazakhstan; dbaimukanov@mail.ru; https://orcid.org/0000-0002-4684-7114

Doshanov Daulet Askarovich, Candidate of Agricultural Sciences, M. Auezov South Kazakhstan State University. Shymkent, Kazakhstan; dauliet70@mail.ru;

Karibayeva Dilaram Keudenbayevna, Candidate of agricultural sciences, associate professor, senior researcher of the Department of scientific and information support of the Kazakh Scientific Research Institute of Animal Breeding and Fodder Production, Almaty, Kazakhstan; dilya_boneym@mail.ru; https://orcid.org/0000-0001-9924-5136

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V. G. Semenov[1], I. A. Alekseev[1], S. S. Kozak[2], Kh. A. Aubakirov[3], A. S. Alentayev[4], O. A. Basonov[5], V. V. Boronin[1]

[1]Chuvash State Agricultural Academy, Cheboksary, Chuvash Republic, Russia;
[2]All-Russian Scientific Research Institute of Poultry Processing Industry, Moscow, Russia;
[3]M. Kh. Dulati Taraz State University, Taraz, Kazakhstan;
[4]Zhangir Khan West Kazakhstan Agrarian and Technical University, Uralsk, Kazakhstan;
[5]Nizhny Novgorod State Agricultural Academy, Nizhny Novgorod, Chuvash Republic, Russia.
E-mail: semenov_v.g@list.ru, Alekseev.i1936@yandex.ru, .sergey1@yandex.ru, hamit_a57@mail.ru, alentaev55@mail.ru, bassonov.64@mail.ru, boronin.v@mail.ru

THE INFLUENCE OF THE IMMUNOFLOR COMPLEX PROBIOTIC PRODUCT ON THE EGG PRODUCTIVITY OF THE DEKALB WHITE CROSS OF LAYING CHICKEN

Abstract. The quality of the received products directly depends on the state of the microflora of the gastrointestinal tract that is reflected, in particular, on the egg productivity of laying hens. As a result, the use of biologically safe preparations, namely, probiotics, is becoming a priority in the poultry industry.

This work aims to establish the feasibility and effectiveness of the use of the complex probiotic products Immunoflor in the diet of laying chickens of the Dekalb White Cross.

Based on the comprehensive research, the feasibility of using the complex probiotic product Immunoflor in egg production technology to improve the egg-laying capacity and the quality of the obtained eggs of laying hens of the Dekalb White cross was scientifically substantiated and experimentally proven. Against the background of the use of this drug, it was found that the average daily egg-laying capacity in the 1st and 2nd experimental groups exceeded the control layers: on the 150th day - by 9.66% and 8.48%, on the 180th day - 8.8% and 5.04%, on the 210th day - 8.16% and 6.44%, on the 240th day –11.68% and 3.8%, 270th day – 7.72% and 4.84%, on the 300th day – 8.34% and 5.86%. Besides, the average daily egg mass in the 1 and 2 experimental groups was higher than in the control by 4.04 g and 3.1 g or 7.38% and 5.77%; on the 7th day of storage, the average value exceeded by 4.06 g and 3.1 g or 7.53% and 5.87%; on the 14th day - by 4.32 g and 3.16 g, or 8.18% and 6.12%, respectively. It was found that on the 7th day of storage, the mass loss in the 1st and 2nd experimental groups was 1.50% and 1.56%, which is lower than in the control (1.66%). On the 14th day of storage, the mass loss in the 1st and 2nd experimental groups was 1.95% and 2.36%, which is also lower than in the control (2.63%).

With the use of the probiotic preparation, the loss in egg mass decreases. On the 7th day of storage, the mass loss in the 1st and 2nd experimental groups was 1.50% and 1.56%, which is lower than in the control group (1.66%). On the 14th day of storage, the mass loss in the 1st and 2nd experimental groups was 1.95% and 2.36%, which is also lower than in the control (2.63%).

Key words: chickens, Dekalb White, probiotic preparation, Immunoflor, egg-laying capacity, eggs.

Introduction. In the modern realities of the agrarian industry, the poultry industry is one of the leading spheres that have a significant impact on the level of the food supply in the country.

An important driver in increasing the efficiency of poultry production and achieving the genetically determined potential of poultry productivity is the organization of rational, scientifically-based rationed feeding [1]. In this regard, over the past decades, an interest in probiotic products has increased significantly.

The data of many scholars indicate the diversity of the effects of probiotic preparations on the gastrointestinal microflora and the metabolic functions of the organism of farm animals and birds, and the probiotic effect of various bacteria is determined by the sum of the specific activities common to these organisms [2-5].

For a long time, scientists around the world concluded that the intestinal microflora of animals and birds, living in symbiosis with a body, is one of the so-called "organs" of the body along with the heart, lungs, and liver. Diseases of intestinal microflora are just as dangerous as diseases of other organs that often leads to decreased productivity. The function of this "organ" can be easily disrupted by adverse external factors: the introduction into the diet of poor-quality feed contaminated with mycotoxins, frequent changes in diets, morbidity, decreased immunity, violation of conditions, stress factors, etc. [3,6,7].

In such a way, it can be noted that the quality of the received products directly depends on the state of the gastrointestinal microflora, which is reflected, in particular, on the egg productivity of laying chickens. As a result, the use of biologically safe preparations, namely, such as probiotics, is becoming a priority in the poultry industry.

The aim of this work is to establish the feasibility and efficiency of the use of the Immunoflor complex probiotic product in the diet of laying hens of the Dekalb White cross.

Materials and methods. To establish the effectiveness of the new complex probiotic product Immunoflor on the body of birds in the conditions of the Gornomariysky Poultry Factory SEC of the Mari El Republic, three groups of chickens (control and 2 experimental) of 50 birds of one day old each were formed by the analogue principle. The materials processing was carried out based on the laboratory of the Department of Morphology, Obstetrics and Therapy of the Chuvash State Agricultural Academy in the period from 2019 to 2020.

The birds of the control and experimental groups were in identical conditions of feeding and keeping. In the first experimental group, the main diet of chickens was given from the first to the 21st day of life following the instructions for use of Immunoflor at the rate of 15 g/t of water. In the second experimental group, as part of the main diet, the chickens were given Immunoflor at the rate of 15 g/t of feed (table 1). In the control group of chickens, this drug was not given.

Table 1 – The composition of the Immunoflor probiotic preparation

Probiotic bacteria strains	Prebiotic substances	Auxiliary components
Bacillus subtilis	Chitosan	Lactose
Bacillus licheniformis		
Bifidobacterium globosum		
Enterococcus faecium		
Saccharomyces cerevisiae		
The concentration of the active substance "Concentrate" is not less than $1x10^{10}$.		

Egg counting from the 120th day to the 300th day of laying in each group was carried out daily, according to the common method [8]. The selection and storage of eggs for studying their mass and the dynamics of its changes were carried out under the same conditions. The samples were stored in a refrigerator at + 4 °C. Determination of the egg mass in the control and experimental groups was performed using the analytical balance Shinko AJH-620 CE. During the scientific and economic experiment, the main microclimate parameters were determined with the existing veterinary methods and the use of modern measuring tools. Parameters in the premises for growing chickens were within the zoohygienic requirements.

Immunoflor is a complex probiotic preparation made only of natural components. This drug is intended to enrich and balance the diets of farm animals and poultry to increase productivity by optimizing digestion, stimulating the development of positive gastrointestinal microflora, increasing preservation, and reducing feed conversion.

The composition of the preparation includes the following components:

Bacillus subtilis and Bacillus licheniformis are important producers of proteases, amylases, amino acids, and some polysaccharides. They are also producers of polypeptide antibiotics. It is used to protect the gastrointestinal tract and prevent dysbiosis.

Bifidobacterium globosum has a pronounced antagonistic activity against putrefactive bacteria. In the life process, they synthesize vitamins B and K, also affect the hydrolysis and absorption of proteins, fats, minerals in the gastrointestinal tract.

Enterococcus faecium has a high enzymatic activity, suppress pathogenic microflora due to the synthesis of antibiotic-like substances - bactericins. Also, these microorganisms activate gut-associated immunity and ferment carbohydrates with the formation of lactic acid.

Saccharomyces cerevisiae are yeast cells that actively absorb oxygen in the life process, creating anaerobic conditions that are unfavorable for the development of Salmonella, Escherichia Coli, and other microorganisms that are also conditionally pathogenic. In addition, they have high enzymatic activity, contribute to the digestion of fiber.

Chitosan reduces cholesterol, uric acid in the blood, has antibacterial and antifungal properties, improves the absorption of calcium from food. Chitosan enhances the intestinal motility, accelerates wastes and toxins removal from the body, and helps to normalize intestinal microflora.

Lactose is a disaccharide that is a nutrient substrate for the lactic acid bacteria of the preparation and the digestive tract [9].

Results. During the experimental work, it was found that the main microclimate parameters in the premises for keeping birds corresponded to zoohygienic standards.

The average daily rations for hens during the egg-laying period from the 120th day to the 300th day provided the body's needs for energy and nutrients, mineral elements and vitamins according to the detailed feeding standards.

The application in the egg-directed poultry industry of the complex probiotic preparation Immunoflor stimulates the egg-laying capacity of the laying hens and also helps to improve the egg quality.

Table 2 – The amount of the preparation from the 1st to 21st days in the diet for 50 birds, g

Days	Groups (50 birds in each)	
	First experimental	Second experimental
1-10	0.0075	0.0075
11	0.00825	0.00825
12	0.009	0.009
13	0.00975	0.00975
14	0.0105	0.0105
15	0.01125	0.01125
16	0.012	0.012
17	0.01275	0.01275
18	0.0135	0.0135
19	0.01425	0.01425
20	0.015	0.015
21	0.01575	0.01575

By the end of the experiment, the egg-laying capacity of the experimental laying chickens had significant differences.

So, from the data of the above table (table 3), it follows that the average daily egg production capacity in the 1st and 2nd experimental groups exceeded this indicator go the control hens: on the 150th day - by 9.66% and 8.48%, on the 180th day - 8.8% and 5.04%, on the 210th day - 8.16% and 6.44%, on the 240th day –11.68% and 3.8%, on the 270th day – 7.72% and 4.84%, on the 300th day - 8.34% and 5.86%.

Table 3 – Egg-laying capacity indicators, 120th to 300th days, %

Group	Egg-laying capacity indicators					
	150 days	180 days	210 days	240 days	270 days	300 days
Control*	68.84±0.18	74.62±0.24	78.46±0.19	80.86±0.16	85.58±0.21	86.68±0.24
First experimental*	78.5±0.23	83.42±0.22	86.62±0.21	92.54±0.26	93.3±0.25	95.02±0.19
Second experimental*	77.32±0.21	79.66±0.13	84.9±0.23	84.66±0.19	90.42±0.18	92.54±0.21
*P<0.01						

Also, the studies of the egg mass were carried out during their storage for 14 days.

Table 4 shows that the average egg mass on day 1 in the first and second experimental groups exceeded the control by 4.04 g and 3.1 g or 7.38% and 5.77% on day 7 - 4.06 g and 3.1 g or 7.53% and 5.87%, on day 14 - 4.32 g and 3.16 g or 8.18% and 6.12%, respectively. The dynamics of the mass loss of laid eggs on days 7 and 14 have also been investigated. On the 7th day of storage, the mass loss in the 1st group was 1.50% and in the 2nd experimental group was 1.56% that is lower than in the control (1.66%). On the 14th day of storage, the mass losses in the 1st and 2nd experimental groups were 1.95% and 2.36%, which are also lower than in the control (2.63%).

Table 4 – Indicators of egg mass during 14 days, g

Group	The average egg mass		
	Day 1	Day 7	Day 14
Control*	50.67±0.13	49.83±0.09	48.52±0.11
First experimental*	54.71±0.16	53.89±0.07	52.84±0.09
Second experimental *	53.77±0.12	52.93±0.07	51.68±0.08
*P<0.01			

Thus, the use of the Immunoflor enhanced the egg-laying capacity and egg mass, and also reduced the egg mass loss during storage for 14 days.

Conclusions. 1. The use of the Immunoflor complex probiotic product in the diet of young chickens for 21 days at a dose of 15 g/t of water from the 1st day of life increases their productive qualities. So, the average daily egg-laying capacity rate in the 1st and 2nd experimental groups exceeded the control hens: on the 150th day - by 9.66% and 8.48%, on day 180 - 8.8% and 5.04%, on day 210 - 8.16% and 6.44%, on day 240 - 11.68% and 3.8%, on day 270 - 7.72% and 4.84%, on day 300 - 8.34% and 5.86%.

2. Against the background of the Immunoflor application, the average daily egg mass in the 1 and 2 experimental groups was higher than in the control by 4.04 g and 3.1 g or 7.38% and 5.77%; on the 7th day of storage, the average value exceeded by 4.06 g and 3.1 g or 7.53% and 5.87%; on the 14th day - by 4.32 g and 3.16 g, or 8.18% and 6.12%, respectively.

3. With the use of this probiotic product, the egg mass loss was decreased. On the 7th day of storage, the mass loss in the 1st and 2nd experimental groups was 1.50% and 1.56%, which is lower than in the control (1.66%). On the 14th day of storage, the mass loss in the 1st and 2nd experimental groups was 1.95% and 2.36%, which is also lower than in the control (2.63%).

Summary. Under the influence of the probiotic product Immunoflor, the egg-laying capacity of laying hens of the Dekalb White cross is improved, the mass of eggs increases and the mass loss of eggs by water evaporation decreases, which leads to the egg quality improvement.

It has been experimentally proved that the use of the complex probiotic product has a positive effect on the egg-laying capacity and quality of eggs in the laying chickens of the Dekalb White cross.

В. Г. Семенов[1], И. А. Алексеев[1], С. С. Козак[2], Х. А. Аубакиров[5], А. С. Алентаев[4], О. А. Басонов[5], В. В. Боронин[1]

[1]Чуваш мемлекеттік ауылшаруашылық академиясы, Чебоксары, Чуваш Республикасы, Ресей;
[2]Бүкілресейлік құс өнімдерін өңдеу өнеркәсібі ғылыми-зерттеу институты, Мәскеу, Ресей;
[3]М. Х. Дулати атындағы Тараз мемлекеттік университеті, Тараз, Казақстан;
[4]«Жәңгір хан атындағы Батыс Қазақстан агро-техникалық университеті» коммерциялық емес акционерлік қоғамы, Орал, Қазақстан;
[5]Нижегород мемлекеттік ауылшаруашылық академиясы, Нижний Новгород, Чуваш Республикасы, Ресей

КЕШЕНДІ ПРОБИОТИКАЛЫҚ «ИММУНОФЛОР» ДӘРМЕГІНІҢ ДЕКАЛБ УАЙТ КРОСС МЕКИЕН ТАУЫҒЫНЫҢ ЖҰМЫРТҚА ӨНІМДІЛІГІНЕ ӘСЕРІ

Аннотация. Жұмыс мақсаты – Декалб Уайт кросс мекиен тауық рационында кешенді пробиотикалық «Иммунофлор» дәрмегін қолданудың қажеттілігі мен тиімділігін анықтау.

Жүргізілген ғылыми-тәжірибелік жұмыстар барысында құстарды үй-жайда ұстауға лайықты микроклиматтың негізгі көрсеткіштері зоогигиеналық нормаларға сай келетіндігі анықталды. 120 тәуліктен 300 тәулікке дейінгі жұмыртқалау мерзіміне арналған тәулік рационы, ағзадағы энергия мен қоректік заттар, минералды элементтер мен дәрумендерге қажеттілігін толықтай қамтамасыз ете алды. Жұмыртқа өндіру бағытындағы құс шаруашылығында кешенді пробиотикалық «Иммунофлор» дәрмегін қолданғанда өнім шығымы мен сапасын арттыруға мүмкіндік беретіні анықталды.

1 және 2-тәжірибелік топтарда жұмыртқалаудың орташа тәуліктік көрсеткіші бақылау тобындағы мекиендерден тиісінше 150 тәулікте – 9,66% және 8,48%, 180 тәулікте – 8,8% және 5,04%, 210 тәулікте – 8,16% және 6,44%, 240 тәулікте –11,68% және 3,8%, 270 тәулікте – 7,72% бен 4,84%, 300 тәулікте – 8,34% және 5,86%-ға басым болды.

1 тәулікте бірінші және екінші тәжірибелік топтардағы жұмыртқа массасының орташа көрсеткіші бақылау тобындағыдан тиісінше 4,04-3,1 г немесе 7,38% және 5,77%, 7 тәулікте – 4,06 - 3,1 г немесе 7,53% және 5,87%, 14 тәулікте – 4,32 - 16 г немесе 8,18% және 6,12% - ға артық болды.

7 тәулік бойы сақтау барысында бақылау тобымен (1,66%) салыстырғанда 1 және 2-тәжірибелік топтардағы салмақ жоғалту 1,50% және 1,56%-ға төмен екендігі анықталды. 14 тәулік сақтау мерзіміндегі 1 және 2-тәжірибелік топтағы салмақ жоғалту 1,95% және 2,36% құрады, бұл бақылау тобына (2,63%) қарағанда біршама төмен.

Сонымен, кешенді пробиотикалық «Иммунофлор» дәрмегін қолдану, жұмытқа саны мен оның массасын арттырып, сондай-ақ 14 тәулік сақтау кезінде салмақ жоғалтуды төмендететіні анықталды.

Тауық балапандары рационында 1 тәулігінен бастап 21 тәулік бойына 15 г/т су дозасында кешенді пробиотикалық»"Иммунофлор» дәрмегін қолдану олардың өнімділік сапасын арттырады. Атап айтқанда, 1 және 2-тәжірибелік топтарда жұмыртқа өнімділігі бақылау тобымен салыстырғанда тиісінше: 150 тәулікте – 9,66 – 8,48%, 180 тәулікте – 8,8- 5,04%, 210 тәулікте – 8,16 - 6,44%, 240 тәулікте – 11,68 - 3,8%, 270 тәулікте – 7,72 - 4,84%, 300 тәулікте – 8,34% және 5,86% басым болды.

Пробиотикалық «Иммунофлор» дәрмегін қолдану нәтижесінде жұмыртқа массасының артатыны анықталды. 1 және 2-тәжірибелік топтарда тәуліктік жұмыртқалардың орташа салмағы бақылау тобымен салыстырғанда тиісінше: 4,04 г - 3,1 г немесе 7,38% және 5,77%; 7 тәулік сақталғандарында – 4,06- 3,1 г немесе 7,53 және 5,87%; 14 тәулік сақтағандарында – 4,32 - 3,16 г немесе 8,18% және 6,12% - ға басым болды.

Пробиотикалық «Иммунофлор» дәрмегін қолдану барысында жұмыртқаның салмақ жоғалту жағдайы азаяды. 7 тәулік сақтау кезіндегі 1 және 2-тәжірибелік топтарда салмақ жоғалту бақылау тобындағымен (1,66%) салыстырғанда тиісінше 1,50% және 1,56% төмен болды. 14 тәулік сақтау кезіндегі 1 және 2-тәжірибелік топтарда салмақ жоғалту тиісінше 1,95-2,36% құрап, бақылау тобынан (2,63%) аз екендігі анықталды.

Зерттеу нәтижелері көрсеткендей, кешенді пробиотикалық «Иммунофлор» дәрмектерін қолдану әсерінен Декалб Уайт кросс мекиен тауығының жұмыртқалау жағдайында жұмыртқа салмағы артып, сақтау кезіндегі ылғалдың кебу әсерінен салмақ жоғалту үдерісі төмендейді және бұл өнім сапасының артуына ықпал етеді.

Жүргізілген тәжірибе нәтижесінде кешенді пробиотикалық «Иммунофлор» дәрмектерін қолдану Декалб Уайт кросс мекиен тауығының жұмыртқалау жағдайын арттырып, оның сапасына оң ықпал ететіндігі дәлелденді.

Түйін сөздер: тауық, Декалб Уайт, кешенді пробиотикалық дәрмек, «Иммунофлор», жұмыртқалау, жұмыртқа.

**В. Г. Семенов[1], И. А. Алексеев[1], С. С. Козак[2], Х. А. Аубакиров[5],
А. С. Алентаев[2], О. А. Басонов[5], В. В. Боронин[1]**

[1]Чувашская государственная сельскохозяйственная академия,
Чебоксары, Чувашская Республика, Россия;
[2]Всероссийский научно-исследовательский институт
птицеперерабатывающей промышленности, Москва, Россия;
[3]Таразский государственный университет им. М.Х. Дулати, Тараз, Казахстан;
[4]Некоммерческое акционерное общество «Западно-Казахстанский
аграрно-технический университет им. Жангир хана», Уральск, Казахстан;
[5]Нижегородская государственная сельскохозяйственная академия,
Нижний Новгород, Чувашская Республика, Россия

ВЛИЯНИЕ КОМПЛЕКСНОГО ПРОБИОТИЧЕСКОГО ПРЕПАРАТА «ИММУНОФЛОР» НА ЯИЧНУЮ ПРОДУКТИВНОСТЬ КУР-НЕСУШЕК КРОССА ДЕКАЛБ УАЙТ

Аннотация. Цель настоящей работы – установление целесообразности и эффективности применения комплексного пробиотического препарата «Иммунофлор» в рационе кур-несушек кросса Декалб Уайт.

В ходе экспериментальной работы было установлено, что основные показатели микроклимата в помещениях для содержания птиц соответствовали зоогигиеническим нормам. Среднесуточные рационы для кур-несушек в период яйценоскости со 120 дня по 300 день обеспечивали потребности организма в энергии и питательных веществах, минеральных элементах и витаминах согласно детализированным нормам кормления. Установлено, что применение в птицеводстве яичной направленности комплексного пробиотического препарата «Иммунофлор» стимулирует яйценоскость кур-несушек, а также способствует повышению качества яиц.

Среднесуточный показатель яйценоскости в 1 и 2 опытных группах превосходил данный показатель контрольных несушек: на 150 сутки – на 9,66% и 8,48%, на 180 сутки – 8,8% и 5,04%, на 210 сутки – 8,16% и 6,44%, на 240 сутки –11,68% и 3,8%, 270 сутки – 7,72% и 4,84%, на 300 сутки – 8,34% и 5,86%.

Средний показатель массы яиц на 1 сутки в первой и второй опытных группах превосходит контрольную на 4,04 г и 3,1 г или 7,38% и 5,77%, на 7 сутки – 4,06 г и 3,1 г или 7,53% и 5,87%, на 14 сутки – 4,32 г и 3,16 г или 8,18% и 6,12% соответственно.

Установлено, что на 7 сутки хранения потеря в массе в 1 и 2 опытных группах составила 1,50% и 1,56%, что ниже, чем в контрольной (1,66%). На 14 сутки хранения потеря в массе в 1 и 2 опытных группах составила 1,95% и 2,36%, что так же ниже, чем в контрольной (2,63%).

Таким образом, применение комплексного пробиотического препарата «Иммунофлор» повышало показатели яйценоскости и массы яиц, а также снижало потерю массы яиц при их хранении в течение 14 суток.

Применение комплексного пробиотического препарата «Иммунофлор» в рационе молодняка кур в течение 21 суток в дозе 15 г/т воды с 1 суток жизни повышает их продуктивные качества. Так, среднесуточный показатель яйценоскости в 1 и 2 опытных группах превосходил контрольных несушек: на 150 сутки – на 9,66% и 8,48%, на 180 сутки – 8,8% и 5,04%, на 210 сутки – 8,16% и 6,44%, на 240 сутки – 11,68% и 3,8%, 270 сутки – 7,72% и 4,84%, на 300 сутки – 8,34% и 5,86%.

На фоне применения комплексного пробиотического препарата «Иммунофлор» улучшается масса яиц. Установлено, что средний показатель массы суточных яиц 1 и 2 опытных групп был выше контрольной на 4,04 г и 3,1 г или 7,38% и 5,77%; на 7 сутки хранения – на 4,06 г и 3,1 г или 7,53% и 5,87%; на 14 сутки – на 4,32 г и 3,16 г или 8,18% и 6,12% соответственно.

На фоне применения пробиотического препарата уменьшается потеря в массе яиц. На 7 сутки хранения потеря в массе в 1 и 2 опытных группах составила 1,50% и 1,56%, что ниже, чем в контрольной (1,66%). На 14 сутки хранения потеря в массе в 1 и 2 опытных группах составила 1,95% и 2,36%, что так же ниже, чем в контрольной (2,63%).

Результаты исследований показали, что под влиянием комплексного пробиотического препарата «Иммунофлор» повышается яйценоскость кур-несушек кросса Декалб Уайт, увеличивается масса яиц и снижается потеря массы яиц путем испарения влаги, что обуславливает повышение качества яиц.

Экспериментально доказано, что применение комплексного пробиотического препарата «Иммунофлор» имеет положительный эффект на яйценоскость и качество яиц кур-несушек кросса Декалб Уайт.

Ключевые слова: куры, Декалб Уайт, пробиотический препарат, «Иммунофлор», яйценоскость, яйца.

Information about the authors:

Semenov Vladimir Grigoryevich, Doctor of Biological Sciences, professor, Honored Worker of Science of the Chuvash Republic, professor of the Department of Morphology, Obstetrics and Therapy, Chuvash State Agricultural Academy, Cheboksary, Chuvash Republic, Russia; semenov_v.g@list.ru; https://orcid.org/0000-0002-0349-5825

Alekseev Ivan Alekseevich, Doctor of Veterinary Sciences, Professor of the Department of Morphology, Obstetrics and Therapy, Chuvash State Agricultural Academy, Cheboksary, Chuvash Republic, Russia; Alekseev.i1936@yandex.ru; https://orcid.org/0000-0002-0179-2412

Kozak Sergey Stepanovich, Doctor of Biological Sciences, Professor, Chief Researcher at the Laboratory for Sanitary and Hygienic Evaluation of Raw Materials and Products, All-Russian Scientific Research Institute of Poultry Processing Industry (VNIIPP) - a branch of the Federal State Budget Scientific Institution of the Federal Scientific Center "All-Russian Scientific Research and Technological Institute poultry industry "of the Russian Academy of Sciences, Moscow region, Russia; kozak.sergey1@yandex.ru, https://orcid.org/0000-0002-3579-2904

Aubakirov Khamit Abilgazievich, Candidate of Agricultural Sciences, Associate Professor of the Department of Biotechnology, M.H. Dulati Taraz State University, Taraz, Kazakhstan; hamit_a57@mail.ru; https://orcid.org/0000-0003-2670-4834

Alentayev Aleidar Saldarovich, Doctor of Agricultural Sciences, Chief Researcher of the Zhangir Khan West Kazakhstan Agrarian and Technical University, Uralsk, Kazakhstan; alentaev55@mail.ru; https://orcid.org/0000-0003-0046-5003

Basonov Orest Antipovich, Doctor of Agricultural Sciences, Professor of the Department of Private Zootechnics, Farm Animal Breeding and Obstetrics, Nizhny Novgorod State Agricultural Academy, Nizhny Novgorod, Russia; bassonov.64@mail.ru; https://orcid.org/0000-0002-7916-4774

Boronin Valeriy Viktorovich, 2 year Postgraduate Student of the Department of Morphology, Obstetrics and Therapy, Chuvash State Agricultural Academy, Cheboksary, Chuvash Republic, Russia; boronin.v@mail.ru; https://orcid.org/0000-0002-7500-8299

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Zhatkanbaeva Ayzhan[1], Jangabulova Arailym[1],
Aydarkhanova Kulyash[1], Baimakhanova Dina[1], Zhao Haifeng[2]

[1]Al-Farabi Kazakh National University, Almaty, Kazakhstan;
[2]Harbin University of Technology, Harbin, China.
E-mail: Ayzhan.Zhatkanbaeva@kaznu.kz, Arailym.Dzhangabulova@kaznu.kz,
Kulyash.Aidarhanova@kaznu.kz, Dina.Baimahanova@kaznu.kz, Zhaohaifeng_c@yahoo.com.cn

THE MAIN DIRECTIONS OF ENSURING THE ENVIRONMENTAL SAFETY OF WATER BODIES IN TRANSBOUNDARY BASINS

Abstract. The article is devoted to the analysis of priority areas of international cooperation in the field of ensuring environmental safety of transboundary water bodies. The authors of the article indicated such areas of environmental safety as: Water-energy problem of the Central Asian countries; impact of climate change on water; Aral ecological crisis and its consequences for the natural environment of the Central Asian region. The authors of the article made recommendations on eliminating the environmental problems of transboundary water bodies. It is proposed to sign fundamental documents on legal issues of water allocation and protection of transboundary rivers on the basis of international law and bring the problem of transboundary rivers to the level of the SCO and tripartite negotiations (Russia, Kazakhstan, China). The necessity of building joint hydropower facilities on transboundary rivers is substantiated. The authors propose to expand, improve and modernize the control network (gauging stations, etc.) in all river basins of Kazakhstan and China.

Key words: water management, water security, transboundary water bodies, shared water use, environmental safety.

Introduction. In the modern world, in the context of globalization, the Central Asian region is faced with a number of environmental problems, which in essence can be called environmental disasters of enormous proportions, or with threats of their occurrence. In this case, the centers of disturbance of the natural ecosystem are in a state close to crisis. Anthropogenic environmental factors lead to its large-scale degradation. The situation is aggravated by the fact that the geography of zones of environmental threats covers a vast territory, including neighboring states. Particularly problematic in terms of environmental hazard include the mountains of the Tien Shan, the Caspian Sea, the Aral basin, the Semipalatinsk nuclear test site, the Baikonur cosmodrome, the Irtysh, etc.

According to the Convention, paragraph 1 of Article 1, the term “transboundary waters” means any surface or groundwater that denotes, crosses or lies between two or more States. In cases where transboundary rivers flow directly into the sea, such transboundary rivers fall under the provisions of the Convention to a straight line crossing their mouth between points located on the low-water line on their banks [1].

Main part. Water remains a key natural component of human existence and ecosystem integrity. In this regard, the rational use of water resources remains a problem that is acquiring enormous proportions [2].

The study of the main directions of ensuring the environmental safety of water bodies in transboundary basins allowed us to identify the following priority areas.

1. Water-energy problem of the Central Asian countries. The water and energy problem of the countries of the Central Asian region, which includes such countries as the Republic of Kazakhstan, the

Kyrgyz Republic, Turkmenistan, the Republic of Uzbekistan, and the Republic of Tajikistan, has already become one of the problems that negatively affects the environmental safety of the region. A lot of research by scientists from different branches of science is devoted to this problem. At the international level, this problem was also considered and certain steps were taken to solve it. In particular, in September 2000, UN member states adopted eight Millennium Development Goals, which expired on December 31, 2015. The states of the Central Asian region have concluded a number of agreements aimed at the uniform distribution of surface water resources between the countries of the Central Asian region and their rational use. However, as practice shows, at present there is an irrational use of water-energy facilities and water resources in general.

According to some scientists, "in this regard, the sixth goal of sustainable development "Ensuring the availability and rational use of water resources and sanitation for all" covers not only the problems of drinking water, sanitation and hygiene, but also the issues of rational use of water resources around the world. For the implementation of SDG 6, the task of ensuring integrated management of the hydrological cycle at all levels will be of no small importance. What in practice will be monitored by the global indicator "the degree of implementation of integrated water resources management on a scale from" 0 "to" 100 ", taking into account the so-called "water stress". "Water stress", in turn, is defined as the ratio of the total volume of fresh water used by the main sectors of the economy of a country or region to the total amount of renewable fresh water resources. According to UN estimates, today, "water stress" negatively affects the quality of life of more than 2 billion people on the planet, and, unfortunately, forecasts for the growth of these statistics are not encouraging [3].

It should be noted that international experts put the Central Asian region along with the countries of the Arabian Peninsula and North Africa. In the latter, the indicator of the use of freshwater resources from renewable sources exceeds the threshold level. This is alarming and should orient the governments of the countries of the Central Asian region to pay attention to solving the water and energy problem in the near future.

In our opinion, the primary tasks of the states of the Central Asian region to solve the water and energy problem should be:

- stimulating the conservation of water and energy resources;
- systemic protection of natural objects that affect the conservation of water basins;
- development of human potential, understanding the value and significance of the water and energy potential of the Central Asian region.

To solve given problems, the Central Asian states need to coordinate national sectoral strategies at the level of state policy and, possibly, develop a unified strategy for solving the water and energy problems of the Central Asian region, as well as develop medium-term financial programs at the government level, including measuring systems to track progress in implementation of the tasks.

2. The impact of climate change on water. The next direction in ensuring the environmental safety of water bodies in transboundary basins is to minimize the negative effects of climate change on water resources.

Climate studies conducted by scientists from various fields of science have noted intense global warming. In particular, climate warming is also observed in the Central Asian region. Scientists note a trend towards warmer winters and arid summers in many parts of the region, which in turn provokes the retreat of glaciers and the melting of permafrost in the Pamir and Tien Shan mountains. Of course, climate change can affect the quantity and quality of water resources and their seasonal dynamics, agriculture and human health. In addition, climate change can exacerbate existing problems, such as, for example, desertification and degradation of ecosystems and natural resources. For the countries of the Aral Sea basin, which are experiencing an ever-increasing shortage of water resources, the problems associated with climate change and water resources play a key role in economic development and meeting the vital needs of the future.

As noted in a study by Russian scientists, "Central Asia covers the territory of five countries - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. It is located in the center of the Eurasian continent in a total area of 3,882,000 km^2 with a population of about 72 million people. It borders with Afghanistan and Iran in the south, with China in the east and with Russia in the west and north. The territory of Central Asia, with the exception of the highlands, has insufficient, and for the most part, extremely insufficient moisture. The sparseness of the hydrographic network is associated with this. The density of the river network in the desert plains of Central Asia is about 2 m per 1 km^2, while, for example, in the northern half of the Russian Plain, it reaches 300-350 m per 1 km^2. Only in mountainous areas, starting from 700 m, the amount of precipitation increases markedly, respectively, and runoff also increases. Here, the density of the river network in some mountainous regions exceeds 600 m per 1 km^2" [3, p.58].

As you know, the Central Asian region is characterized by low rainfall, aridity, sharp fluctuations in weather conditions and uneven distribution of resources, and, importantly, it is especially susceptible to the effects of climate change. The patterns of climate change were evaluated in the National Communications of the Central Asian region under the UN Framework Convention on Climate Change (UNFCCC), and also reflected in scientific publications, both by scientists of the Central Asian region and scientists around the world. The results of studies of climate change and temperature change in the Central Asian region show that climate warming has occurred in the whole region. This is also confirmed by data showing an increase in temperature in all five countries of the region (the Republic of Kazakhstan, the Kyrgyz Republic, Turkmenistan, the Republic of Uzbekistan, and the Republic of Tajikistan).

It is indisputable that global climate change will have serious consequences for all countries of the Central Asian region. In our opinion, despite the different level of economic development and territorial-climatic features, the countries of the Central Asian region have common environmental problems. We completely agree with Russian scientists, who designated them as follows:

- an increase in the deficit of existing water resources and deterioration in their quality, including accelerated melting of glaciers and a decrease in snow cover, changes in the hydrographic regime of surface waters, a decrease in the population's access to high-quality drinking water, acceleration of the process of desertification, degradation and salinization of lands, loss of biodiversity, increase in deforestation, and also negative consequences for such key sectors of the national economy as agriculture and energy;
- the threat posed to irrigated agriculture, the predicted decrease in the yield of the used agricultural crops, the decrease in the productivity of pastures, the reduction in the forage base and, accordingly, the livestock sector, a change in the employment structure of the rural population, and the threat to food security of countries;
- the emergence of a source of tension between neighboring states in matters of coordination and regulation of the irrigation and energy regime of the region's water resources, a negative impact on hydropower, which could pose a threat to the energy security of countries;
- increased risk of dangerous and extreme hydrometeorological phenomena, such as hail, drought, extremely high or low temperatures, etc., which will cause more frequent emergencies, including rainfall, mudflows, landslides, avalanches, floods and droughts;
- an increase in the danger to existing ecosystems and a threat to biodiversity, including displacement of climatic zones and changes in the habitat of flora and fauna, changes in land use and land cover;
- increased risks to public health, including heat stress, increased risk of the spread of infectious and parasitic diseases, which can lead to increased mortality [4, p.74-75].

3. Aral ecological crisis and its consequences for the natural environment of the Central Asian region.

The problem of drying out the Aral Sea is not new for the whole world. The Aral Sea, which belonged to Uzbekistan and Kazakhstan, was one of the largest continental water bodies in the world. Both the sea and the rivers flowing into it (Amu Darya and Syr Darya) had high environmental value. The rivers Amu Darya and Syr Darya and their tributaries cross the borders of 6 countries, one of which - Afghanistan has not yet begun the serious use of the waters of the Amu Darya due to the war. Kyrgyzstan, Kazakhstan, Tajikistan and Uzbekistan share among themselves the waters of the Syr Darya and its tributaries. Tajikistan, Turkmenistan and Uzbekistan share among themselves the waters of the Amu Darya and its tributaries. The tributaries of these two rivers are formed in the mountains of the Pamirs and Tien Shan. Irrational use of the Amu Darya and Syr Darya rivers has led to the drying up of the Aral Sea. The water level dropped by more than 20 meters, the coastline receded in places by 100 km. The former water area, 65,000 square meters km - equal to the territory of Holland and Belgium combined, decreased by 70% and continues to decrease.

Huge efforts have been made by the entire world community to solve it. The international community is attempting to coordinate the efforts of Central Asian countries to resolve the Aral Sea problem. A number of joint declarations were signed. The International Fund for Saving the Aral Sea was also created with an action program based on the following provisions:

- development of a common water strategy;
- creation of a monitoring system;
- increasing the efficiency of water use;
- fight against poverty and other consequences of the disaster.

However, at present this problem is still relevant and requires still intensified attention. According to the researchers, "The most acute transboundary environmental threat for Uzbekistan, Kazakhstan and the entire Central Asian region is the drying up of the Aral Sea. The Aral Sea crisis is the largest environmental and humanitarian disaster in the recent history of mankind. 35 million people living in the sea basin experience its consequences" [5].

According to researchers of the state of the Aral Sea, "Now the dried bottom of the Aral Sea extends to 28,000 square kilometers. Two thirds of this territory is occupied by salt marshes, saline sands. Each year, 75 million tons of sand and dust and 65 million tons of fine salts, which are carried by the winds and settle for thousands of kilometers, rise into the atmosphere from these spaces. The dried bottom of the Aral Sea is becoming one of the main sources of aerosols, pesticides and herbicides in the Earth's atmosphere. The facts of the harmful effects of salts and aerosols from the bottom of the Aral Sea on public health, the environment, and even on the process of accelerated melting of the Tien Shan glaciers, from where the Syr Darya and Amudarya rivers originate, became public" [6].

The scale and complexity of the Aral Sea problem require an integrated, diversified approach, with the cooperation of all states in the region. Overcoming the problems associated with the Aral Sea crisis directly depends on the realization by all the states of Central Asia of the root causes of these problems, on how consistently they intensify their efforts to overcome the critical situation that requires adequate measures to be taken both at the regional and national levels. In our opinion, it is necessary for states to develop a Common Water Strategy for the countries of the Central Asian region.

Increased water intake from the transboundary rivers Ili and Irtysh. The problem of using water resources of transboundary rivers for China and Kazakhstan appeared in the last century. Back in the 70-80s, an agreement was reached with the PRC on the development of an interstate Agreement governing issues of joint use and protection of transboundary rivers. But due to a different understanding of this problem, such an Agreement was not signed. With Kazakhstan gaining independence, the issues of using water resources of transboundary rivers and especially the environmental problems of transboundary water resources became relevant for sovereign Kazakhstan.

The first time official negotiations on the use of transboundary rivers took place in 1998. But it should be noted that the parties went very hard to take this step. This problem became especially acute in the fall of 1998, when the authorities of the Xinjiang Uygur Autonomous Region (XUAR) of the PRC began accelerated construction. the Cherny Irtysh - Karamay canal, which is designed to divert part of the upper Irtysh waters to the Karamay oil field near Urumqi. As stated by the Chinese side, it intends to supply more than 450 million cubic meters of water from the Irtysh annually with the goal of supplying water to the district that is experiencing a constant shortage in it, and eventually increase this number to 1.5 billion cubic meters. It is also proposed that water be taken from the Ili River. Such a statement could not but alarm Kazakhstan. According to experts, the implementation of the PRC's intentions will lead to a violation of the existing water supply regime and will hit industry and agriculture in the north-eastern and central regions of the Republic of Kazakhstan. But the most important thing is that the environmental situation in the zone of Balkhash and Zaysan lakes can greatly deteriorate, which is able to repeat the tragedy of the Aral Sea here.

An analysis of the available information contained in the official publications of the People's Republic of China on water management issues allows us to draw a number of conclusions.

Thus, with a large number of border rivers with origins on its territory, China gains significant advantages in relations with neighbouring States (Kazakhstan, Russia, India, Nepal, Bhutan, Burma, Laos, Vietnam) and deliberately does not conclude agreements with many neighbors on the joint use and protection of international waters. The Chinese side is very carefully studying all aspects of the use of water resources for a very long period of time, taking into account demographic factors and the possibility of full development of water resources on its territory. To this end, the People's Republic of China has a network of research and design organizations of the Ministry of Water Resources system, the volume of financing is sharply increasing due to the expansion of the range of works on water resources assessment, the growth of water construction, the construction of new irrigated lands.

Concerning transboundary rivers, China avoided accepting any obligation to comply with international rules. In official sources, the term "transboundary waters" or "international watercourses" is not mentioned, indicating the unilateral position of the People's Republic of China on the use or prevention of pollution of transboundary rivers. In institutional terms, all this is supported by the sustainable position of the Ministry of Water Resources of the People's Republic of China, which is defined by the State Body for Water Resources Management and has high powers to implement a unified water policy [7].

China's position on transboundary rivers is determined primarily by plans to transform Xinjiang into a regional and trade center in Central Asia with a further spread of influence in the Middle East.

In addition, China has plans to populate Xinjiang with ethnic Chinese (Han). Against the background of the active natural reproduction of this region, this will lead to a substantial increase in its population. Accordingly, this will require an increase in both the agricultural and industrial potential of the region and its availability of water. Meanwhile, the Xinjiang Uygur Autonomous Region is the least water-rich area in China. Xinjiang possesses water resources of only 26.3 cubic kilometers per year, which allows only 18 million people to be provided with water. But now the population of the region is about 20 million people with the potential for further growth. There are many desert areas, especially the Tarim Depression in the Kashgar region. In the area, water costs consumers 0.39 yuan per cubic meter.

Thus, China's position on transboundary rivers is closely dependent on the situation in the Xinjiang Uygur Autonomous Region. In this context, in fact, are the actions of China on the use of transboundary rivers.

Of course, voluntary measures cannot solve the problem of the use and quality control of waters of transboundary rivers. This is due to the following facts.

Firstly, in accordance with Article No. 4 of the "Agreement between the Government of the Republic of Kazakhstan and the Government of the People's Republic of China on Cooperation in the Use and Protection of Transboundary Rivers" [8], Kazakhstan cannot oppose the PRC's plans to expand the water intake of the Ili and Irtysh rivers, so as this is the rational approach of the Chinese side.

Secondly, Kazakhstan's dependence on many economic and trade issues on the PRC, for example, on energy cooperation, should be taken into account. In this regard, it was not by chance that in 2007 Kazakhstan offered China to exchange for the flow of transboundary rivers, primarily Ili and Irtysh, for a preferential contract for food supplies. However, China rejected this proposal.

The environmental and economic consequences of using the transboundary rivers Ili and Irtysh are not beneficial for any of the countries. So, given the above facts, we should expect a decrease in water resources in the Irtysh River basin: by 2030 by 8 cubic meters. km, by 2040 - per 10 cubic meters. km, by 2050 - by 11.4 cubic meters. km All this will lead, firstly, to a significant reduction in electricity production at the cascade of hydroelectric power plants in the Irtysh River to 25% by 2030 and to 40% by 2050. This will also contribute to the actual cessation of shipping in Kazakhstan on this river since 2020. Secondly, this situation will lead to practical degradation of canals and reservoirs (Bukhtarma and Shulbinsk) in Kazakhstan, fed from the Irtysh River.

Thirdly, surface water quality deterioration and groundwater pollution will occur.

Fourthly, if a massive withdrawal of the Irtysh waters from China begins, then the Irtysh riverbed throughout Kazakhstan and to the city of Omsk can become a chain of swamps and still water. It is clear that this will lead to a catastrophic deterioration of not only the environmental, but also the economic situation in the region.

Fifth, the implementation of the PRC's plans to increase the water intake of the Irtysh through canals and other hydraulic structures will bring the drying up of Lake Zaysan, which feeds on the waters of this river, first of all [9].

The solution of the problem by the two states led to the fact that on September 12-13, 2001, during the official visit of the Premier of the State Council of the People's Republic of China Zhuzhongji to Kazakhstan, an Agreement was signed between the Government of the Republic of Kazakhstan and the Government of the People's Republic of China on cooperation in the field of joint full use and protection of transboundary rivers. According to the researchers, "In the context of successfully resolving border problems between the Republic of Kazakhstan and the PRC, the fact of the beginning of negotiations (or as the Chinese side prefers to call them consultations) on the use and protection of transboundary rivers and the signing of the above Agreement is an important success of Kazakhstan's diplomacy . These questions were repeatedly raised by the Soviet Union, but did not find a response from the Chinese side" [10, p.28].

On November 13, 2010, during the 7th meeting of the Kazakh-Chinese Joint Commission on the Use and Protection of Transboundary Rivers in the city of Karaganda, an Agreement was signed on the joint construction of the Dostyk integrated waterworks on the Khorgos River, which is a tributary of the Ili River. (It should be noted that in 1992-1993, Kazakhstan and China signed the Protocols on the joint construction of a combined water intake on the Khorgos River.) It is assumed that through this water system it will be possible to use water resources in equal volumes for both sides. This agreement was the most significant result for the entire period of the commission [10, p. 30].

In July 2011, the first results of mutual surveys of gauging stations on the river were considered. Irtysh. At this meeting, on the proposal of the Kazakhstani side, the issue of reconstruction of the hydroelectric facility on the Sumbe River [11], which was built on the basis of an agreement in 2008 and infringing on our water interests at present, was also considered.

Along with this, joint work on the technical aspects of water allocation on transboundary rivers between the two states began to find their concrete implementation (the planned dates are 2011-2014). In 2011, an agreement was also signed between Kazakhstan and China on a joint division of resources of transboundary rivers Ili and Irtysh by 2014 [9].

But in general, the main thing is that certain shifts have been outlined in solving the problem, the barrier of previous preconceptions has been removed and this direction of bilateral cooperation in the future will have a positive trend. In this regard, Kazakhstan highly appreciates the beginning of the negotiation process on the legal settlement of the problem of transboundary rivers between Kazakhstan and the PRC. A positive moment today is Beijing's statement that the PRC will not adhere to the position of national egoism in the water issue.

The settlement of water relations with China seems very important from the point of view of economic and environmental security of Kazakhstan. The task should be aimed at maintaining the necessary water balance of rivers, working out a common position in the joint use and protection of water resources of transboundary watercourses, and prevention of their pollution and depletion.

Conclusions. An analysis of the problems of transboundary water bodies made it possible to develop recommendations for their elimination. To this end, the following activities are required.

1) At the legislative level, it is necessary to sign fundamental documents on legal issues of water allocation and protection of transboundary rivers on the basis of international law and bring the problem of transboundary rivers to the level of the SCO and tripartite negotiations (Russia, Kazakhstan, China)

2) It is necessary to continue the construction of joint waterworks on transboundary rivers, which will prevent massive water withdrawal from the Chinese side. A possible shortage of water supply from transboundary rivers in the Republic of Kazakhstan can be avoided by introducing resource-saving technologies, for example, closed water circulation at industrial enterprises, drip irrigation technologies in agriculture. As a result, it is quite possible to halve by 2040 the specific norms of water consumption. In this aspect, the introduction of engineering systems of flooding and development of floodplains is possible.

3) It is necessary to create a unified (at the level of two countries) system of training and retraining of personnel of hydrological services, to expand, improve and modernize their monitoring network (gauging stations, etc.) in all river basins of Kazakhstan and China.

**А. Е. Жатканбаева[1], А. К. Джангабулова[1], К. Н. Айдарханова[1],
Д. М. Баймаханова[1], Чжао Хайфенг[2]**

[1]Әл-Фараби атындағы ҚазҰУ, Алматы, Қазақстан;
[2]Харбин политехникалық университеті, Харбин, ҚХР

ТРАНСШЕКАРАЛЫҚ БАССЕЙНДЕРДЕГІ СУ ОБЪЕКТІЛЕРІНІҢ ЭКОЛОГИЯЛЫҚ ҚАУІПСІЗДІГІН ҚАМТАМАСЫЗ ЕТУДІҢ НЕГІЗГІ БАҒЫТТАРЫ

Аннотация. Мақала трансшекаралық су объектілерінің экологиялық қауіпсіздігін қамтамасыз ету саласындағы халықаралық ынтымақтастықтың басым бағыттарын талдауға арналған. Мақала авторлары экологиялық қауіпсіздіктің келесі бағыттарын атады: Орталық Азия елдерінің су-энергетикалық мәселесі; климаттың өзгеруінің суға әсері; Арал экологиялық дағдарысы және оның Орталық Азия аймағының қоршаған ортасына тигізетін зардаптары. Мақала авторлары трансшекаралық су объектілерінің экологиялық мәселелерін жою бойынша ұсыныстар жасады. Халықаралық құқық негізінде суды бөлу және трансшекаралық өзендерді қорғаудың құқықтық мәселелері бойынша негізгі құжаттарға қол қою және трансшекаралық өзендер проблемасын ШЫҰ деңгейіне және үшжақты келіссөздер деңгейіне шығару ұсынылады (Ресей, Қазақстан, Қытай). Трансшекаралық өзендерде бірлескен гидроэнергетикалық құрылыстар салу қажеттілігі негізделеді. Авторлар Қазақстан мен Қытайдың барлық өзен бассейндерінде қадағалау желісін (өлшеу бекеттері және т.б.) кеңейтуді, жетілдіруді және жаңартуды ұсынады.

Мақала авторлары трансшекаралық су объектілерінің оларды энергия көзі ретінде пайдалану нәтижелеріне талдау жасады. Орталық Азия аймағындағы су-энергетикалық проблема бүгінде халықаралық деңгейде шешілуді қажет етеді. Қазіргі кезде трансшекаралық су объектілерін пайдалану туралы екіжақты және көпжақты келісімдер жеткіліксіз жұмыс істейді, олардың көптеген стандарттары ескірген және жетілдіруді және қайта қарауды қажет етеді. Бұл мәселені шешу үшін авторлар су-энергетикалық проблемасын шешудің жаңа тәсілдері мен жаңа деңгейдегі бірыңғай стратегияны әзірлеу қажеттілігін негіздейді.

Мақала авторлары экологиялық қауіптерді талдай отырып, климаттық құбылыстардың су объектілерінің жай-күйіне әсер етуіне байланысты мәселелерге назар аударады. Авторлардың пікірінше, өзендер мен көлдердің жағдайын жақсарту және оларды бұршақ, құрғақшылық, өте жоғары немесе төмен температура сияқты табиғи құбылыстардың теріс әсерінен қорғау, аймақтың экологиялық қауіпсіздігін қамтамасыз етудің келісілген мемлекетаралық тәсілінсіз мүмкін емес.

Авторлардың пікірінше, Арал экологиялық дағдарысы жеке экологиялық проблема болып қала береді. Әлемдік қоғамдастықтың Арал теңізін құтқаруға бағытталған іс-шараларының көптігіне қарамастан, бүгінде экологиялық дағдарыс жалғасын таба алмады. Арал теңізін суаратын өзендер – Амудария, Сырдария, оның өзендерімен қоса 6 елдің шекараларын кесіп өтеді және осы мемлекеттер белсенді қолданады. Бұл өзендерді ұтымсыз пайдалану Арал теңізінің кебуіне әкелді. Экологиялық проблеманы шешу мемлекеттер арасындағы келісімдерді орындау болып саналады.

Авторлар Іле және Ертіс трансшекаралық өзендерінен су алудың артуына байланысты проблеманы алға тартады. Осы өзендер аумағы арқылы ағатын Қытай, Қазақстан және Ресей осы өзендердің экологиялық қауіпсіздігін қамтамасыз ету үшін шаралар қабылдауы қажет. Алайда бастауы трансшекаралық өзендердің аумағындағы Қытайдың ұстанымы халықаралық ережелерді сақтау бойынша кез-келген міндеттемелерді қабылдаудан аулақ болады, сондықтан Қазақстан үшін су проблемасын оң шешуге қатысты Қытаймен қарым-қатынасты реттеудің маңызы зор.

Түйін сөздер: су ресурстарын басқару, су қауіпсіздігі, трансшекаралық су объектілері, ортақ су пайдалану, экологиялық қауіпсіздік.

**А. Е. Жатканбаева[1], А. К. Джангабулова[1], К. Н. Айдарханова[1],
Д. М. Баймханова[1], Чжао Хайфенг[2]**

[1]КазНУ имени аль-Фараби, Алматы, Казахстан;
[2]Харбинский политехнический университет, Харбин, КНР

ОСНОВНЫЕ НАПРАВЛЕНИЯ ОБЕСПЕЧЕНИЯ ЭКОЛОГИЧЕСКОЙ БЕЗОПАСНОСТИ ВОДНЫХ ОБЪЕКТОВ В ТРАНСГРАНИЧНЫХ БАССЕЙНАХ

Аннотация. Статья посвящена анализу приоритетных направлений международного сотрудничества в области обеспечения экологической безопасности трансграничных водных объектов. Авторами статьи обозначены такие направления обеспечения экологической безопасности, как: водно-энергетическая проблема Центрально-Азиатских стран; воздействие изменений климата на водные ресурсы; Аральский экологический кризис и его последствия для природной среды Центрально-Азиатского региона. Авторами статьи предложены рекомендации по устранению экологических проблем трансграничных водных объектов. Предлагается подписание основополагающих документов по правовым вопросам вододеления и охраны трансграничных рек на основе норм международного права и вынесение проблемы трансграничных рек на уровень ШОС и трехсторонних переговоров (Россия, Казахстан, Китай). Обосновывается необходимость строительства совместных гидроузлов на трансграничных реках. Авторами предлагается расширить, усовершенствовать и модернизировать сеть контроля (гидропосты и т.д.) на всех речных бассейнах Казахстана и Китая.

Авторами статьи проведен анализ состояния трансграничных водных объектов в результате их использования в качестве источника энергии. Водно-энергетическая проблема в Центрально-Азиатском регионе сегодня требует скорейшего разрешения уже на международном уровне. Существующие двусторонние и многосторонние соглашения по использованию трансграничных водных объектов сегодня недостаточно работают, многие нормы их устарели и требуют совершенствования и пересмотра. Для решения данной проблемы авторами обосновывается необходимость разработки единой стратегии на новом уровне и с новыми подходами к решению водно-энергетической проблемы.

Авторы статьи, анализируя экологические риски, выдвигают на передний план проблемы, связанные с воздействием климатических явлений на состояние водных объектов. По мнению авторов, улучшение состояния рек и озер, ограждение их от негативного воздействия природных явлений, таких как град, засуха, экстремально высокие или низкие температуры невозможно без согласованного межгосударственного подхода к обеспечению экологической безопасности региона.

Отдельной экологической проблемой, по мнению авторов, остается Аральский экологический кризис. Несмотря на большое количество мероприятий со стороны мирового сообщества, направленных на спасение Аральского моря, сегодня экологический кризис еще не изжил себя. Реки, питающие Аральское море – Амударья, Сырдарья, включая их притоки – пересекают границы 6 стран и активно используются этими государствами. Нерациональное использование этих рек привело к высыханию Аральского моря. Решение экологической проблемы заключается в выполнении договоренностей между государствами.

Авторами выделяется и проблема, связанная с увеличением водозабора из трансграничных рек Или и Иртыш. Китай, Казахстан и Россия, по территории которых протекают эти реки, обязаны принять меры по обеспечению экологической безопасности этих рек. Однако позиция Китая с истоками на территории трансграничных рек избегает принятия каких-либо обязанностей по соблюдению международных правил. Поэтому для Казахстана является важным урегулировать отношений с Китаем относительно позитивного решения водной проблемы.

Ключевые слова: управления водными ресурсами, водная безопасность, трансграничные водные объекты, совместное водопользование, экологическая безопасность.

Information about the authors:

Zhatkanbaeva Ayzhan, doctor of law, Professor, Department of Customs, Financial and Ecological Law Al-Farabi Kazakh National University, Almaty, Kazakhstan; Ayzhan.Zhatkanbaeva@kaznu.kz; https://orcid.org/0000-0003-3325-2629

Jangabulova Arailym, candidate of juridical science, Associate Professor, Al-Farabi Kazakh National University, Almaty, Kazakhstan; Arailym.Dzhangabulova@kaznu.kz; https://orcid.org/0000-0002-4150-5393

Aydarkhanova Kulyash, candidate of juridical science, Associate Professor, Department of Customs, Financial and Ecological Law, Al-Farabi Kazakh National University, Almaty, Kazakhstan; Kulyash.Aidarhanova@kaznu.kz; https://orcid.org/0000-0002-6392-4708

Baimakhanova Dina, doctor of law, Professor, Department of Theory and History of State and Law, Constitutional and Administrative Law, l-Farabi Kazakh National University,Almaty, Kazakhstan; Dina.Baimahanova@kaznu.kz; http://orcid.org/0000-0001-5903-9020

Zhao Haifeng, Professor of Law, Harbin University of Technology; Zhaohaifeng_c@yahoo.com.cn; https://orcid.org/0000-0003-3292-5641

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Zh. U. Myrkhalykov[1], S. G. Stepanov[2], R. T. Kaldybaev[3], A. E. Aripbaeva[3], M. I. Satayev[1]

[1]SILKWAY International University, Shymkent, Kazakhstan;
[2]Ivanovo State Polytechnic University, Ivanovo, Russia;
[3]South Kazakhstan State University, Shymkent, Kazakhstan.
E-mail: myrkhalykov@inbox.ru, step-sg@mail.ru, rashid_cotton@mail.ru,
akerke-1982@mail.ru, maratsatayev@mail.ru

ANALYSIS OF THE BASIC DIRECTIONS OF FIRE HOSES RUPTURE PRESSURES INCREASING

Abstract. The analysis of the main ways to increase the rupture pressure of these technical products was made based on the rupture pressures dependence in fire pressure hoses from the parameters of their woven reinforcing frame previously obtained by the authors. From a scientific and practical point of view, the main directions for increasing the bursting internal pressures in the FPH (Fire pressure hoses) are identified and analyzed. The developed methodology for calculating and designing of FPH is based on a relationship connecting internal hydraulic pressure *p-burst* with a breaking load *N-burst* in the weft thread and a number of other parameters.

To assess the influence of the parameters of the FPH woven reinforcing framework on the value of the internal bursting pressure, the latex FPH with a diameter of 77 mm manufactured by BEREG (Russia) made of polyester yarns and designed for a working pressure of 1.6 MPa, was chosen as the object of study.

The dependences of the bursting pressures values on the bursting strength of weft threads of FPH woven reinforcing frameworks, designed for a working pressure of 1.6 MPa, for various diameters of the arms cross sections are obtained. The influence of geometric densities on the basis and weft of the woven reinforcing frame on the value of internal burst pressure in the FPH is investigated.

When calculating the FPH strength under the action of internal hydraulic pressure, the effect on the value of the burst pressure in latex FPH manufactured by BEREG (Russia), designed for a working pressure of 1.6 MPa, such parameters as sleeve radius, geometric densities of base and weft was studied. When designing and creating new types of FPH, it is necessary to take into account the influence of these parameters on the burst pressure value.

Key words: pressure fire hose, reinforcing cage, polyester threads, internal rupture pressure.

Introduction. Fire pressure hoses (FPH) **-** one of the main means of extinguishing fires. Structurally, they are designed as flat-wound flexible piping systems on a fabric basis with rubber layers (layer) and serve to supply extinguishing liquid (water and aqueous foaming agents) under pressure at a distance to the fire site. In relation to the FPH, the requirement for their reliability and performance is extremely important, since the positive result in extinguishing fires directly depends on this, and as a result, the lives of people and property saved.

Due to the lack of its own enterprises for the production of FPH, the Republic of Kazakhstan purchases these products from foreign manufacturers.

The importance of purchases of FPH by Kazakhstan is explained not only by the fact that a significant part of the country belongs to the arid climate zone, but also by the fact that they become strategic in the event of emergencies associated with the occurrence of large fires in the country.

In order to reduce dependence on supplies of FPH from abroad, it is necessary to create our own production of new high-tech FPH in Kazakhstan. To achieve this goal, it is not enough just to have technology, production sites with equipment, and it is important to have our own scientific school in the field of theory, research, calculation and design of high-tech FPH. In this regard, in our opinion, it is of considerable scientific and practical interest to analyze the main directions of increasing the strength characteristics of the FPH - their burst pressures.

An indispensable part of the device of any type of FPH is a woven reinforcing frame (WRF), fully absorbing the forces from the fluid pressure inside the fire hose, when it comes to non-rubberized FPHs, and to a decisive extent, in the case of rubberized, latexed and double-sided FPHs. Structurally, the frameworks of most of the FPH are seamless single-layer woven plain weave shells made on round looms. Along its circumference of the FPH are weft threads, mutually interwoven with warp threads located along the length of the FPH.

Most often, FPH WRF is made from polyester yarns based on polyethylene terephthalate (PET)

The calculation of the strength of the WRF is reduced mainly to the calculation of the strength of their reinforcing frames.

To date, on the basis of the nonlinear theory of calculating single-layer plain weave fabrics [1,2] we have developed the basic theoretical provisions [3-6], the calculation and design technique for commissioning [7,8], and a set of experimental studies has been carried out on the calculation of the strength of the FPH with hydraulic effects [3]. The developed methodology for calculating and designing FPH is based on the obtained dependence of the bursting internal hydraulic pressure a weft thread N*rupt* and a number of other parameters of the reinforcing frame, having the form:

$$p\text{-}burst = \frac{2N\text{-}burst\,L_o}{R\left\{L_u(2L_o-\beta_o d_o)+L_o\left[2\left(L_u^2+(d_o\eta_{OB}+d_u\eta_{YB})^2\right)^{\frac{1}{2}}+\frac{0.212\cdot L_y^2\cdot(d_o\eta_{OB}+d_u\eta_{YB})^2}{\left(L_y^2+(d_o\eta_{OB}+d_u\eta_{YB})^2\right)^{\frac{3}{2}}}-\beta_y d_u\right]\right\}}$$

where in R- radius fire hose; L_o, L_u - geometrical density respectively to FPH base and weft of reinforcing cage; d_o, d_y, η_{OB}, η_{yB}- respectively the diameters of the warp and weft reinforcing cage fire hose threads and the coefficients of the vertical buckling threads; β_0, β_y - coefficients characterizing the lengths of the zones of contact between the threads in WRF in fractions of the diameters of the warp and weft threads.

The rupture pressure characterizes the strength of the FPH, i.e., the ability of FPH WRF to resist rupture under the influence of internal hydraulic pressure. GOST R 51049-97 (Russia) [9] sets the values of bursting pressures for all types and diameters of the FPH. All FPHs manufactured at enterprises of the Russian Federation and operated in Kazakhstan must necessarily comply with this GOST for bursting pressures.

Let us analyze the main directions of increasing explosive internal pressures in the FPH. For this purpose, we take as an object of study latex FPH with a diameter of 77 mm produced by BEREG Production Association (Russia), made of polyester yarns based on polyethylene terephthalate (PET) and designed for a working pressure of 1.6 MPa.

An analysis of the dependence of the bursting internal pressures in the FPH on the parameters of their woven reinforcing cage, based on formula.

In this case, the initial parameters of the FPH WRF necessary for such a study were determined using the methods described in [3].

The structure of formula is such that the burst pressure of the fire hose is directly and inversely proportional to the bursting force of the weft threads and the radius of the FPH. With an increase (decrease) in the breaking strength of the weft threads, the breaking pressure in the FPH (that is, in fact, the strength of the fire hose) increases (falls) according to a linear law. The dependences of the burst pressures on the bursting forces of the FPH WRF weft threads, designed for a working pressure of 1.6 MPa, for various diameters of the cross sections of the arms are shown in figure 1.

From the analysis of the graphs it follows that with a decrease in the diameters of the FPH cross sections, the steepness of the characteristics increases.

In general, based on an analysis of formula, it be concluded that with a decrease (increase) in the radius of the fire hose, its rupture pressure increases (falls).

An increase in the breaking strength of weft threads FPH WRF is one of the directions for increasing the strength characteristics of FPH. This direction can be implemented in two possible ways.

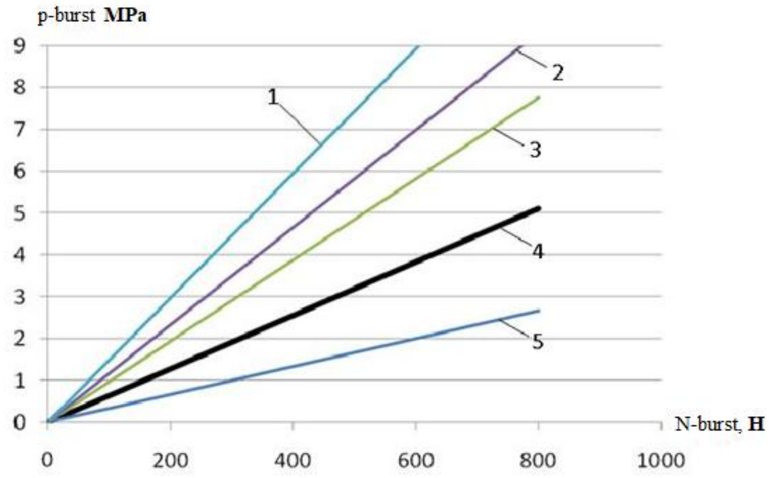

Figure 1 – The dependence of the rupture pressure p-burst on the breaking stress of the weft yarn of the FPH woven reinforcing frames at "BEREG" of different diameters: 1 - for the diameter of 51 mm; 2 - for the diameter of 66 mm; 3 - for the diameter of 77 mm; 4 - for the diameter of 89 mm; 5 - for the diameter of 150 mm

However, this path will lead to an increase in material consumption and weight of the FPH. The second method, in our opinion, is more acceptable, is that instead of traditional polyester threads, high-strength and wear-resistant threads, for example, ultra-high modulus (UHM) threads, or threads of ultra-high molecular weight polyethylene (UHMWPE) can be used as weft in the FPH was.

The first method consists in the fact that such weaving materials can be washed using such traditional materials for the production of such FPH WRF, such as, for example, polyester yarns.

But in this case, to increase the strength of the fire hose, it is necessary to use as weft threads of a larger diameter (greater linear density) and, accordingly, with a greater rupter strength. However, this path will lead to an increase in material consumption and weight of the FPH. The second method, in our opinion, is more acceptable, is that instead of traditional polyester threads, high-strength and wear-resistant threads, for example, ultra-high modulus (UHM) threads, or threads of ultra-high molecular weight polyethylene (UHMWPE) can be used as weft.

Based on formula, the influence of geometric densities on the base and weft of the woven reinforcing cage on the value of internal burst pressure studied (figure 2, 3).

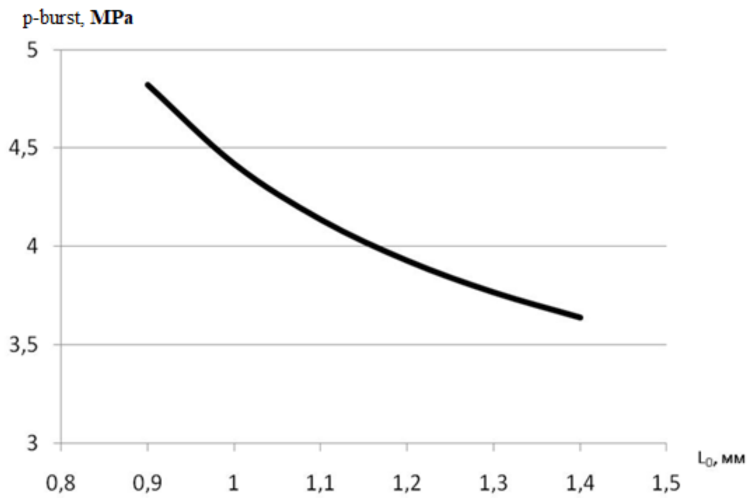

Figure 2 – The dependence of the rupture pressure p-burst from the geometric density on the basis of L_o fabric of FPH latex reinforcing frame MG "Bereg" with diameter of 77 mm

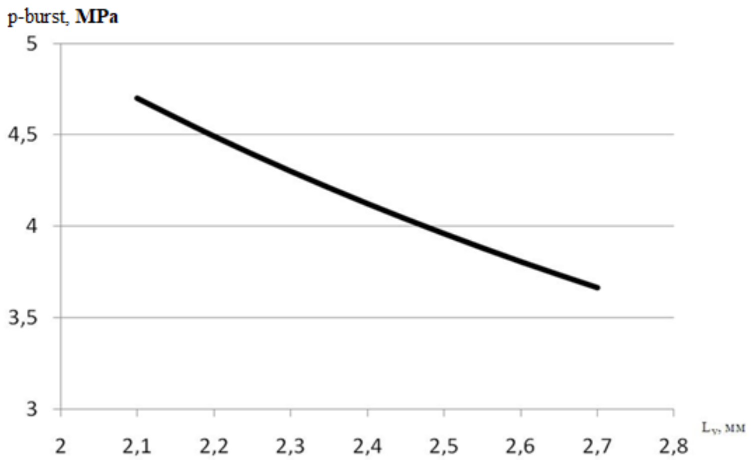

Figure 3 – The dependence of the burst pressure p-burst from the geometric density of the weft L_u of the fabric of FPH Latex reinforcing frame MG "BEREG" with diameter of 77 mm

The analysis of the presented dependences shows that the burst pressure in the FPH substantially depends on the geometric densities of the base and weft of the reinforcing cage fabric. An increase (decrease) in the geometric densities of the fabric of such a FPH results in a decrease. It is important to consider the significant dependence of the bursting pressure on the bursting forces of weft threads, sleeve radii, geometric densities on the warp and weft of the fabric FPH WRF when designing new hoses. Reducing the geometric densities of the warp and weft of WRF threads (if there are technological capabilities for this), along with an increase in the breaking strength of the weft threads, seems the most effective way of increasing the strength characteristics of the FPH under hydraulic action.

Conclusion. On the basis of the obtained formula for calculating the FPH strength under the action of internal hydraulic pressure, the effect on the value of the rupture pressure in the latex FPH produced by Bereg Production Association (Russia), designed for a working pressure of 1.6 MPa, parameters such as the breaking stress threads, the radius of the sleeve and the geometric density at the base and weft.

The influence of these parameters on the value of the rupture pressure turned out to be the most significant, which must be taken into account when designing and creating new types of FPH.

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Ж. У. Мырхалыков[1], С. Г. Степанов[2], А. Е. Арипбаева[3],
Р. Т. Калдыбаев[3], М. И. Сатаев[1]

[1]«SILKWAY» Халықаралық университеті, Шымкент, Қазақстан;
[2]Иваново мемлекеттік политехникалық университеті, Иваново, Ресей;
[3]М. Әуезов атындағы Оңтүстік Қазақстан мемлекеттік университеті, Шымкент, Қазақстан

ӨРТКЕ СУ СЕБЕТІН ТҮТІК ҚЫСЫМЫН АРТТЫРУДАҒЫ БАСТЫ БАҒЫТТАРДЫ ТАЛДАУ

Аннотация. Қысымды өртке су себетін түтік – тегіс иілгіш құбыр жолдары көбіктендіретін су және су ерітінділерін өрт ошағына қысым жасалған қашықтыққа жеткізу үшін қолданылады. Қысымды түтіктердің сенімділігі мен жұмыс қабілеттілігіне қойылатын талап өте маңызды, өйткені өртті сөндірудің оң нәтижесі оған тікелей байланысты. Өртке су себетін түтіктің маңызды параметрлерінің бірі – ішкі қысым әсерінен шлангтың жойылуға қарсы тұру қабілеттілігін сипаттайтын жарылатын ішкі қысым. Осыған байланысты гильзалардың жарылу қысымын жоғарылату жолдарын талдау маңызды. Өртке су себетін түтік құбырдағы үзілу қысымының олардың тоқылған армирленген қаңқа өлшемдеріне авторлар бұрын алынған тәуелділікке сүйене отырып, осы техникалық бұйымның үзілу қысымын жоғарылатудың негізгі жолдарына талдау жүргізді. Өртке су себетін түтік құбырдың армирленіп тоқылған қаңқа өлшемдерінің ішкі үзілу қысымының шамасына әсерін бағалау үшін зерттеу объектісі ретінде ПО «БЕРЕГ» (Ресей) өндірісінің полиэфирлі жіптерден жасалған және 1,6 Мпа жұмыс қысымына есептелген диаметрі 77 мм латекстелген өртке су себетін түтік құбыр таңдап алынды. Жүргізілген зерттеулер үзілу қысымы кең дәрежеде арқау жібінің үзілу күшіне, су себу құбырының радиусына, армирленген қаңқа тоқымасының негіз және арқау бойынша геометриялық тығыздығына байланысты болып келетіндігін көрсетті. Арқау жіптерінің үзілу күші шамасының өсуі (төмендеуі) арқылы өртке су себетін түтік құбырының ажырау қысымы (яғни, су себетін түтігінің беріктігі) сызықтық заңы бойынша артады (төмендейді). Осылайша су себетін түтік құбыры көлденең қимасының төмендеуі негізінде құламалық сипаты өседі. Армирленген қаңқа тоқымасының негіз және арқау бойынша геометриялық тығыздығының өсуі (төмендеуі) өртке су себетін түтік құбырдың үзілу қысымының төмендеуіне (өсуіне) әкеледі. Ішкі үзілу қысымының арқау жіптерінің үзілу күшіне, түтікше құбырдың радиусына, армирленген қаңқа тоқымасының негіз бен арқау бойынша геометриялық тығыздығына аса тәуелді болатындығын жаңа өртке су себетін түтік құбырды жобалау кезінде есепке алған жөн.

Түйін сөздер: өртке су себетін түтікті құбыр, армирленген қаңқа, полиэфирлі жіптер, ішкі ажырау қысымы.

Ж. У. Мырхалыков[1], С. Г. Степанов[2], А. Е. Арипбаева[3],
Р. Т. Калдыбаев[3], М. И. Сатаев[1]

[1]Международный университет «SILKWAY», Шымкент, Казахстан;
[2]Ивановский государственный политехнический университет, Иваново, Россия;
[3]Южно-Казахстанский государственный университет им. М. Ауэзова, Шымкент, Казахстан

АНАЛИЗ ОСНОВНЫХ НАПРАВЛЕНИЙ ПОВЫШЕНИЯ РАЗРЫВНЫХ ДАВЛЕНИЙ НАПОРНЫХ ПОЖАРНЫХ РУКАВОВ

Аннотация. Напорные пожарные рукава – плоско сворачиваемые гибкие трубопроводы, применяемые для подачи воды и водных растворов пенообразователей на расстояние под давлением к очагу пожара. По отношению к напорным пожарным рукавам чрезвычайно важно требование к их надежности и работоспособности, так как от этого напрямую зависит положительный результат при тушении пожаров. Одним из важнейших параметров напорных пожарных рукавов является разрывное внутреннее давление, характеризующие прочность, т.е. способность рукава сопротивляться разрушению под действием внутреннего гидравлического давления. В связи с этим важно проанализировать пути повышения разрывных давлений рукавов. На основе ранее полученной авторами зависимости разрывных давлений в пожарных напорных рукавах от параметров их тканого армирующего каркаса выполнен анализ основных путей повышения разрывных давлений этих технических изделий. Для оценки влияния параметров тканого армирующего каркаса рукавов на величину внутреннего разрывного давления в качестве объекта исследования был выбран латексированный напорный пожарный рукав диаметром 77 мм производства ПО «БЕРЕГ» (Россия), изготовленный из полиэфирных нитей и рассчитанный на рабочее давление 1,6 МПа. Проведенное исследование показало, что в наибольшей степени разрывные давления зависят от разрывных усилий уточных нитей, радиусов рукавов, геометрических плотностей по основе и утку ткани армирующего каркаса. С увеличением (уменьшением) величины разрывного усилия уточных нитей разрывное давление в пожарных напорных рукавах (то есть фактически, прочность рукавов) возрастает (падает) по линейному закону. При этом с уменьшением диаметров поперечных сечений рукавов крутизна характеристик возрастает. Увеличение (уменьшение) геометрических плотностей по основе и утку ткани армирующего каркаса приводит к уменьшению (увеличению) разрывного давления пожарных напорных рукавов. Существенную зависимость внутреннего разрывного давления от разрывных усилий уточных нитей, радиусов рукавов, геометрических плотностей по основе и утку ткани армирующего каркаса важно учитывать при проектировании новых пожарных рукавов.

Ключевые слова: напорный пожарный рукав, армирующий каркас, полиэфирные нити, внутреннее разрывное давление.

Information about authors:

Myrkhalykov Zh., Academician of National Academy of Sciences of the Republic of Kazakhstan, Doctor of technical sciences, Professor, General Director of LLP “Research Institute of Innovation and Technological Modernization”, SILKWAY International University, Shymkent, Kazakhstan; myrkhalykov@inbox.ru; https://orcid.org/0000-0002-4834-5089

Stepanov S., Doctor of technical sciences, Professor of Department of Mechatronics and Radioelectronics, Ivanovo State Polytechnic University, Ivanovo, Russia; step-sg@mail.ru; https://orcid.org/0000-0001-7648-832X

Kaldybaev R., Candidate of technical sciences, Docent at the department of “Technology of manufactured and consumer goods of textile and light industry”, South Kazakhstan State University, Shymkent, Kazakhstan; rashid_cotton@mail.ru; https://orcid.org/0000-0002-1370-7553

Aripbaeva A. PhD, Senior lecturer at the department of “Technology and design of textile materials”, South Kazakhstan State University, Shymkent, Kazakhstan; akerke-1982@mail.ru; https://orcid.org/0000-0003-1005-0856

Satayev M., Corresponding member of National Academy of Sciences of the Republic of Kazakhstan, Doctor of technical sciences, Professor, Deputy Director of LLP “Research Institute of Innovation and Technological Modernization”, SILKWAY International University, Shymkent, Kazakhstan; maratsatayev@mail.ru; https://orcid.org/0000-0001-9308-1839

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G. Issanova[1,2,3], A. Saduakhas[1], J. Abuduwaili[4], K. Tynybayeva[1], S. Tanirbergenov[1]

[1]U.U. Uspanov Kazakh Research Institute of Soil Science and Agrochemistry, Almaty, Kazakhstan;
[2]Research Centre for Ecology and Environment of Central Asia (Almaty), Kazakhstan;
[3]Al-Farabi Kazakh National University, Faculty of Geography
and Environmental Sciences, Almaty, Kazakhstan;
[4]State Key Laboratory of Desert and Oasis Ecology, Xinjiang Institute
of Ecology and Geography, Chinese Academy of Sciences, Urumqi, China.
E-mail: gul_nur.777@mail.ru jilil@ms.xjb.ac.cn, kurash_88@mail.ru

DESERTIFICATION AND LAND DEGRADATION IN KAZAKHSTAN

Abstract. Desertification and land degradation are common processes in arid and semi-arid regions of Kazakhstan, especially southern parts, where areas are covered by a great variety of desert types. In deserts, soil-forming processes take place in conditions of severe water shortage, and high level of soil degradation and desertification. The main natural factors for these processes are a flat terrain, a high degree of arid climate, soil salinity, carbonate content, a lack of structure and low natural soil fertility. However, the anthropogenic factors of desertification and soil degradation became dominant last decades.

The study considers the actual problems of natural and anthropogenic factors of desertification and land degradation within Kazakhstan. The desertification of huge territories is accompanied by soil contamination, waterlogging by surface water and groundwater, soil salinization, erosion (water, wind), degradation of vegetation cover, dehumidification and a decrease in general regional biological capacity. Analysis of the current status of the soil cover has shown intensive land degradation 43 % of the territory of Kazakhstan is subjected to degradation in significant degree; over 14 % of pastures have reached an extreme degree of degradation or are completely degradated. The Aral Sea region, Northern Caspian Sea and Southern Balkhash deserts can be observed as areas of intensive soil desertification, salinization and deflation processes. As well as the desertification process are progressing in the irrigated soils of the deltas of Syrdarya, Shu, Ile and Karatal rivers.

Key words: soil degradation, desertification, arid region, Kazakhstan.

Introduction. Desertification is one of the unsolved environmental problems affecting a large part of Kazakhstan and the world. More than two thirds of the territory in Kazakhstan is subject to desertification [1]. Desertification is a complex process as ecosystem depletion, loss of soil fertility and its biological productivity and land degradation in general. The process is promoted by the ecological instability of natural landscapes and anthropogenic overloads. In Kazakhstan, natural and anthropogenic desertification processes take a large area. Natural deserts in Kazakhstan are distinguished by a wide strip to the south of 48 ° N, and bordered with chestnut steppe soils from thenorth, in the south and east, they border on the piedmont plains of Tien Shan, Zhetysu (Djungar) Alatau, Sauyr-Tarbagatai and Altai Mts. Deserts are the most arid regions of Kazakhstan. In deserts, soil-forming processes take place in conditions of severe water shortage, and high level of soil degradation and desertification. The main natural reasons for these processes are a flat terrain, a high degree of arid climate, soil salinity, xero-halophytic vegetation, widespread brown calcareous saline and structureless soils, which are characterized by low natural soil fertility [2].

Natural semi-desert and desert zones occupy almost 70% of the territory in Kazakhstan. Significant areas are covered by sand (32 million hectares), solonchaks (2.6 million hectares) and flat plains with takyrs (0.3 million hectares) [1]. A large area in Kazakhstan are subject to desertification that is 120 million hectares of deserts and 180 million hectares of desertification by anthropogenic factors [3].

The active development of natural resources and infrastructure of the mining and processing industries has led to the loss of stability of fragile ecosystems of arid territories in Kazakhstan. Anthropogenic impact during the construction and laying of roads, pipelines, power lines, open mining of minerals contributed to the change of relief environment, degradation and destruction of the soil and vegetation covers of large areas with direct impact. An indirect impact of anthropogenic interference was the intensification of soil deflation, erosion, soil salinization. A more serious cause of desertification was pollution of deposit's territories, transportation places and processing of hydrocarbon raw materials with oil products and radioactive compounds in petrochemical effects.

Study area. Kazakhstan is one of the rapidly developing and youngest independent countries in the world. It lies between the Siberian Taiga in the north and the Central Asia deserts in the south, the Caspian Sea in the west and the mountain range of the Tien-Shan and Altay in the east [4]. About 60 % of Kazakhstan is flat lands. Deserts and semi-deserts occupy approximately 50 % of the territory, most of them situated in the Turan plain. Arid territories spread from Caspian Sea to foothill plains of Zhetysu (Zhongar) Alatau and Tien-Shan mountains. These vast territories have various geological structure and landscape features such as sandy deserts: Naryn, Kyzylkum, Pre-Aral Karakum, Moiynkum, Saryesikatyrau. The northern parts of Kazakhstan are steppes and forest-steppes [5, 6]. Kazakhstan's climate is a sharp continental with uneven distribution of precipitations within the territory. Plain areas are generally dry and have precipitation from 100 mm in the southwest up to 400 mm annually in the north. In the plains the saline soils are distributed widely. In the mountainous regions, the precipitation ranges between 400 mm and 1600 mm [7, 8]. Average temperature is -18 °C in January in the north and -3 °C in the south. Average temperature in July increases gradually from 19 °C in the north up to 28-30 °C in the south.

Materials and Methods. The Arc map software was used as the main tool to assess and analyze the current state of the soil cover in Kazakhstan as well as for preparing the map of soil degradation and desertification within Kazakhstan.

The original map from NAKZ [1] with the border of soil degradation and desertification was scanned and registered/geo-referenced to specify its location by using vector layer of country's border. Thereafter, the collected data on soil pollution types, transformation, and types of ecological changes in soil were given as input parameters for the generation of maps using ArcGIS applications.

Results and Discussion. ***Review on land degradation and desertification processes.*** The main factors of the soil degradation are soil salinization, soil erosion (wind/water erosion), dehumification processes, soil deflation, and reduction in the productivity of arable lands (figs. 1-2). Analysis of the current status of the soil cover has shown intensive land degradation and desertification processes. According to the data of the Agency on Land Resources Management, more than 75 % of the territory of Kazakhstan is subjected to degradation and desertification; over 14 % of pastures have reached an extreme degree of degradation or are completely degradated. In the regional environmental case, in northern Kazakhstan on chernozems and dark chestnut soils the dehumification processes are progressing and as a result, soil erosion, deflation and reduced productivity of arable land. The ecological crisis in the Aral Sea region remains as the main problem in Southern Kazakhstan [9]. The area is subjected to irreversible processes of desertification. In the most fertile delta-alluvial plain of Syrdarya riveris the main rice granary of the country, as well as the Balkhash-Alakol region is widely noted processes of secondary soil salinization of irrigated lands and destruction; land erosion and digression is occurring in foothill and mountain areas. In the most fertile delta-alluvial plain of the Syrdarya river, the area of desertified land is 1.1 mln ha, and in the dried -up bottom of Aral Sea it is 1.5 mln ha, of which saline march soils occupy 0.8 mln ha. In contrast to other natural zones, these vast areas are occupied by sand (17.5 mln ha), saline soils (2.6 mln ha) and takyr plains (0.3 mln ha). The total are of saline soils in the desert zone with brown and grey-brown soils exceeds 60 mln ha, and alkaline complexes are present in 22 mln ha [10]. On the vast territory of Kazakhstan, there are a number of regions where the combination of various forms of environmentally damaged soils has resulted in a crisis situation. Disastrous environmental conditions can be observed in the Aral Sea region: zones of intensive soil desertification, salinization and deflation [11,12]. The regions of Central and East Kazakhstan, which are the major industrial centers, are involved to technogenic disturbances and the industrial pollution of soils with toxic chemical and radio active elements. Every year, about 3-4 mln tones of polluting chemicals are emitted to the atmosphere or deposited on the soil surface. The region is characterized by radioactive pollution and man-made destruction of the soil cover in the test sites of nuclear missiles, mining and processing mineral resources. In the oil and gas regions of western Kazakhstan and Torgay plain created large pockets oil and radioactive contamination of soil, soil salinization by wastewaters, and industrial transformation of the soil cover.

Main degradated regions within Kazakhstan. The influence of anthropogenic factors is seen almost in all natural landscapes, especially in the Aral Sea region, where degradation and desertification processes are becoming more widespread. Additionally, the northern Caspian Sea and southern Balkhash deserts belong to significant and high degree of Land degradation under the influence of grazing [13]. Pasture degradation touched mostly desert and semi-desert landscapes in Kazakhstan. The desertification of large territories is accompanied by soil salinity, dehumidification, soil erosion, deflation, soil contamination, waterlogging by surface water and groundwater and a decrease in general regional biological capacity as well as reduced productivity of arable land. In addition, desertification largely includes economic (agricultural land productivity) and social (poverty, migration) problems.

Soil salinization and soil erosion (wind/water erosion). Soil salinization widely and commonly manifests in all areas of natural zones and it is associated with poor drainage of the territory, the initial salinity of the lake-marine and alluvial-deltaic parent rocks and mineralized groundwater. The problems of soil salinity are most widespread in the arid and semi-arid regions but salt affected soils also occur extensively in sub-humid and humid climates, particularly in the coastal regions where the ingress of sea water through estuaries and rivers and through groundwater causes large-scale salinization [14-16]. The soil salinity is also a serious problem in areas where groundwater of high salt content is used for irrigation [17].

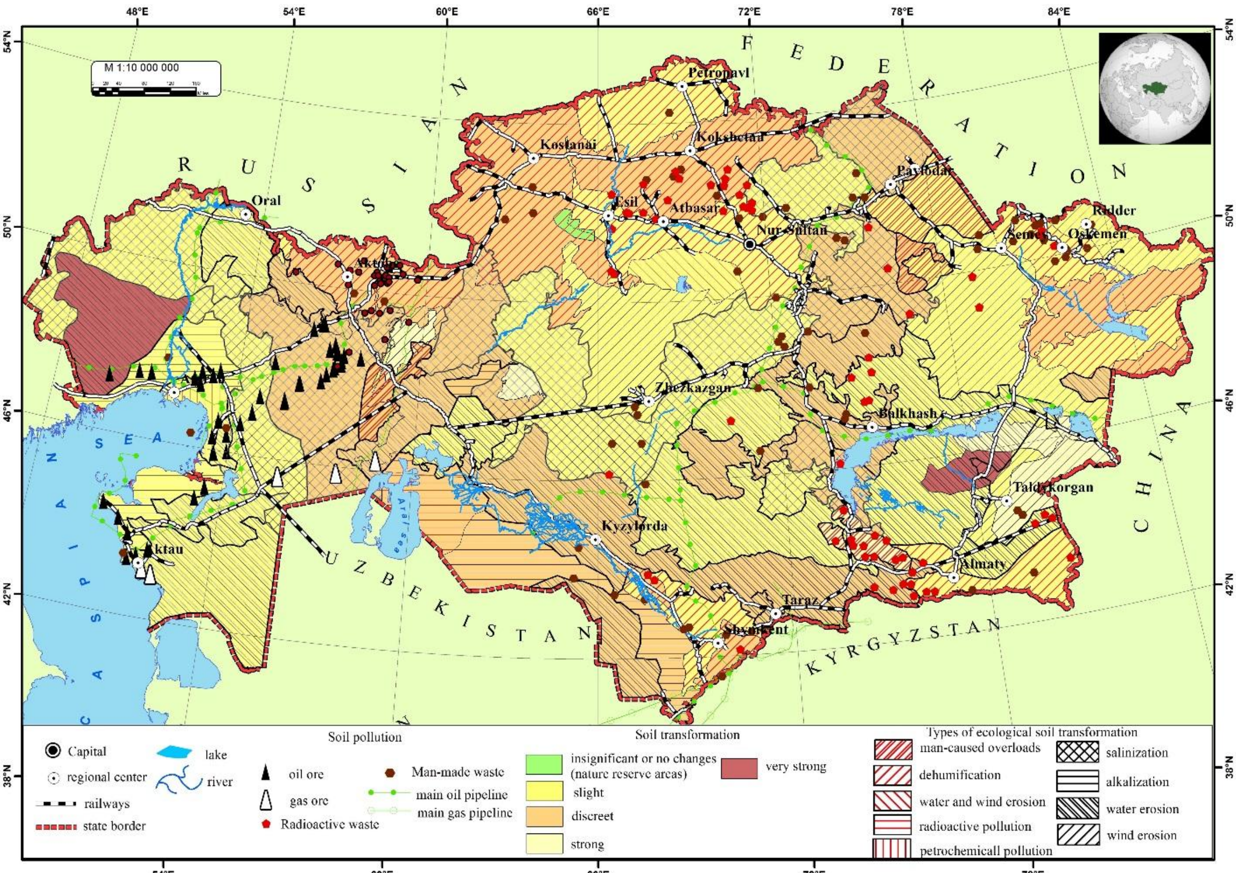

Figure 1 – Soil degradation and desertification map of Kazakhstan

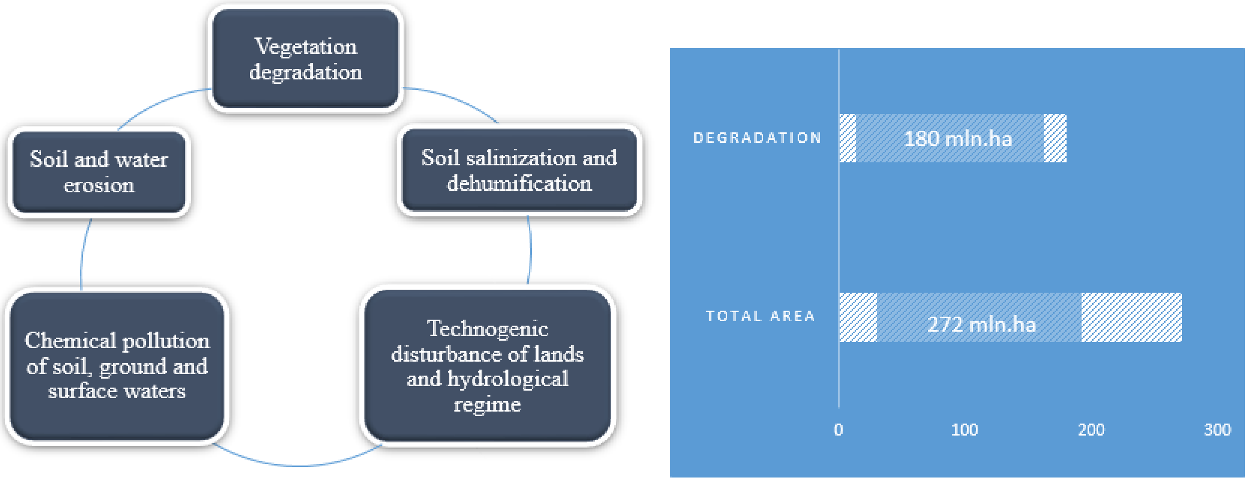

Figure 2 – The main factors of the desertification

A saline soil is an indispensable component of steppe and desert landscapes [18]. They are widespread in arid and semi-arid regions of the world. According to the data of International Institute for Environment and Development and World Resources Institute about 10 % of the surface of continents covered by saline soils. They are mostly distributed in arid lands, as well as zones of dry and desert steppes [15,17]. The saline soil is defined as having a high toxic concentration (0.25 %) of soluble salts in any soil profile to affect plant growth [19].

The saline soils mostly distributed in Central Asia and Kazakhstan, including West Siberia, West China. The most part of saline soils (70%) in the CIS countries occurred in Kazakhstan. Numerous reports were done about origin, development, conditions of saline soil formation in the territory of Kazakhstan [18,20-21]. Saline soils are widely distributed in the southern and central parts of the Kazakhstan [22]. In these arid regions, where rainfall is 100-150 mm y^{-1} and evaporation exceeds precipitation. Saline soils are soils that contain high concentrations of soluble salts: sodium, magnesium and calcium sulphates, and some sodium chloride, but have normal pH values [11,18].

On the territory of Kazakhstan allocated four salt accumulation provinces: sulphate-chloride basin of the Caspian Sea, chloride-sulphate basin of the Aral Sea, soda-sulfate basin of the Balkhash Lake and chloride-sulfate basin of the Kara Sea [18]. Each province has an own type of salinity and chemical features and differ in their genesis, composition and transport of salts. Depending on the chemical composition and the amount of soluble salts in the profile there are following degree of soil salinity: the amount of salt is 0.1-0.3 % in slightly saline soils, moderately saline is 0.3-0.5 %, strongly saline is 0.5-1.0 %, solonchanks more than 1.0 % [23].

The soil salinization is one of the most common land degradation and desertification processes. Anthropogenic stress to soil cover and ecosystem in Kazakhstan year by year increasing in the all geographical zones. Irrational use of the natural resources leads to ecological violation. The total area of Kazakhstan is 272 million hectares, at present day 180 million hectares is under the danger of degradation, or 60 % of the total territory [10,22].

Soil erosion (wind/water erosion) appear in all natural zones, but is particularly strong in the long-term arable land, sand massifs, as well as in mountain and foothill areas [8,24]. Development of wind erosion is due to soils with light-textured, carbonate, structureless of soils and intensity of anthropogenic pressure. The anthropogenic pressure increased in the sandy deserts of southern Pre-Balkhash region, Aral Sea and Northern Caspian Sea regions. As a result, sources of soil deflation appeared in these regions that lead to high concentration salts in the atmospheric flows. These salts provoke deterioration of pastures, reduction of biodiversity, salinization and desertification of soils [10]. Protection against to soil erosion and destruction requires erosion reclamation (agrotechnical, biological, chemical).

Dehumidification and soil contamination. Ecological state of the soil cover in many areas of Kazakhstan is characterized by near-critical and requires urgent measures of fertility reproduction and preservation of the environment.

Dehumidification takes place on chernozems and dark chestnut soils with long-term non-irrigated arable land in the northern regions of Kazakhstan and as well as the mountainous regions of irrigated arable land [24]. Monoculture cultivation of grain and industrial crops on low agrotechnical conditions causes of dehumidification process and loss of soil fertility by 20-30 % and southern chernozems on virgin soil is 4.5-5.5%, long-term arable land by 3.0-3.5 %, dark chestnut soil is 3.5-4.4 and 3.0-3.3 % [13]. Micro aggregation of soil deteriorate in cultivated soils, there is a real risk of suffering from water and wind erosion, which requires immediate action for the conservation and restoration of soil fertility (organic and mineral fertilizers, minimizing the processing, the introduction of grass crop rotation, planting trees, bushes and shrubs). According to the map of the soil dehumidification the loss of humus up to 5 % is weak degree of it, moderate is 5-10 %, a strong and very strong is 10-15 %, 15-20 % respect-tively [23].

Soil contamination (chemical, petrochemical, radioactive) is reflected in the areas of industrial, oil and gas, as well as of landfill testing of nuclear missiles. Chemical contamination of individual regions occurs among the arable chernozems and dark chestnut soils, irrigated soils in the south part of Kazakhstan [24] under the immoderate use of organic and mineral fertilizers, pesticides, herbicides and other, which lead to the accumulation of toxicants in soils [25]. According to the toxicity, the arsenic, cadmium, mercury, selenium, lead, zinc, fluorine are high toxic elements; moderately dangerous is cobalt, boron, nickel, molybdenum, copper, chromium and barium, strontium, tungsten, manganese belong to low risk. Decomposition and detoxification of chemical elements in the soil profile is due to the pH of the medium, mechanical, mineralogical composition, temperature, humidity, intensity of microbiological processes.

Petrochemical contamination of soil is allocated in all areas of oil and gas companies and routes of the oil/gas pipelines in Western Kazakhstan. The contamination occurs at all stages of field development.

Radioactive contamination of soil occurs in the places allocated former test radioactive sites (Semei, Kapustin Yar, Pribalkashe et al.), as well as in the areas of oil and gas complex such as Ozen-Zhetybai, Bozashy, Karachyganak.

Conclusion. The desertification and land degradation of large territories is accompanied by soil salinity, dehumidification, soil erosion, deflation, soil contamination, waterlogging by surface water and groundwater and a decrease in general regional biological capacity as well as reduced productivity of arable land.

The Aral Sea region, Northern Caspian Sea and Southern Balkhash deserts can be observed as areas of intensive soil desertification, salinization and deflation processes. As well as the desertification process are progressing in the irrigated soils of the deltas of Syrdarya, Shu, Ile and Karatal rivers. In Kazakhstan apart from natural environmental factors, the anthropogenic pressure increased their effect seriously during the last 50 years. All these actions destroy seriously the environmental processes and led to the serious forms of rapid soil/land degradation and desertification processes. The influence of anthropogenic factors is seen almost in all natural landscapes, especially in the Aral Sea region, where degradation and desertification processes are becoming more widespread.

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Г. Т. Исанова[1,2,3], А. Садуахас[1], Д. Абудувайли, К. Тыныбаева[1], С. Танирбергенов[1]

[1] Ө. О. Оспанов атындағы Қазақ топырақтану және агрохимия ғылыми-зерттеу институты, Алматы, Қазақстан;
[2] Орталық Азия экология және қоршаған орта ғылыми-зерттеу орталығы, Алматы, Қазақстан;
[3] Әл-Фараби атындағы Қазақ ұлттық университеті, География және табиғатты пайдалану факультеті, Алматы, Қазақстан;
[4] Шөл және оазистер экологиясы мемлекеттік зертханасы, Шыңжаң экология және география институты, Қытай ғылым академиясы, Үрімші, ҚХР

ҚАЗАҚСТАН ЖЕРІНІҢ ШӨЛЕЙТТЕНУІ ЖӘНЕ ДЕГРАДАЦИЯҒА ҰШЫРАУЫ

Аннотация. Жер деградациясы мәселесі дүниежүзімен қоса, Қазақстанда да өзекті. Деградацияға ұшыраған жерді игеру мәселесін зерттеуге ерекше көңіл бөлінеді. Жердің шөлейттенуі және деградацияға ұшырауы Қазақстанның құрғақ және жартылай құрғақ аудандарында, әсіресе, алуан түрлі шөл басым оңтүстік аудандарда қалыпты жағдай болып саналады. Шөлде топырақ түзілу үрдістері су жетіспегенде, топырақ жоғарғы деңгейде деградацияға ұшырағанда және шөлейттенгенде жүре бастайды. Бұл үрдістердің негізгі табиғи факторлары – сол жердің жазық болуы, жоғары дәрежедегі климат құрғақшылығы, топырақ тұздылығы мен құрылымсыздығы, карбонатты құба топырақтың кең таралуы және төмен табиғи құнарлылығы. Алайда кейінгі онжылдықта шөлейттенудің антропогенді факторы мен топырақ деградациясы басым болғандықтан, елдің аграрлық саласының дамуына да әсер етуде.

Деградация үдерісі топырақтың құнарлылығы мен өнімділігін төмендетеді және сәйкесінше топырақ жамылғысына, тұтастай ауылшаруашылық секторына кері әсер етеді. Барлық егіс алқабында гумустың жоғалғандығы байқалады, ал суарылмайтын егіс алқабы 11,2 млн га құрғақшылық салдарынан шөлейттенеді, суармалы егістік жерлер – 0,7 млн га, суармалы егістік жер (31,3%) топырағының үштен бірі дерлік сортаңданған және олар тұзды шөлді көбейтеді. Сонымен қатар, Сырдария, Шу, Іле және Қаратал өзендерінің суармалы топырағы да шөлдене бастады.

Қазақстанда бүкіл аумақтың 280 миллионының 165 миллион гектары шөл және жартылай шөл зоналарына жатады. Табиғи жартылай шөл және шөлейттену зоналары Қазақстан территориясының 70% алып жатыр. Бұл негізінен оңтүстік және батыс аймаққа тән, ондағы топырақ шөлейттенуге бейім және құмды массивті (32 млн. га), сортаң (2,6 млн. га), тақыр жазық (0,3 млн. га) болып келеді.

Зерттеуде Қазақстан шегіндегі шөлейттену мен жер деградациясының табиғи және антропогенді факторларының өзекті мәселелері, сонымен қатар, бұл үрдістерді ушықтыратын негізгі факторлар қарастырылады. Қазақстандағы топырақ жамылғысының қазіргі жағдайы талданып, шөлейттенген және деградацияланған топырақ картасы құрастырылды.

Үлкен территориялардың шөлейттенуі топырақтың ластануы, тұздануы, жер беті және жерасты суы салдарынан болатын батпақ, эрозия (су, жел) мен өсімдік жамылғысының деградациясынан, жалпы аймақтағы биологиялық өнімділіктің төмендеу салдарынан пайда болады. Топырақ жамылғысының қазіргі жағдайын талдау жұмыстары жер деградациясының қарқындылығын көрсетті. Қазақстан территориясының 43%-ы айтарлықтай дәрежеде деградацияға ұшыраған; 14% жайылым жерлер күрделі деградация дәрежесіне жеткен немесе толық деградацияланған. Қазақстан аумағының 76,3% орташа, айтарлықтай және қатты дәрежеде шөлейттенген. Сонымен қатар, егіс алқаптарындағы дефляция, эрозия және топырақтың тұздануы секілді жағымсыз үдерістердің даму салдарынан құрғақ және дала аймағының көп бөлігі шөлейтті болып келеді.

Арал теңізі ауданын, Солтүстік Каспийдің шөлді жерлері және Оңтүстік Балқаш топырағын қарқынды шөлденген және топырағы тұздану үдерісі мен дефляцияға ұшыраған аудандар ретінде қарастыруға болады.

Кешенді шөлейттену түрі басым әрі республика аумағының 464,0 мың км^2, яғни 17% алып жатыр. Шөлейттенудің бұл түріне топырақ пен өсімдік жамылғысының деградациясы немесе толық бұзылу техногенді әсер ету жатады.

Түйін сөздер: топырақ деградациясы, шөлейттену, аридті аудан, Қазақстан.

Г. Т. Исанова[1,2,3], А. Садуахас[1], Д. Абудувайли[4], К. Тыныбаева[1], С. Танирбергенов[1]

[1]Казахский научно-исследовательский институт почвоведения
и агрохимии им. У. У. Успанова, Алматы, Казахстан;
[2]Научно-исследовательский центр экологии и окружающей среды
Центральной Азии, Алматы, Казахстан;
[3]Казахский национальный университет им. аль-Фараби, факультет географии
и природопользования, Алматы, Казахстан;
[4]Государственная Ключевая Лаборатория Экология пустынь и Оазисов,
Синьцзянский институт экологии и географии АН КНР, Урумчи, Китай

ОПУСТЫНИВАНИЕ И ДЕГРАДАЦИЯ ЗЕМЕЛЬ В КАЗАХСТАНЕ

Аннотация. Проблема деградации земель является очень актуальной во всем мире, в том числе и в Казахстане. И особое внимание уделяется изучению проблем освоения деградированных земель. Опустынивание и деградация земель является обычным процессом в засушливых и полузасушливых регионах Казахстана, особенно в южных районах, где районы покрыты большими разновидностями типов пустынь. В пустынях почвообразующие процессы протекают в условиях острой нехватки воды и высокого уровня деградации и опустынивания почвы. Основными природными факторами этих процессов являются равнинная местность, высокая степень засушливого климата, засоленность и бесструктурность почв, широкое распространение бурых карбонатных почв и низкое содержание естественного плодородия почв. Однако антропогенные факторы опустынивания и деградации почвы стали доминирующими в последние десятилетия, что сказывается на развитии аграрной отрасли страны.

Процесс деградации приводит к снижению плодородия и продуктивности почв и, соответственно, негативно влияет на состояние почвенного покрова и аграрного сектора в целом. На всех пахотных землях наблюдается потеря гумуса, причем в пределах неорошаемой пашни опустынено за счет дегумификации 11,2 млн.га, орошаемой пашни – 0,7 млн.га., почти треть площади почв орошаемой пашни (31,3%) засолена, что ведет к увеличению солончаковых пустынь. Кроме того, опустынивание также прогрессирует на орошаемых почвах дельт рек Сырдарьи, Шу, Или и Каратал.

В Казахстане 165 млн гектаров земель из 280 млн всей территории – это пустынные и полупустынные зоны. Природные полупустынные и пустынные зоны занимают почти 70 % территории Казахстана. В основном это южные и западные регионы, которые наиболее подвержены изменениям почвенного состояния и покрыты песчаными массивами (32 млн.га), солончаками (2,6 млн.га) и плоскими равнинами с такырами (0,3 млн.га).

В исследовании рассматриваются актуальные проблемы природных и антропогенных факторов опустынивания и деградации земель в пределах Казахстана, а также основные факторы, усугубляющие эти процессы, даны анализы современного состояния почвенного покрова в Казахстане, составлена карта опустынивания и деградации почв Казахстана. Опустынивание огромных территорий сопровождается загрязнением почвы, заболачиванием поверхностными и подземными водами, засолением почвы, эрозией (водная, ветровая), деградацией растительного покрова, осушением и снижением общей региональной биологической емкости. Анализ современного состояния почвенного покрова показал интенсивную деградацию земель. 43% территории Казахстана в значительной степени подвержены деградации; более 14% пастбищ достигли критической степени деградации или полностью деградировали, 76,3 % территории Казахстана подвержено опустыниванию умеренной, значительной и сильной степеням. Причем большая часть территории со значительной степенью опустынивания характерна сухостепной и степной зонам за счет развития негативных процессов, таких как дефляция, эрозия и засоление почв в пределах пахотных земель.

Район Аральского моря, пустыни Северного Каспия и Южного Балхаша можно рассматривать как районы интенсивного опустынивания почв, процессов засоления и дефляции почв.

Комплексный тип опустынивания является ведущим и занимает 464,0 тыс.км^2 (17%) территории республики. Данный тип опустынивания включает техногенное воздействие с деградацией или полным разрушением почвенно-растительного слоя.

Ключевые слова: деградация почв, опустынивание, аридный регион, Казахстан.

Information about authors:

Issanova Gulnura, PhD in Natural Sciences (Physical Geography), scientific secretary at the Research Center for Ecology and Environment of Central Asia (Almaty) and PostDoc at the Al-Farabi Kazakh National University, Almaty, Kazakhstan; gul_nur.777@mail.ru; https://orcid.org/0000-0002-4496-0463

Saduakhas Amandyk, Bachelor in Geodesy, Junior Researcher, U.U. Uspanov Kazakh research Institute of Soil Science and Agrochemistry, Almaty, Kazakhstan; Amandyk.Saduakhas@mail.ru; https://orcid.org/0000-0002-3083-5135

Abuduwaili Jilili, Doctor in Geography, Professor, Deputy Director at the Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, an Executive Director at the Research Center for Ecology and Environment of Central Asia (Almaty), and a foreign academician of the Academy of Agriculture of Kazakhstan, Almaty, Kazakhstan; jilil@ms.xjb.ac.cn; https://orcid.org/0000-0001-8483-1554

Tynybaeva Kuralai, PhD of Soil Science and Agrochemistry, Junior Researcher, U.U. Uspanov Kazakh research Institute of Soil Science and Agrochemistry, Almaty, Kazakhstan; kurash_88@mail.ru; https://orcid.org/0000-0002-9956-2139

Tanirbergenov Samat, PhD of Soil Science and Agrochemistry, scientific secretary U.U. Uspanov Kazakh research Institute of Soil Science and Agrochemistry, Almaty, Kazakhstan; tanir_sem@mail.ru https://orcid.org/0000-0002-6403-0984

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Artyom Y. Nesterov

Institute of Socio-Political Studies - Federal State Budgetary Institution
of Science "Federal Research Center of the Russian Academy of Sciences", Russia.
E-mail: ne7terov.ay@gmail.com

ESSENCE AND FEATURES OF THE CRIMINAL ACTIVITY OF THE MARGINAL ADOLESCENT: MODERN CONDITION AND TRENDS

Abstract. The article presents the main problems of the theory and practice of criminal activity in the modern teenage environment. The statistical data of the Ministry of Internal Affairs of the Russian Federation and the Federal Penitentiary Service of Russia of the Ministry of Justice of the Russian Federation of criminal offenses committed from 2003 to the present period by juvenile offenders are given [as of June 1, 2020].

The author analyzes the features of the criminal youth subculture. Typologization is carried out according to the types of youth informal groups. The main causes of juvenile delinquency are identified and justified. Spectral analysis is carried out for these reasons (motives). The factors provoking crime in a teenage environment are determined.

The author revealed that one of the negative conditions for the formation of delinquent and deviant behavior of adolescents is the early start of work.

At present, adolescents from 14 years old are going through a process of socialization and familiarization with work in the conditions of transformation of socio-economic, political, sanctions relations. The transformation in Russia led to the use of various illegal forms, in particular related to the involvement of street children (10-15 years old and 16-18 years old) in the criminal business.

The author determines that juvenile delinquency is primarily determined by the characteristics of the personality of the offender. The main thing in its consideration was the minority of the offender. Certain biological, psychological and mental changes in the structure of the personality are associated with it. Age determines a certain level of development of forces, intelligence, drives, and even the “physical” ability to commit certain crimes.

Also, the author of the article determined that the process of socialization of an individual begins at an early age, when he begins to assimilate the roles that form his personal qualities. It is in childhood that any person is formed as a social being, he develops intelligence, the ability to analyze and generalize the surrounding phenomena, the ability to anticipate the possible consequences of his actions; such volitional qualities as perseverance, determination, self-control, activity, initiative are developed; self-awareness, self-esteem, desire for independence are formed. All this is closely related to the subsequent behavior of the personality of a minor offender.

The author interprets such a basic concept as “criminal youth subculture”.

The regional statistics of the Ministry of Internal Affairs of Russia on offenses as a consequence of the COVID-19 pandemic in Russia is given.

All materials presented in the article do not contain information (information) related to state secrets of the Russian Federation.

Key words: delinquent and deviant behavior of the younger generation, criminology, legal psychology, marginalized groups (subcultures) of minors, criminal activity of minors, involvement of minors in organized crime groups, formation of organized crime groups by minors, statistics on juvenile delinquency, mental disorders of juvenile offenders, consequences of the COVID-19 pandemic in Russia, the identity of the offender, "criminal youth subculture".

Over the past two decades, modern Russian society has undergone global changes, including sanctions of a socio-economic, political and world epidemiological [COVID-19] nature. The social changes that took place in Russia (1990 - 2020) led to exacerbation of social problems, such as poverty, crime, ethnic conflicts, unemployment and other negative social factors characteristic of a transformational society. The transformation of Russian society has predetermined the formation in our country of various types of deviant behavior. Deviant and delinquent behavior of the younger (“Y” and “Z”) generation is considered to be an act that contradicts the norms of social behavior in a particular modern (progressive) community.

Currently, in Russian society there are new determinants that negatively affect the development of extreme forms of deviant and delinquent behavior of adolescents. Market relations gave rise to a set of problems not previously known to Russian society. Political decisions were not socially calculated, and their implementation, primarily in the field of economic policy, affected the financial situation of a significant part of Russian families – the process of rapid social separation began [21].

The Kremlin noted that in the Russian Federation during the COVID-19 pandemic, the crime rate in some regions of the Russian Federation increased significantly, especially crime, noted in the Rostov, Moscow, Tomsk, Novosibirsk, Sverdlovsk, Lipetsk, Irkutsk, Leningrad, Kemerovo, Chelyabinsk regions, Krasnodar Territory and in cities of federal significance Moscow and St. Petersburg.

So, according to the press secretary of the President of Russia D.S. Pskov - “With regard to the growth of crime in Russia, we, of course, know all this and fix it, mainly, of course, they fix it and try to prevent the country's law enforcement authorities as much as possible, despite the fact that they are currently working with increased load” [19].

He also in his interview expressed the opinion that at the present time “... it is important not to build some kind of “emergency” schedules based on individual cases, even if they are fixed in a number of Russian regions (municipalities). There is no need to completely thicken the paint. Russia will not return to the dashing nineties. There is no reason for this! One thing that needs to be noted is that the rapid rise in crime requires increased attention not only from law enforcement agencies, but also from local authorities”. The Kremlin representative answered the question about Russia's possible return to the criminal situation of the 1990s, commensurate with the total rampant crime in Russia. I repeat. This is not to be! He noted that “fear has big eyes”, “these are hysterical manifestations that absolutely do not need to give in ...” [19].

On April 12, 2020, the Ministry of Internal Affairs compiled a ranking of Russian regions by the level of crime caused by the pandemic [COVID-19]. The leaders were the city of Moscow and the Moscow Region - here in January - March 2020, the most crimes against property were recorded (under articles: 158, 158.1, 159, 161, 162 of the Criminal Code of the Russian Federation) [1]. Currently, the bodies of the Ministry of Internal Affairs of Russia in Moscow and the Moscow Region are carrying out procedural work against the accused. Indictments are issued and cases are being prepared for transfer to the courts of first instance.

Throughout the country during this period 327,000 illegal acts of various kinds were registered, of which more than 24,000 in Moscow, more than 12,000 in the Moscow region, 12,000 in the Krasnodar Territory, slightly more than 10,000 in the Chelyabinsk and other aforementioned constituent entities of the Russian Federation. The Rostov region also fell into the top five, where offenders involving and underage Russian citizens committed more than 9,500 criminal offenses in the first quarter of 2020 [25].

We can also note those constituent entities of the Federation in which the least number of criminal offenses were committed during the above period, these are the Nenets Autonomous Okrug, the Chukotka Autonomous Okrug, the Republic of Kalmykia, the Republic of Ingushetia, the Republic of Dagestan, the Chechen Republic and the Magadan Region. Meanwhile, in some regions, such as Kazan, Moscow, the Moscow and Kemerovo regions, due to the self-isolation regime, law enforcement agencies began to register more and more offenses related to an attack in the daytime and evening time at grocery stores [19].

Thus, today there is a tangible result, such as the demographic crisis in the country (before COVID-19 and after), not a comforting increase in poverty, the number of crisis families in Russia, families with the problem of alcoholism and drug-dependent family members, the manifestation of severe violence, both in the family and not in its environment, asocial lifestyle of citizens and foreign citizens, conflicts in interpersonal relationships, teenage neglect and homelessness, crime and other extremely disturbing social phenomena [12, p.46-48].

Today, adolescents and youth are characterized by increased criminal activity (if we mean "ordinary" crime, "street crime", and not "white-collar"). At the same time, as is commonly believed, they are the future of any independent, sovereign state, and the fate of modern society, including the formation of a modern (powerful, rich) world state, depends on their usual behavior, lifestyle, and personal qualities. It is not surprising, therefore, that juvenile delinquency and juvenile delinquency are given great attention in the domestic and foreign sociological, psychological, pedagogical, legal and other literature [3,4].

The concept of juvenile delinquency is associated with the totality of crimes committed by persons under the age of majority, that is, between the ages of 14 and 18. At the same time, juvenile delinquency is affected by the commission of socially dangerous acts by younger adolescents (10-13 years old), as well as the commission of crimes by young adults (18-21 and 22-25 years old). For example, adolescents, before they reach the age of criminal responsibility, commit a significant number (annually about 152, 720) of socially dangerous acts similar on the objective side to crimes, but not by law [3,4].

Juvenile delinquency is primarily determined by the characteristics of the personality of the offender. The main thing when considering it, as we noted above, is age. Certain biological, psychological and mental changes in the structure of the personality are associated with it. Age determines a certain level of development of forces, intelligence, drives and even the “physical” ability to commit certain crimes. The process of socialization of an individual begins at an early age, when he begins to assimilate the roles that form his personal qualities. It is in childhood that any person is formed as a social being, he develops intelligence, the ability to analyze and generalize the surrounding phenomena, the ability to anticipate the possible consequences of his actions; such volitional qualities as perseverance, determination, self-control, activity, initiative are developed; self-awareness, self-esteem, desire for independence are formed. All this is closely related to the subsequent behavior of the personality of a minor offender.

For minors in general and juvenile delinquents, in particular, the cultivation of age differences is characteristic (a difference of one year or more is often recognized as significant). On this basis, even interpersonal conflicts can arise, leading to the commission of crimes.

It is important, however, to note that the age-related change in the personality of a minor is not unambiguously related to the dynamics of basic life relationships, the safety of which is combined with the variability of a person throughout life under the influence of events, circumstances and other factors. Moreover, in addition to the chronological, there are psychological, pedagogical and physical ages, and all of them do not coincide with each other, which leads to internal conflicts of the identity of the minor, which may also have a criminal character.

Modern Russian society has faced the fact that juvenile delinquency is growing catastrophically, its structure and character are fundamentally changing. Next, we present the main characteristics of juvenile delinquency.

Thus, the proportion of juvenile delinquency in the structure of crime as a whole is relatively small, however, its danger is underestimated, since in addition to significant material and physical harm, it causes a number of destructive social consequences that have a pronounced criminal character: firstly, juvenile delinquency is a powerful source of self-determination of crime as such. The criminal infection of today's minors produces crime of young people, translates negative criminal experience into the future, which, according to the laws of social education, “returns” to tomorrow's teenagers as the “social heritage” of previous generations [23,24].

Do not forget that juvenile delinquents are the social base of organized and recidivism; secondly, juvenile delinquency contributes to the spread of the criminal way of thinking and behavior in a “healthy” teenage environment, leading to its criminal infection; thirdly, juvenile delinquency harms the personal development of the juvenile delinquent himself, thereby contributing to the continuation of the juvenile criminal activity [23, p.82-89].

At present, as of June 1, 2020, in the introduction of the Federal Penitentiary Service of Russia there are 22 FSI “Educational Colonies” of the Federal Penitentiary Service of Russia. Of these, 20 educational colonies – for the maintenance of male juvenile convicts and 2 colonies (in the Belgorod and Tomsk regions) – for the maintenance of female juvenile convicts. 1127 convicts, including 95 female minors, are serving a criminal sentence of imprisonment in the FSI “EC” of the Federal Penitentiary Service of Russia [27].

The proportion of juvenile convicts serving a criminal sentence of imprisonment in the institutions of the Federal Penitentiary Service of Russia, by type of crime: convicted of theft - 15.2%, robbery - 14.1%, robbery - 12.2%, and intentional infliction of grievous harm health - 11.8%, for murder - 10.1%, for rape - 12.6%, other crimes - 24.2% of juvenile convicts. Previously, they had conditional convictions, compulsory or corrective labor - more than 74.8% of convicts serving criminal sentences in prison. Also previously served sentences in the institutions of the Federal Penitentiary Service of Russia - 32 convicts [27].

In turn, the structure of recidivism of juvenile convicts is traditionally characterized by the commission of mainly property crimes (50%), sexual crimes (25%), crimes against the person (20%), as well as crimes related to drug trafficking (5%) [as of June 1, 2020]. The main features of juvenile delinquency crime include the relative narrowness of its range, the prevalence of situational crimes, the uniqueness of the motivation for criminal activity - the desire for self-assertion, youthful conformism, etc. The prevalence of group crime is noticeable (almost ¾ of the total number of crimes committed), they commit the most dangerous crimes - robberies, rape and murder [27].

Thus, the official statistics of the Ministry of Internal Affairs of Russia clearly demonstrate a tendency towards steady growth (an increase of 55.68% [as of December 1, 2003]) of recidivism committed by minors who have a criminal record for certain criminal offenses, for example, if in 2004 - 14.64%, in 2005 - 15.87%, in 2006 - 16%, in 2007 - 17%, in 2008 - 17.6%, in 2009 - 18, 5%, in 2010 - 19.1%, in 2011 - 19.6%, in 2012 - 21.8%, in 2013 - 23.2%, in 2014 - 26, 1%, in 2015 - 27.8%, in 2016 - 28.4%, in 2017 - 29.8%, in 2018 - 32.16%, in 2019 - 36, 8%, then in the first quarter of 2020 amounted to more - 10.23% of the recorded relapse s crimes committed by persons who have previously served a sentence in prison [10.23 * 4 = 40,92 (≈ 40,92%)] [25].

The proportion of juvenile delinquency in the structure of crime in Russia as a whole is relatively small (5.8% in 2019-2020 according to the statistics of the Russian Ministry of Internal Affairs), but it would be wrong to underestimate its danger, since, in addition to significant material and physical harm, it has a number of destructive social consequences of a pronounced criminal nature [25].

Assessing the prevalence of specific types of crimes committed by adolescents, it should be noted that crimes against property traditionally dominate in the structure of juvenile offenders' crime (articles 158, 158.1, 161, 162 of the Criminal Code of the Russian Federation) [1].

Group crime is preceded by the formation of friendly, informal, ethnic groups of jointly lounging juvenile convicts. Further, the group gradually grows out of the already established groups, where adolescents “among their own” seek understanding and ways of self-affirmation. The more this group exists in time, the more powerful, united and organized it becomes. In modern criminological science in the last decade (2010 – 2020), stating the leading role of social factors influencing the formation of criminal behavior of juvenile convicts, much attention has been paid to the personality characteristics of juvenile offenders.

During the initial identification of factors affecting the relapse of crimes among young people, the following tendency was revealed: the younger the person committing the crime, the greater the likelihood that he will commit a second crime in the future [7, p.408-409].

So, in our opinion, juvenile delinquency is a powerful source *of self-determination of crime*[1] as such. The criminal infection of today's minors produces the crime of young people (from 14 to 17 years old), translates the negative criminal experience into the future, which, according to the laws of social education, again “returns” to tomorrow's teenagers as a “social heritage” of previous generations. Do not forget that juvenile delinquents are the social base of organized and recidivism.

[1]This process has at least four forms of manifestation: 1) one successfully committed and unsolved crime often gives rise to another; 2) the commission of “auxiliary” crimes, which then entail the main ones; 3) organized crime; 4) the anomie (normality) of citizens with a high level of crime, a special psychological state of admissibility, permissibility of criminal acts, as well as an idea of the weakness, nullity of laws.

And also juvenile delinquency promotes the spread of a criminal way of thinking and a way of behavior in a “healthy” teenage environment, leading to its criminal infection. In turn, Taoist wisdom says - ... be afraid of your thoughts, for they are the beginning of your actions - Lao Tzu (VI – V centuries BC). Based on the foregoing, juvenile delinquency should be considered as one of the most serious and significant socio-legal problems of modern Russian society [21].

Juvenile offenders, as well as their slightly older friends, constitute an independent social group whose members are bound by common rights, duties, aspirations and interests. The transformation of the future of modern Russian society will depend on the socialization and morality of this group. Criminological considerations force the interpretation of juvenile crime as a specific type of crime. Therefore, their prevention is one of the main areas of law enforcement.

As you know, in the late XIX - early XX century. the problem of suggestion, the study of its capabilities and role in public life, in education, a considerable place was given in the works of B. Sidis, I.A. Sikorsky, later engaged in this academician V.M. Bekhterev spondylitis [5,6].

The best solutions to the problem of the work of a social educator (educator) with juvenile delinquents are still the methods developed and successfully tested by Anton Semenovich Makarenko in his pedagogical activity. A clear, thoughtful organization of children's life in the Gorky Educational Labor Colony, aimed at raising a worthy citizen of the Fatherland, allowed us to achieve a positive result when, according to the fame of A.S. Makarenko, “... in the living movements of people, in the traditions and reactions of the real collective, in new forms of friendship and discipline” a new pedagogy was born [17].

In the Gorky labor educational group of adults and children, they primarily combined studies, production and labor relations, general labor care for a better tomorrow, a certain style (“spirit”) of the colony: “major tone”, a combination of respect with exactingness, self-esteem with a sense of being part of their country and much more [17].

A.S. Makarenko proved that the educational team, the collective organization of the life and work of the colonists is the most effective method of educating the personality and individuality of each pupil [17].

In our opinion, the identity of a minor offender (recidivist) is, first of all, a combination of socio-demographic, moral and legal properties, signs, relationships, relationships that characterize a person who has repeatedly committed certain criminal offenses. It can also be noted that the identity of the juvenile criminal “recidivist” has not yet been formed and is in the process of development. [But at the same time he was previously prosecuted]. In adolescence (young) age from 10 to 16 years (puberty), a true formation of personality occurs, in a normally developing teenager the concepts and moral feelings of duty, responsibility, shame are completely differentiated. The manifestation of traits characteristic of earlier age periods in adolescents 10-16 years old indicates a mental retardation. Formed moral potential and legal consciousness of a teenager, which is directly a criterion for the success of his socialization in society (or re-socialization in places of deprivation of liberty). The adequacy of the development of internal and external control creates personal prerequisites for responsibility for one’s behavior, including equal rights [12,16,20,21].

So, juvenile delinquency is growing disproportionately fast. Typically, the crime rate is compared with the dynamics of the teenage population. There is such a pattern when the increase in juvenile delinquency corresponds to an increase or decrease in the teenage population [21].

The reasons are different, depending on the nature of the crime committed, so with “rape” there is false shame; unwillingness to disclose incriminating information about yourself; threats from rapists; the payment by the parents of rapists to the parents of the victims of “payback”; a sense of awkwardness experienced by a minor girl in front of the investigator (most of whom are men over 25), etc. For racketeering, pickpocketing, and fraud, other reasons apply. Very often - this is a lack of faith in the ability of the police to catch and prosecute criminals; the choice of the least evil, self-incrimination, etc. [12,16,21].

The recidivist is dangerous not only and not so much with the potential for him to commit a new crime, but with the possibility of introducing unstable teenagers and young men to a criminal lifestyle. He doesn’t act alone, but organizes criminal (marginal) groups, drawing newcomers into them, that is, he begins to criminalize the teenage and youthful population and generate primary crime. The recidivist becomes a teacher and mentor of minors in the field of criminal activity. The young recidivist is also dangerous because of his age (20–25 years), he has not “gone far” from adolescents, and therefore, as a person, he is very interesting to them psychologically. This means that the more juveniles take the path of crime, the greater the danger of an “escalation of crime,” that is, its self-generation, self-development according to its inherent laws [3,4].

Group nature of juvenile delinquency crime. It is known that the origins of the formation of criminogenic and criminal groups of minors are in the family distress of adolescents, their unsatisfactory position in the primary school community (class, study group, or boarding school), in violation of the principle of social justice in relation to individual students, “formalized” work with them. They seek to compensate for all this with freedom “on the street” among the same rejected and misunderstood street children and adolescents from dysfunctional families [3,4].

Also, by us, “criminal youth subculture” means the totality of spiritual and material values that regulate and streamline the life and criminal activities of adolescents and youth of criminal communities, which contributes to their survivability, cohesion, criminal activity and mobility, and the continuity of generations of offenders. The basis of the “criminal youth subculture” is comprised of values, norms, traditions, various rituals that are alien to civil society, united in groups of young criminals (offenders) [12,16,21].

It differs from the usual juvenile criminal subculture in the corresponding content of the rules governing the relationships and behavior of group members among themselves and with outsiders for the group (with “strangers”, representatives of law enforcement agencies, the public, adults, etc.). She directly, directly and strictly regulates the criminal activity of minors and their criminal way of life, introducing a certain “order” into them.

To date, the Russian criminal youth subculture clearly shows: 1) expressed hostility towards generally accepted norms and its criminal content; 2) internal connection with criminal traditions; 3) secrecy from the uninitiated; 4) the presence of a whole set (system) of attributes strictly regulated in the group consciousness [13,21].

You can also highlight the following features of the criminal subculture of juvenile prisoners in prison: 1) violation of the rights of the individual, expressed in an aggressive, cruel and cynical attitude to "strangers", weak and defenseless; 2) the lack of compassion for people, including "their"; 3) dishonesty and duplicity in relation to "strangers"; 4) parasitism, exploitation of the "lower classes", mockery of them; 5) the depreciation of the results of human labor, expressed in vandalism; 6) disrespect for the rights of owners, expressed in theft and theft; 7) the promotion of a cynical attitude towards women and sexual licentiousness; 8) the promotion of base instincts and any forms of antisocial behavior [12,13,21].

It should also be emphasized that the Russian criminal subculture today is attractive for teenagers and youths with such manifestations as: 1) the presence of a wide field of activity and opportunities for self-affirmation and compensation for the failures that befell its members in other life situations (for example, in school, in relationships with teachers (caregivers of boarding schools), parents, including foster children); 2) the process of criminal activity, including risk and extreme situations, colored by a touch of false romance, mystery and unusualness; 3) the removal of all moral restrictions in communication in society; 4) the complete absence of prohibitions on obtaining any information on telecommunication means, various instant messengers, etc., and, first of all, on intimate information; 5) providing "their" group with moral, physical, material and psychological protection from external aggression, taking into account the state of age loneliness experienced by a minor [12,16].

The criminal subculture is rapidly spreading among young people due to its exceptional activity and visibility. Adolescents and youth are passionate about its outwardly catchy attributes and symbols, the emotional richness of norms, rules, rituals.

The nature of the formation of criminal communities is different - from a spontaneous association based on common interests and idle pampering to a special creation for committing crimes. In the latter case, criminal activity from the very beginning is a group-forming factor and is subject to the will of one person - the organizer (informal leader). In such a group, norms and rules are focused on the values of the criminal subculture. In accordance with this, the structure of the group is determined, the roles in it are distributed: 1) leader; 2) the trustee of the leader; 3) the encouraged asset; 4) attracted newcomers [12,16,21].

Often, criminal groups act according to the laws of the "pack". In such a community, adolescents obey the will of an informal leader or emotions, there is a riot of elements in it, provoking its members to be particularly sophisticated in mocking a person, cruelty, acts of vandalism, and much more. A group is formed spontaneously and is also destroyed or criminalized.

It is the need for communication (in adolescents it is special, aggravated), the need for self-affirmation, in the realization of one's capabilities and abilities, in the recognition of others, the search for psychological and physical protection from the unfounded claims of others, makes them unite in groups [16].

This is due to their psychophysiological and socio-group characteristics. A teenager, especially a socially dysfunctional one, is always drawn to power, and grouping greatly increases it. Moral attitudes and psychological atmosphere of the immediate social environment of minors are crucial for the development and consolidation of antisocial habits and stereotypes of behavior. Psychologically, the role of "hangouts" (informal gathering places for adolescents) is especially great, where adolescents are grouped into criminal and criminogenic groups. Here they make acquaintances, find friends - like-minded people in criminal activity, exchange information, make love in turn, use toxic and narcotic substances [16, p.88-89].

The organized nature of juvenile delinquency is, first of all, defined as "grouping" - determining the beginning of organized crime, but without definite guidance from adult repeat offenders and mafia structures, it will remain only group crime: 1) the inclusion of a teenage group in a criminal group of a higher order (adult criminals) associated with the authorities, with its corrupt elements; 2) the subordination of the criminal teenage group and its activities to the "general command", that is, mafia leaders, their strategic intentions; 3) related to the functional separation of the criminal activity of teenage groups (a clear separation of territories and zones of criminal activity - the transportation of drugs, weapons, racketeering, etc.); 4) organization requires as a mandatory element professionalization in certain types of criminal activities of teenage groups, as well as professionalization within the group in the commission of specific crimes; 5) also presupposes general rules of conduct for all criminal groups that are members of this criminal organization, "laws", "laws", "norms", values that have received the name "criminal subculture"; 6) an important element of organization is the special selection of "cadres" in criminal groups from among minors and youth and their training in special places (underground gyms, etc.) shooting, karate, judo techniques, and methods of criminal activity and total control over the behavior of each member of the organized crime group [12,21,22].

Also, juvenile delinquency is dynamic, a high degree of activity of adolescents. People who have embarked on the path of committing crimes at puberty are difficult to correct and reeducate and, as a rule, constitute a reserve for adult crime. There is a close relationship between juvenile crime and adult crime. It is no accident that in the scientific literature it is noted that juvenile delinquency is future crime. In this regard, it can be argued that one of the causes of adult crime is juvenile delinquency. Indeed, adult crime is rooted in a time when a person's personality is only being formed, his life orientation is being developed, when the problems of upbringing, personality formation, and the orientation of his behavior are especially relevant [13,21].

Due to the instability of the psyche, minors are easily influenced by adult criminals and tend to romanticize the underworld. On the one hand, they react painfully to any form of manifestation of injustice in relation to themselves, and on the other, they do not tolerate excessive "hyper-custody". They are characterized by the desire to appear as adults. Moreover, an inappropriate expression of such a desire may be the commission of an illegal act. So, according to experts (lawyers, sociologists, social psychologists and educators), the craving for adventure is the leading motive for the escape of adolescents from orphanages (boarding schools, etc.) [10,11,12].

The social circle of juvenile offenders also has characteristic features. These are mainly persons previously convicted, abusing alcohol, drugs. Important features of the personality of juvenile delinquents are the features of their legal consciousness. In general, they are characterized by deep defects in legal consciousness, which is to some extent explained by two factors: 1) general legal illiteracy of both the entire population as a whole and minors; 2) the negative social experience of the minor [10,12].

The personality characteristics of minors who have committed crimes discussed above are expressed mainly in the motivation for their criminal behavior, which boils down to the following: 1) the prevalence of "puberty" motives - committing a crime out of mischief, curiosity, the desire to establish oneself in the eyes of peers, the desire to possess fashionable things, etc.; 2) situational motives; 3) the deformation of any one element of the sphere of needs, interests, views. For example, a hypertrophied understanding of partnerships, the desire to raise one's prestige; 4) a larger "fan" of motives than adult crimes [10,12].

Teens have been broadcasting online at Periscope since they entered the house, from which Denis fired on patrol cars. This story could not do without teenage cynicism - “... meanwhile, on this story many decided to earn extra money. In the comments to the published photos and videos of the dead teenagers, enticing calls began to appear to see their “death on the air”.

So, at present, among the motives of unlawful behavior of minors, one can determine such motives as: total Internet addiction, anger at one’s environment – parents and peers, self-interest, cruelty, aggressiveness, puberty sexual needs, selfishness, imitation, solidarity, self-affirmation, social irresponsibility and frivolity, alienation from society and opposition to it [21].

Social and psychological characteristics of the personality of minors play a special role in the formation of informal groups. Such a unification of minors is not only an objective reality, but also a necessity, the essence of which can be understood, given the existence of these three main types of cultural exchange between older and younger generations, defined by the American anthropologist Margaret Mead (1901-1978), as: 1) post-figurative, meaning that children learn from their parents (*vertical relationships - downward descending from 1 - 0*); 2) configurable - children and adults learn from their peers (*smooth, horizontal relationships from 1 - 1*); 3) prefigurative - adults also learn from their children (*vertical relationships - upward raising from 0 - 1*) [18]. Since in real life all these types of cultures act simultaneously, minors objectively seek to unite, including with their peers. For a preschooler, parents are the most authoritative, for a first grader - a teacher, for a young man - his peers.

Among the groups created by minors, social psychologists distinguish about social, socially indifferent and antisocial. At the same time, groups with a clearly antisocial orientation unite no more than 10% of youth. The remaining 90% is a reserve that replenishes antisocial groups or opposes them [14].

However, no formal organization is able to cover all aspects of the social environment, all human interests. The more energetically they try to destroy the rules established by unofficial rules, the more stable they are.

The causes and conditions of juvenile delinquency, as well as crime in general, are socially determined. First of all, they depend on the concrete historical conditions of society, on the content and orientation of its institutions, on the nature and methods of solving the main contradictions.

The socio-economic and socio-psychological contradictions of the transition to market relations have led to a profound reorientation of youth from collectivist spiritual values to self-serving individualistic ones. For 30 years (from 1990 to the present) a whole generation has grown up, which from a young age has been engaged in street trading, security activities in dubious institutions, etc. Minors, brought up in conditions when many issues were resolved in the absence of the necessary legal field, are used to not observing the requirements of the laws. Moreover, many of them have become in the habit of constantly deceiving everyone and living in fear for their own lives.

Many juveniles have, so to speak, a “Robin Hood” psychology of revenge for their injustice in relation to them, which makes it easier for them to commit a crime. They internally disagree with the stigma of "social outsider" imposed on them. A typical example is the organized teenage criminal gang “The Korotkov Brothers Group”, operating in the first half of the 1990s in Yekaterinburg (24 people were brought to trial, all were sentenced from 10 years to 15 years in prison in maximum security colonies). The participants in this community acted both for personal and social reasons: the formation of a new society and open social and property inequality coincided with the formation of them as individuals, while they perceived what was happening as injustice. In combination with the domestic cult of violence, this served as a justification for their robberies and robberies, and sometimes murders. To plunder apartments, they used climbing equipment; they obtained alcohol by threatening to kill sellers of commercial stores. Moreover, the “OPG-Korotkov” has arrogated the right to execute even his close associates, if he only suspected them of intending to extradite the others (in court A. Korotkov was also charged with commanding reprisals against three members of his own group (organized crime groups), including one woman). OPG-Korotkov acted boldly and so unprofessionally that investigators and judges were amazed, like no one had been caught during the first raids [28].

Next, we present in more detail, the causes of juvenile delinquency can be divided into two large groups: 1st group - related to the personality characteristics of minors and 2nd group - reflecting the shortcomings of the social structure.

The first group of reasons is determined by teenage nihilism, when passions often boil in the soul of outwardly impartial people, and shyness hides behind the rudeness of the young men; a catastrophic decrease in intellectual potential (up to 6% of students are not able to learn the school curriculum, 30% experience difficulties, 70% of students have a defective genotype). In addition, it should be emphasized that, according to specialists, accented personalities among citizens are about 40%, and among minors this percentage is even higher. As a result, juveniles show an increase in selfish and sexual aggressiveness, hooliganism. As a result, juveniles show an increase in self-serving and puberty sexual aggressiveness, hooliganism, in other words, they go into all serious ways. The second group of reasons covers the contradictions in the social and economic condition of Russian society [8, p.90-97].

One of the negative manifestations of the economic crisis is job cuts leading to unemployment of adolescents, in particular, those who have served their sentences in educational institutions. The increase in unemployment, as you know, in the first place, has a negative impact on young people, since it is hard for them to find suitable jobs due to the lack of proper qualifications and work experience. Unemployment is a powerful incentive for the formation of the criminal psychology of minors [14].

The basic institution of socialization of adolescents is the family (including the adoptive family). However, today the institution of family and gender relations is in a deep crisis. Typical negative features of the functioning of the family in Russia are: an increased number of unregistered marriages, illegitimate births, an increase in single-parent families, an increased level of professional activity of women, an increase in the level of street children and adolescents, and an increase in facts of child abuse [14].

The crisis in the Russian education system has a special effect (including the sudden - the massive transition of schoolchildren and students to distance learning in connection with the global epidemic and the real threat of infection with the COVID-19 virus). With the beginning of radical socio-economic and political transformations, completely new problems arose that did not exist before. On the one hand, with the change in society, modernization of education is necessary in order to update its content, on the other hand, education as such is becoming increasingly commercialized. This is a rather negative sign, since restrictions on access to education turn out to be serious social costs for society - the criminalization of part of adolescents and modern youth, “bribery” (carried out in the educational process in state educational organizations), “protectionism” and other negative phenomena. The commercialization of Russian education has reduced the availability of culture and professional knowledge for most young people from low-income groups of Russia who want to become a qualified specialist. The next reform of higher education actually came down only to the creation of elite, mainly private, higher and secondary educational institutions, which to a certain extent satisfies the educational needs of a small part of the population - people with high incomes, but contributes to social stratification to an even greater extent, and makes it difficult to reveal the abilities of teenagers from poor layers of Russian society. One of the negative conditions for the formation of “delinquent behavior” of adolescents is the early start of work. At present, adolescents from the age of 14 experience the process of socialization and familiarization with work in the conditions of transformation of the socio-economic, political, sanctions relations of the Russian state. The social transformation in Russia led to the use of various illegal forms, in particular related to the involvement of street children (from 9 years old - 12 years old) in the criminal business (the factor of criminal responsibility from the age of 14 is taken into account) [15,16,21].

In the leisure sector, today's trends are mainly associated with adverse changes that have occurred in Russian society. Unfortunately, the leisure industry is also being commercialized. In addition, if earlier the formation of vital interest and creativity was largely facilitated by the work of children's circles and sections, the involvement of adolescents and youth in work in operational Komsomol units for the protection of public order, now adolescents, by virtue of their lack of initiative, do not attend such institutions (this is not only about paid, but also free circles, sports sections that exist) in the homes of youth and creativity [14].

It can also be noted that in socio-pedagogical practice it is very important to identify such groups and include their members in organized children's communities, helping to realize the natural needs for communication and joint activities with adolescents who find themselves in difficult life situations. If the negative role of the leader is strengthened, purposeful activity is needed to debunk it or limit its influence up to isolation from the group through placement in a special educational (correctional) institution [14,21].

A kind of criminal group, characterized by special conspiracy, great cohesion and a clear organization, distribution of functions in committing a crime, is a "gang". So the Turks called a group of armed people on a boat, attacking lone ships and robbing them. Currently, under the "organized crime group", they mean a group of people who have united for some criminal activity. A similar association made up of adolescents and youth may include members: 1) living in a significant remote place from each other; 2) of different ages (including adults); 3) along with male persons and female persons [4,8,10,11,13].

The most characteristic features of the organized organization of the organized criminal group are: preliminary conspiracy and orientation to criminal activity under the guidance of an informal leader with criminal experience and strong will. In the organized crime group, adolescents and young people join the criminal traditions, they have confidence in the possibility of a non-socially organized environment, and they are actively instilled in antisocial attitudes and habits.

The style of relations in the "organized crime group" is often authoritarian. It is distinguished by strict subordination and the strength of group pressure (“pressure”). The informal leader extends his influence to others accepting his demands [4,11,12].

The "gang" belongs to the highest type of organized criminal groups. This is an armed group committing predominantly violent crimes (carrying out robberies against state, public and private enterprises and organizations, aircraft and ships, as well as against individuals who are taking hostages, terrorist acts). The main signs of a “gang” are its armament and the violent nature of criminal activity [12].

One of the important socio-pedagogical problems is the activity to prevent the formation of criminal communities. In this regard, working with informal teenage groups is of particular importance. It includes the following areas:

1) timely identification of the emergence of the group, the establishment of the most frequent places of "hangouts" of adolescents, the numerical and demographic composition (a small group of 3-5 people or a group of 8-10 or more), the nature of the group's orientation (asocial / pro-social), cohesion and predisposition to interaction and determining the nature of educational interaction with her;

2) special socio-pedagogical work with informal teenage and youth groups to form a positive orientation, to prevent their criminalization, involvement in formal group activities [11,12].

So, today practice shows that working with informal communities is extremely difficult. This is due to the low effectiveness of measures to influence the adolescent from such an association. His adaptability to the informal environment creates favorable conditions for him for self-realization. He does not need to switch to something else, which requires the creation of more favorable conditions, motivated by positive values and ideals;

3) the active use of the capabilities of leisure institutions in working with informal groups:

a) the development on their basis of a variety of activities that are attractive and popular among young people ("rock clubs", "fan clubs");

b) the organization and conduct in the microsocium of a series of events and actions aimed at attracting young people (holidays, contests, discos);

c) reorientation of the group to socially approved activities (creating temporary jobs, changing the informal leader of the group);

d) finding opportunities to ensure (material and other) the existence of an informal group of a positive orientation (offering various options for employment, socially useful activities, physical education and sports, mastering martial arts), for example, creating, on the basis of an amateur musical collective, a group performing at the official basis [11,12,21];

4) targeted socio-pedagogical work with antisocial and antisocial groups. Fundamental for determining the strategy for working with a group is the type of its informal leader (physical or intellectual); the totality of the basic moral, ideological and other values that guide this group in its life. Taking into account the originality of the leader, the direction and nature of social pedagogical activity is determined to overcome the authority and influence of the leader on group members, change the value orientations and the nature of their implementation;

5) a tough suppression of the prospects of creating a youth group under the guidance of an adult who has unlawful beliefs (for example, who has returned from prison) [12].

Today, a social teacher in an educational organization (school, vocational college, boarding school for orphans, special (general) correctional boarding school I-VIII type), it is necessary to understand the essence of youth subculture, informal associations. When working with children and youth, it is important to understand that many of them can belong to one of the informal organizations, groups, groups and build their relationships with him taking this factor into account. This means that you should: 1) accept a teenager, a young person who belongs to any group, as he is; 2) if possible, include him in the diverse positive activities of the team, actively using his aspirations and skills gained in the informal group; 3) communicate with him in the logic of the "dialogue of cultures", gradually working on the formation of an attitude towards those values that he professes; 4) actively support socially valuable initiatives by involving students in the classroom, high school / boarding institution for orphans; 5) understand the need for personal assistance when it really arises; 6) to show justice, sympathy, understanding of their needs and problems in relation to pupils; 7) learn to conduct individual conversations with the pupil as an "expert", "adviser", "guardian"; 8) correctly use their influence on pupils to clarify the situation [22, p.26-29].

From good practice: In the Novosibirsk youth club "Youth House" (Novosibirsk, Russia), an original solution to the problem of combating street gangs was proposed. The street company was entirely invited to the "House of Youth" and in its former composition, without breaking, became a division of the "House". Gradually there should be a reorientation of the group, a rejection of its former norms and traditions. Such a reorganization process consisted of three stages:

- 1st — group autonomy, when a group is involved in the team of the House, primarily due to the interest of the group leader;

- 2nd — leader reorganization, when there is either a reorientation of the leader due to his inclusion in the collective life, or discrediting the leader, showing the failure of the previous forms and methods of managing the group in collective life;

- 3rd — the merger of the group with the collective at home, when the group ceases to be a closed association and is included in the general system of collective activity and broad ties with all members of the collective.

Thus, in working with difficult teenage and youth associations, there are many approaches that can ensure the realization of their social needs, strengthen the positive orientation of the influence of the modern community, prevent (socialize) and overcome criminalization [21, p.253-254].

Нестеров Артем Юрьевич

Әлеуметтік-саяси зерттеулер институты – «Ресей ғылым академиясының федералды зерттеу орталығы» федералды мемлекеттік бюджеттік ғылым мекемесі, Ресей

МАРГИНАЛДЫ ЖАСӨСПІРІМДЕР ОРТАСЫНЫҢ ҚЫЛМЫСТЫҚ БЕЛСЕНДІЛІГІНІҢ МӘНІ МЕН ЕРЕКШЕЛІКТЕРІ: ҚАЗІРГІ ЖАҒДАЙЫ МЕН ТЕНДЕНЦИЯЛАРЫ

Аннотация. Мақалада қазіргі жасөспірімдер ортасындағы қылмыстық іс-әрекет теориясы мен практикасының негізгі мәселелері келтірілген.

Ресей Федерациясының Ішкі істер министрлігі, Ресей Федерациясының Әділет министрлігінің Ресей Федералды қылмыстық-атқару қызметі 2003 жылдан бастап қазіргі уақытқа дейін кәмелетке толмаған құқық бұзушылар жасаған қылмыстық құқық бұзушылықтар туралы статистикалық мәліметтер келтірген [2020 жылдың 1 маусымы].

Автор криминалды жастар субмәдениетінің ерекшеліктерін талдайды. Типологиялау жастардың бейресми топ түрлеріне сәйкес жүргізіледі. Кәмелетке толмағандар арасындағы құқық бұзушылықтың негізгі себептері анықталған және негізделген. Осы себептерге байланысты спектрлік талдау жүргізіледі. Жасөспірімдер ортасында қылмыс тудыратын факторлар анықталды.

Автор жасөспірімдердің жасанды және девиантты мінез-құлқын қалыптастыратын келеңсіз жағдайдың бірі ретінде олардың жұмысқа ерте араласу жағдайын атап көрсетеді.

Қазіргі уақытта 14 жасқа дейінгі жасөспірімдер әлеуметтану және әлеуметтік-экономикалық, саяси, санкциялық қатынастардың трансформациясы жағдайындағы жұмыспен танысуда.

Ресейдегі қайта құру түрлі заңсыз нысандарды қолдануға әкеп соқтырды, атап айтқанда, көше балаларын (10 жастан 15 жасқа дейін және 16 жастан 18 жасқа дейін) қылмыстық іске тартуға қатысты.

Автор кәмелетке толмаған жасөспірімдер арасындағы қылмыс, ең алдымен, құқық бұзушының жеке басының ерекшеліктері негізінде анықталатынын айқындаған. Оның қарауындағы басты нәрсе құқық бұзушының аздығы болды. Жеке тұлға құрылымындағы белгілі бір биологиялық, психологиялық және психика-

лық өзгерістер соған байланысты. Белгілі бір қылмысты жасау үшін жас шамасы күш, ақыл-ой, тартымдылық және тіпті «физикалық» мүмкіндіктің белгілі бір даму деңгейіне қатысты болып келеді.

Сондай-ақ, мақала авторы жеке тұлғаны әлеуметтендіру үдерісі ерте жастан, оның жеке қасиеттерін қалыптастыратын рөлдерді игере бастағанда көрінетінін айқындаған. Балалық шақта кез-келген адам әлеуметтік болмыс ретінде қалыптасады, ол зияткерлікті, айналадағы құбылыстарды талдау және жалпылау, өз іс-әрекеттерінің ықтимал салдарын болжай білу қабілеттерін дамытады; табандылық, жігер, ұстамдылық, белсенділік, бастамашылдық сияқты ерік қасиеттер дамиды; өзін-өзі тану, өзін-өзі бағалау, тәуелсіздікке деген ұмтылыс қалыптасады. Мұның бәрі кәмелетке толмаған құқық бұзушының жеке басының кейінгі әрекетімен тығыз байланысты.

Автор «криминалды жастар субмәдениеті» сияқты негізгі ұғымды түсіндіреді.

Ресейдегі Ішкі істер министрлігінің Ресейдегі COVID-19 пандемиясының салдарынан орын алған құқық бұзушылықтар туралы аймақтық статистикасы келтірілген.

Мақалада келтірілген барлық материалдарда Ресей Федерациясының мемлекеттік құпияларына қатысты ақпарат берілмеген.

Түйін сөздер: өскелең ұрпақтың заңсыз және девиантты әрекеті, криминология, құқықтық психология, кәмелетке толмағандардың маргиналды тобы (субмәдениеті), кәмелетке толмағандардың қылмыстық әрекеті, кәмелетке толмағандарды ұйымдасқан қылмыстық топтарға тарту, кәмелетке толмағандар арасында ұйымдасқан қылмыстық топтың құрылуы, кәмелетке толмағандар арасындағы құқық бұзушылық туралы статистика, кәмелетке толмаған құқық бұзушылардың психикасының бұзылуы, Ресейдегі COVID-19 пандемиясының салдары, құқық бұзушының жеке басы, «криминалды жастар субмәдениеті».

Нестеров Артём Юрьевич

Институт социально-политических исследований – Федерального государственного бюджетного учреждения науки «Федеральный научно-исследовательский центр Российской академии наук», Россия

СУЩНОСТЬ И ОСОБЕННОСТИ КРИМИНАЛЬНОЙ АКТИВНОСТИ МАРГИНАЛЬНОЙ ПОДРОСТКОВОЙ СРЕДЫ: СОВРЕМЕННОЕ СОСТОЯНИЕ И ТЕНДЕНЦИИ

Аннотация. В статье представлены основные проблемы теории и практики криминальной активности в современной подростковой среде. Приводятся статистические данные МВД РФ, ФСИН России МЮ РФ уголовных правонарушений, совершенных с 2003 года по настоящий период несовершеннолетними правонарушителями [по состоянию на 01.06.2020г.]. Автором анализируются особенности криминальной молодежной субкультуры. Осуществляется типологизация по видам молодёжных неформальных групп. Выявляются и обоснованы основные причины преступности несовершеннолетних. Осуществляется спектральный анализ по этим причинам (мотивам). Определяются факторы, провоцирующие преступность в подростковой среде.

Автором выявлено то, что одним из негативных условий формирования делинквентного и девиантного поведения подростков является раннее начало трудовой деятельности.

В настоящий период подростки от 14 лет переживают процесс социализации и приобщения к труду в условиях трансформации социально-экономических, политических, санкционных отношений. Трансформация в России обусловила применение различных нелегальных форм, в частности связанных с вовлечением безнадзорных подростков (от 10 – 15 лет и от 16 – 18 лет) в криминальный бизнес.

Автором определяется то, что преступность несовершеннолетних в первую очередь определяется особенностями личности преступника. Главное при её рассмотрении – это несовершеннолетие правонарушителя. С ним связаны определенные биологические, психологические и психические изменения в структуре личности. Возрастом обусловлен определенный уровень развития сил, интеллекта, влечений и даже «физиическая» возможность совершения определенных преступлений.

Также автором статьи определено то, что процесс социализации индивида начинается с раннего возраста, когда он начинает усваивать роли, которые формируют его личностные качества. Именно в детстве любой человек формируется как общественное существо, у него развиваются интеллект, умение анализировать и обобщать окружающие явления, способность предвидеть возможные последствия своих поступков; вырабатываются такие волевые качества, как настойчивость, целеустремленность, самоконтроль, активность, инициатива; формируются самосознание, чувство собственного достоинства, стремление к самостоятельности. Всё это тесно связано с последующим поведением личности несовершеннолетнего правонарушителя.

Даётся авторская трактовка такому базовому понятию, как «криминальная молодежная субкультура».

Приводится региональная статистка МВД России по правонарушениям как последствий пандемии COVID-19 в России.

Все материалы, представленные в статье, не содержат сведений (информацию), относящихся к государственной тайне Российской Федерации.

Ключевые слова: делинквентное и девиантное поведение подрастающего поколения, криминология, юридическая психология, маргинальные группы (субкультуры) несовершеннолетних, криминальная деятельность несовершеннолетних, вовлечение несовершеннолетних в ОПГ, формирование несовершеннолетними ОПГ, статистика уголовных правонарушений несовершеннолетних, психические расстройства несовершеннолетних правонарушителей, последствия пандемии COVID-19 в России, личность преступника, «криминальная молодежная субкультура».

Information about author:

Artyom Y. Nesterov, Honorary Member of the National Academy of Sciences Republic of Kazakhstan (NAS RK), Leading Researcher, Center for Social Demography, Institute for Social and Political Studies - Federal State Budgetary Institution of Science "Federal Research Sociological Center of the Russian Academy of Sciences", Moscow, Russia; ne7terov.ay@gmail.com; https://orcid.org/0000-0001-8244-9546

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Z. K. Ayupova[1], D. U. Kussainov[2], S. S. Dzhankadyrov[2], Winston Nagan[3], N. L. Seitakhmetova[4]

[1]Kazakh national agrarian university, Almaty, Kazakhstan;
[2]Kazakh national pedagogical university named after Abai, Almaty, Kazakhstan;
[3]University of Michigan, USA;
[4]National Academy of Sciences of the Republic of Kazakhstan, Almaty, Kazakhstan.
E-mail: zaure567@yandex.ru, daur958@mail.ru, sdzhankadyrov@bk.ru, nseytakhmetova@bk.ru

PECULIARITIES OF THE LEGAL REGULATION OF THE LABOR OF SOME CATEGORIES OF EMPLOYEES

Abstract. Research on the specifics of the legal regulation of certain categories of employees is conducted by leading foreign research centers and international organizations. In particular, the work of women, children, disabled people, homeworkers, seasonal workers and migrants is one of the most active research topics within the UN, ILO, OSCE, and CIS. For example, the topics are “Labor Market Trends and Outlook”, “Labor, Income and Equity”, “Changing World of Work”, “Macroeconomic Policies and Jobs”, “Globalization and Labor Market”, “Policy evaluation”, “Youth and Gender Issues” (Special issues of youth and gender are also covered) are recognized as one of the main topics studied by the ILO Research Department in The direction of labor market trends and prospects. The following results were obtained in scientific studies conducted in the field of determining the features of legal regulation of labor of certain categories of workers in foreign countries: proposals were developed and implemented to ensure gender equality in labor relations (University of Sterling, Scotland), eliminate discrimination by introducing rules of differentiation (Rand Afrikaans University, South Africa), and provide additional opportunities in the field of labor for women and persons employed in family responsibilities (University of Essex, UK), increasing the role of contracts in regulating the work of home workers (Middlesex University, UK), providing equal rights in the use of migrant labor (University of Oxford, UK).

Key words: human resources, labor code, personnel reserve, labor migrants, labor law, competitive selection, labor protection, disciplinary responsibility, working hours, labor contract.

The relevance of the topic. All over the world, the issue of decent work and equality for achieving sustainable development is becoming increasingly important. According to the International labour organization, “in 2018, equality in economic security, material well-being and opportunities is not ensured for the majority of the 3.3 billion workforce that make up the workforce. A high level of informal labor relations is maintained, this indicator is 61 percent of the total workforce. There was no positive picture in eliminating gender inequality. In employment, men's employment is 75%, and women's employment – 48 percent. Seven hundred million people who have jobs are in difficult working and living conditions. Some modern business models based on new technologies threaten the success achieved in the field of labor” [1, p.45].

Special attention is paid to the research of scientific directions aimed at legal regulation of labor relations and their differentiation. In particular, studies on research areas concerning gender equality, prevention of job discrimination, prohibition of child labor, regulation of labor relations in the private sector, determine the characteristics of use of hired labor in small businesses, identifying characteristics of legal regulation of labor of employees of non-governmental organizations and civil servants, elimination don’t explain by the benefits and safeguards or restrictions.

In our Republic, large-scale work is being carried out in the field of legal regulation in order to ensure a balance in the interests of employees, employers and the state, which are traditional participants in labor relations. Reforms are being implemented to improve the adaptability of labor legislation to the market economy through its modernization and liberalization. Special attention is paid to development of social sphere, strengthening of social protection of the population and further improving the system of remuneration, as one of the priorities to create the conditions to achieve full and accelerated development of the state and society, the implementation of priority directions of modernization and liberalization in all spheres of life is the development of the social sphere.

Materials and methods of research. The research uses such methods as historical, system-structural, comparative-legal, logical, concrete-sociological, complex research of scientific sources, induction and deduction, and analysis of statistical data.

In scientific research conducted by legal experts S.A. Ishankhodzhaev (International legal aspects of interstate cooperation in the field of migration), A.M. Maksudov (Improvement of the civil legal framework for bankruptcy of an individual entrepreneur), N.M. Teshaev (Principles of legal regulation of labor relations in the Republic of Kazakhstan), M. Mahamatov (International legal bases of cooperation of the Republic of Kazakhstan with the International labor organization), H.M. Kilichev (Improvement of the civil status of self-government bodies of citizens), Zh.A. Rasulov (Issues of implementation of international legal standards for the elimination of forced labor in national legislation), N.N. Askarov (Improvement of the regulatory framework of the state youth policy), B.T. Musaev (Improvement of conflict-of-law regulation of labor relations in Kazakhstan), F.U. Khamdamova (international legal cooperation of Kazakhstan on ensuring and protecting women's rights), D.S. Atajanova (Peculiarities of legal regulation of women's labor and persons engaged in family responsibilities) studied aspects related to determining the specifics of legal regulation of labor of certain categories of workers. It is particularly noteworthy that in recent years, B.T. Musaev and D.S. Atajanova conducted research related to the peculiarities of labor regulation of certain categories of workers [2, p.29]. So, B.T. Musaev, studying the issue of conflict-of-law regulation of labor relations in Kazakhstan, examines the features of legal regulation of labor of foreign citizens and stateless persons, representatives of the diplomatic corps, and D.S. Atazhanova studies the features of legal regulation of labor of women and persons engaged in family duties.

Also in the educational literature and scientific articles published by legal scholars A.A. Inoyatov, M.A. Usmanova, M.Yu. Hasanov, Y.Tursunova, G.D. Sattarova, J.T. Almuminum, M.Rakhimov, B. Rahimbergenova, M. Ibragimova expressed opinions regarding the research topic.

In this regard, it should be noted that in the Commonwealth countries scientific research related to the topic of the research was carried out relatively well. In particular, G.S. Skachkova, F.B. Stulberg, Y.I. Rogalev, I.M. Lovkov, N. And.Yakovenko, V.V. Kuznetsov, M.I. Averyanov, N.R.Mahmadulloev, I.A. Coracina comprehensively explored some aspects related to the peculiarities of regulation of work of separate categories of workers.

Research results. Research results are determined by the provisions, concerning guarantees, benefits, advantages, as well as prohibitions, restrictions and exceptions that constitute the content of the features of labor regulation of certain categories of employees should be determined by legislative acts; since the expansion of differentiation objectively leads to the expansion of the range of individual categories of employees, the definition of the features of legal regulation of these categories of labor will serve to prevent unjustified benefits or restrictions; defining the specifics of regulating the work of civil servants in laws, along with applying the Labor code of the Republic of Kazakhstan in relation to regulating their work, will ensure the protection of their rights and interests in the field of labor.

In this article the comparative legal analysis of the concept of differentiation in labor law, its necessity and significance, the content of the features of labor regulation of certain categories of employees, the grounds and procedure for determining the features of labor legal regulation, international standards, as well as the legislation of foreign countries related to the features of legal regulation of certain categories of employees [3, p.54]. In the article analyzes the concepts of differentiation in labor law and features of labor regulation. In labor law, as in other areas of law, the rules of differentiation in the regulation of public labor relations are applied. Differentiation comes from the Latin word “differentia” (difference, difference), its etymological meaning means the division, differentiation, stratification of parts of one whole into different parts, forms, stages. It should be noted that, despite the use of this concept in various branches of law, legal dictionaries do not contain its description or interpretation. Although “differences” in the legal regulation of labor relations are always characteristic of labor law, in labor law the term “differentiation” is not used by the legislator.

In the science of labor law, there is no consensus on the role of the phenomenon of differentiation in the structure of labor law. Some scientists (M. Hasanov, M. Usmanova) point out differentiation as one of the methods of labor law. There are also opinions about the inclusion of differentiation in the principles of labor law (A.A. Inoyatov). Some scientists (Yu. Tursunov) include differentiation, both in principle and in the methods of labor law. The author does not agree with the opinion that differentiation is a principle of labor law. Since differentiation is not always compatible with the goals of labor law, on the contrary, unification against differentiation may also be the main focus of state labor law policy.

In the science of labor law, differentiation of legal regulation of labor is given many different definitions. In particular, there is a widespread understanding of the differentiation of legal norms based on legally significant factors, in order to clarify the General rules of labor legislation in relation to certain categories of employees. Analyzing this and other definitions, the author suggests understanding differentiation in the field of labor relations as differences arising on an objective basis in connection with specific working conditions and categories that need social support from the state. It is also emphasized that differentiation and special legal regulation are directly related, and it is recognized that in labor law, special legal norms for differentiation are adopted in a centralized manner. Differentiation is also seen as a way to guarantee “equal rights” for employees by setting “correction factors”.

In Kazakhstan, the law enforcement practice in cases of discrimination is still underdeveloped. In modern law, we can distinguish 3 groups of norms against discrimination: equality of rights, equality of opportunities, and equality of results. The original rules of law were aimed at ensuring equality of rights. However, by the middle of the twentieth century, it became clear that such legal regulation in the field of labor did not achieve the goal of ensuring equal opportunities for citizens. At present, the legal doctrines of Western Europe and America distinguish two main approaches to ensuring equality in the field of work: the achievement of formal (formal) or actual (substantive) equality. Formal equality is a traditional concept that implies equal treatment of equal citizens. While actual equality determines different attitudes towards different citizens. Formal equality does not take into account one important circumstance, that is, different categories of people, even if they have the same legal rights, are in different positions from the very beginning because of different circumstances (historical features of the development of society, physiological differences, the presence of family responsibilities). Based on the principle of achieving real equality, the anti-discrimination legislation of developed capitalist countries seeks to provide additional rights to the most socially vulnerable subjects of law in order to ensure equal opportunities. Norms of this type are usually referred to in English law as positive or compensatory actions [4].

National law has a different terminology, additional rights are referred to as rules-privileges that provide differentiation in the field of labor. Differentiation, like discrimination, involves different attitudes. The difference between these two concepts lies in the fact that differentiation involves a legitimate distinction, and discrimination – illegal distinction [5].

Differentiation of labor law is close to the categories of unification of labor law norms, individualization of labor legal regulation. Unification of labor law norms means elimination of unjustified differences in labor regulation, equalization of the legal status of certain categories of employees on a more privileged basis without reducing legal guarantees. Individual legal regulation cannot be considered related to the category of differentiation. Differentiation of labor law reflects the labor law policy of the legislator.

And individualization expresses the labor legal policy of the law enforcement agent at the level of labor relations. Also, differentiation should not be unlimited. Its limits should be established by legal acts on objective grounds, this distinguishes it from unlimited personalization like an employment contract.

The relationship between General and special rules in the field of legal regulation, as well as theoretical and legal issues of special legal regulation, has always been studied. It should be noted that the rules of differentiation have always been considered special rules. In particular, B.Ya. Rozin defines the ratio of General and special rules as follows: “a special law cancels the General law”. In each particular case, first of all, the rules that were specifically adopted to regulate these relations should be applied. However, opinions that special rules override General rules are controversial. According to the author, special rules may also determine the application of General rules.

The concept of labor regulation features does not exist in national legislation. Therefore, the definitions given to the concept of labor regulation in the labor legislation of some foreign countries (Russia, Moldova, Kyrgyzstan) are studied and analyzed. The author does not quite agree with the definition of the features of legal regulation of labor in the labor legislation of these States as "rules that restrict the application of General provisions on the same issue or provide additional rights for certain categories of workers". The main reason for disagreement is that this definition emphasizes that the features of legal regulation of labor are norms. According to the researcher, the features of labor regulation should be understood as the establishment of rules that restrict the application of General rules to certain categories of employees or provide additional rights.

If we understand this definition in a broad sense, we can understand the existence of differences in the working conditions of employees and their definition as features of labor regulation. Therefore, the inclusion of this definition in the draft of the new version of the Labor code of the Republic of Kazakhstan is supported. Views on the division of special legal rules into complementary, exclusive and alternative rules are also considered, and the opinion on the possibility of such a classification of differentiation rules is supported.

Objective factors of differentiation appear depending on the place and conditions of work, regardless of who performs a particular type of work. It is revealed that the objective basis of differentiation is related to the production function of labor law. Differentiation by subject occurs due to personality, gender, psychophysiological characteristics of the employee, age, the presence of dependent children or other persons, as well as other factors. In turn, the subjective characteristics of an employee are considered to be related to the social (protective) function of labor law [6].

The sectorial nature of labor is widely recognized in the legal literature as an independent type of differentiation in labor law. Therefore, industry differentiation is considered as an independent type. Of course, most special rules do not apply to all employees of a particular type or branch of economic activity, but rather apply to the most basic, leading professions. It should be noted that when determining the features of labor regulation of employees in certain industries, it can be concluded that working conditions play a leading role here. For example, the definition of work characteristics for workers in education, transport, health, communications, and other areas is based on the specific working conditions in these areas [7].

Today, Kazakhstan has ratified 17 of the 190 ILO conventions. A number of ILO conventions cover the specifics of legal regulation of certain categories of employees. From this point of view, the author supports Uzbekistan's proposal to ratify in 2018-2020 the ILO conventions No. 97 (on migrant workers), No. 156 (on workers with family responsibilities), No. 177 (on home work), and No. 183 (on maternity protection) concerning the work of certain categories of workers. The advantages of implementing into national legislation the Convention of 1978 No. 151 "On labor relations in the public service", 1992 No. 173 "On protection of workers' claims in case of insolvency of an entrepreneur", 2011 No. 189 "On decent work of domestic workers" are also indicated [8, p.64].

The experience of fixing the features of labor regulation of certain categories of employees in special sections or chapters of laws is inherent in the CIS countries. It is also revealed that in developed foreign countries, the features of labor regulation, in particular, the rules of differentiation, are defined in various regulations (Civil code, code of obligations, law on contracts, Law on health and safety, etc.). The author studies the reflection of the issue of differentiation in the Romano-German system of law and the common law system, analyzes the relations formed in them.

Different opinions are expressed regarding the abolition of the "List of jobs with unfavorable working conditions in which the use of women's labor is completely or partially prohibited" (registered by the Ministry of justice of the Republic of Kazakhstan on January 5, 2000. Registration number 865) for gender equality. In particular, the ban on working in adverse conditions for pregnant women and women with children under three years of age is maintained. It is recommended to apply postponement rules to protect pregnant women from termination of the employment contract. It is proved that the "Georgian reform" on payment of payments from the state budget for maternity, childbirth and child care, as well as holidays related to adoption, is a measure against hidden discrimination in hiring women. It is proposed to include in the labor legislation a provision that a woman with children under three years of age can return to her place of work at any time without any obstacles. It is also proposed to fix the specifics of regulating the work of women and persons performing family duties in a separate Chapter of the Labor code of the Republic of Kazakhstan.

Although persons under the age of eighteen have equal rights with other employees in labor relations, they enjoy additional benefits from various labor law institutions. It is proposed to include provisions that employment contracts with minors under the age of fifteen can be concluded in the field of sports, creative and cultural activities, as well as for performing advertising work. It is also justified that it is necessary to establish a ban on the refusal of employment or dismissal of persons under the age of eighteen years. It is indicated that it should be prohibited by law to involve employees under the age of eighteen years in work with a cumulative account of working hours, work on the basis of the shift method, and send them on business trips as an additional guarantee. The necessity of establishing bans for persons under the age of eighteen to work not only on the terms of part-time work, but also to work in several positions and professions, combining work, and engaging in work related to duty is justified. The issue of making proposals for establishing the length of the daily working day and working standards for underage employees is being discussed [9, p.68].

Employers-individuals are divided into individual entrepreneurs and individuals who are not engaged in business activities. Work on these employers is carried out according to the design “individual – individual”. It is indicated that the peculiarities of labor regulation of employees working for an individual employer are expressed when concluding an employment contract, registering them, observing internal labor regulations, working time and rest time [10, p.145].

Conclusion. In the conclusion we would like to note, that a migrant worker is defined as a foreign citizen and a stateless person who moved to the Republic of Kazakhstan for the purpose of working and permanently or temporarily resides in the territory recognized by a foreign state. The specifics of regulating the work of foreign citizens and stateless persons are expressed when hiring, obtaining a work permit, having medical insurance, concluding, changing and terminating an employment contract, as well as granting freedom of will when paying for work, vacations and providing pensions.

З. К. Аюпова[1], Д. Ө. Құсайынов [2], С. С. Джанкадыров[2], Уинстон Наган[3], Н. Л. Сейтахметова[4]

[1]Қазақ ұлттық аграрлық университеті, Алматы, Қазақстан;
[2]Абай атындағы Қазақ ұлттық педагогикалық университеті, Алматы, Қазақстан;
[3]Мичиган университеті, АҚШ;
[4]Ұлттық ғылым академиясы, Алматы, Қазақстан

ҚЫЗМЕТКЕРЛЕРДІҢ ЖЕКЕЛЕГЕН САНАТТАРЫНЫҢ ЕҢБЕГІН ҚҰҚЫҚТЫҚ РЕТТЕУ ТЕТІГІ

Аннотация. Қосымша қызмет атқарушылардың еңбегін құқықтық реттеудегі саралаудың негізі қызметкер мен жұмыс беруші арасындағы еңбек қатынастарының сипаты болып саналады. Қосымша қызмет атқарушының еңбек ерекшеліктері негізгі жұмыс орны бойынша шарттан (қос шарт) басқа шарт жасасу, сондай-ақ жұмыстың негізгі уақытынан басқа жұмысты орындау болып саналады. Заңнамада қызметкерге бір мезгілде бірнеше кәсіпорында қоса қызмет атқару негізінде жұмыс істеуге рұқсат беру мәселесінде бірыңғай нұсқау жоқ. Еңбек шартында жұмысты қоса атқару ретінде міндетті шарт ретінде көрсету, негізгі жұмыс орнындағы жұмыс уақытының жартысынан астамын қоса атқарушылардың жұмыс уақытының мүмкін еместігі, негізгі жұмыстан бос уақыттағы толық жұмыс күні, жұмыс уақытының жиынтық есебі сияқты ерекшеліктер қарастырылады. Үйде жұмыс істеу – адам ресурстары мен жұмыс орнын ұтымды пайдалануға мүмкіндік беретін ұйым аумағынан тыс жерде еңбекті ұйымдастырудың бір әдісі. Үйде жұмыс істейтін жұмысшылар үйде жұмыс істейтіндіктен, олар белгілі бір ерекшеліктерге ие. «Еңбек қатынастарының» дәстүрлі ұғымы үйде жұмыс істейтін қызметкерлерге толық қолданылмайды. Біріншіден, жұмысты жеке орындау талабы үй жұмысынан алынып тасталады. Екіншіден, үйде жұмыс істейтін қызметкерлерге жұмыс және демалыс бөлігінде ішкі еңбек режимінің ережелерін сақтау тән емес. Үйде жұмыс істейтін қызметкерлер жұмыс уақыты, үзіліс, мереке мен демалыс күндерінің жалпы ережелерін сақтамай, тапсырмаларды орындау уақытын дербес анықтайды. Сонымен қатар, үй қызметкерлерін жалдау тәртібі мен мақсатына, жұмыс орнына, еңбек шартын жасасуға, жұмыс беруші мен қызметкердің бірлесіп тұруына, құқықтық қатынастардың субъективті құрамына қойылатын қосымша талаптардың болуы осы санаттағы жұмысшылар еңбегін арнайы реттеу қажеттілігін көрсетеді. Ұлттық заңнамада қашықтан жұмыс ұйымдастыру және қашықтағы қызметкердің жұмысын реттеу ережелері әзірленбеген. ТМД елдерінің еңбек заңнамасында қашықтағы еңбекті құқықтық реттеудің ерекшеліктері атап көрсетілген. Іс жүзінде көптеген кәсібі жоғары мамандар, соның ішінде бухгалтерлер, заңгерлер мен программисттер қашықтан жұмыс істейді. Қашықтан жұмыс істеуге еңбек шартын жасасқан адамдар қашықтықтан жұмыс істейтін жұмысшылар деп танылады. Қашықтағы қызметкерлер мен жұмыс берушілер арасындағы қатынастар электрондық құжат арқылы жүзеге асырылады. Еңбек шартында жабдықты, бағдарламалық және техникалық қамтамасыз етуді пайдалану, ақпаратты қорғау және жұмыс беруші ұсынатын басқа да құралдар бойынша қосымша міндеттемелер көзделуі мүмкін. Еңбекті ұйымдастырудың вахталық әдісін реттеудің ерекшеліктері де анықталды. Вахталық әдіс еңбек үдерісінің ерекше нысаны болып саналатындығы атап өтілді, онда қызметкерлердің тұрғылықты жері бойынша тұрақты жерінен тыс жерге күнделікті оралуын қамтамасыз ету мүмкін емес. Жұмыс және ауысыммен демалу уақытын қоса алғанда, объектідегі жалпы уақыт кезеңі вахта болып есептеледі. Вахталық режимдегі жұмыс ерекшеліктері заңнамада жұмыс берушінің аумағынан тыс жерде жұмыс істейтін қызметкерлердің еңбегін реттеудің ерекшеліктері, вахта кезеңі, еңбекті ұйымдастыру тәртібі көрсетілуін талап етеді. Еңбек заңнамасын саралаудың негізгі факторларының бірі ретінде зияндылық пен қолайсыз еңбек жағдайлары талданады. Бұл жұмыс түрлерінің ерекшеліктері денсаулықтың нашарлауына, жарақат алудың жоғары ықтималдығына және денсаулық пен өмірге зиян келтіруі мүмкін. Зиянды және қауіпті еңбек жағдайларында жұмыс істеу қысқартылған ұзақтықтағы жұмысқа, қосымша еңбек демалысын алуға, жоғары мөлшерде еңбекақы төлеуге әкелуі мүмкін. Сондай-ақ, әлеуметтік серіктестік негізінде зиянды еңбек жағдайлары бар өндірістердің, жұмыс орындарының, кәсіп пен лауазымдар тізімін жасау мүмкіндіктері талданады. Қызметкерлердің жеке санаты ретінде ұйым басшысының еңбегін реттеудің ерекшеліктері еңбек шартын жасасуда, осы шарттың міндетті және қосымша шарттарын белгілеуде, басшының толық емес жұмыс уақытында жұмыс істеу барысында, оның тәртіптік және материалдық жауапкершілігінде, еңбек шартын бұзудың қосымша негіздерінің болуы негізінде көрінеді. Ұйым басшысы, ұйымның алқалы атқарушы органының мүшелері мен меншік иесі арасындағы еңбек қатынастарына әсерін талдайды. Маусымдық жұмыстар климатқа немесе басқа да табиғи жағдайларға байланысты әдетте алты айдан аспайтын кезең ішінде белгілі бір кезең (маусым) ішінде орындалады деп танылады. Маусымдық жұмысты реттеудің ерекшеліктері маусымдық жұмыстардың тізімін жасау, маусымдық жұмыстарға шарт жасасу және тоқтату, сондай-ақ маусымдық қызметкерлерге демалыс беру әдістері мен тәртібінде көрінеді. Уақытша жұмысшылардың ерекшеліктері маусымға байланысты емес қысқамерзімді жұмыстарды орындауға байланысты туындайтыны анықталды.

Түйін сөздер: адам ресурстары, Еңбек кодексі, кадрлық резерв, еңбек мигранттары, еңбек туралы заң, конкурстық іріктеу, еңбекті қорғау, тәртіптік жауапкершілік, жұмыс уақыты, еңбек шарты.

З. К. Аюпова[1], Д. У. Кусаинов[2], С. С. Джанкадыров[2],
Уинстон Наган[3], Н. Л. Сейтахметова[4]

[1]Казахский национальный аграрный университет, Алматы, Казахстан;
[2]Казахский национальный педагогический университет им. Абая, Алматы, Казахстан;
[3]Университет Мичиган, США;
[4]Национальная академия наук Республика Казахстан, Алматы, Казахстан

МЕХАНИЗМ ПРАВОВОГО РЕГУЛИРОВАНИЯ ТРУДА ОТДЕЛЬНЫХ КАТЕГОРИЙ РАБОТНИКОВ

Аннотация. Основанием дифференциации в правовом регулировании труда совместителей является характер трудовых отношений между работником и работодателем. Особенности труда совместителя представляет собой заключение договора, кроме договора по основному месту работы (двойной договор), а также выполнение работы помимо основного времени работы. Отмечается, что в законодательстве нет единого указания в вопросе разрешения работнику одновременно работать на нескольких предприятиях на основе совместительства. Рассматриваются такие особенности, как указание в трудовом договоре работы в качестве совместительства как обязательного условия, невозможности рабочего времени совместителей более половины рабочего времени по основному месту работы, работы полный рабочий день в свободное от основной работы время, суммированный учет рабочего времени. Работа на дому является одним из способов организации труда за пределами территории организации, позволяющей рационально использовать человеческие ресурсы и рабочее место. Поскольку надомные работники выполняют работу на дому, им присущи определенные особенности. Традиционное понятие «трудовых отношений» не в полной мере применимо к надомным работникам. Во-первых, поскольку, требование выполнять работу лично, исключено из надомного труда. Во-вторых, надомным работникам не присуще соблюдение правил внутреннего трудового режима в части работы и отдыха. Надомные работники самостоятельно определяют время выполнения заданий, не соблюдая общих правил рабочего времени, перерывов, праздников и выходных дней. Кроме того, наличие дополнительных требований к порядку и цели найма домашних работников, рабочему месту, заключению трудового договор, совместное проживание работодателя и работника, субъектный состав правовых отношений показывает необходимость специального регулирования труда работников этой категории. В национальном законодательстве не разработаны правила организации удаленной работы и регламентации работы удаленного персонала. Отмечено, что в трудовом законодательстве стран СНГ отмечены особенности правового регулирования удаленного труда. На практике многие профессионалы, в том числе бухгалтеры, юристы и программисты, работают удаленно. Указано, что лица, заключившие трудовой договор на удаленную работу, признаются дистанционными работниками. Отношения между удаленными сотрудниками и работодателями осуществляются посредством электронных документов. Трудовой договор может предусматривать дополнительные обязательства по использованию оборудования, программного и аппаратного обеспечения, защите информации и другим средствам, предоставляемым работодателем. Выявлены также особенности регулирования вахтового метода организации труда. Отмечено, что вахтовый метод представляет собой особую форму трудового процесса, при которой невозможно обеспечить ежедневное возвращение работников по месту жительства за пределы их постоянного места жительства. Общий период времени на объекте, включая время работы и посменного отдыха, считается вахтой. Особенности работы в вахтовом режиме требует, чтобы в законодательстве были указаны особенности регулирования труда работников, работающих за пределами территории работодателя, периода вахты, порядка организации труда. Анализируются вредность и неблагоприятные условия труда как одного из ключевых факторов дифференциации норм трудового права. Особенности этих видов трудовой деятельности могут привести к ухудшению здоровья, высокой вероятности получения травм и повлечь ущерб для здоровья и жизни. Работа во вредных и опасных условиях труда может повлечь работу сокращенной продолжительности, получения дополнительных трудовых отпусков, оплате труда в повышенном размере. Также анализируются возможности составления списка производств, рабочих мест, профессий и должностей с вредными условиями труда на основе социального партнерства. Особенности регулирования труда руководителя организации как отдельной категории работников выражаются в заключении трудового договора, установлении обязательных и дополнительных условий этого договора, работе данного руководителя по совместительству, его дисциплинарной и материальной ответственности, наличии дополнительных оснований для прекращения трудового договора. Анализируется влияние на на трудовые отношения отношений между руководителем организации, членами коллегиального исполнительного органа организации и собственником. Признано, что сезонные работы выполняются в течение определенного периода (сезона), в зависимости от климата или других природных условий, обычно в течение периода, не превышающего шесть месяцев. Особенности регулирования сезонного труда отражаются в методах и порядке составления списков сезонных работ, заключении и прекращении договора на сезонные работы, а также предоставления отпуска сезонным работникам. Установлено, что особенности временных работников возникают в связи с краткосрочным выполнением работ, не связанным с сезоном.

Ключевые слова: человеческие ресурсы, трудовой кодекс, кадровый резерв, трудовые мигранты, закон о труде, конкурсный отбор, охрана труда, дисциплинарная ответственность, рабочее время, трудовой договор.

Information about authors:

Ayupova Z.K., Doctor of Science in Law, Professor of Law, Kazakh National Agrarian University, Almaty, Kazakhstan; zaure567@yandex.ru; https://orcid.org/0000-0002-5925-1619

Kussainov D.U., Doctor of Science in Philosophy, Professor, Kazakh national pedagogical University named after Abai, Almaty, Kazakhstan; daur958@mail.ru; https://orcid.org/0000-0003-4274-5986

Dzankadyrov S.S., Senior Teacher, Kazakh national pedagogical University named after Abai, Almaty, Kazakhstan; sdzhankadyrov@bk.ru; https://orcid.org/0000-0003-0446-4868

Winston Nagan, Doctor of Science in Law, Professor of Law, Michigan University, USA; https://orcid.org/0000-0001-7381-8389

Seitakhmetova N.L., corresponding member of the National Academy of Sciences of the Republic of Kazakhstan, Chief Researcher of the Institute of Philosophy, Politology and Religion of the National Academy of Sciences of the Republic of Kazakhstan, Doctor of Science in Philosophy, Almaty, Kazakhstan; nseytakhmetova@bk.ru; https://orcid.org/0000-0001-7583-5406

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I. V. Shulga[1], V. M. Haraschuk[2], D. P. Kalayanov[3]

[1]National University of Life and Environmental Sciences of Ukraine, Kiev, Ukraine;
[2]Yaroslav Mudryi National Law University, Kharkov, Ukraine;
[3]Odessa State University of Internal Affairs, Odessa, Ukraine.
Email: evshulga2013@gmail.com, v.m.garaschuk@nlu.edu.ua, dm.kalayanov2019@gmail.com

THE ROLE OF INTERNATIONAL ORGANIZATIONS IN THE STIMULATION SYSTEM OF THE ALTERNATIVE ENERGETICS DEVELOPMENT

Abstract. The article focuses on the rapid increase in the role of the system of stimulation tools in the alternative energetics development in a context of the process of comprehensive greening of the modern world economy. The problems of the category determination of "stimulation" are reviewed both in modern legal science in general and in the field of international legal relations related to the development of alternative energetics. The incentive means of the development of alternative energetics, used at the domestic level, which are most widely used at the present stage of social development, are clarified. The main content of the work touches upon urgent problems of the role of international organizations in the stimulation system of the alternative energetics development. The importance of their participation in ensuring the sustainable development of the industry under study is substantiated, their role and function in the stimulation system of the alternative energetics are determined, and a classification of their activities is proposed. The tasks of governmental and non-governmental international institutions are analyzed in terms of the proposed classification; the examples are given from the practical implementation of tasks by several major international organizations. The options are proposed for improving the present model for the participation of international organizations with the stimulation system of the alternative energetics development. The focus is made on the problem of the states' international responsibility for non-compliance with international treaties and the problem of priority correlation of international interest and state sovereignty in matters of reducing CO_2 emissions into the atmosphere. It is concluded that there is a current trend of reorienting the activities of international organizations towards differentiation. It is stated that the programs and recommendations of international organizations are developed directly for particular states, taking into account their geography and economic status when choosing types and methods for the alternative energetics development.

Key words: alternative energy, renewable energy sources, energy policy, stimulation of the alternative energetics development, international support, international organizations.

Introduction. Today, it can be said that a rapid increase in the number of scientific publications devoted to the problems of the alternative energetics development. The revival of scientific interest in this topic is not surprising. The global fossil fuel depletion, increase in the volume of carbon dioxide in the atmosphere associated with the use of hydrocarbons in human activities, increase in the interest of sovereign states in ensuring national energy security - all these and other factors have made the task of the alternative energetics development a priority for the world community.

The adoption of the Paris Climate Agreement in 2015, which served as a historic event uniting the efforts of all world powers to suppress climate change, played an important role in this issue mainstreaming. Once again the agreement emphasizes the importance of opening to a new, low-carbon model of economic development based on the gradual abandonment of traditional technologies for the extraction, processing and use of fossil fuels (primarily hydrocarbon raw materials) in favour of green technologies. It is important to emphasize that replacing the Kyoto Protocol of 1997, which was then in force, and established quotas for greenhouse gas emissions, the new international document, unlike its forefather, changed the approach to differentiating the responsibilities of states that fail to fulfill obligations under the Treaty. In addition, based on an analysis of the provisions of the Paris Agreement, it can be stated that the role of the incentive mechanism aimed at encouraging states and economic entities for their successful greenhouse gas emission can be significantly increased [See 1].

The need to improve the existing incentive mechanism for the alternative energy source is also confirmed by the fact that, despite the international community's clean energy policy, hydrocarbon energy remains a priority. We agree with the American ex-president B. Clinton, who answered the question why alternative energetics are growing so slowly: “The existing oil and coal-based energetics is well organized, well-funded and has good political contacts, while the new energetics is decentralized, and lacks finances and is less influential” [2]. Despite the fact that the expression is more than 10 years, it does not lose its relevance today.

There is no doubt that the effectiveness of international programs for the development of alternative energetics depends not only on the level of effectiveness of the energy policies of the participating states (fulfillment of the obligations incurred), but also largely on the success of international organizations assisting them. It is not enough to officially declare the vector of the world economy greening, it is necessary to comprehensively and constantly ensure this process, which, in turn, requires providing feedback between states and international organizations on the alternative energetics development.

Analysis of recent researches and publications. Despite the significant interest in the studied problems, there are almost no scientific works on the participation of international organizations in the stimulation system of the alternative energetics development. The main emphasis in recent years has been mainly focused on the consideration of the system of ways to nationally stimulation of the studied sphere development, often leave aside the importance of the role of international organizations in this process, and therefore the topic remains poorly investigated and relevant. Indirectly, the problems of the participation of international organizations in the stimulation system of the alternative energetics development touch the works of V.A. Barinova, S.V. Venediktov, T.A. Lanshina, I.P. Povarich, B. Proshkin, S.V. Ratner, Yu.V. Tikhonravov and others.

The purpose of the article is to determine the role of international organizations in the stimulation system of the alternative energetics development in the world.

Main results of the study. It should be noted that in spite of a rather large array of scientific studies devoted to the stimulation problem, a unified approach to understanding the content of “stimulation” itself as a legal category in juridical sciences has not yet been formed. For example, from Yu.V. Tikhonravova's point of view, legal stimulation is divided into negative means (prohibitions, duties, penalties, etc.) and positive means (permits, benefits, merits, etc.) [3, p.190]. S.V. Venediktov, B. Proshkin, I.P. Povarich and many others also stand similar ground [4, p. 312-313]. The second group of scientists argues that the category “incentive” covers only positive means of influence and that it should not include measures related to restrictions [5, 51-52].

To solve the problem of determining the content of the "stimulation" category, we consider it necessary to refer to its etymological origin. So, the term “stimulation” comes from the Latin “stimulus”, literally - “a pointed stick with which animals were prod” [6, p. 647]. As we see, the nature of the term origin itself includes coercive means. However, it should be noted that with social development, the interpretation of the word “stimulus” (“stimulation”) has undergone changes. Perceiving the word “stimulus”, on the subconscious level we endow it only with positive signs, interpreting it only as a positive motivation, which enhances the desire to carry out certain activities, while the term “responsibility” (coercion) is associated with a negative aspect, offence of law, punishment. In the case of using coercive (negative) means, increasing desire in a stimulated subject is reversible. In this case, motivation comes from the desire to distract (prevent) the onset of certain negative consequences, while the overall goal of stimulation -to encourage the subject to perform certain actions, is preserved. Therefore, in our opinion, it is necessary to assign both positive and negative measures of influence to the system of stimulating means. Although it should be noted that in recent years, positive ways of stimulation are considered to be more desirable, effective.

Considering the simulation mechanism through the lens of international legal relations related to alternative energy, it is also advisable to report on the existence of an integrated approach to understanding the scope of the studied category. Although the frequent mention of the term in various Resolutions, Directives, Conventions, Decisions of international organizations and their bodies [See, for example, 7, 8, 9] does not disclose the definition of stimulation but gives reason to argue about the possibility of applying liability measures to the stimulated subject.

Today, society knows numerous ways to positively stimulate green energy development. Moreover, the list of means of the incentive system has no restrictions on the part of supranational organizations. So, according to paragraph k of Art. 2 of the Directive of the European Parliament of the Council of the European Union 2009/28 /EC "On the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC" dated April 23, 2009: "'Support scheme' means any instrument, scheme or mechanism applied by a Member State or a group of Member States, that promotes the use of energy from renewable sources by reducing the cost of that energy, increasing the price at which it can be sold, or increasing, by means of a renewable energy obligation or otherwise, the volume of such energy purchased. This includes, but is not restricted to, investment aid, tax exemptions or reductions, tax refunds, renewable energy obligation support schemes including those using green certificates, and direct price support schemes including feed-in tariffs and premium payments" [9].

However, today the most widespread measures for introduction of special tariffs are the purchase of alternative energy; subsidization of clean energy producers; exemption from environmental taxes; concessional loans and special grants; development of joint ventures and cooperation between electric companies and companies producing power supply units; creation of green energy certification systems; conducting popularization aimed at public support for alternative energy; implementation of "pilot" and demonstration projects of renewable energy sources, financing of educational programs, educational programs in the field of alternative energy, and many others. etc. [For more information on modern means of stimulation used at the state level, see 10,11,12].

It should be noted that in the realm of choosing an arsenal of stimulation tools for alternative energetics, each specific country has its own approach. For example, Denmark, Belgium and Sweden prefer the construction of more power plants, which use biofuels instead of coal or other fossil resources. The UK maintains subsidies for both CHP plants that use pellets in conjunction with coal, and for pure biofuel power plants at the same level, unlike Germany, which subsidizes only biofuel power plants. And the Netherlands stopped supporting the use of biofuels at all, hoping to continue its use without subsidies. Beyond that they legally obligated power plants to produce a certain share of energy from renewable sources [13, p.9].

Despite the fact that the capital contribution to the implementation of international programs to support alternative energetics is carried out at the domestic level, the degree of participation of international organizations should not be underestimated. They are one of the main coordinators and associates of the development of clean energy in the world. Assisting the states parties to international treaties, the role of international organizations in stimulating the development of alternative energetics mainly comes down to creating favourable conditions for the first strategies to switch to green energy, creating a platform for interstate cooperation, technology exchange, etc. The monitoring function of international organizations should be mentioned separately in the context of the implementation of the standards and requirements established by international legal acts.

The current activities of international organizations in the field of stimulating the development of alternative energetics can be divided into the following areas from our point of view: 1). Facilitation of independent states, national public administration bodies and civil organizations in terms of choice and optimization of incentive mechanisms for alternative energy sources; 2). Comprehensive support for research and economic international cooperation in the development of technologies related to alternative electricity. Collection of statistical data and promotion of the idea of the need to switch to green energy for the world community; 3). Direct participation in the role of a stimulating entity through investment, insurance and the use of other financial instruments; 4). Ensuring the fulfillment of obligations undertaken by the member states to international treaties through monitoring and application of legal liability measures.

It should be stated that international organizations in their diversity in most cases can perform both several specified areas of activity and can be highly specialized. Let's consider the main international organizations whose functional purpose is associated with the development of alternative energetics.

The International Renewable Energy Agency (IRENA) has currently a leading role in the development of the "green" energy among international organizations. As a universal intergovernmental organization, whose Charter was signed in 2009 [14] and entered into force in 2010, with more than 100 countries and the European Union as members, IRENA provides a wide range of products and services to accelerate the pace of widespread and sustainable use of renewable energy sources all over the world. In the interests of its members, the Agency has a significant amount of authority, among other things: execution of national programs for the introduction of renewable energy technologies; support of education, training and dissemination of information on renewable energy sources; organization of training for administrators, technicians and specialists for small and medium-sized energy enterprises; joint creation of regional centres for research, development and exchange of experience; assessment and analysis of information about the technologies used and development of practical recommendations; planning of financial support of renewable energy programs; data collection and compilation of statistics, etc. [See 14] In recent years, IRENA has made significant contributions to conducting readiness evaluation of renewable energy performed in partnership with governments and regional organizations to ensure the exchange of subject studies and best practices. The Agency has taken numerous measures aimed at promoting planning in the field of renewable energy sources at the regional level, and various country reviews on the problems of the state energy sector were presented to the public [15]. In particular, the Global Atlas for Renewable Energy has been developed, which is available on the website and displays the geography of solar and wind energy sources by country.

Apart from IRENA, the International Energy Agency (IEA) is responsible for the sustainable development of alternative energetics. The Agency was originally created by the countries of Western Europe together with the USA and Japan as a counterweight to OPEC during the oil crisis of 1973-1974 and was intended to help the energy security ensuring of the participating countries by reducing dependence on oil. One of the ways to achieve the organization’s main objective was the development of alternative energy sources.

Today it is an autonomous intergovernmental organization that makes a significant contribution to the global dialogue by providing authoritative statistics, analysis and recommendations in the field of energy. The IEA acts as a policy adviser to its member states. The International Energy Agency provides support for international research, development, deployment of energy technology systems and knowledge transfer through multilateral groups. It stimulates many technological initiatives in renewable energy sectors such as bioenergy, climate technology initiatives, geothermal energy, hydrogen technology, hydropower, ocean energy, photovoltaic cells, widespread adoption of solar heating and cooling, solar energy concentration and wind energy. Though energy security remains the organization’s key focus, the IEA is currently focusing on clean energy technologies. The activities are carried out in the following three main areas in the field of "green energy": 1) assessment of the status and progress of renewable energy technology, 2) changes in the market and in politics, and 3) system and market integration [16]

The United Nations Industrial Development Organization (UNIDO) is actively involved in the UN-Energy project in the development of the Sustainable Energy for All initiative. For today, UNIDO implements more than 50 renewable energy sources in 35 countries and plans to implement about twenty more. The Organization’s program for the development of renewable energy sources contributes to the expansion of productive or revenue-generating activities and ensuring growth through the use of renewable energy sources in industrial production, in particular in small and medium-sized enterprises. In addition, the Organization implements a number of measures to create opportunities for the development of entrepreneurship in the field of research [17].

To increase the effectiveness of international cooperation by the intergovernmental Agreement on the coordination of interstate relations in the field of the CIS electric power was created by the CIS Electric Power Council on February 14, 1992. Currently, the principal directions of the Council's activity include promoting the formation of an energy-efficient interstate policy through coordinated actions in the field of economic and scientific-technical cooperation, developing and implementing joint projects on the use of advanced technologies in the field of energy conservation, non-traditional energy sources developing, as well as coordinating work on preparation and coordination of standards and rules in the construction and operation of electric power facilities, assistance in the development and implementation of joint environmental programs, recommendations for energy conservation in the field of electricity. It is noteworthy that a working group on the use of renewable energy was created and an action plan for 2019-2021 was adopted at the 53rd meeting of the Council in November 2018. This plan, among other things, provides for the creation of an information resource on renewable energy sources, as well as the creation of training programs for training specialists in this industry [18].

An important role in the stimulation system of the alternative energetics development is played by international non-governmental organizations. Environmental INGOs (for example, Greenpeace International, Worldwide Fund for Nature, Friends of the Earth and others) have been actively and sometimes very successfully lobbying for green energy at the government and interstate levels. Exerting pressure on the more influential and powerful factors of the world political system in order to change environmental policies, without exaggeration, has a real impact on the solution of a number of global mankind problems [19, p.56-57].

The EUROSOLAR, INFORCE and the Renewable Energy and Energy Efficiency Partnership need to be stressed over among international non-governmental organizations involved in the development of alternative energy sources. The principal direction of these organizations' activity, in addition to lobbying for the interests of green energy (for example, EUROSOLAR took an active part in the creation of IRENA [20, p. 11-16]), is educational activities and activities on organization and holding of various thematic seminars and conferences on the use of alternative energy sources, the issuance of scientific publications, study tours holding, etc. In addition, international non-governmental organizations are developing business models to develop clean energy and the provision of methodological assistance in the implementation of projects. It is important to note that precisely because the active participation of the INFORSE organization, the national concepts and strategies were prepared aimed at the transition to a balanced energy system. Currently, the concepts are developed for the EU, Denmark, Ukraine, Slovakia, Belarus, Poland and Romania.

Direct participation in the role of a stimulating entity through investment, insurance and the use of other financial instruments is carried out by the international financial institutions. Thus, the Council of Europe Development Bank (CEB) has been developing cooperation relations with other multilateral organizations over the past few years. In this context, in addition to its organic relations with the Council of Europe, CEB has become a very valuable partner for the EU and regularly cooperates with other IFIs, as well as with a number of specialized UN agencies in areas of common interest. For example, the Bank created the coordination structure of the Western Balkans Investment Framework (WBIF) designed to facilitate access to European funding for the region. Specifically, in the field of energy, the CEB in 2011 created the CEB-ELENA (European Local Energy Assistance) mechanism, which provides grants to government agencies that want to develop investment projects in the field of energy efficiency and renewable energy sources. Today, CEB-ELENA covers up to 90% of the costs of technical assistance meeting the criteria set for the preparation and implementation of projects. Most recently, the bank allocated a grant for the development of the project and the construction of a new centralized heat supply system in Montenegro, based on biofuels. The CEB is currently participating in the project of developing a wind farm in Bosnia and Herzegovina [21]. The European Bank for Reconstruction and Development contributes to the creation of favorable conditions for investments in renewable energy sources.

The Bank worked with such countries as Kazakhstan and Ukraine and the countries of the Western Balkans in the development of legislation on renewable energy sources, which contributed to the development of sustainable renewable energy. The Bank invested more than 420 million euros in biomass and wind energy development in Poland, and in Turkey - where the Bank has been operating since 2009 - the EBRD finances renewable energy sources that can already provide home lighting for 4 million people. So, in 2018, the Bank allocated 102 million US dollars for the implementation of projects for the construction of four wind and nine solar power plants [23]. The EBRD also grants credits to small and medium-sized renewable energy projects through its Sustainable Energy Financing Facilities.

Along with the designated financial instruments, insurance is also widely used in the mechanism for stimulating the development of green energy. For example, the Multilateral Investment Guarantee Agency guarantee 917 million US dollars in climate finance in 2018, 75 per cent whereof was used to support renewable energy sources [22].

Conclusions. One of the important aspects of stimulation of the alternative energy sources development is ensuring the fulfillment by states of their obligations under international agreements. It should be stated that the problem of international responsibility of states is one of the most difficult in international law and does not have a clear solution in the interstate relations practice. The priority correlation challenge of international interest and state sovereignty remains open to this day. Moreover, supranational monitoring mechanisms are often in practice less than effective and turn into statistics collection missions.

It is also peculiar to the institution of international environmental responsibility that only a few international conventions, treaties and agreements provide for liability measures. In addition, they do not always establish specific sanctions for environmental violations, and the procedural order for holding liability is poorly specified. At the same time, it is important to note that international law does not contain measures of responsibility for failure to fulfil or improper fulfillment of programs for the development of alternative energetics. Alternative energy sources transition is not established by a strict imperative. However, in a number of international documents devoted to environmental problems, namely, concerning its pollution, liability is sufficiently detailed. A vivid example is the mechanism of holding countries liable for environmental violations in the field of peaceful atom use.

The conducted analysis of the tasks of international organizations in the field of the development of alternative energetics and the practice of their implementation in recent years suggests that at present there is a tendency to refocus the activities of international organizations in the direction of differentiation. Increasingly frequently, the programs and recommendations of the International society are developed directly for specific states, taking into account their geography and economic status when choosing types and methods for the development of alternative energy sources. Besides, the interest in the problem of alternative energetics in scientific circles is significantly increasing, as evidenced by the increase in the number of conferences held at the international level in this field. The principal role of international organizations in the system of the alternative energetics stimulation remains, paradoxical as it may sound, to stimulate the main subjects of stimulation (that is, states parties to international treaties), which, in turn, possessing a whole arsenal of tools, and bring into action the global idea of transition to green energy. In fact, all the activities of international organizations in this field are reduced to a single global goal - to create the most favourable conditions to simplify the complex process of transition of sovereign states to alternative energy sources, to increase the interest of the latter in its widespread use.

Е. В. Шульга[1], В. Н. Гаращук[2], Д. П. Калаянов[3]

[1]Украина биоресурстар және табиғатты пайдалану ұлттық университеті, Киев, Украина;
[2]Ярослав Мудрый атындағы ұлттық заң университеті, Харьков, Украина;
[3]Одесса мемлекеттік ішкі істер университеті, Одесса, Украина

БАЛАМА ЭНЕРГЕТИКАНЫ ДАМЫТУДЫ ЫНТАЛАНДЫРУ ЖҮЙЕСІНДЕГІ ХАЛЫҚАРАЛЫҚ ҰЙЫМДАРДЫҢ РӨЛІ

Е. В. Шульга[1], В. Н. Гаращук[2], Д. П. Калаянов[3]

[1]Национальный университет биоресурсов и природопользования Украины, Киев, Украина;
[2]Национальный юридический университет им. Ярослава Мудрого, Харьков, Украина;
[3]Одесский Государственный университет внутренних дел, Одесса, Украина

РОЛЬ МЕЖДУНАРОДНЫХ ОРГАНИЗАЦИЙ В СИСТЕМЕ СТИМУЛИРОВАНИЯ РАЗВИТИЯ АЛЬТЕРНАТИВНОЙ ЭНЕРГЕТИКИ

Аннотация. В статье акцентируется внимание на стремительном повышении роли системы стимулирующих инструментов в сфере развития альтернативной энергетики в контексте процесса всесторонней экологизации современной мировой экономики. Рассматриваются проблемы определения содержания категории «стимулирования» как в современной юридической науке в целом, так и в отрасли международно-правовых отношений, связанных с развитием альтернативной энергетики. Освещаются правовые механизмы стимулирования развития альтернативной энергетики, используемые на внутригосударственном уровне, которые получили наибольшее распространение на современном этапе развития общества. Основное содержание работы затрагивает актуальные проблемы роли международных организаций в системе стимулирования развития альтернативной энергетики. Обосновывается важность их участия для обеспечения устойчивого развития исследуемой отрасли, определяется их роль и функциональное назначение в системе стимулирования альтернативной энергетики, предлагается классификация их деятельности. Анализируются задачи правительственных и неправительственных международных организаций сквозь призму предлагаемой классификации, приводятся примеры из практической реализации задач основными международными организациями. Предлагаются варианты совершенствования настоящей модели участия международных организаций в системе стимулирования развития альтернативной энергетики. Акцентируется внимание на проблеме международной ответственности государств за невыполнение международных договоров и проблеме соотношения приоритета международного интереса и государственного суверенитета в вопросах снижения выбросов CO_2 в атмосферу. Характерным для института международной экологической ответственности является и то, что лишь немногие международные конвенции, договоры и соглашения предусматривают меры ответственности. Кроме того, в них не всегда устанавливаются конкретные санкции за совершаемые экологические правонарушения, а процессуальный порядок привлечения к ответственности слабо детализирован. При этом в статье обращается внимание на то, что меры ответственности за невыполнения или ненадлежащие выполнения программ по развитию альтернативной энергетики международное право не содержит. Переход к альтернативным источникам энергии не установлен жестким императивом. Делается вывод о наличии в настоящее время тенденции переориентации деятельности международных организаций в направлении дифференциации. Утверждается, что программы и рекомендации международных организаций разрабатываются непосредственно для конкретных государств, учитывая их географию и экономическое состояние при выборе видов и способов по развитию альтернативных источников энергии. Утверждается, что основной ролью международных организаций в системе стимулирования альтернативной энергетики остается стимулирование основных субъектов стимулирования (то есть государств-участников международных договоров), которые, в свою очередь, обладая целым арсеналом инструментов, и воплощают в жизнь общемировую идею перехода на «зеленую» энергетику. Фактически вся деятельность международных организаций сводится к единой глобальной цели – создании наиболее благоприятных условий для упрощения сложного процесса перехода суверенных государств на альтернативные источники энергии, повышения заинтересованности последних в ее широком использовании.

Ключевые слова: альтернативная энергия, возобновляемые источники энергии, энергетическая политика, стимулирования развития альтернативной энергетики, международная поддержка, международные организации.

Information about authors:

Shulga Ievgenii Viktorovych, Associate Professor, Doctor of Science (Law), National university of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine; evshulga2013@gmail.com; https://orcid.org/0000-0002-9343-8647

Harashchuk Volodymyr Mykolayovych, Professor, Doctor of Science (Law), Yaroslav Mudryi National Law University, Corresponding member of National Academy of Legal Sciences of Ukraine, Kharkiv, Ukraine; v.m.garaschuk@nlu.edu.ua; https://orcid.org/0000-0003-1879-2854

Kalayanov Dmytro Petrovych, Professor, Doctor of Science (Law), Odessa State University of Internal Affairs, Odessa, Ukraine; dm.kalayanov2019@gmail.com; https://orcid.org/0000-0001-8340-2635

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N. B. Shurenov[1], L. A. Bimendiyeva[1], Jay Nathan[2]

[1]Al-Farabi Kazakh National University, Almaty, Kazakhstan;
[2]St. John's University, New York, USA.
E-mail: nursultan_shurenov@mail.ru; leila.bimendieva@kaznu.kz; natjay1123@icloud.com

ASSESSING THE COMPETITIVENESS OF "SMART" CITIES OF KAZAKHSTAN: MARKETING ASPECT

Abstract. The article considers the issue of introducing the reference standard of "Smart" cities of the Republic of Kazakhstan. The main achievements and problems of the "Smart" cities of the Republic of Kazakhstan are studied in connection with the introduction of the reference standard. Moreover, there were proposed solutions to the mentioned problems employing digital territorial marketing tools and were analyzed methodical recommendations on the creation of "Smart" cities. The directions and indicators of the reference standard of "Smart" cities regarding public life were considered, and its main development trends were determined. This article provides a rating of introducing the reference standard for "Smart" cities of the Republic of Kazakhstan for 2019. As the method of study, we chose the method of analysis and synthesis, as this is an integral element for the fundamental analysis of the introduction of the standard in smart cities.

Using the method of analysis and synthesis, we determined the rating of "Smart" cities of the Republic of Kazakhstan, thus we can calculate the average percentage of the level of implementation of digitization in the areas of public life.

In connection with a high or low indicator in a certain area of public life, the determination of the most effective and attractive directions for the implementation of digitization has become possible for the City Administration thanks to marketing analysis.

Key words: "Smart" cities, reference standard, digital territorial marketing, city competitiveness, competitiveness assessment.

Introduction. The study of theoretical and practical issues of the city's competitiveness is a relatively new and dynamically developing area today.

Due to the rapid development of information and communication technologies (ICT) in the light of globalization, the introduction of digitalization is a modern requirement to increase the competitiveness of enterprises, cities, states, as well as to improve the living standards of the population. In this regard, in 2017 the state program "Digital Kazakhstan" was made. This program provides for the implementation of the concept of "Smart City" in connection with the development of "Smart " cities, and it is a key tool for the implementation of digital projects in all spheres of public life [1].

According to Address of the President of the Republic of Kazakhstan Nursultan Nazarbayev to the people of Kazakhstan on January 10, 2018, cities will compete for investors in the world. They will invest in a city where they can live and work comfortably, not the country. Therefore, based on the experience of Astana, it is necessary to form a "reference" standard of "Smart City" and start the dissemination of best practices and exchange of experience between the cities of Kazakhstan [2]. This, in turn, will increase competition between cities, as well as increase the investment attractiveness and image of cities. Therefore, the development of any city in a market economy depends on its competitiveness. Today, the main tool to increase the competitiveness of these cities is digitalization.

Literature review. According to many authors, the use of territorial marketing should be a key tool in achieving sustainable socio-economic growth, image enhancement and competitive advantage of cities in the digital space.

For example, Ivanov N.A., states that the main task of modern territorial marketing is the introduction and implementation of an effective mechanism to increase the competitiveness of certain areas in the information environment due to the development of modern market relations in the country and the growing importance of the digital space [3, p.128].

According to Vlasova N.Y. and Kulikova Y.S., digital territorial marketing is the formation and promotion of its virtual potential to increase the competitiveness of the real potential of the territory [4, p 70]. These scientists paid attention to the structure of the formation of the virtual potential of the territory.

Digital marketing and branding of the territory can be considered as one of the components of the "Smart" city project, which is used in solving problems of urban planning and management. Features of the digital branding strategy aimed at creating a technologically innovative business ecosystem for a highly-skilled population were studied on the example of Songdo International Business District in South Korea, Masdar in Abu Dhabi and Skolkovo in Russia [5].

In the implementation of the "Smart" city project, the introduction of ICT in tourism and increasing the competitive advantage of the territory by taking into account the views and suggestions of stakeholders (residents, tourists, etc.) is studied on the example of the tourist city of Gandhi (Valencia) [6]. According to this research, the "Smart" model of tourism should become an effective tool for territorial marketing.

From the given definitions we can give the following concept: Digital territorial marketing is an activity aimed at increasing the competitive advantage of the territory (city) through the use of digital technologies in the planning and management of the territory (city).

Research methods. In order to implement the Address of the President of the Republic of Kazakhstan Nursultan Nazarbayev to the people of Kazakhstan, from 2018 the implementation of the "Smart" city project by local executive bodies is in full swing. "Smart" city is an innovative city that uses ICT and other tools to improve the quality of life, efficiency, and competitiveness of the city, as well as to meet the economic, social, environmental, and cultural needs of present and future generations [7]. To implement the project and to form a single method and standards for the formation of "Smart" cities, in 2018 on behalf of President Nursultan Nazarbayev approved the "reference" standard "Smart City". In July 2019, the Ministry of Digital Development, Innovation, and Aerospace Industry adopted a document "Guidelines for the creation of "Smart" cities (reference standard of "Smart" cities of the Republic of Kazakhstan) based on the update of the "reference" standard "Smart City "adopted in 2018 [8]. The adopted document is based on the international experience of 11 areas and 101 indicators of the standard of "Smart" cities to public life, 110 digital initiatives and a description of each indicator, and methods of its evaluation. 6 out of 11 areas are devoted to the priority areas of public life: urban management, health, education, security, housing, communal services, and transport. The importance of the following areas of public life is aimed at managing the integrated development of the territory (city) using a geographic information system (GIS) to improve the quality of life and attractiveness of the territory (city).

The other 5 areas are devoted to additional areas of public life: social sphere, ecology, business and tourism development, construction, agriculture. It is also necessary for the Administrations to ensure the implementation of digital initiatives in the field of ICT to ensure the successful implementation of existing digital initiatives for the undertaking of 11 areas of public life and the inclusion of Kazakhstan's "Smart" cities in the international ranking. In general, the direction of ICT is a connecting direction, as it forms the ground of infrastructure and technical support for the implementation of existing initiatives in 11 areas of public life.

As for the method of assessing the implementation of initiatives related to public life in "Smart" cities, it consists of the following basic rules:

1. Calculation of each indicator in one area of public life in %;
2. Determining the average % of the performance of all indicators in the priority areas of public life;
3. Determining the average % of the enactment of all indicators in additional areas of public life;
4. Determining the average % of execution of all indicators in the field of ICT;
5. Calculation of the final assessment of the implementation of indicators in all areas of public life.

According to the above 5 rules, let's look at the formula for calculating the rating of "Smart" cities:

1. Calculation of each indicator in one area of public life in %. The calculation of the % of implementation of each indicator in one area of public life is carried out by the method of calculation of each indicator.

The percentage calculation of the implementation of indicators calculated by the method of "Yes / No" is carried out following table 1.

Table 1 – % calculation of the implementation of indicators calculated by the method of "Yes / No"

Index calculation method	**Yes**	**No**
Implementation value, %	100	0

The average% of the implementation of all indicators of a particular direction of public life is calculated by the formula 1:

$$\mathbf{S_{industry\ (hlt,\ edu\ and\ etc.)} = (I_1 + I_2 + I_n)/N} \quad (1)$$

where: $\mathbf{S_{industry\ (hlt,\ edu,\ etc.)}}$ – average % of implementation of indicators in a specific direction; I_1, I_2, I_n - % of implementation of indicators; **N -** the number of indicators in a particular direction.

2. Determining the average % of the performance of all indicators in the priority areas of public life

After calculating the average % of implementation of all indicators in each area of public life in "Smart" cities, it is necessary to calculate the average % of implementation of all indicators in priority areas of public life by formula 2:

$$\mathbf{S_{p.a.} = (S_{hlt} + S_{edu} + S_{scy} + S_{hcs} + S_{its} + S_{ctm})/6} \quad (2)$$

where: $S_{p.a}$. – average % of implementation of indicators in priority areas of public life (urban management, health, education, security, housing and communal services, transport); $S_{hlt,\ edu}$ – average % of the implementation of the indicator in a particular area of public life; 6 - the number of priority areas of public life.

3. Determining the average % of enactment of all indicators in additional areas of public life

The average % of implementation of all indicators in additional areas of public life is calculated by the formula 3:

$$\mathbf{S_{add}=(S_{soc}+S_{eco}+S_{btd}+S_{bld}+S_{agr})/5} \quad (3)$$

where: S_{add} – average % of implementation of indicators in additional areas of public life (social sphere, ecology, business and tourism development, construction, agriculture); $S_{soc,\ eco}$ - the average% of the implementation of the indicator in additional areas of public life; 5 - the number of additional areas of public life.

4. Determining the average% of execution of all indicators in the field of ICT

The average% of the implementation of all indicators in the field of ICT is calculated by the formula 4:

$$\mathbf{S_{ict} =(I1+I2+In)/N} \quad (4)$$

where: S_{ict} - average% of implementation of indicators in the field of ICT; I1, I2, In - % of implementation of indicators in the field of ICT; N - the number of indicators in the field of ICT.

5. Calculation of the final assessment of the implementation of indicators in all areas of public life. After making calculations according to the above formulas, it is necessary to calculate the evaluation scores for each area of public life and the evaluation scores for the implementation of initiatives based on public opinion polls according to the following formulas:

$$\mathbf{C_{p.a.} = C_i * K_2} \quad (5)$$

where: $\mathbf{C_{p.a.}}$ **-** Evaluation score of priority areas according to the formula: $\mathbf{C_i}$ **-** evaluation points according to the table 2; K_2 - the priority correction factor.

$$\mathbf{C_{add}= C_i*K_1} \quad (6)$$

where: $\mathbf{C_{add}}$ **-** score for the assessment of additional areas according to the formula; $\mathbf{C_i}$ **-** assessment score is given by table 2; $\mathbf{K_1}$**-** the priority correction factor.

$$\mathbf{C_{ict} = C_i*K_2} \quad (7)$$

where: $\mathbf{C_{ict}}$ **-** ICT assessment score; $\mathbf{C_i}$ **-** assessment score is given following table 2; K_2 - is the priority correction factor.

Table 2 – $S_{p.a.}$, S_{add}, $S_{ict\ add}$% 's implementation of points depending on the range of indicators

$S_{p.a.}$, S_{add}, S_{ict},%	% (Range) of the implementation				
	0-20	21-40	41-60	61-80	81-100
C i, points	1	2	3	4	5
	Points				

Priority correction coefficient	
K1	1
K2	2

After determining the assessment scores for areas of public life in "Smart" cities, the overall assessment of the implementation of initiatives and achievement of indicators is determined. It is calculated by the formula 8.

$$\mathbf{C_t = (C_{б.б.} + C_{кос} + C_{ict}) / 25} \qquad (8)$$

where: C_t - total cost of implementation of initiatives and achievement of indicators; 25 is the maximum score [8, pp. 131-134].

According to the above formulas, let's analyze the implementation of initiatives related to public life in "Smart" cities.

Research results. Taking into account the task of Nur-Sultan, Almaty, Shymkent, Karaganda, and Aktobe to enter the global ranking of "Smart" cities, the adopted "benchmark" standard has become the main document used by city Administrations as a methodological recommendation [9]. Following the results of 2018, 2019, the cities of Nur-Sultan and Almaty were included in the international ranking of "Smart" cities. We can see it in table 3 below.

Table 3 – The place of Nur-Sultan and Almaty in the international rankings of "Smart City"

	Local Online Service Index	Mercer's Quality of Living	Innovation Cities Index	European Smart Cities	IMD Smart City Index
Nur – Sultan	–	–	460 - th place (500)	460 - th place (500)	Not included in the rating (102 cities, 2019)
Almaty	25 th place (40, 2018).	177 th place (231, 2019).	400 (500, 2018).	400 (500)	Not included in the rating (102 cities, 2019)
Note: [10, 11] Compiled by the author based on the literature.					

As can be seen from table 3 above, Almaty is included in both the International 5 rankings and below-average in the first 2 rankings, and in the last 2 rankings, according to the IMD Smart City Index in 2019, Almaty was not included in this ranking. Almaty's 25th place in the UN rankings is due to the development of online services (quality of urban services) for the population [12,13].

Nur-Sultan is not included in the first 2 rankings, and took the last places in the last 2 rankings, according to the results of the IMD Smart City Index in 2019, Nur-Sultan was not included in this ranking. From the above analysis, we found that Almaty in the international rankings "Smart City" is higher than Nur-Sultan. This is due to the high level of digital literacy in Almaty in Kazakhstan and the high budget for digitization (more than 20 billion tenge in 2019) [12, 14]. This analysis is based only on the position of Nur-Sultan and Almaty in the International Smart City rankings.

Nur-Sultan and Almaty are also leading in the ranking of "Smart" cities in Kazakhstan according to the "reference" standard. The study involved 14 regional centres and 3 cities of national importance. The assessment was based on the reference standard "Smart Cities", which consists of 11 different areas and 80 indicators [15].

This rating is based on obtaining information from the Administrations to determine the level of implementation of the indicators specified in the "reference" standard. Based on the information received, digital initiatives will be evaluated. After the analysis and evaluation scores of the "reference" standard of "Smart" cities in all areas of public life, a rating of the level of implementation and application of digital initiatives among the cities of the Republic of Kazakhstan. This rating can be seen in figure 1 below.

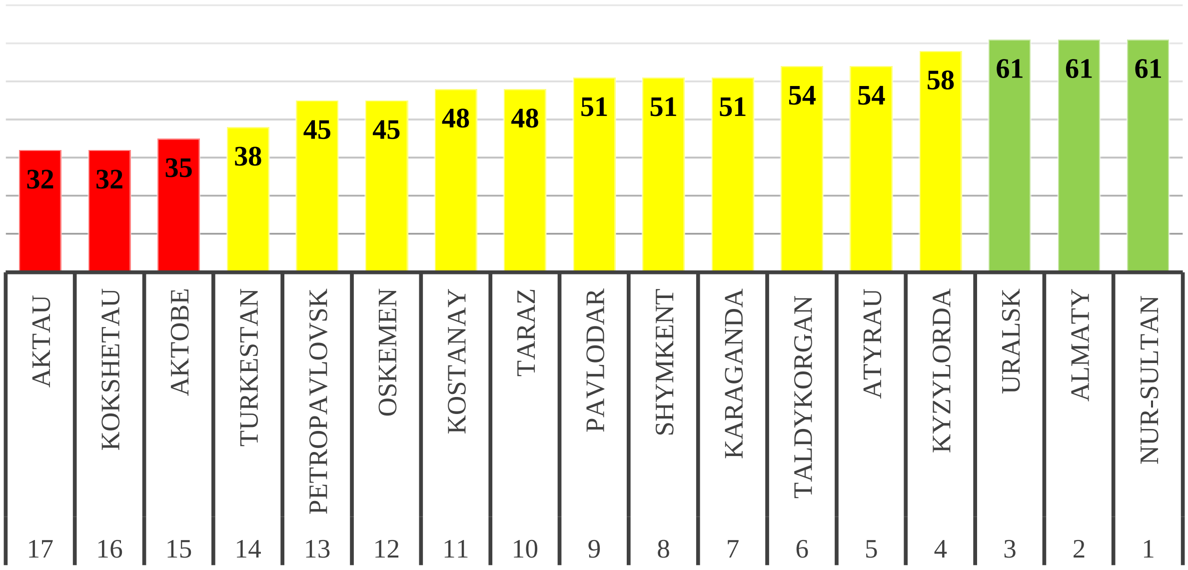

Figure 1 – Rating of implementation of the "standard" standard of "Smart" cities of the Republic of Kazakhstan, %, for 2019 [10]

As we can see from figure 1 above, Nur-Sultan, Almaty and Uralsk have the same indicators (61%). Nur-Sultan city is associated with high rates of digitalization in education (100%), health (67%), transport (63.7%), housing and communal services (49.6%), and these areas due to the priority areas, it occupies the 1st place. Almaty in comparison with Nur-Sultan is associated with high rates of digitalization in education (100%), urban management (95.4%), health (77.7%), security (76.0%), transport (51.9%) and the fact that these areas are the priorities of public life, as well as due to the low level of digitalization in the field of housing and communal services (2.2%). Uralsk took the 3rd place since the level of digitalization in the fields is lower than in Nur-Sultan and Almaty, and higher than in other cities of Kazakhstan: education (100%), urban management (88.8%), health (59.6%), security (53.7%), and transport (44.5%). Also, the level of digitalization in the construction industry in Uralsk is (100%).

The lowest rate is in Aktau (32%), Kokshetau (32%), Aktobe (35%). The fact that these 3 cities are in the last place does not mean that they have not done anything, on the contrary, these cities are actively implementing digital projects, but its performance is not as high as in other cities. Therefore, these 3 cities in the ranking of the implementation of the "reference" standard of "Smart" cities: Aktau. - 17, Kokshetau - 16, Aktobe - 15 places. Aktau occupies 17^{th} place due to the low level of digitalization in the areas of security (7.9%), housing and communal services (12.6%), transport (22.2%), which are the priorities of public life. Kokshetau is in 16th place because of low introduction of digitalization in the areas of housing and communal services (0%), security (26.2%), health (34.8%), which are the priorities of public life. The 15th place of Aktobe and 5 Kazakhstani cities (Nur-Sultan, Almaty, Shymkent; Karaganda, Aktobe) following the task of entering the international ranking is excluded from this rating. It is security (33.4%), transport (41.5%), and is associated with a low level of application of digitalization in the construction industry (0%), which is an additional area of public life [9].

The performance level of the "reference" standard of "Smart" cities in other cities of Kazakhstan is between 58% (Kyzylorda) and 38% (Turkestan). Due to this low level, these cities are not included in the International Rating "Smart City".

Evaluation of the accomplishment of indicators of the reference standard of "Smart" cities - it is aimed not only at creating a rating but also to increase the chances of the country's cities to enter the international ranking of "Smart City". This analysis shows us in which areas of public life we are actively using digital projects and in which areas we need to work on the introduction of digital projects. Based on the analysis, it is possible to identify problems in the inclusion of Kazakhstani cities in the international ranking of "Smart City" and suggest ways to address them. Therefore, we need to analyze the practising level of digital projects in Kazakhstan in the areas of public life. We can see it in figure 2 below.

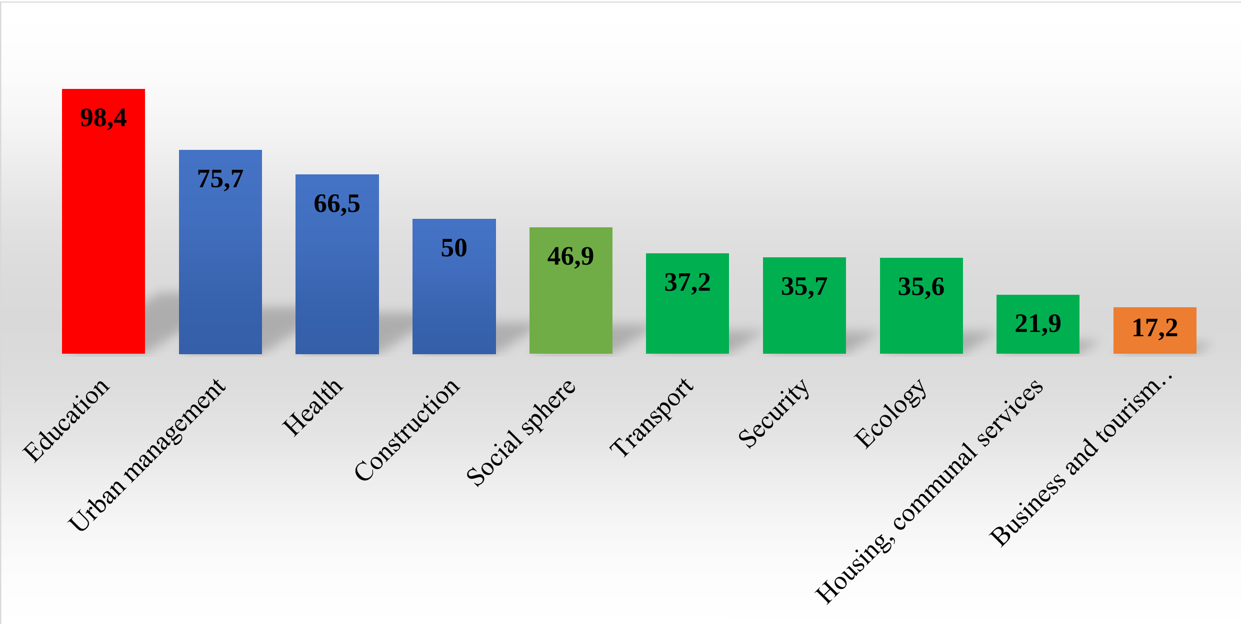

Figure 2 – The average % of the level of implementation of digitization in the areas of public life in 2019 [9]*.
Note: This rating does not include the agricultural sector

As can be seen from figure 2, intensive work is underway to implement digitalization projects in the areas of education (98.4%), urban management (75.7%), health (66.5%). However, the lowest level is observed in the areas of housing and communal services (21.9%) and business and tourism development (17.2%).

The high level of digitalization in education (98.4%) is due to the provision of schools with computer equipment, as well as the use of electronic diaries and magazines by students (6703 schools use, out of 7014 schools). 90% of schools (6336 schools) are provided with Internet access with a speed of 4 Mbps and above.

An electronic queue for admission has been introduced to 78% of kindergartens and 70.3% of schools accept students online. 70% of public services in education are automated. In general, the digitization of the education system has reduced the gap in the quality of education between rural and urban schools by more than 30%.

The high level of digitalization in urban management (75.7%) is due to the automation of public services. As part of the automation of public services, 723 services have been listed, of which 580 services or 80.2% are expected to be provided electronically. Public services were optimized, as a result of which the number of them decreased by 17 (from 740 to 723). The optimization will reduce the average package of documents by 30%, the duration of public services by an average of 3 times.

Automation of public services will increase paperwork by 70.8 mln. reduced to 8.4 billion tenge. Indirect economic results of more than tenge. This highlights the importance of digitization.

The high level of digitalization in health care (66.5%) is because 97.5% of health care organizations are equipped with computers, 100% are connected to the Internet. Besides, 95.7% of the population of Kazakhstan (17.9 million) have a regional electronic health passport.

The measures taken have improved the quality of medical services to the population, as well as facilitated the work of doctors.

Due to pre-registration through electronic services, queuing in clinics has been reduced by 30%, which has halved the time patients spend in clinics. The time to obtain the results of the study was reduced by 1.8 times (from 7 to 4 hours).

Due to the reduction of the average time of patient care, the time of doctors and patients was reduced by 45%, the work of the ambulance service was optimized: the processing time of incoming calls to the dispatcher was reduced by 26%, resulting in reduced waiting time for ambulance services by 1.3 times.

Also, work will continue on the introduction of medical information systems in rural areas and bringing the level of electronic health care coverage to 100% [16]. Despite the high level of digitalization in education (98.4%), urban management (75.7%), health (66.5%), there are many unresolved issues in this area. The study and analysis of them will continue in the future.

The lowest level of implementation of digitization projects can be seen in the development of business and tourism (17.2%). The highest level of development of this area belongs to Almaty (29.6%), and the lowest level belongs to Turkestan (9%). We can see it in figure 3 below.

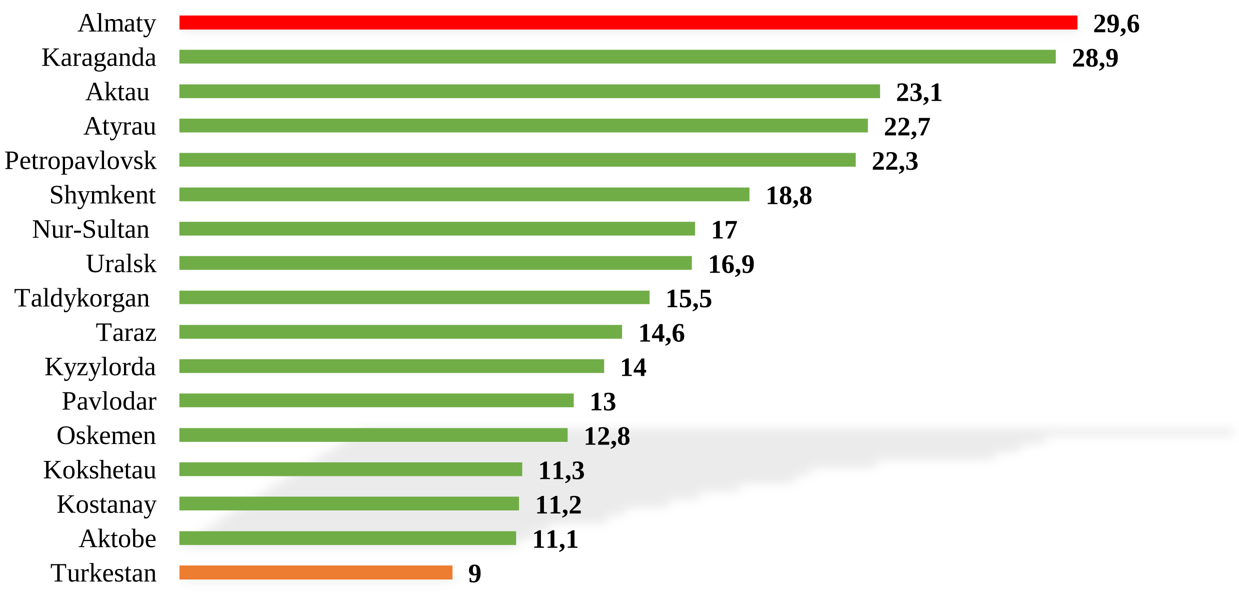

Figure 3 – The average % of the digitization level in the direction of "Business and Tourism Development" in the cities of Kazakhstan, for 2019*. Note: [9] Compiled by the author based on the literature

The relatively high average level of digitalization in Almaty in the development of business and tourism compared to other cities is due to the availability of electronic and mobile payment platforms (100%), cloud payments and similar resources to the public to facilitate access to urban services, by the presence of shares (100%) of companies that offer to other companies, government and other organizations. Although e-commerce transactions are used in Almaty at a higher rate than in other cities, there are no companies providing e-services in this area (0%). Due to the low use of GIS (0.1%) and the intensity of research and development in the field of ICT (0.1%), the level of digitalization in the "Development of Business and Tourism" in Almaty is low (29.6%) [17]. The low level of these indicators is explained by the lack of an approved government agency working with them. In general, these indexes are low in all cities of Kazakhstan. Therefore, we can observe a low execution level of digitalization in the

"Development of Business and Tourism" in Kazakhstan's "Smart" cities (from 29.6% to 9%). Therefore, a lot of work needs to be done in the future in connection with the digitalization introduction in the "Development of Business and Tourism."

Owing to the low level of "Business and Tourism Development" in all cities of Kazakhstan, we can say that the work to be done in this direction in Almaty can be done in other cities.

Analyzing the rating of the application of the "reference" standard of "Smart" cities of the Republic of Kazakhstan, we noticed the following shortcomings:

First, many Administrations do not implement digitization projects under the Law of the Republic of Kazakhstan "On Informatization" in coordination with the Ministry of Digital Development, Innovation and Aerospace Industry (MDDIAI), examining investment proposals, terms of reference and budget applications;

Second, many Administrations do not have a clear documented strategy and concept for the application of the Smart City project;

Third, the weak coordination of sectoral central government agencies and administrations, as well as departments within the regional administrations;

Fourth, the low level of participation of stakeholders (residents, businessmen, etc.) interested in the application of "Smart" city projects and, accordingly, their opinions and suggestions are often not taken into account;

Fifth, the lack of an official portal and website, mobile applications in the Administrations to obtain the necessary information of these projects to interested parties;

Sixth, the lack of an established IT ecosystem in cities for the implementation of "Smart" urban projects.

The following recommendations can be made to address the above issues:

1. Administrations try to implement "Smart" city projects by examination and coordination of MDDIAI RK but not in all cases and not all projects. We recommend the administrations to execute all "Smart" city projects with the examination and coordination of the MDDIAI RK. To do this, the MDDIAI RK, in turn, must examine the projects of the "smart" city and provide the necessary resources (personnel, finance, time, organizational, etc.) for the application of the agreement.

2. Currently, administrations are using only some features of the "smart" city practice. For example, there is a single dispatching service in Almaty [18]. However, the Administrations do not have the Architecture for the implementation of the "smart" city, developed and approved following the Law of the Republic of Kazakhstan "On Informatization". Therefore, we recommend the administration to create a "Smart" city architecture under the Law of the Republic of Kazakhstan "On Informatization". The submitted document specifies departments within the administration and their functions [19]. This, in turn, will allow determining the relevant departments and their responsibilities and coordination for the administration and enactment of "Smart" city projects within the administration. Based on the adopted "Smart" urban architecture document, we recommend that administrations consider increasing the responsibility of sectoral government agencies responsible for the formation of a unified and systematic approach to the implementation of "smart" city projects.

3. Should be developed a strategy following the document "Methodological recommendations for the creation of "Smart" cities" (reference standard of "smart" cities of the Republic of Kazakhstan), based on which the opinion and suggestions of the population will be taken into account in the ranking of "Smart" cities. However, during the research, we found that the survey was incomplete and it was conducted only in response to specific groups (administrative staff) per Annex 4 to the document. We can also see from other studies that the views of the population are not taken into account [20]. Therefore, we recommend to take into account the views and suggestions of stakeholders interested in the implementation of "Smart" city projects and use the official portal and website, mobile applications to obtain the necessary information for them. These proposals can be implemented through SMM marketing, a tool for digital territorial marketing, or social marketing on the Internet.

4. Today, in Kazakhstan, mobile applications are often used in only one area of public life. For example, in Almaty, City Bus, Almaty Bus, Onay applications are used in the field of transport, Open Almaty is used in city management. And in Uralsk, there is a mobile application Smart Uralsk, which combines several areas of public life (education, health, transport, business and tourism, housing and

communal services, etc.) and the official portal for investors bko.invest.gov.kz [21]. Based on the example of Uralsk, we propose to introduce an official portal and mobile applications in other Kazakhstani "Smart" cities.

5. We propose to create an IT ecosystem on the example of Singapore for the development of IT-entrepreneurship based on stable links between business, science and the state in "Smart" cities. We will be able to export intellectual products based on the existing IT ecosystem to the world market [18].

The solution of these problems is carried out in today's "Smart" cities

It will increase the inclusion and competitiveness of Kazakhstan's "Smart" cities in the international rankings, forming certain elements of its implementation as a whole system of its use in the future.

With the help of marketing analysis, we have determined the level of execution of digitalization in the spheres of public life in Kazakhstan's "Smart" cities. The study showed us the importance of using marketing analysis in urban activities. This will be the beginning of new research in this area in the future.

Conclusion. Analyzing the rating of the implementation of the "reference" standard of "Smart" cities of the Republic of Kazakhstan, have been identified the rating of Kazakhstan's cities and its place and shortcomings in international rankings and have been suggested the ways to address:

– Nur-Sultan took the 1st place (61%), Almaty took the 2nd place (61%), Uralsk took the 3rd place (61%), and lowest places have been taken Aktau the 17th place (32%), Kokshetau the 16th place. - It is known that Aktobe took the 15th place (35%);

– Among the cities of Kazakhstan, Nur-Sultan and Almaty are included in the International Smart City rankings, and Almaty's position in the Smart City International rankings is higher than that of Nur-Sultan. This is due to the high level of digital literacy in Kazakhstan and the high budget for digitization (more than 20 billion tenge in 2019).

Analyzing the level of implementation of digitalization in the areas of public life, its high and low levels and the factors influencing it were identified:

– There is a high rate of implementation of digitization projects in the areas of education (98.4%), urban management (75.7%), health (66.5%) and the need to work on the factors that affect it and unresolved issues;

– The lowest level of digitalization was identified in the direction of "Development of Business and Tourism" (17.2%), the highest relative level of "Development of Business and Tourism" in Almaty (29.6%) and the factors influencing it were analyzed.

The study showed that the mass digitization of information and communication technologies and its application in the planning and management of urban activities is a natural phenomenon. Therefore, today the use of digital territorial marketing tools in the activities of "Smart" cities has become a key tool to increase the competitiveness and image of the city.

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Н. Б. Шуренов[1], Л. А. Бимендиева[1], Джей Натан[2]

[1]Әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан;
[2]Сент Джонс университеті, Нью-Йорк, АҚШ

ҚАЗАҚСТАНДАҒЫ «АҚЫЛДЫ» ҚАЛАЛАРДЫҢ БӘСЕКЕГЕ ҚАБІЛЕТТІЛІГІН БАҒАЛАУ: МАРКЕТИНГТІК АСПЕКТ

Аннотация. Мақалада ҚР «ақылды» қалалардың эталонды стандартын енгізу мәселелері қарастырылған. ҚР «ақылды» қалаларында эталонды стандартты енгізуге байланысты қол жеткізген негізгі жетістіктер мен мәселелер зерттелді. Аталған мәселелерді цифрлық территориялық маркетинг құралдарын қолдану арқылы шешу жолдары ұсынылған. ҚР «ақылды» қалаларды құрудың әдістемелік ұсынысына талдау жүргізілген. «Ақылды» қалалардың эталондық стандартының қоғамдық өмірге қатысты бағыттары мен көрсеткіштері қарастырылып, оның негізгі даму тенденциялары анықталды. Бұл мақалада ҚР «ақылды» қалалардың эталондық стандартын 2019 жыл бойынша жүзеге асыру рейтингі құрылған. Біз зерттеу әдісі ретінде талдау және синтез әдісін таңдадық, өйткені ол «ақылды» қалалардың эталонды стандартын енгізудің іргелі зерттеулері үшін ажырамас элементі болып саналады. Талдау және синтез әдісінің көмегімен ҚР «ақылды» қалалардың рейтингі анықталып, қоғамдық өмірдің бағыттары бойынша цифрландыруды енгізу деңгейінің орташа %-ын анықтауға болады. Талдау және синтез әдісі әкімшіліктерге қоғамдық өмірдің белгілі бір бағытының ішіндегі көрсеткіштің төмен немесе жоғары болуына байланысты цифрландыру жобаларын енгізудің тиімді және тартымды бағыттарын анықтау – маркетингтік талдау арқылы жүзеге асты.

ҚР «ақылды» қалалардың «эталонды» стандартын жүзеге асыру рейтингін талдай келе оның халықаралық рейтингтегі орны мен кемшіліктері анықталып, шешу жолдары ұсынылды:

– Нұр-Сұлтан қаласы 1-орын (61 %), Алматы қаласы 2-орын (61 %), Орал қаласы 3-орын (61 %), ал ең төменгі орындарды: Ақтау қаласы 17-орын (32 %), Көкшетау қаласы 16-орын (32 %), Ақтөбе қаласы 15-орын (35 %) иеленген;

– Қазақстандық қалалардың ішінен Нұр-Сұлтан және Алматы қалалары «Смарт Сити» халықаралық рейтингіне кіретіндігі мен Алматы қаласының «Смарт Сити» халықаралық рейтингіндегі орны Нұр-Сұлтан қаласымен салыстырғанда жоғары екендігін байқалды. Ол Қазақстан бойынша Алматы қаласында цифрлық сауаттылық деңгей мен цифрландыруға жұмсалған бюджеттің (2019 жыл бойынша 20 млрд.теңгеден астам) жоғары болуына байланысты.

Қоғамдық өмірдің бағыттары бойынша цифрландыруды енгізу деңгейін талдай келе, оның жоғарғы және төменгі деңгейі мен оған әсер еткен факторлар анықталды:

– білім беру (98,4 %), қаланы басқару (75,7 %), денсаулық сақтау (66,5 %) бағыттарында цифрландыру жобаларын ендіру қарқынының жоғары екендігі және оған әсер еткен факторлар мен шешімін таппаған мәселелер жөнінде жұмыс атқару қажеттілігі белгілі болды;

– цифрландыруды енгізудің ең төменгі деңгейі «Бизнес пен туризмді дамыту» (17,2 %) бағытында екендігі анықталып, Алматы қаласында «Бизнес пен туризмді дамыту» деңгейінің (29,6 %) салыстырмалы түрдегі ең жоғарғы көрсеткіші мен оған әсер еткен факторлар талданды.

Жүргізілген зерттеу ақпараттық-коммуникациялық технологияларды жаппай цифрландыру мен оны қала қызметін жоспарлау мен басқаруда қолдану табиғи және заңды құбылыс екенін көрсетті. Сондықтан, қазіргі уақытта цифрлық территориялық маркетинг құралдарын «ақылды» қалалар қызметінде қолдану қаланың бәсекеге қабілеттілігі мен имиджін арттырудағы негізгі құралға айналды.

Түйін сөздер: «ақылды» қала, эталонды стандарт, цифрлық территориялық маркетинг, қаланың бәсекеге қабілеттілігі, бәсекеге қабілеттілікті бағалау.

Алғыс. Мақала AP05135078 «Қазақстан Республикасында цифрлық экономиканы қалыптастыру және дамыту: теория және іске асырудың тәжірибелік шаралары» тақырыбындағы ҚР БҒМ ғылыми зерттеулерді гранттық қаржыландыру жобасы аясында орындалды.

Мақаланы жазуда ақпараттық қамтамасыз еткені үшін Алматы қаласының әкімдігіне, атап айтқанда Цифрландыру басқармасына алғыс білдіреміз.

Н. Б. Шуренов[1], Л. А. Бимендиева[1], Джей Натан[2]

[1]Казахский национальный университет имени аль-Фараби, Алматы, Казахстан;
[2]Сент Джонс Университет, Нью-Йорк, США

ОЦЕНКА КОНКУРЕНТОСПОСОБНОСТИ «УМНЫХ» ГОРОДОВ КАЗАХСТАНА: МАРКЕТИНГОВЫЙ АСПЕКТ

Аннотация. В статье рассмотрены проблемы внедрения эталонного стандарта «умных» городов в РК. Были исследованы достигнутые результаты и проблемы внедрения эталонного стандарта «умных» городов в стране. Также предложены решения данных проблем с помощью инструментов цифрового территориального маркетинга. Проанализированы методические рекомендации к построению «умных» городов. Рассмотрены направления и показатели по сферам жизни эталонного стандарта «умных» городов и выявлены основные тенденции его развития. В статье построен рейтинг по достижению эталонного стандарта «умных» городов РК за 2019 год. В качестве методики исследования был выбран метод анализа и синтеза, так как данный метод является неотъемлемым элементом для фундаментального исследования внедрения эталонного стандарта «умных городов». Используя метод анализа и синтеза, можно рассчитать средний процент достижения по внедрению цифровизации по сферам жизни и сформировать рейтинг «умных» городов РК. Применение

метода анализа и синтеза наряду с маркетинговым анализом позволяет акиматам определить наиболее выгодные и привлекательные направления сфер жизни с учетом высоких или низких внутренних показателей для внедрения проектов цифровизации.

В результате анализа рейтинга по внедрению эталонного стандарта «умных» городов в Казахстане были определены их места в международных рейтингах, а также выявлены проблемы и предложены пути их решения:

– г. Нур-Султан – 1 место (61%), г. Алматы – 2 место (61%), г. Уральск – 3 место (61%), а самые низкие показатели у г. Актау – 17 место (32%), г. Кокшетау – 16 место (32%), г. Актобе – 15 место (35%);

– Обнаружено, что среди казахстанских городов в международные рейтинги «Смарт Сити» входят города Нур-Султан и Алматы, а г.Алматы имеет высокий рейтинг, по сравнению с г. Нур-Султан. Это связано с тем, что у г.Алматы по Казахстану самый высокий уровень цифровой грамотности, и огромный бюджет, потраченный на внедрение цифровизации (свыше 20 млрд тенге за 2019 год).

В ходе анализа уровня внедрения цифровизации по сферам жизни были выявлены, по каким направлениям высокие и низкие показатели, и факторы, влияющие на них:

– Направления образование (98,4%), управление городом (75,7%), здравоохранение (66,5%) имеют высокие показатели внедрения цифровизации, а также выявлены влияющие на них факторы и проблемы, требующие решения;

– Самый низкий показатель по внедрению цифровизации выявлен в направлении «Бизнес и туризм» (17,2%), в г.Алматы данный показатель самый высокий по РК и равняется 29,6 %. Проанализированы факторы, влияющие на него.

Проведенное исследование показало, что массовое применение ИКТ в цифровизации, планировании и управлении городом – естественный и законный процесс. Поэтому в настоящее время применение инструментов цифрового территориального маркетинга в службах «умных» городов явилось основным инструментом повышения конкурентоспособности и имиджа городов.

Ключевые слова: «умный» город, эталонный стандарт, цифровой территориальный маркетинг, конкурентоспособность города, оценка конкурентоспособности.

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Information about authors:

Shurenov Nursultan Beketovich, PhD student of the department “Business Technologies” Al-Farabi Kazakh National University, Almaty, Kazakhstan; nursultan_shurenov@mail.ru; https://orcid.org/0000-0003-2453-080X

Bimendiyeva Laila Abdrashovna, candidate of economic sciences, acting professor of the department “Economy” Al-Farabi Kazakh National University, Almaty, Kazakhstan; leila.bimendieva@kaznu.kz; https://orcid.org/0000-0003-4965-5908

Jay Nathan, PhD, professor of St. John’s University. New York, USA; natjay1123@icloud.com; https://orcid.org/ 0000-0002-2721-1647

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I. Berdnikova, E. Kiseleva, D. Baeva, I. Solovyeva

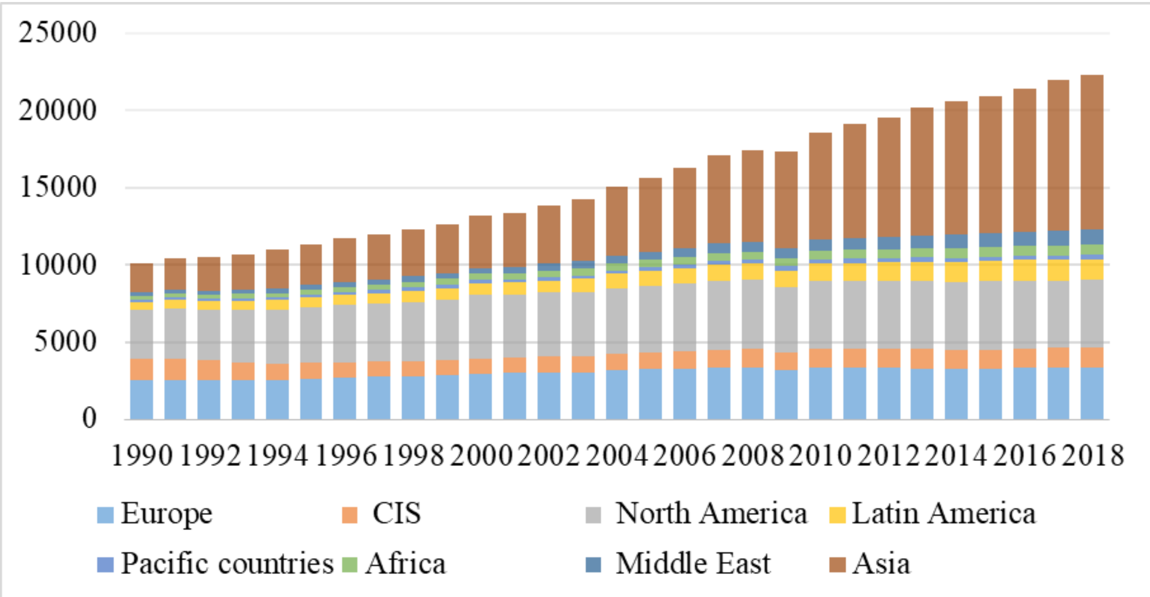
South Ural State University, Chelyabinsk, Russia.
E-mail: Berdnira@gmail.com, lizkis121@gmail.com, baevada@susu.ru, solovevaia@susu.ru

CURRENT ISSUES OF ENERGY EFFICIENCY IMPROVEMENT IN MODERN ECONOMIC CONDITIONS

Abstract. Electricity consumption is constantly growing in the world. In this connection, there are new urgent problems of increasing energy efficiency and energy conservation. Exactly, the economic development of countries and the change in the citizens' life quality depends on successful solutions in this sphere. In addition, energy efficiency today is the most important developmental indicator of the national economy. The article discusses electricity consumption statistics in the world, a comparative analysis of the statutory conditions and the main implementing energy efficiency methods and programs in different countries.

Key words: energy efficiency; energy saving public policy; economic efficiency; power consumption, energy substitution.

Introduction. One of the largest sectors in world modern economy today is energy. Moreover, it is also the basis for ensuring the viability and states economic development [1]. For more than 27 years, electricity consumption has increased by 52% (figure). In turn, this means the improving energy efficiency relevance, which can beneficially affect both the global and national economies, businesses, the results of solving environmental and political problems, as well as individual household problems of providing electric power resources [15].



Electricity consumption by region 1990-2018

Research overview. Certainly, there is an active policy trend in the energy efficiency field in the use of natural resources. That is why a huge amount of Russian and international researches are being conducted on the topic of improving energy efficiency and energy saving [3]. Opinions of foreign and domestic authors of scientific publications on this issue are similar [20]. In fact, improving energy efficiency is not the most difficult task. In the course of solving this problem, other questions are simultaneously determined, such as strengthening energy security, improving the environmental situation, improving the population life quality and growing the economies of countries as a whole [11]. Russian researchers talk about the failures of energy conservation measures due to the legislative power imperfection and policies in this direction. In order to overcome the existing state, it is necessary to apply a policy that would allow the government to take a confident course towards streamlining management, improving data quality and creating an organizational-legal regime that will promote long-term energy efficiency projects [6]. The experience of developed countries is of particular interest in the international community. Many countries, in modern conditions, insist on the importance of improving the energy efficiency of industries.

Currently, China is the leader in energy consumption, displacing the United States from first place. Their total share accounts for 56% of all electricity generated [16]. It is quite remarkable that, in recent years, this indicator in the United States has decreased and for 2018 is 38%. India is in the third place after China and the United States. The electricity consumption of India is about 11%. By the way, in India, the growth of electricity production on a large scale continues.

In addition, from 2009 to the present day, there has been an increase in electricity consumption in other developing countries of the Asia-Pacific region (South Korea, Thailand) [12]. Electricity consumption in Japan has been decreasing since 2012, primarily due to measures to save energy after a major accident at the Fukushima-1 nuclear power plant. However, in 2017, the increase in capacity for electricity consumption began.

In the European Union, energy consumption generally remains stable. Relative growth is observed only in Spain, Italy and Poland.

At this rate, it can be concluded that there has been a stable situation in this area. The relationship between the indicators of electricity consumption and global economic indicators is traced [2]. Another significant detail is that global energy consumption is growing faster than other energy carriers due to electrification process.

Materials and methods. The main role in the consumption of electricity by industry on a global scale is played by industrial consumers - 31% and personal electricity consumption - 34.8% (table 1).

Table 1 – World electricity consumption by industry

Sector	Tw / h			Percentage (%)		
	2000	2008	2017	2000	2008	2017
Industry	21.733	27.336	34.231	26.5	27.8	31.0
Transport	22.563	26.747	28.796	27.5	27.3	26.0
Personal consumption and services	30.555	35.861	38.471	37.3	36.0	34.8
Non-energy use	7.119	8.241	8.961	8.7	8.9	8.2
Total	87	98	110.2	100	100	100

The structure of electricity consumption in the Russian Federation is quite stable when comparing the figures of the Russian Federation with world statistics. The industrial sector accounts for about 55% of the total electricity consumption [5]. However, since 2010 this figure has been decreasing and the electricity consumption indicator by the population is growing. Moreover by 2017, it amounted to 14.2% (table 2). The smallest electricity consumption percentage belongs to agriculture and the forest industry, at around 1.6% [17]. Fairly stable sectors for electricity consumption remain transport and communications - 8.6%.

According to experts from the IEA (International Energy Agency), Russia has a potential energy efficiency ratio of around 40%. This includes both production indicators and domestic usage indicators of the electric power industry. Many Western European countries, Japan, the USA began to show close attention to the energy conservation problem more than 30 years ago [13]. These countries have managed to achieve very impressive results, such as a reduction in the energy intensity of GDP by more than 25%. They succeeded in achieving these indicators by laws and regulations on energy conservation, the creation of special governing bodies in this area, as well as the development and implementation of energy efficiency policies [18].

Table 2 – Electricity production and consumption in the Russian Federation (in billion kWh)

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Electricity generated	992	1038	1055	1069	1059	1064	1067	1069	1072
Released outside the Russian Federation	18	19	24	14	16	8	9	8	10
Received outside the Russian Federation	3	2	10	8	11	9	12	10	11
Visible consumption	977	1021	1041	1063	1055	1065	1051	1063	1066
Urban and rural population	121	127	131	137	141	146	147	149	151
Industry	533	554	568	574	565	561	563	562	561
Agriculture, forestry	15	16	16	16	15	15	16	17	16
Construction	10	10	11	11	12	10	11	13	13
Transport and communication	83	86	87	88	90	91	93	91	90
Wholesale and retail trade	112	119	120	28	30	34	31	29	31
Other economic activities				98	99	98	98	99	99
Electrical grid losses	113	108	105	105	105	107	102	105	107

The main tools for implementing these actions are:

– coercive measures (legislative acts, declarations);

– incentive measures (financial incentive measures - government subsidies, tax benefits);

– educational methods (communication with consumers, with the aim of their transition to energy-saving technologies in everyday life, the formation of a culture of using natural resources).

Results. In developed countries, various measures are being taken to interact and ensure energy efficiency (table 3) [9]. In the US, the Energy Policy Act 2005 covers all energy issues. An important feature of this legislative act is that it does not require the adoption of any additional declarations; the responsible authority is the Department of Energy (DOE).

Table 3 – Comparative analysis of energy efficiency measures

Indicators	**The United States**	**Japan**	**European countries**
Government laws	Energy policy act of 2005; Superior Energy Performance of 2012	Energy Conservation Center, Japan Energy Savings Act of 1979	Main Governing Bodies – States Energy Agencies
Taxes, customs, credits and other mechanisms, stimulating increase in energy efficiency and resource conservation	**The American Recovery and Reinvestment Act of 2009,** Regulates tools to stimulate energy conservation. Preferential tariffs for energy payments for energy-efficient buildings. State subsidies from 50 to 200 dollars when buying a new, more energy efficient technology.	**Tax program** For small businesses, a tax credit of 7% of the base cost of equipment purchased. For all enterprises - a tax deduction in an amount not exceeding 30% of the base cost of equipment. **Credit programs:** in the case of acquisition, rental or energy-saving equipment in the amount of 270 million yen loan at special preferential rates	**Tax incentives:** incentive tariff for electricity and a project to create a network of smart meters; **feed-in tariff program** is designed to develop independent production of electricity by individuals and legal entities using renewable energy sources.
Long term tasks	Limit greenhouse gas emissions by 2050 by 83%. Reduce dependence on energy imports	Increase self-sufficiency in energy up to 70%	20% reduction in CO2 emissions; 20% of EU energy consumption comes from renewable energy sources; 20% reduction in primary energy consumption
Place in the world	2	5	From 6 to 10
Energy efficiency assessment criteria	Refusal from import of energy resources, CO2 reduction	CO2 reduction	Reduce CO2 and greenhouse gas emissions

In Japanese practice, among the measures to achieve energy efficiency, there is an extensive network of state subsidies covering the industrial, transport, and commercial sectors [13]. As an example, in the industrial sector, there is support for projects that can provide energy-efficient modernization of production. In addition, for the commercial sector, the introduction, promotion of energy-saving technologies in infrastructure, grants for the natural gas-fired water heaters introduction.

In Western European countries, special attention is paid to the Feed-in Tariff program. This program is an economic and political mechanism designed to attract investment in renewable energy technologies.

In Russia, the process of increasing and achieving energy efficiency is at the initial stages [4]. It can be considered that measures taken by the government to pursue an active energy conservation policy, for example: Decree of the President of the Russian Federation No. 889 of June 4, 2008 "On some measures to improve the energy and environmental efficiency of the Russian economy". Resolution No. 746 - Resolution of the Government of the Russian Federation of September 5, 2011 "On approval of the Rules for the provision of subsidies from the federal budget to the budgets of entities Of the Russian Federation for the implementation of regional programs in the field of energy conservation and improving energy efficiency". "The State Program of the Russian Federation for energy conservation and energy efficiency for the period until 2020". "Energy Strategy of the Russian Federation for the period until 2030".

Among the main tasks in the Energy Strategy, "the need to increase energy efficiency and reduce the energy intensity of the economy to the level of countries with similar climatic conditions (Scandinavian countries, Canada)" is highlighted. Large-scale structural economic transformations are foreseen both in the industrial sector and in terms of the production of GDP as a whole. The strategy stipulates that industries with low energy intensity, which specialize mainly in high-tech products, will develop at a faster pace [7]. The government plans to create a new growth opportunity based on manufacturing and the high-tech services sector, which have a relatively lower energy intensity. It is expected that by 2030 the share of low-energy-intensive sectors such as food, light industry, engineering will increase with 1.5 times in the structure of the industrial sector and will make up more than half of the total industrial production.

Nevertheless, there are practically no real ongoing actions and measures for industry, transport, the housing and utilities sector, and infrastructure facilities. In accordance with paragraph 21 of Article 381 of the Tax Code of the Russian Federation, "organizations regarding newly commissioned facilities having high energy efficiency are exempted from property tax". This is almost the only incentive mechanism in the field of energy conservation. State subsidies to regional budgets for energy efficiency and energy saving programs are provided, however, there is no working mechanism for implementing actions [8].

There are a number of problems that impede the increase in energy efficiency in Russia:

– macroeconomic: inadequate project financing, energy prices, economic forecasts of growth and fall;
– problems of the state regulation;
– insufficiently developed institutional sphere;
– problems in creating public information systems;
– difficulties in organizing statistical observations.

Today, according to experts, Russia has a rather large potential in the field of energy efficiency. According to average estimates, it amounts to more than 40%, however, it is necessary to review a number of issues and turn to world experience in solving this urgent problem, mainly by creating specific mechanisms for implementing existing regulatory legal acts and programs. Long-term goals in this area can help achieve such measures as determining tax and credit policies, attracting investments, as well as creating an extensive system of government subsidies for specific measures to improve energy efficiency in both production and the housing and communal sector, and introducing preferential tariffs for industries that switched to Energy Saving Technologies.

The purpose of the prospective formation of the fuel and energy balance of Russia and its effective use can be attained. However, for this it is necessary to increase the level of energy efficiency and energy saving. The modern development of the Russian economy is characterized by the relationship of energy saving and energy efficiency for many enterprises in the industrial sector. As applied to the gas industry, it can be said that energy efficiency is considered as an indicator representing the ratio of the total profit received from the use of energy resources to the total cost of using certain types of energy resources in the production and technological process of gas production and use for certain period [13].

Over the past few years, in the vast majority of developed countries, the relative price of production has been falling as a result of the development of innovations. All innovations are provided and improved by computing power, the pace of development and diffusion of innovations is unprecedentedly fast [10]. Artificial intelligence has achieved significant success due to the rapid growth of computing power and the availability of colossal amounts of data. The value of storing information is currently approaching zero (storing 1 GB today costs less than \$ 0.03 per year compared with \$ 10 thousand two or twenty years ago).

Discussions. Developed and developing countries are focusing on the use of biofuels and improving the technology itself [19]. Due to investments aimed at research and development of alternative and renewable energy sources, it is planned to increase energy efficiency and energy saving (table 4).

Table 4 – Energy Conservation Measures in Developed Countries

Country	Tax benefits	Governmental support
Germany	Enterprises engaged in the production of energy-efficient technologies and high-tech equipment are exempted from taxes partially or completely. When reconstructing residential premises with increasing thermal characteristics, the owner receives a 20% discount on tax payments.	Active state stimulation of the solar and wind energy
Denmark	The tax calculation depends on the amount of carbon contained in the fuel.	Heating supply law
Finland	–	Financial support by the government for the transition to energy-saving energy technologies and energy-efficient equipment. The use of local fuels (peat, wood processing waste) is stimulated by the Government.
Norway	Carbon tax	Investments in technologies related to the production of aluminum and ferroalloys.
Japan	Coal tax is cancelled	installing solar panels, 1/3 of the cost of work is returned to homeowners
USA	–	Energy benefits for energy-efficient buildings. 20% of the cost of work aimed at increasing the energy efficiency of residential buildings is financed by the government. Energy efficiency audit of enterprises.
France	life-line tariffs for the use of energy-efficient equipment and technology.	Investment support for renewable energy projects. Partial refund for the purchase of energy-efficient equipment and technology.
Brazil	–	Financial support for the production of biofuels (ethyl alcohol) using sugarcane.

Another fuel to use is the natural gas. Efficiency of usage such energy sources is strongly depend on the specific conditions of the region [14]. Natural gas is used in many sectors of the economy: to obtain electricity and heat, to meet the household needs, as automobile fuel, as raw material for the chemical industry. Russian gas is a cheap and therefore widely used type of fuel. An analysis of the structure of consumption of initial energy carriers in the Russian economy shows that the grain of gas exceeds 50%, and the grain of gas used as fuel for thermal power plants accounts for over 70% (table 5).

Table 5 – Gas consumption structure by consumer categories

Category	Percentage (%)
Oil industry	39.5
Power industry	14.9
Agro-industrial complex	11.2
Cement industry	10.0
Household consumers	8.5
Auto-agricultural machine-building	7.5
Metallurgical industry	5.5
Population	2.1
Other industries	0.6
Compressed natural gas turnover	0.1

Natural gas is one of the important components of fuel and energy resources - this is the third place of use in production. The share of its consumption is significant in various sectors of the economy. Therefore, the gas industry of Russia, being the basis of its fuel and energy complex, is so important for the growth of the country's economy [6].

The character of gas consumption and special features of the gas powered equipment allows using it at the peak hours, because there are low costs of turning it off and on frequently. The majority of other types of power systems consume colossal loads at the peak hours that lead to rapid equipment wear. These facts are fraught with an increase in accident rate if the gas power equipment will not become widespread. The trend will be strengthened due to continued economic growth and underfunding of energy. Therefore, given the geographical and economic features of Russia, it is advisable to use natural gas at the peak of electricity consumption. It can be used for combined-cycle gas turbine (GTCC) or Gas Turbine Compressor Set. CCGT is the future of energy; analysis of global trends indicates that the construction of CCGT has a high economic meaning. It has the highest efficiency of converting thermal energy into electrical energy in comparison with all other methods, it generates less harmful emissions into the atmosphere, relatively low cost of construction and installation, high maneuverability, the highest coefficient of performance (COP) in comparison with all other methods of converting thermal energy into electrical energy. Russia has huge reserves of associated gas; the development of natural gas substitution technologies at the peak of electricity consumption is a very promising direction in the development of the energy conversion industry.

Conclusion. In conclusion it must be said that generally all the measures related to increase the energy efficiency and saving energy resources can be divided into three main areas:

1) saving the raw material base,
2) saving in the production process,
3) saving fuel and energy resources by the use of renewable energy sources.

Also to have the balanced energy system every country and every government has to analyze their specific opportunities and generate the optimal strategy in energy production, it means that different energy sources must be used according to their specific features and characteristics of the equipment. As for Russian energy system the natural gas may be successfully used in the peak hours because of wide availability of this type of fuel and high level of mobility gas powered generating capacity according to its turn off/on time and costs.

И. Бердникова, Е. Киселева, Д. Баева, И. Соловьева

Оңтүстік Орал мемлекеттік университеті, Челябинск, Ресей

ҚАЗІРГІ ЭКОНОМИКАЛЫҚ ЖАҒДАЙДА ЭНЕРГИЯ ТИІМДІЛІГІН АРТТЫРУДЫҢ ӨЗЕКТІ МӘСЕЛЕЛЕРІ

И. Бердникова, Е. Киселева, Д. Баева, И. Соловьева

Южно-Уральский государственный университет, Челябинск, Россия

АКТУАЛЬНЫЕ ВОПРОСЫ ПОВЫШЕНИЯ ЭНЕРГОЭФФЕКТИВНОСТИ В СОВРЕМЕННЫХ ЭКОНОМИЧЕСКИХ УСЛОВИЯХ

Аннотация. В мире постоянно растет потребление электроэнергии, в связи с этим появляются все более актуальные проблемы повышения энергоэффективности и энергосбережения, именно от их решения зависит как экономическое развитие стран, так и качество жизни граждан. Кроме того, энергоэффективность на сегодня является важнейшим показателем развития экономики государства. В статье рассмотрена статистика потребления электроэнергии по странам мир, выполнен сравнительный анализ нормативно-правовых баз и основных методов реализации программ повышения энергоэффективности различных стран мира и России. Предложены меры по замещению энергии природным газом.

По оценкам специалистов МЭА (Международного Энергетического Агентства) управление энергоэффективностью в России в сравнении с другими мировыми лидерами потребления электроэнергии неудовлетворительное, коэффициент потенциальной энергоэффективности находится на отметке в 40%. Сюда входят как показатели производства, так и показатели бытового использования электроэнергетики. Пристальное внимание к проблеме энергосбережения многие западноевропейские страны, Япония, США начали проявлять уже более 30 лет назад. Этим странам удалось добиться весьма впечатляющих результатов – снижения энергоемкости ВВП на более чем 25%. Достичь данных показателей им удалось по средствам внедрения нормативно-правовых актов об энергосбережении, путем создания специальных органов управления в этой области, а также благодаря разработке и реализации политики энергоэффективности. Важным результатом, полученным в статье, является обзор и систематизация таких инструментов, применяемых в мире. Основными группами инструментов повышения энергоэффективности являются:

принудительные мероприятия (законодательные акты, нормы, декларации); стимулирующие мероприятия (меры финансового стимулирования – государственные субсидии, налоговые льготы);

просветительские методы (общение с потребителями с целью их перехода на энергосберегающие технологии в повседневной жизни, формирование культуры пользования природными ресурсами). В развитых странах мира принимаются различные меры по взаимодействию и обеспечению энергоэффективности, эти меры систематизированы в статье.

В статье выделены основные ограничения и тенденции развития энергетической отрасли в современных экономических условиях. За последние несколько лет в подавляющем большинстве развитых стран происходит падение относительной цены средств производства в результате развития инноваций. Все инновации обеспечиваются и совершенствуются за счет вычислительной мощности, темпы развития и распространения инноваций оказываются беспрецедентно быстрыми. Искусственный интеллект достиг существенных успехов благодаря стремительному росту вычислительных мощностей и доступности колоссальных объемов данных. Стоимость хранения информации в настоящее время приближается к нулю. Развитые и развивающиеся страны концентрируют свое внимание на применении биологического топлива и улучшении самих технологий. За счет инвестиций, направленных на исследования и развитие альтернативных и возобновляемых источников энергии, планируется повышение энергетической эффективности и энергосбережения. Выбор специфических источников энергии существенно зависит от тех особенностей, которые характерны для конкретной страны или региона, данные особенности также проанализированы в статье. Одной из возможностей, в частности в российских условиях, является рост использования генерирующих мощностей на газовом топливе. В силу особенностей газового оборудования такой энергоноситель в современном мире будет целесообразно применять для замещения электроэнергии в пики потребления. Генерирующие мощности, использующие другие типы энергоносителя, могут испытывать существенные перегрузки либо требовать длительного времени и затрат на пуск и остановку. В свою очередь, применение парогазовых установок или газотурбинных установок можно назвать будущим энергетики, они имеют самую высокую эффективность преобразования тепловой энергии в электрическую в сравнении со всеми другими способами, формируют меньше вредных выбросов в атмосферу, характеризуются относительно низкой стоимостью строительства и установки, высокой маневренностью, самым высоким коэффициент полезного действия в сравнении со всеми другими способами преобразования тепловой энергии в электрическую. Поэтому в статье отдельно анализируется статистика потребления газа и делаются выводы о перспективах его использования для повышения энергоэффективности в зависимости от географических и экономических особенностей стран.

Ключевые слова: энергоэффективность, энергосбережение, политика государства, экономическая эффективность, энергопотребление, замещение энергии.

Information about the authors:

Berdnikova Irina Vladimirovna, graduate student, Department of Financial Technologies, South Ural State University, Chelyabinsk, Russia; Berdnira@gmail.com; https://orcid.org/0000-0003-0283-6680

Kiseleva Elizaveta Aleksandrovna, graduate student, Department of Financial Technologies, South Ural State University, Chelyabinsk, Russia; lizkis121@gmail.com; https://orcid.org/0000-0002-3481-5035

Baeva Darya Aleksandrovna, Associate Professor, Department of Financial Technologies, South Ural State University, Ph.D. Associate Professor, Chelyabinsk, Russia; baevada@susu.ru; https://orcid.org/0000-0002-8772-7311

Solovyova Irina Aleksandrovna, Professor, Department of Financial Technologies, South Ural State University, Doctor of Economics, Associate Professor, Chelyabinsk, Russia; solovevaia@susu.ru; https://orcid.org/0000-0001-6730-0356

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**O. V. Antonova, N. Sh. Kremer, G. I. Lukyanenko,
N. N. Martyinenko, L. A. Melnikova**

Financial University under the Government of the Russian Federation, Moscow, Russia.
E-mail: olgavit@mail.ru, NSKremer@fa.ru, GILukyanenko@fa.ru,
nnmartyinenko@fa.ru, LAMelnikova@fa.ru

FUNDAMENTAL CONCEPTS OF FINANCIAL ACCOUNTING AND DIALECTIC OF THEIR DEVELOPMENT: MACROECONOMIC CONCEPT, MICROECONOMIC CONCEPT

Abstract. At the moment, the advancement of accounting is recognizably driven by the development of its theory and methods in order to assess the existing and recently emerging accounting concepts and expand the theoretical, regulatory, and methodological framework of accounting based on such concepts.

In accounting, framework developments put forward new accountable items, and new concepts lead to a brand-new approach to the scientific research of accounting as a science. Thus, research should be conducted from the perspective of a comprehensive analysis of the existing Concept for the Development of Accounting, which is an integral component of the institutional system represented by the structural elements of the accounting system and related systems arranged in a strictly defined order [1,4,17].

The theory and methods of accounting are implemented through the development and use of certain concepts. The requirement to use the accounting concepts is explained by the fact that the accounting practice in Russia lags far behind the recently established requirements for the quality of accounting information as driven by the current processes of globalization and integration of the Russian Federation into the global economy. This requires a separate approach to understanding the theoretical and methodological foundations of accounting from the perspective of institutionalism [5,13,20].

The method is considered in the work as a point of view on the structure and development of accounting. Elements of methodological institutionalism are used as a justification of the position under consideration. When considering the impact on the development of accounting of institutional factors, a number of research tasks are set, including determining the role of the organization of accounting, institutional factors, the possibility of institutional organization of accounting, determining the subject, object, subject and scientific status of accounting. The authors revealed what theoretical and methodological concepts are: forms of accounting organization, schemes, models, methods of cognition, or is it all taken together.

Key words: accounting, macroeconomic concept, microeconomic concept, financial statements, financial position, financial result, consolidated statements.

Introduction. The many-thousand-year-long history of accounting goes as far back as to between 5000 and 4000 B.C. [11, p. 8]. There are fragments of ancient ivory tablets discovered by archaeologists, containing records of business transactions. In Sumer, trade records were kept on stones, in Ancient Egypt - on papyrus, in Rome and Greece - on copper boards, wax tablets, or on leather. All this was a prerequisite for the systematic registration in chronological order.

The accounting methods were primitive and reported the accounting events, i.e. daily business transactions, in kind. This simple (single-entry) accounting was the only one that existed in Europe until the 13th century. As the researchers suggest, the centuries-old conservative approach to accounting was due to the use of the Roman Numeral System, which is based on the “additive” principle, with too complex and cumbersome arithmetic calculations.

Echoing the general business and economic laws of society, accounting evolved interconnectedly with other fundamental sciences, building the foundation for certain applied sciences.

In 1202, Leonardo of Pisa (Fibonacci), the first major mathematician of the Middle Ages, developed the Positional Number System, which had some undoubted advantages over the additive Roman Numeral System [3]. The new notation spread across Europe and changed business accounting. The proliferation of Arabic numerals resulted in the advancement of business accounting and gave rise to the formation of commercial law.

During the Proto-Renaissance period, three main accounting systems were formed: single-entry accounting, cameral accounting (records of cash transactions, which developed into the accounting of income and expenditure), and double-entry accounting. All three systems existed independently of each other, although they built the foundation of accounting as a science.

The novelty of scientific knowledge has creative power and forms the basis for improving the management of business processes.

In the 18^{th} and 19^{th} centuries, the double-entry accounting system became widespread thanks to the book titled Particularis de Computis et Scripturis (“Details of Accounting and Recording”) written by Italian mathematician L. Pacioli [8], giving the first description of the double-entry bookkeeping method.

The evolution of accounting methods was driven by the growth of production capacities and the development of relations of production, gradually forming a single system of methods for and approaches to reporting business transactions, reflecting the dialectic of accounting development.

Materials and Methods

a. General

The Concept for the Development of Accounting in the Russian Federation is a result of significant efforts aimed at establishing regulatory control over financial accounting in Russia. The need for a proper accounting system that would meet the requirements of a market economy became obvious already in the early 1990s. By Order No. 100 of 28 July 1994, the Ministry of Finance of Russia approved some important documents (that are no longer in force) within the framework of the Accounting Reform Program. Among such documents was the first Russian Accounting Standard - RAS 1/94 on Corporate Accounting Policies. Its adoption marked a significant development in the application of such international accounting principles as regularity, full disclosure, prudence, substance over form, consistency, and rationality, in Russia.

Later, in 1996, the principal statutory act on accounting - the Federal Law on Accounting (no longer in force) - was adopted, entrusting the Government of the Russian Federation with the general methodological guidance over accounting. The Law also established a three-level system of accounting documents to be approved by the regulatory bodies.

Another important statutory act adopted in 1996 was RAS 4/96 on Corporate Financial Statements.

The Concept of Accounting in Russian Market Economy approved by the Methodological Council for Accounting under the Ministry of Finance of the Russian Federation and by the President’s Council Institute of the Institute of Professional Accountants (IPA), outlined the purpose of accounting, the content and requirements for the information reported, the recognition criteria for income and expenditure, assets and liabilities, and the manner of their assessment.

The Concept was based on the principles of IFRS, which determined the main tasks for the reformation of the Russian accounting system, the implementation of which began in 1997.

The reformation focused on:

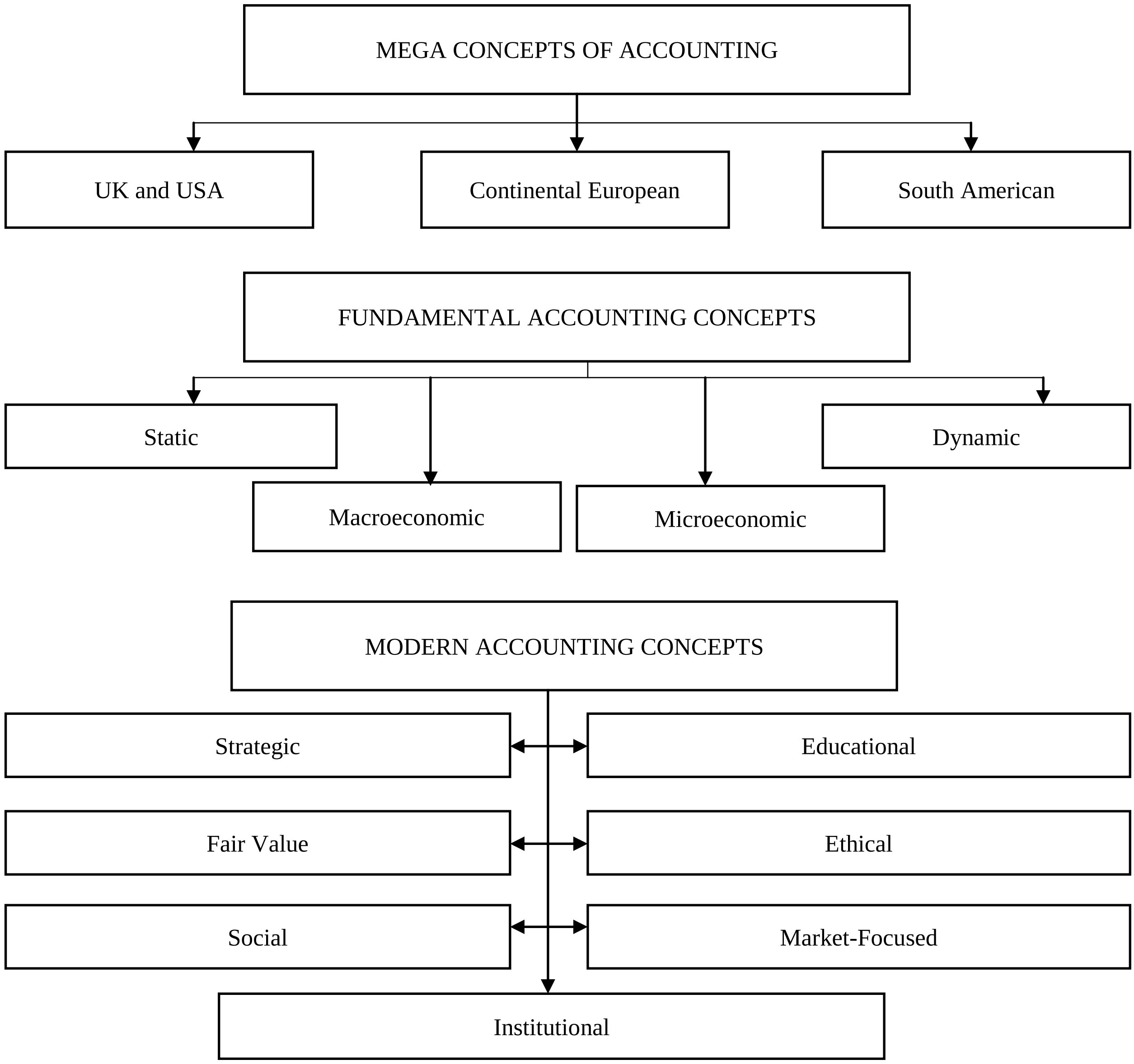
– improving the regulatory and methodological framework of accounting;

– reshaping the accounting management system, increasing the role of professional organizations in the development of the methodological framework and the implementation of accounting.

In recent years, the accounting reform has been addressing many issues, however, not everything in this reform is strictly based on the established concepts and consistently implemented, which ultimately leads to not very satisfactory results.

b. Algorithm

The main accounting concepts are shown in Figure, including the fundamental ones, mega-concepts, and several modern accounting concepts.



Accounting Concepts

Since the theoretical value of accounting information lies in systemizing the variety of accounts used in various industries, based on their common features, accounting as a science can be improved for macroeconomic purposes [15, p.21].

Results and Discussion. In accounting practice, the most common concept of accounting is the macroeconomic one. At the macroeconomic level, the accounting system focuses on the national economy in its entirety. National economic accounting deals with such indicators as national income and gross national product. The actual objective of this concept is to identify how alternative methods for reporting would impact the country in general and the economic performance of a specific industry in particular. The key aspect of the macro-accounting is that it has greater coverage than corporate accounting. In accordance with this concept, one of the objectives of accounting is to ensure that enterprises focus on the implementation of national economic programs. In turn, to achieve national economic goals, financial statements must encourage larger investments in developing businesses [6,9,10].

Macroeconomic reporting creates an information base for calculating sustainable income, utilization of reserves, and application of flexible depreciation methods.

The development of macro-accounting began with the creation of national accounts, with the domestic product being the core national account aggregate. Domestic product is calculated by determining the added value, i.e. the difference between the value of the goods produced and the cost of their production.

In most countries, macroeconomic policies are implemented with the help of financial and fiscal levers that exercise direct control and regulation over the accounting system. Other countries (for example, Sweden) develop their accounting concepts with the focus on macroeconomic goals, resulting in establishing a strong regulatory framework of financial reporting.

Micro-accounting deals with the bookkeeping at an individual enterprise. The microeconomic concept of accounting identifies how different accounting procedures affect various economic indicators of the enterprise. At the microeconomic level (where an enterprise is recognized as an economic unit), accounting impacts the economy by keeping the records of transactions and relations between enterprises in the market. This approach is implemented in the US Conceptual Framework for Financial Reporting adopted by the Financial Accounting Standards Board (FASB). To develop the microeconomic concept of accounting in the Russian Federation, the fundamental premises of the global microeconomic approaches must be applied.

Classification of accounting systems

The UK and the US	Continental Europe	Latin America
It unites the national accounting systems of the United Kingdom, Australia, Israel, Hong Kong, Canada, India, the Netherlands, Cyprus, Singapore, Pakistan, South Africa, the United States, and some other English-speaking countries.	It unites the national accounting systems of Belgium, Austria, Greece, Germany, Spain, Denmark, Norway, Italy, France, Portugal, Sweden, Switzerland, and some other European countries. The national accounting systems of Japan and Russia are close to this model.	It unites the national accounting systems of South American countries due to common language and history.
In all countries that belong to this model, the influence of the UK and the US is great. The leading countries are characterized by developed securities markets, a high level of expertise of accountants and users of accounting information. Company reporting is focused on the needs of its creditors and investors. It is especially important to accurately calculate the entity’s financial performance.	Accounting practices in one country differ from those in other countries. Business has close ties with banks. Focusing on the needs of creditors and investors is not the primary concern of reporting. Accounting is regulated by law. It is characterized by conservatism and a high degree of government intervention in the accounting practices (i.e. the mandatory use of the chart of accounts)	A distinctive feature of financial reporting in these countries is the adjustment for inflation. Accounting is generally focused on the needs of the planning agencies and on ensuring tax compliance. Accounting techniques and methods are characterized by a high degree of unification.
The task of satisfying the information needs of the government (which is represented by tax authorities) is removed from the scope of the financial accounting and reporting system	Financial reporting is focused on satisfying the information needs of tax authorities and other government bodies.	

The theory and methods of accounting are implemented through the development and use of certain concepts. The requirement to use the accounting concepts is explained by the fact that the accounting practice in Russia lags far behind the recently established requirements for the quality of accounting information as driven by the current processes of globalization and integration of the Russian Federation into the global economy. This requires a separate approach to understanding the theoretical and methodological foundations of accounting from the perspective of institutionalism. To review the evolution of the accounting process, it is necessary to expand the existing theoretical framework of accounting and find suitable methodological tools for the task at hand. It should be emphasized that such a toolkit already exists in the form of the modern institutional theory.

At the current stage of the Russian economic development, the major issues that are addressed regularly are the history of accounting, its institutional foundations, and the creation of a favorable environment for studying the formation and development of institutional systems, including the institute of accounting.

The main aspect of the modern development of accounting is the substantiation of the directions for the formation of new paradigms, given the strategic trends of accounting. Accounting has not yet completed its development as an area of knowledge and activity. Following the review of its fundamental provisions, which followed each other for several centuries, the entire fundamental essence of accounting can be reduced to the following provisions: definition of the subject, object, method, objective, and environment. These provisions form the basis of the accounting paradigm.

The development of such a concept of accounting that would deal with the current challenges is the most complex and interesting area of scientific thought. The key to understanding the problem is the discovery of new research objects that precede conceptual changes. The emergence of new concepts, methods, and tools results in the complete rethinking of scientific research to be carried out from the perspective of a comprehensive analysis of the existing concepts for the development of accounting. These concepts are integral components of the institutional system and are to be seen not as action programs with specific deadlines, but as constant, reasonably necessary, and systematic work aimed at improving the accounting system.

In a short time, many formal regulatory acts on accounting were adopted and amended, significantly hindering the understanding of the formal rules by economic entities and creating a favorable environment for applying informal rules, which are often illegal. Moreover, changes in one industry naturally lead to certain changes in another, and when reforming one area it is impossible to achieve results without adequate changes in other areas since the existence of close interdependencies predetermines the study of the accounting problems with the determination of the institutions most dependent on each other and ensuring their comprehensive reform [2, p. 116].

Interest in institutional theories manifests itself solely in a doctrine that would help understand the current state and prospects for the development of accounting in the interaction of basic economic institutions, contributing to fundamental changes in the institutional foundations of accounting. Over the past few years, accounting has been consolidating qualitative institutional changes that could significantly affect the efficiency and conditions of its maintenance in the near future [12,14,16].

Following a comparison of the international and Russian financial reporting standards, significant differences between the Russian accounting system and IFRS are found, which determine the difference between financial statements prepared in the Russian Federation and those prepared in other countries. The principal differences between the Russian system and IFRS are explained by the historically different approaches to using accounting information. IFRS financial statements are used by investors, as well as other economic agents and financial institutions [7,18,19].

There is a number of problems that remain unsolved for a long time, primarily, due to historical and conceptual reasons. Among these problems, the main one is the requirement for Russia to develop and apply its own methods and practice of accounting and ensure their compliance with the theory of accounting. The authors searched for ways to solve this problem, taking into account the fact that accounting is a rather complex system influenced by the legislation and the development of all components of a market economy.

Conclusion. Accounting has thousands of years of history. Echoing the general business and economic laws of society, accounting evolved interconnectedly with other fundamental sciences, building the foundation for certain applied sciences. The novelty of scientific knowledge has creative power and forms the basis for improving the management of business processes [21,22].

The evolution of accounting methods was driven by the growth of production capacities and the development of relations of production, gradually forming a single system of methods for and approaches to reporting business transactions, reflecting the dialectic of accounting development.

The Concept for the Development of Accounting in the Russian Federation is a result of significant efforts aimed at establishing regulatory control over financial accounting in Russia. The need for a proper accounting system that would meet the requirements of a market economy became obvious already in the early 1990s.

The macroeconomic and microeconomic accounting concepts are the most common in accounting practice.

The theory and methods of accounting are implemented through the development and use of certain concepts. The requirement to use the accounting concepts is explained by the fact that the accounting practice in Russia lags far behind the recently established requirements for the quality of accounting information as driven by the current processes of globalization and integration of the Russian Federation into the global economy. This requires a separate approach to understanding the theoretical and methodological foundations of accounting from the perspective of institutionalism. To review the evolution of the accounting process, it is necessary to expand the existing theoretical framework of accounting and find suitable methodological tools for the task at hand. It should be emphasized that such a toolkit already exists in the form of the modern institutional theory.

At the current stage of the Russian economic development, the major issues that are addressed regularly are the history of accounting, its institutional foundations, and the creation of a favorable environment for studying the formation and development of institutional systems, including the institute of accounting.

The main aspect of the modern development of accounting is the substantiation of the directions for the formation of new paradigms, given the strategic trends of accounting. Accounting has not yet completed its development as an area of knowledge and activity. Following the review of its fundamental provisions, which followed each other for several centuries, the entire fundamental essence of accounting can be reduced to the following provisions: definition of the subject, object, method, objective, and environment. These provisions form the basis of the accounting paradigm.

To ensure sustainable growth of the Russian economy and bring the accounting system in accord with the new requirements, a significant deepening of the institutional reform and its correlation with the globalization processes are required.

Thus, one of the main conceptual problems that have arisen in the modern post-industrial society, namely, the problem of transformation and determining the areas for improvement of the accounting process, has remained beyond the pale of the theory of accounting. In recent decades, globalization has brought a completely new quality to the accounting process, created new problems and new risks.

О. В. Антонова, Н. Ш. Кремер, Г. И. Лукьяненко, Н. Н. Мартыненко, Л. А. Мельникова

Ресей Федерациясы Үкіметінің жанындағы Қаржы университеті, Мәскеу, Ресей

БУХГАЛТЕРЛІК ЕСЕПТІҢ НЕГІЗГІ ТҰЖЫРЫМДАМАЛАРЫ ЖӘНЕ ДАМУ ДИАЛЕКТИКАСЫ: МАКРОЭКОНОМИКАЛЫҚ ТҰЖЫРЫМДАМА, МИКРОЭКОНОМИКАЛЫҚ ТҰЖЫРЫМДАМА

Аннотация. Қазіргі уақытта бухгалтерлік есепті дамыту, сөзсіз оның қалыптасқан және жақында пайда болған бухгалтерлік есеп тұжырымдамаларын бағалаудың теориясы мен әдістерін және осындай ұғымдарға негізделген бухгалтерлік есептің теориялық, нормативтік және әдістемелік негіздерін кеңейтуге байланысты.

Бухгалтерлік есепте негізгі әзірлемелер жаңа есеп беру элементтерін алға тартады, жаңа тұжырымдамалар ғылым ретіндегі бухгалтерлік есептің ғылыми зерттеулерге жаңа көзқарас әкелуіне септеседі. Осылайша зерттеу бухгалтерлік есепті дамытудың қолданыстағы тұжырымдамасына жан-жақты талдау тұрғысынан жүргізілуі керек, ол бухгалтерлік есеп жүйесінің құрылымдық элементтері және қатаң белгіленген тәртіпте орналасқан жүйелер негізінде ұсынылған институционалды жүйенің ажырамас бөлігі болып саналады.

Бухгалтерлік есеп теориясы мен әдістері белгілі бір ұғымдарды әзірлеу және қолдану арқылы жүзеге асырылады. Бухгалтерлік есеп тұжырымдамаларын қолдану қажеттілігі Ресейдегі бухгалтерлік есеп тәжірибесі жаһандану мен Ресей Федерациясының әлемдік экономикаға кірігу процестеріне байланысты бухгалтерлік ақпарат сапасына жақында белгіленген талаптардан едәуір артта қалғандығы себебімен түсіндіріледі. Бұл үшін бухгалтерлік есептің теориялық және әдіснамалық негіздерін институционализм тұрғысынан түсінуге жеке көзқарас қажет.

Бұл әдіс жұмыста бухгалтерлік есеп құрылымы мен дамуы тұрғысынан қарастырылады. Әдістемелік институционализм элементтері осы ұстанымды негіздеу ретінде қолданылады. Институционалды факторлардың бухгалтерлік есеп дамуына әсерін қарастыру кезінде бірқатар зерттеу міндеттері белгіленеді, оның ішінде бухгалтерлік есепті ұйымдастырудың рөлін, институционалды факторларды, бухгалтерлік есепті институционалды ұйымдастыру мүмкіндігін, бухгалтерлік есептің пәнін, нысанын, пәнін және ғылыми жағдайын анықтайды. Авторлар келесі теориялық және әдіснамалық ұғымдардың не екенін анықтады: бухгалтерлік есепті ұйымдастырудың формасы, схемасы, моделі, таным әдістері немесе осының бәрі бірлікте алынған.

Түйін сөздер: бухгалтерлік есеп, макроэкономикалық тұжырымдама, микроэкономикалық тұжырымдама, қаржылық есеп, қаржылық жағдай, қаржылық нәтиже, шоғырландырылған есеп.

О. В. Антонова, Н. Ш. Кремер, Г. И. Лукьяненко,
Н. Н. Мартыненко, Л. А. Мельникова

Финансовый университет при Правительстве Российской Федерации, Москва, Россия

ОСНОВОПОЛАГАЮЩИЕ КОНЦЕПЦИИ БУХГАЛТЕРСКОГО УЧЕТА И ДИАЛЕКТИКА ИХ РАЗВИТИЯ: МАКРОЭКОНОМИЧЕСКАЯ КОНЦЕПЦИЯ; МИКРОЭКОНОМИЧЕСКАЯ КОНЦЕПЦИЯ

Аннотация. В настоящее время развитие бухгалтерского учета, несомненно, обусловлено развитием его теории и методов для оценки существующих и недавно появившихся концепций бухгалтерского учета и расширения теоретических, нормативных и методологических основ бухгалтерского учета на основе таких концепций.

В бухгалтерском учете базовые разработки выдвигают новые подотчетные элементы, а новые концепции приводят к совершенно новому подходу к научным исследованиям бухгалтерского учета как науки. Таким образом, исследование должно проводиться с точки зрения комплексного анализа существующей Концепции развития бухгалтерского учета, которая является неотъемлемым компонентом институциональной системы, представленной структурными элементами системы бухгалтерского учета и связанных систем, расположенных в строго определенном порядке.

Теория и методы бухгалтерского учета реализуются путем разработки и использования определенных концепций. Требование использования концепций бухгалтерского учета объясняется тем, что практика бухгалтерского учета в России сильно отстает от недавно установленных требований к качеству бухгалтерской информации, обусловленных текущими процессами глобализации и интеграции Российской Федерации в мировую экономику. Это требует отдельного подхода к пониманию теоретических и методологических основ бухгалтерского учета с точки зрения институционализма.

Метод рассматривается в работе как точка зрения на структуру и развитие бухгалтерского учета. Элементы методологического институционализма используются в качестве обоснования рассматриваемой позиции. При рассмотрении влияния на развитие учета институциональных факторов, устанавливается ряд исследовательских задач, в том числе определение роли организации бухгалтерского учета, институциональных факторов, возможности институциональной организации бухгалтерского учета, определения предмета, объекта, субъекта и научное состояние бухгалтерского учета. Авторы раскрыли, что такое теоретические и методологические понятия: формы организации бухгалтерского учета, схемы, модели, методы познания или все это вместе взятое.

Ключевые слова: бухгалтерский учет, макроэкономическая концепция, микроэкономическая концепция, финансовая отчетность, финансовое положение, финансовый результат, консолидированная отчетность.

Information about authors:

Antonova O.V., PhD, associate professor of Department of the Accounting, Analysis and Audit, Financial University under the Government of the Russian Federation, Moscow, Russia; olgavit@mail.ru; https://orcid.org/0000-0002-7595-2423

Kremer N.Sh., Ph.D., Associate Professor, Department of Data Analysis, Decision-making and Financial Technology, Financial University under the Government of the Russian Federation, Moscow, Russia; NSKremer@fa.ru; https://orcid.org/ 0000-0002-9025-4746

Lukyanenko G.I., PhD, associate professor of Department of the Accounting, Analysis and Audit,Financial University under the Government of the Russian Federation, Moscow, Russia; GILukyanenko@fa.ru; https://orcid.org/0000-0001-5388-0855

Martyinenko N.N., Ph.D., associate professor of Department of Financial Markets and Banks, Financial University under the Government of the Russian Federation, Moscow, Russia; nnmartyinenko@fa.ru; https://orcid.org/0000-0001-9460-6211

Melnikova L.A., Ph.D., associate professor of the Accounting, Analysis and Audit Department of the Financial University under the Government of the Russian Federation, Moscow, Russia; LAMelnikova@fa.ru; https://orcid.org/0000-0002-9786-4563

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**Stephen Panchyshyn[1], Olha Hrynkevych[1], Oksana Marets[1],
Nazariy Demchyshak[1], Nazariy Popadynets[2]**

[1]Ivan Franko National University of Lviv, Ukraine;
[2]M. I. Dolishniy Institute of Regional Research of NAS of Ukraine.
E-mail: stepan.panchyshyn@lnu.edu.ua, olha.hrynkevych@lnu.edu.ua,
oksana.marets@lnu.edu.ua, nazar.demchyshak@lnu.edu.ua, popadynets.n@gmail.com

SIMULATION OF TUITION FEES IN COMPETITIVENESS MANAGEMENT OF HIGHER EDUCATION INSTITUTIONS (CASE OF UKRAINE'S UNIVERSITIES)

Abstract. The purpose of study is to simulate the tuition fees in Ukrainian higher education institutions (HEIs), taking into account the internal and external factors of their activity. The choice of variable models is based on the theoretical study and classification of pricing factors in higher education. The empirical part of the research is performed according to online data of 35 Ukrainian universities. Using correlation analysis, we found that the main factors that impact variability the tuition fees variation are: 1) academic reputation of HEI, 2) popularity of the study program among entrants, 3) population income in the region of HEIs activity. To simulate the tuition fees, taking into account the essential factors, the programming language R was used. The modeling found that there is an issue with the overpricing and underpricing of education in Ukrainian HEIs in comparison with its theoretically justifiable value. Competition in the market of educational services forces Ukrainian universities to pursue a pricing policy that is accompanied by both too high and low tuition fees, which do not cover training costs and do not provide long-term development. The results of modeling could be used to improve the quality of decision making process in HEIs management.

Key words: Tuition Fees, Higher Education Institutions, Analysis of Pricing Policy, Regression Model, Ukraine.

Introduction. The price and quality of a product are the main criteria for its competitiveness in a market economy. A similar statement applies to educational products. With the increasing number of educational providers and the expansion of opportunities for non-formal education, competition in global and national educational services markets is increasing. Accordingly, the relevance of applied pricing problems is increasing as well.

According to the classical theories of a market economy, the competitive advantages of a product depend on its price and quality. In this regard, the analysis of causal relationships and justification of the tuition fees factors, as well as its modeling, are important tasks in managing competitiveness of HEIs.

The pricing policy in higher education, as a special sector of Ukrainian economy, is based on general principles and pricing methods, but has its own distinctive features.

First, the majority (81.1% in 2018) of HEIs in Ukraine [1] are non-profit organizations and set the tuition fees adhering to the regulatory documents of the Cabinet of Ministers [2; 3].

Second, HEIs that set tuition fees based on state and communal forms of property receive financial support from the central and local budgets, and thus have competitive advantages in pricing compared to private HEIs.

Third, the lack of relevant information for analyzing the quality of educational services of HEIs means that entrants may perceive the high tuition fees as the criteria for its quality and prestige. In this regard, the demand for HEIs study programs is mostly inelastic.

An analysis of the pricing policy of educational providers in Ukraine indicates that there is a lack of reasonable foundation for prices for educational products. It can be argued that the prices of certain educational products are overestimated due to their prestige on the market, while others are underestimated (the case of lowering prices) in order to attract more students in a competitive market. As a result, some HEIs in Ukraine face problems with covering actual costs of training. On the other hand, customers face a significant difference of the education quality at the same levels of tuition fees.

As an additional argument in favor of the statement concerning tuition fees at Ukrainian universities, table 1 shows the ratio of average (2019) tuition fees for undergraduate management programs to the average salary in Ukraine and some neighboring countries. Leading HEIs were selected based on The Times Higher Education World University Rankings 2018.

Table 1 – Comparative analysis of tuition fees at leading universities in Ukraine, Belarus and Russian Federation

	Taras Shevchenko National University of Kyiv	Belarusian State University	Lomonosov Moscow State University
Country of University main activity	Ukraine	Belarus	Russian Federation
University Rank in The Times Higher Education World University Rankings 2018	801-1000	801-1000	194
Tuition fees for Bachelor’s degree study program «Management» in 2019 (for citizens of the country)	33900 UAH	4022 BYN	490000 RUB
Average Monthly Salary in Country of University Activity, 2018	8865 UAH	971,4 BYN	43724 RUB
Source: [4-8]			

Underestimated tuition fees do not fully cover the costs of training and limit the financial capabilities of Ukrainian universities to improve the infrastructure and human resources development. In order to prevent the policy of lowering tuition at state universities, the Cabinet of Ministers of Ukraine has developed a draft resolution a price index for particular courses/programs (such as Economics, Marketing, Management, Medicine, Law and some others) at state HEIs [3]. The price index is defined as 60% in year 2020, (70% in 2021, 80% in 2022) of the average cost of training at expense of state (regional) order. It is expected that the introduction of such regulations, may contribute to higher university incomes. However, it may also reduce the number of entrants for majors with traditionally high demand at state HEIs.

Thus, the problems in pricing policy of Ukraine’s HEIs highlight the need for scientific and applied analysis and modeling of the tuition fees in managing of HEIs competitiveness.

The purpose of the study is to develop an economic-statistical model of the tuition fees in Ukraine’s HEIs, taking into account internal and external factors of their activity in the educational services market. To achieve the goal, the following tasks are set: 1) to identify the main groups of factors determining tuition fees in HEIs; 2) to conduct an empirical analysis of the tuition fees for certain at leading universities in all regions of Ukraine; 3) to model the tuition fees in Ukraine’s leading universities for certain programs and to estimate the deviation between actual and theoretically justified tuition fees.

These tasks defined the logic of study as well as theoretical and empirical research findings.

The paper is structured as follows. First, we analyze the factors affecting tuition fees, using their classification related to the internal and external environment of HEIs, as well as the distribution of factors of direct and indirect influence. Second, we conducted an empirical analysis of annual tuition fees at 35 Ukrainian undergraduate management programs. Using correlation analysis, we identified the most significant factors affecting tuition fees. We then used these factors to model the annual tuition fees for the undergraduate management programs in the investigated universities. Calculations of the parameters of various types of multifactor regression models were performed using the software R. The results of modeling allowed us to identify universities that set too low or too high tuition fees, taking into account such factors as the academic reputation of HEI, the popularity of the course among entrants, and average income in the region of HEIs activity.

Finally, we conclude with overview of the unusual observations in the model of annual tuition fees. Using programming language R and graphical interpretation, we identify universities that significantly affect the pricing policy in the educational services market, as well HEIs with a high deviation between actual tuition fees and theoretically justified tuition fees.

Literature Review. The problem of effective pricing in economics of higher education is relevant beyond the management of Ukraine’s HEIs. Foreign researchers are also paying attention to the problem of price discrimination in universities of European Union countries. For example, D. Grundey and I. Griesiene [9], who invest the phenomenon of price discrimination in higher education, define it as a market phenomenon in which providers offer similar or identical services to different buyers at different prices for reasons that are not directly related to the cost. The factors or drivers of such discrimination include institutional prestige, international and national HEIs, quality of teaching, inefficiency of price competition, and the budget financing of HEIs.

Scholars of the problems of higher education competitiveness in the post-soviet countries, in particular Kazakhstan, Russia, Ukraine focus the attention to the issues of marketing educational services, including effective pricing policy of HEIs [10], flexible technologies of management [11,12].

Research on business behavior patterns in education [13], notes that in the USA, Australia, Japan, and EU countries, HEIs can determine tuition fees "at will," while less well-known colleges are forced to lower prices to attract students. For example, universities and colleges in the United States can adhere to various business models of pricing behavior and cost-effectiveness in general [14]: lowering tuition among middle-level HEIs to increase demand while reducing other benefits; increasing tuition fees with a flexible system of discounts; reducing the number of high-value programs; redirecting resources to high-demand programs; establishing fixed prices for educational services throughout the entire period of study; increasing operational efficiency by optimizing the costs of support and maintenance staff; increasing the hours of online learning while reducing hours of more expensive training in university lectures.

Recent technological and socio-cultural changes create the need for different business models of behavior for different types of HEIs, as well as gradual transformation of the institutional structure of educational providers and their pricing policy. In their special report “Universities of the Future [15], Ernst & Young's international experts predict the development of three major types of educational providers: 1) Streamlined Status Quo providers that continue to function as powerful educational and research institutions; 2) Niche Dominators that will focus on specific segments of clients with individual learning, research, and related services; 3) Transformers who are new entrants involved in providing new products in the traditional sector, as well as creating new market spaces, combining the higher education sector with other sectors, such as media, technology, innovation, and venture capital.

Ukrainian researchers argue that tuition fees are not a significant criterion for entrants when choosing a university for study. According to a special student survey conducted by Lysytsia, N., Prytychenko, T., & Gron, O. [16] the possibility of studying at the expense of state and tuition fees rank 12th and 14th out of 21 criteria consumers use to select a university. Some of the most significant criteria include «university brand», «my friends’ opinion about the university», «university status (national)» and «friends studying at this university».

The similar conclusions regarding tuitions fees influence on entrants demand make Havranek et all [17]. Based on meta-analysis of relationship between tuitions fees and demand for higher education researchers argue that available empirical research do not confirm significant effect of tuition on enrollment. At the same time, the researchers often consider tuition fees as an independent variable, exploring the relationship in the form of the price elasticity of demand for higher education. Other independent variables affecting the demand include the university ranking, percentage of full professors employed, family income of a student [18], average wages after graduation [19].

Given the above research results, we can argue that customers are willing to pay higher tuition fees, depending on the reputation of the university and the quality of education. Consequently, HEIs competitiveness should take into consideration their current academic position, the scope of activities, development goals, and the development of an appropriate pricing policy.

Methodology. The empirical part of this study is based on multifactor regression modeling. Dependent variable is annual tuition fees for undergraduate management programs at Ukraine’s leading universities (data sources: universities official websites). Independent variables are (data sources in brackets): 1) the average wage in the region of the HEI’s activity [1], 2) the university's rank in the National Rating TOP-200 Ukraine [20], as well as 3) popularity of the undergraduate management degree program in HEI (measured by the number of applications filed in the HEI for studying on the program per one licensed place). The sample size is 35 observations.

For the model fit we used statistical software R [21]. We estimated correlation coefficients significance with the hmisc package [22]. For model quality estimation we used R-Square and Root Mean Square Error, which are built in modern dive package [23].

Next step was to check whether linear regression assumptions are satisfied. These are: Global Stat, Skewness, Kurtosis, Link Function, Heteroscedasticity. We checked regression assumption with the *gvlma* package [24]. For the multicollinearity evaluation we used Variance Inflation Factor (VIF), provided within *car* package [25]. We used cutoff of 4 as a value if VIF which indicates multicollinearity.

We used tools from ggplot2 package [26] to present annual tuition fees in 2017 and theoretically justified annual tuition fees on one plot (figure 1).

Our study also included identification of unusual observations. These are: 1) Outliers, 2) Points of high leverage, 3) Influential points. An outlier is an observation, which is poorly predicted by a model; it is characterized by large residuals. Points of high leverage are characterized by unusual combination of independent variables. Influential observations have a significant impact on the results of regression analysis.

We visualized unusual observations with the Influence plot, provided within *car* package (figure 2). It is a “bubble” plot of Studentized residuals versus hat values, with the areas of the circles representing the observations proportional to the value Cook's distance. Vertical reference lines are drawn at twice and three times the average hat value, horizontal reference lines at -2, 0, and 2 on the Studentized-residual scale [25].

Results and discussion. To form an effective pricing policy for educational products, it is important to analyze the variety of factors that determine the level and dynamics of prices. The classification of factors provides an opportunity to better understand the causes of price fluctuations and to determine the role of each of the factors in pricing policy of a particular HEI and its competitors, as well as in the behavior of consumers in the educational services market. Table 2 shows the typology of factors in HEIs’ pricing policy based on the typical classification of factors in the analysis of complex socio-economic phenomena.

Table 2 – Classification of factors in pricing policy of HEIs

	Level 1: Direct Influence	Level 2: Indirect Influence
Internal factors: directly related to the HEIs activity	– Costs of resources that determine the cost and tuition fees for particular educational product (course/program). – The volume of the state order for the training in HEIs.	– Academic reputation, prestige of HEIs (positions in international and national rankings, integrity ratings). – Academic reputation, prestige of the faculty, department of HEIs responsible for a particular educational product.
External factors: related to the HEIs activity environment	– Household income level in the country; region of HEIs activity. – Demand for particular professions/jobs in the labor market. – Income of HEIs graduates for programs/courses in the labor market.	– The prestige of a certain program, course among entrants, their parents, other external stakeholders. – Pricing policy of competitors in the educational services market.
Source: authors’ results.		

The status and academic rank of HEIs, qualifications of staff, and additional professional development opportunities (studying abroad, obtaining two diplomas) can be attributed to the main criteria for choosing HEI by applicants who are willing to pay a higher price for educational products.

In pricing policy, the educational services market combines a set of pricing methods. Of these methods, the following are most common: 1) cost-oriented methods (product cost, fixed and variable costs); 2) methods focused on the value and prestige of the product in the market of educational services; 3) methods focused on competitors' prices.

HEIs do not use any of the above methods in the "pure form", but mostly combine different pricing techniques, taking into account the scale and academic rank of the HEI as well as its competitive environment and region of activity.

Thus, it can be argued that the setting of tuition fees is a complex task in which the tuition fees is a function of a variable set, including cost of personnel and other resources, the HEI academic reputation among entrants and other reference groups, popularity and prestige of the program/course in the educational services market, and demand of the population in the region of the HEI activity.

Given the differentiation of the tuition fees depending on the course, educational program, and types and levels of education, we selected undergraduate management tuition fees in the 2017/2018 academic year for our empirical analysis and modeling.

There are more than 250 HEIs that provide undergraduate management degree programs in the Ukraine. Preliminary diagnostics and qualitative analysis indicate that the factor analysis of the tuition fees within certain types of HEIs is correct. In this regard, an empirical database that includes the tuition fees and factors influencing its variation in the 35 leading state universities in each Ukraine's regions has been collected for analysis.

The correlation analysis of pricing factors in Ukrainian universities suggests that in addition to the cost of an educational product, the following factors are important in determining the market value of training:

- the level of demand in the region of HEI activity (measured by average wages in the region, Av.mon.wage; correlation coefficient with the tuition fees – 0.770, p-value < 0.05);
- academic reputation of HEI (measured by the HEI index in the National Ranking TOP-200 Ukraine, Int.ind; correlation coefficient with the tuition fees – 0.757, p-value < 0.05);
- popularity of the program in HEI (measured by the number of applications filed in the HEI for undergraduate management program per one licensed place, Comp; correlation coefficient with the tuition fees – 0.578, p-value < 0.05);

To select the optimal model of tuition fees according to a set of criteria (coefficient of determination, R^2; mean-square residual model, RMSE, etc.) the programming language R was used. The table 3 shows the statistical characteristics of the regression models of annual tuition fees for the Bachelor's degree study program «Management» in the 2017/18 academic year in the 35 leading HEIs in the regions of Ukraine.

Table 3 – Statistical characteristics of the regression models of annual tuition fees for the bachelor's program "management" in the 2017/18 academic year

Formula	R^2	RMSE	Assumptions (Global Stat, Skewness, Kurtosis, Link Function, Heteroscedasticity)	Multi-collinearity	Unusual observations* (HEIs)		
					Outliers	Points of high leverage	Influential points
1) Tuition.Fees ~ Av.mon.wage, Int.ind + Comp)	0.767	1944	Link Function	No problems	35 14 17	1 2	2 17
2) lm(log(Tuition.Fees) ~ Av.mon.wage + Int.ind + Comp	0.624	1842	No problems	No problems	14 17	1 2	1 17

* 1-National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", 2-Taras Shevchenko National University of Kyiv, 14-Lesya Ukrainka East European National University, 17-Mykolaiv V.O.Sukhomlynskyi National University, 35- Chernihiv National University.

Source: authors' results.

Based on the data in Table 3, it can be argued that it is correct to model tuition fees using a regression model of the second type, since this model fulfills all of the requirements of the least squares and the smallest value of the root mean square value of the model (RSME) is achieved.

The modeling results yield a multifactor regression model for estimating undergraduate management tuition fees at the largest classical and technical universities of Ukraine in the 2017/18 academic year:

log(Tuition.Fees) = 3,82202 + 0,00002 Av.mon.wage + 0,00217 Integr.ind + 0,01049 Comp
(0,00) (0,10) (0,13) (0,00)

Proposed model showed a significant overall effect (F = 17,15, p < 0,05). The three predictor variables explained 62,4 % of the variance in the outcome of predicted variable, and no multicollinearity was observed. Further diagnostics with Fox's car package [25] revealed five unusual observations, which were divided into 3 groups: outliers, leverage points, influential observations.

In 16 out of the 35 largest Ukrainian universities providing undergraduate management programs there was a reduction in the tuition fees compared to the position of HEI in National academic ranking, the demand for program as well population income in the region of HEI activity (figure 1).

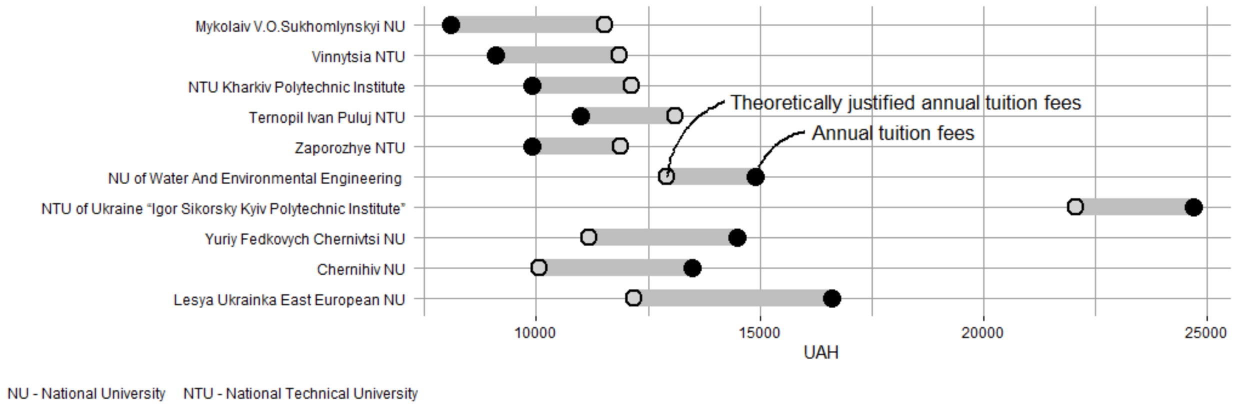

Figure 1 – Top-10 Ukraine's HEIs with the largest difference between actual and theoretically justified annual tuition fees on the bachelor's program «Management», 2017/18 academic year
Source: Authors' calculations. The database is available on the universities' sites

Based on the results of modeling, there were the five universities with the lowest tuition fees for the Bachelor's degree study program «Management» in 2017/18 academic year. These universities are characterized by the highest estimates of lost financial opportunities to receive higher revenues from tuition fees, given the academic rank of the HEI, the demand for particular education program and average wage in the regions of HEIs activities. At the same time, 11 out of the 35 largest Ukrainian universities are setting excessively high tuition fees for their undergraduate management program, assuming the risk of additional losses due to a possible reduction in the number of potential students.

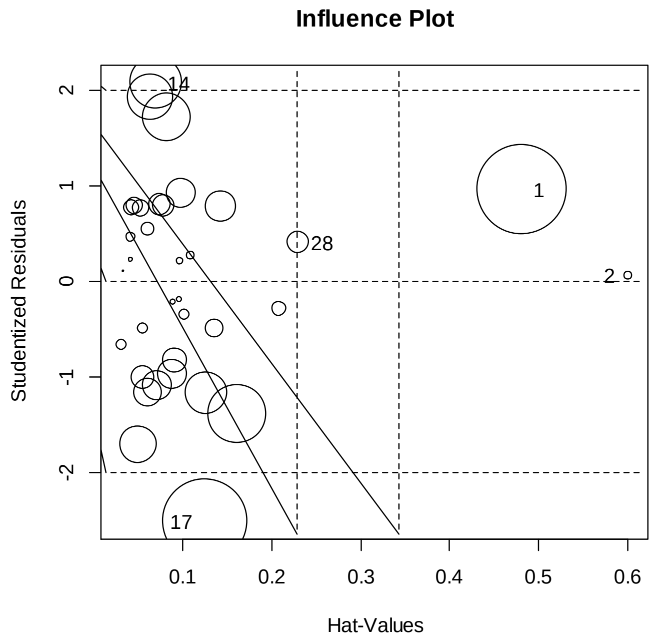

Figure 2 – The graphical interpretation of unusual observations (HEIs) in the regression models of annual tuition fees for the bachelor's program "Management", 2017/18 academic year.
Source: authors' results

Despite the satisfactory conditions for using the model 2, there are five unusual units (HEIs with numbers 1; 2; 14; 17) in this set. Such units in the software R include: 1) Outliers, 2) Points of high leverage, 3) Influential points. Figure 2 serves as a graphical interpretation of unusual HEIs in the regression model 2 of tuition fees.

For the regression model 2, outliers are the Lesya Ukrainka East European National University (14) and Mykolaiv V.O. Sukhomlynskyi National University (17). The first one has a substantial excess of the actual value over the theoretically justified tuition fees, based on the model. On the contrary, for Mykolaiv V.O. Sukhomlynskyi National University, actual tuition fees are much lower than its theoretically justified value.

Among the HEIs with high tuition of fees, there are two large Ukrainian universities characterized by an unusual combination of independent values: Taras Shevchenko NU of Kyiv (2) and the NTU of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” (1). These universities are defined in the process of modelling as high leverage points.

According to the software R, influential observations have a significant impact on the results of regression analysis. In the regression model 2, this is the NTU of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” (1) and Mykolaiv V.O.Sukhomlynskyi National University (17).

Conclusion. The processes of pricing in the Ukrainian higher education system are influenced by the set of factors associated with the market and non-market institutions of governance. The determinants of non-market institutions are the demographic factors affecting the number of actual and potential entrants, and accordingly - the demand for higher education. Demographic factors are closely interwoven with economic and market factors, in particular with consumers' demand, inflation rates, the number of competitors, the level of monopolization of the educational services market, the prestige of particular occupations in the labour market, and future revenues of graduates. These factors are related to the external environment of the HEI activity; that is, they are exogenous. The determinants of endogenous pricing are the academic reputation of HEI as well as its lecturers and researchers, along with the quality and popularity of HEIs educational products.

Using the classification of pricing factors in the higher education system, we offer a multi-factorial regression model of tuition fees for undergraduate management programs at 35 leading universities in all regions of Ukraine. The model allows us to determine theoretically justified tuition fee, which takes into account the influence of the three most significant factors - the average salary in the region of HEI activity, its academic reputation and the popularity of the educational program.

The multi-factorial regression model allows to identify HEIs setting too high, or, conversely, too low tuition fees. This HEI pricing policy increases the risk of additional losses due to a possible reduction in the number of potential students, or reduction of financial resources necessary to cover all expenses associated with training.

Thus, modeling tuition fees provides information and analytical support for making decisions in the HEI competitiveness management, taking into account market and non-market factors for pricing educational products.

Future research may focus on the influence of introducing indicative training costs at state universities in Ukraine, including the analysis of risks associated with a significant increase in tuition fees at state HEIs.

С. М. Панчишин[1], О. С. Гринькевич[1], О. Р. Марец[1], Н. Б. Демчишак[1], Н. Н. Попадинец[2]

[1]Иван Франко атындағы Львов ұлттық университеті, Львов, Украина;
[2]«Украина ҰҒА М. И. Долишний атындағы аймақтық зерттеулер институты» ММ

ЖОҒАРЫ ОҚУ ОРЫНДАРЫНЫҢ БӘСЕКЕГЕ ҚАБІЛЕТТІЛІГІН БАСҚАРУДАҒЫ ОҚУ АҚЫСЫН МОДЕЛЬДЕУ (УКРАИНА УНИВЕРСИТЕТТЕРІН МЫСАЛҒА АЛУ НЕГІЗІНДЕ)

С. М. Панчишин[1], О. С. Гринькевич[1], О. Р. Марец[1], Н. Б. Демчишак[1], Н. Н. Попадинец[2]

[1]Львовский национальный университет имени Ивана Франко, Львов, Украина;
[2]ГО «Институт региональных исследований им. М. И. Долишнього НАН Украины», Украина

МОДЕЛИРОВАНИЕ ПЛАТЫ ЗА ОБУЧЕНИЕ В УПРАВЛЕНИИ КОНКУРЕНТОСПОСОБНОСТЬЮ ВУЗОВ (НА ПРИМЕРЕ УНИВЕРСИТЕТОВ УКРАИНЫ)

Аннотация. Ценовая политика в высшем образовании как особом секторе экономики основана на общих принципах и методах ценообразования, но имеет отличительные особенности в каждой стране. Например, большинство вузов в Украине и многих других постсоветских странах являются некоммерческими организациями и устанавливают плату за обучение в соответствии с рекомендациями центрального органа исполнительной власти в сфере образования. Во-вторых, государственные и коммунальные вузы получают финансовую поддержку из центрального и местных бюджета и, таким образом, имеют дополнительные конкурентные преимущества. В-третьих, абитуриенты часто воспринимают высокую плату за обучение в качестве индикатора его качества и престижа. В связи с этим спрос на образовательные продукты вузов в основном неэластичен.

Анализ ценовой политики в системе высшего образования показывает, что плата за обучение может быть как завышенная, с учетом престижности вуза/специальности, так и заниженная, с целью привлечь большее количество студентов. Недооценка платы за обучение не покрывает расходы на образовательные услуги вузов, ограничивает финансовые возможности их развития. В то же время завышенные цены ограничивают образовательные возможности абитуриентов. Таким образом, проблемы ценовой политики обуславливают актуальность задач анализа и моделирования платы за обучение в управлении конкурентоспособностью вузов.

Целью исследования является моделирование платы за обучение с учетом внутренних и внешних факторов деятельности вузов. Выбор переменных моделей основан на теоретическом исследовании и классификации факторов ценообразования в высшем образовании. Эмпирическая часть исследования выполнена по данным официальных сайтов 35 вузов Украины. Результаты корреляционного анализа показывают, что факторами существенной вариации платы за обучение на рынке образовательных услуг в Украине являются: 1) академическая репутация вуза, 2) популярность образовательной программы/специальности среди абитуриентов, 3) доходы населения в регионе деятельности вузов. Моделирование платы за обучение с учетом указанных факторов и использованием языка программирования R позволяет выявить вузы, которые слишком занижают, или наоборот, завышают плату за обучение, а также определить ее теоретически обоснованный уровень. Результаты моделирования могут быть использованы для улучшения качества процессов принятия решений в ценовой политике вузов и повышения их конкурентоспособности.

Ключевые слова: высшие учебные заведения, конкурентоспособность, плата за обучение, анализ ценовой политики, регрессионная модель, Украина.

Information about authors:

Panchyshyn S. M. ScD in Economics, Professor, Ivan Franko National University of Lviv, Lviv, Ukraine; stepan.panchyshyn@lnu.edu.ua; https://orcid.org/0000-0002-6203-4789

Hrynkevych O. S., ScD in Economics, Associate Professor, van Franko National University of Lviv, Lviv, Ukraine; olha.hrynkevych@lnu.edu.ua; https://orcid.org/0000-0002-8646-8119

Marets O. R., PhD in Economics, Associate Professor, van Franko National University of Lviv, Lviv, Ukraine; oksana.marets@lnu.edu.ua; https://orcid.org/0000-0002-4044-7443

Demchyshak N. B., ScD in Economics, Associate Professor, van Franko National University of Lviv, Lviv, Ukraine; nazar.demchyshak@lnu.edu.ua; https://orcid.org/0000-0001-6852-7405

Popadynets N. M., PhD in Economics, M. I. Dolishniy Institute of Regional Research of NAS of Ukraine, Lviv, Ukraine; popadynets.ngmail.com; https://orcid.org/0000-0002-7556-6135

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R. Salmanova, R. Ismailova

The Academy of Public Administration under the President
of the Republic of Kazakhstan, Nur-Sultan, Kazakhstan.
E-mail: r.salmanova@apa.kz, r.ismailova@apa.kz

OPTIMIZATION OF THE BUSINESS PROCESS FOR THE PROVISION OF LAND FOR THE CONSTRUCTION FACILITIES

Abstract. The issue of efficient use of the land, as well as obtaining land from the government is one of the urgent issues in Kazakhstan. The article assesses the current system of public services “Provision of a land plot for the construction of a facility within the boundaries of a populated locality” This public service is provided for the construction of social facilities or the implementation of investor projects that are necessary for economic development. During the analysis, problems such as duplication of functions made by state bodies, dysfunctional system of request according to the principle of “One window”, bureaucracy for the consideration and the approval of a package of documents for granting the land plot were identified. To solve these problems, it was proposed to optimize the business processes of the public service “Provision of a land plot for the construction of a facility within the boundaries of a populated locality”, which allowed reducing the time, excluding duplicate functions, and increasing the transparency of the activities of state bodies.

Key words: reengineering, business process, public services, State Corporation “Government for citizens”, Local Executive body.

Introduction. Urbanization in developing countries is characterized by a mass migration of rural populations to cities in order to find work and live in a more comfortable environment. Kazakhstan belongs to this category. Today, cities such as Nur-Sultan, Almaty, Shymkent and other regional centers are attractive for living (National Report, 2016, p.5). However, population growth in cities creates a problem for the development of agglomerations around them. This is due to the fact that the load on transport and social infrastructure is increasing; there is a shortage of housing and spontaneous construction of the outskirts of the city. The pace of construction does not allow improving the situation of the shortage of housing for needy residents of the capital city.

The solution to these problems is discussed in various strategic state programs of development of Kazakhstan. Thus, the Strategy “Kazakhstan 2050” noted that “we need new effective mechanisms to align the socio-economic conditions in the regions and the development of industrial and production satellite cities around large agglomerations.”(Report of the President of the Republic of Kazakhstan, 2019) In the “Comprehensive development plan of Nur-Sultan”, the development of a consistent urban policy in housing construction, the development of space-saving territories with the provision of favorable living conditions for residents is the main goal (Resolution of the Government, 2018), and the main goal of the development Strategy of “Astana innovations” JSC for 2018-2022 – “to increase the overall satisfaction with the lives of citizens by improving the infrastructure of the city” (Development Strategy, 2018).

What measures should be taken to address these problems? Currently, local executive bodies have long-term plans for the development of the city. The main objectives are to improve the overall level of comfort of the population, create conditions and incentives for the influx of qualified staff, improve the demographic situation and improve the quality of human capital.

To achieve these goals, the main directions of development of the city are identified, including the integrated development of adjacent territories using the vast potential of the advantages of agglomeration development. The investment promotion, development of entrepreneurship, creation of a favorable environment conducive to competitiveness and creation of new jobs are also identified (Report, 2018).

In this regard, the issue of land allocation, design, and preparation for construction is a vital function of the authorized body in the field of architecture, urban planning, and management of land relations. This is due to the fact that the construction of the city begins with the distribution of land and its functional purpose. Implementation of land-use regulations by the master development plan is a tool to ensure efficient delivery of land plots with engineering networks and transport.

According to the town-planning requirements of “Rules of the organization of building and processing deconstructive procedures in the sphere of construction,” unauthorized construction of objects of various appointments in the territory of settlements is not allowed. Development and building of settlements are realized based on approved city planning projects (Order, 2015, p. 5,6).

However, obtaining land for the construction of the object has disadvantages associated with the quality of state services in the field of architecture, urban planning, and land relations. Thus, criminal statistics for 2016 showed an increase in corruption offenses in the distribution of land plots from 135 to 225 compared to 2015. The analysis showed that the restriction of access to information, the opacity of land grant procedures, contributes to the development of corruption. Duration of terms of rendering of the state service, indeed, is one more reason of Commission of corruption offenses (National Anti-Corruption Report, 2017, p. 42-43).

Public monitoring of the quality of state services in 2018 in the field of “Provision of land for the construction of an object within the settlement” revealed such problems as a technical failure when submitting documents online, inconsistent work of state bodies, long terms of consideration of documents, incompetence of employees of state bodies. In General, obtaining this service includes obtaining other services that require specific knowledge, effort, and costs. Hence the problem, one of them is an incomprehensible algorithm of actions. Also, it was identified that the service is not available for specific regions (Report, 2018, p.153-157).

According to the Agency with the corruption control of the Republic of Kazakhstan, high corruption risks remain in the field of architecture and urban planning, land relations and in the state architectural and construction control (New anti-corruption initiatives program, 2019).

According to the report “monitoring the state of corruption in Kazakhstan” from Transparency International informally resolved issues in government agencies such as the police, state universities, management of urban control and land relations (Report, 2019).

In this regard, the purpose of the article is to optimize the state service for the provision of land for construction within the settlement, which will reduce the time of consideration of the application, exclude duplicate functions, and improve the quality of public services.

Methodology. The research is based on the method of reengineering in the activities of the state body to assess the effectiveness and quality of state services. Analysis of internal and external business processes will help to identify and eliminate existing administrative barriers when obtaining land for the construction of the object in the appropriate time and on the principle of “One window”.

Analysis. The use of lands of settlements is realized according to their master plans, projects of detailed planning and building (in the presence of these projects), and projects of the land and economical device of the territory (The Land Code, 2003, p.109).

Business process of the current public service “Provision of a land plot for the construction of a facility within the boundaries of a populated locality” is implemented by the approved standard (Order, 2015) presented in figure 1.

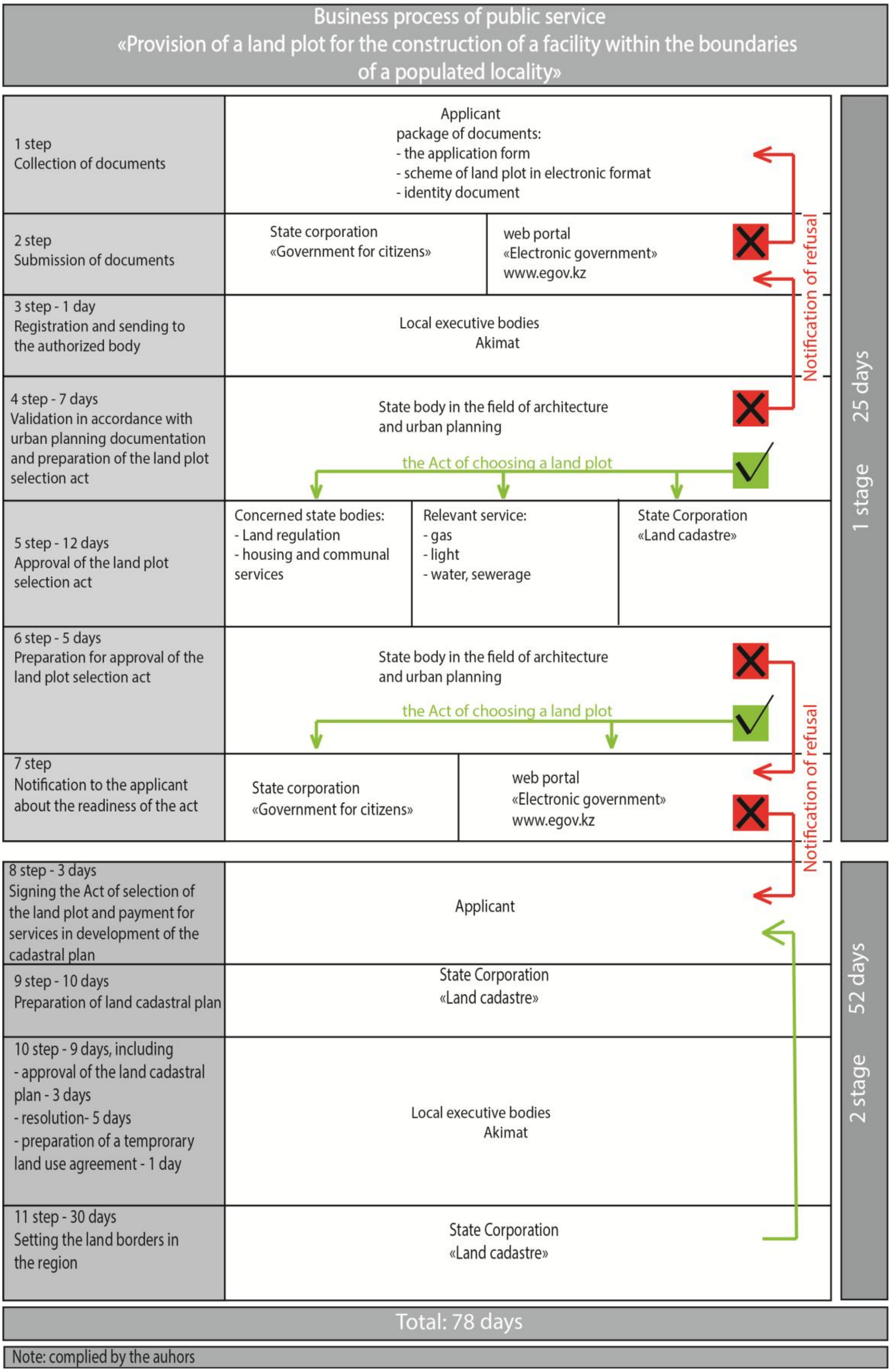

Figure 1 – Business process of land registration

Step 1 begins with the preparation of a package of documents by the Applicant, which includes an application in the prescribed form, an electronic scheme of the requested land plot, and an identity card.

Step 2 is the submission of the Applicant's documents to the authorized state body, which can be in two ways:

– through the State Corporation's “Government for citizens”;
– through the web portal “Electronic government”.

This service is available in paper and electronic formats. The package of documents is registered. Then the Applicant receives a notification of registration of the application indicating the date of receipt of the act of land selection for approval. After registration, the documents are sent to the Akimat within one working day.

In the 3rd step, the Akimat re-registers the application and redirects the documents to the relevant structural units in the field of architecture and urban planning. This procedure is realized within one working day.

Step 4 includes the procedure of validation and preparation of the act of land selection in the state body in the field of architecture and urban planning. Within seven working days, the scheme of the requested land plot is checked by the Master Plan of the city or the project of detailed planning of the city.

In cases of non-compliance with urban planning documentation, the master plan, or the plan of detailed planning, a refusal to provide a land plot is issued. Notification of rejection is sent to the Applicant through the State Corporation “Government for citizens” or through the web portal “Electronic government.” If the result is positive, the state body compose the act of choosing a land plot (here in after - the Act) with a situational scheme and submits it for consideration and approval to the relevant services.

Step 5 provides the assessment of the land for the possibility of construction work. So, the interested state bodies in the sphere of land relations and housing and communal services consider the Act on the absence of encumbrance on the land plot and its restriction or availability. A similar function is performed by the State Corporation “Land cadaster”. Here we observe duplication of the same purpose. According to the State Corporation “Land cadaster”, in the case of a definite conclusion, attach the information about the land plot and estimates for land cadastral works to pay the Applicant.

Services in the field of engineering infrastructure check the land plot for the possibility of summing up or connecting to existing networks of gas, light, water, and Sewerage. In our opinion, in this stage, it is possible to include an additional function to provide a positive impression on the technical conditions. In parallel, exclude this function in the public service to provide Architectural and planning Tasks and Technical requirements. It will reduce the time of consideration and will lead to the optimization of two state services in the future: the provision of land and permission for Architectural and planning Task and Technical conditions.

In General, if the result is positive, the coordinating bodies provide an opinion on the possibility of registration of the land plot within twelve working days. The notice about the failure of providing the land plot goes to the applicant within three working days.

The 6th step is the function of final Act of land selection registration by the authority of architecture and urban planning within five working days.

The second stage of registration of the land plot begins with the 7th step, which is associated with the transfer of notification about the readiness of the Act to the Applicant through the State Corporation “Government for citizens” or through web portal “Electronic government” for approval.

Step 8. In the case of consent, the Applicant must sign the Act and pay for the service of land cadastral works within three working days.

Step 9. The Applicant must re-apply to the State Corporation “Land cadaster” for the preparation of the land cadaster plan, which is produced within ten working days. The composition of the land cadaster plan includes:

1. Cadastral number of the land plot
2. Plan of the land plot
3. Land plot area
4. Type of right to land
5. Purpose of the land plot

6. Restriction and encumbrance of land
7. Divisibility and indivisibility of land
8. Information about related owners and land users
9. The cadastral estimated value of the land plot.

The 10th step aimed to approve the land cadaster plan in the Akimat, which is within three working days. After approval, it makes a decision about the land plot allocation to the Applicant within five working days. Further, a contract about the temporary land use with the Applicant is written one working day is set for the preparation of it. The entire package of documents is transferred to the Akimat of the State Corporation “Land cadaster”. The applicant receives the cadastral plan, the agreement on temporary land use, and the decision of the Akimat on the provision of land.

Step 11. State Corporation “Land cadaster” implements the establishment of the boundaries of the land’s border in the region for thirty calendar days.

Analysis of the business process of the current system of public services for the provision of land revealed the following shortcomings.

First, the registration of the application for the provision of land conducted three times. In the first step, the application submitted through the State Corporation “Government for citizens,” registered, and then Applicant receives a notification of the readiness of the Act. At the second step, the application is re-registered in the Akimat. The same form is registered for the third time in the authorized body in the field of architecture and urban development.

Secondly, at the fifth step, there is a duplication of the function of coordinating the Act in terms of its encumbrance and accessibility, which is simultaneously performed by two organizations: the office in the field of land relations and the State Corporation “Land cadaster”.

Third, the Act passes three times approval in the State Corporation “Land cadaster”. The first time on the 5th step is the requested land checked for encumbrances and availability. The second time at the 8th step is the preparation of the cadastral plan for the land plot for its subsequent approval in the Akimat. The third time on the 11th step is the State Corporation “Land cadaster” implements measurements and establishes the border of the requested land in the region.

Results. We propose to optimize the business process of the public service “Provision of a land plot for the construction of a facility within the boundaries of a populated locality,” which presented in figure 2.

In our opinion, the function of registration of the application in the Akimat should be excluded at the 3rd step, since the local executive body at this stage performs only the purpose of an intermediary. Also, re-registration creates unnecessary bureaucracy and affects the term of consideration, which complicates the process of providing public services.

On the other hand, a single registration number assigned to the application in the State Corporation “Government for citizens,” in the future can facilitate the process of tracking the implementation of the Applicant's request promptly. Accordingly, the registered application now goes directly to the authorized body in the field of architecture and urban planning for execution. The term of consideration and implementation remains unchanged.

To cancel the re-registration of the Applicant in the Governor's office will need to delete paragraph 3 of article 44-1 of the Land Code of the Republic of Kazakhstan, according to which local executive body within one working day to guide them in a structural unit in the sphere of architecture and urban planning.

The next optimization is related to the eliminate of the duplicate function “consideration of encumbrance and availability of land,” which is performed by both the state body in the field of land relations and the State Corporation “Land cadaster”. In our opinion, this function should be provided by the state body in the field of land relations, as in the future, it will hold the balance over the targeted development of the land plot. Also, it eliminates the conflict of interest between two organizations for the provision of land.

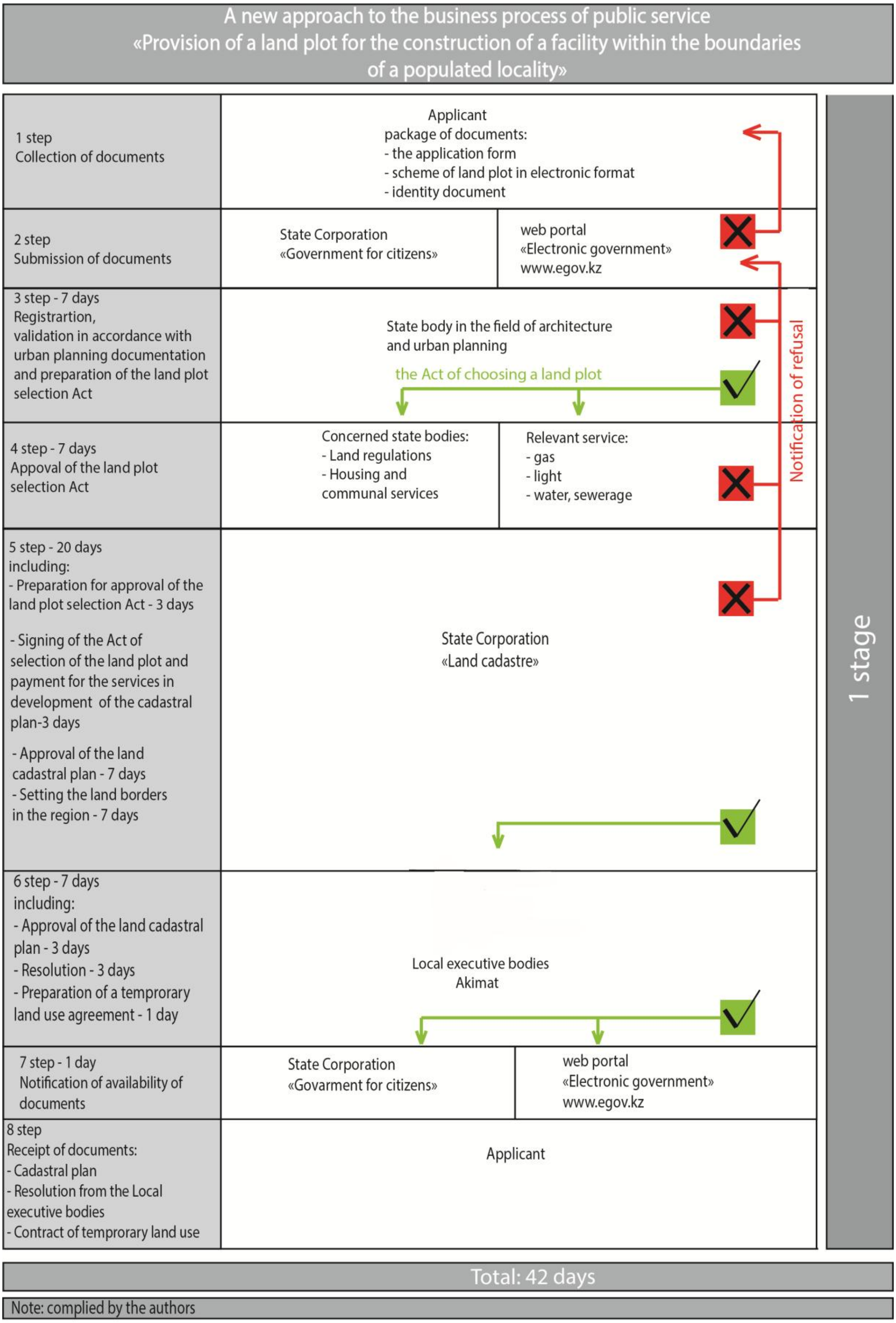

Figure 2 – Optimization of the business process of land registration

In this regard, it is necessary to amend paragraph 4 of article 44-1 of the Land Code of the Republic of Kazakhstan in part the authorized body in the field of architecture and urban planning sends the Act for approval simultaneously to all interested state bodies, relevant services, except for the State Corporation “Land cadaster”.

At the 5th step, it is advisable first of all to coordinate with the relevant services on the possibility of bringing the engineering infrastructure to the requested land plot. Only after that, the agreed Act is sent to the State Corporation “Land cadaster” for further execution. The term of the approval process is seven working days. In case of non-compliance with the requirements of the land, a refusal is issued, which is sent to the authorized body in the field of architecture and urban planning. The Applicant, receives the notification about the rejection through the State Corporation “Government for citizens” or web portal.

The following changes should be made:

- in paragraph 4 of article 44-1 of the Land Code of the Republic of Kazakhstan to replace, “the coordinating bodies submit an appropriate conclusion on the possibility of providing a land plot for the declared purpose within 12 working days” with seven working days.

- In point 4 of article 44-1 of the Land Code of the Republic of Kazakhstan "within five working days, the final act of the choice of the land plot is prepared and sent", the term of execution need to be replaced with three working days. Its implementation should be assigned to State Corporation “Land cadaster”, which prepares the final version of the Act.

To simplify the business processes within the competence of the State Corporation “Land cadaster”, it is recommended to combine “step 5, as well as 6, 7, 8, 9, and 11 steps”. It will give the opportunity to concentrate on one organization of functions of land valuation. It is advisable for the State Corporation “Land cadaster” to start preparing for the approval of the Act only after receiving a positive result from the coordinating bodies. The term of preparation of the documents needed to be reduced to 3 working days instead of 5.

In this case, the State Corporation “Land cadaster” must directly notify the Applicant about the readiness and signing of the Act, as well as payment for the preparation of the cadastral plan for the land plot within three working days.

In case of payment and approval by the Applicant of the Act, State Corporation “Land cadaster” prepares a cadastral plan for the land plot within seven working days. Then, the borders of the requested land plot in the region are held the land within seven working days. The total number of days to complete the above function takes 20 business days.

To optimize step 5 of the business process, some changes should be made:

- in paragraph 5 of article 44-1 of the Land Code of the Republic of Kazakhstan, the expression in the field of architecture and urban planning, agrees on the final act of choice with the applicant by sending a notification through the web portal of “electronic government” or State Corporation “should be replaced with the words” State Corporation “Land cadaster” prepares the final Act and agrees it with the applicant»;

- in paragraph 6 of article 44-1 of the Land Code of the Republic of Kazakhstan, the part “Signed materials are received by the State Corporation, leading the state land cadaster, for the production of the land cadaster plan" should be replaced with the words” State Corporation “Land cadaster” after agreeing on the final plan performs work on the preparation of the cadastral plan of the land plot within seven working days»;

- in paragraph 7 of article 44-1 of the Land Code of the Republic of Kazakhstan part of “the Establishment of land borders in the region is implemented after the approval of the land-cadastral plan within one month after the decision of local executive body” should be replaced with the words “the Establishment of land borders in the region is implemented after the approval of the cadastral plan in seven working days”.

In the 6th step, the Akimat, having received the entire package of documents on the land plot from the State Corporation “Land cadaster”, approves the cadastral plan within three working days. Then decides on granting the right to the land plot within three working days and within one working day, prepares the contract for temporary land use.

To do this, it is necessary to amend paragraph 8 of article 44-1 of the Land Code of the Republic of Kazakhstan regarding the term of service from 5 working days to 3 working days from the date of approval of the land cadastre plan.

Step 7. The State Corporation "Government for citizens" or the web portal "Electronic government" notifies the Applicant about the readiness of the package of documents within one working day.

In step 8, the Applicant receives the cadastral plan of the land plot, the decision from the local executive body on granting the right to the land plot, and the contract of temporary land use.

Conclusions. The optimization of the business process of the public service "Provision of a land plot for the construction of a facility within the boundaries of a populated locality" allowed:

1) to abolish the procedure of registration of the application in the Akimat. The service recipient applies once through the State Corporation "Government for citizens" or the web portal "Electronic government."

2) to exclude duplication of function at the coordination of the land plot for encumbrance and availability of the requested land plot in the State Corporation "Land cadaster." Thus, the interdepartmental bureaucracies are reduced, and the procedure for the provision of state services is simplified.

4) to combine several functions performed by the State Corporation "Land cadaster" into one business process at the 5th step. It has reduced the stages of state service from two to one stage.

5) to reduce the term of state provision "Provision of a land plot for the construction of a facility within the boundaries of a populated locality" from seventy working days to forty-two working days.

Thus, the business process of the state service has become easier due to exclusion of intermediary and duplicate functions, combination of several tasks for execution in one organization, reduction of the steps of implementation, and terms of consideration of the application. Also, the optimization will allow the Recipient to receive the full service with one appeal. Here we achieve the goal of implementing the principle of "One window."

Раслана Салманова, Рымкуль Исмаилова

Қазақстан Республикасы Президентінің жанындағы
Мемлекеттік басқару Академиясы, Нұр-Сұлтан, Қазақстан;

ОБЪЕКТІЛЕРДІ САЛУ ҮШІН ЖЕР УЧАСКЕСІН БЕРУ БОЙЫНША БИЗНЕС-ҮДЕРІСТІ ОҢТАЙЛАНДЫРУ

Аннотация. Жер участкесін мемлекеттен алу сынды тиімді пайдалану мәселесі Қазақстандағы өзекті болып саналады. Бұл мәселелерді шешу жайы Қазақстанның түрлі стратегиялық мемлекеттік бағдарламаларында айтылған. Соңғы он жылда Қазақстанда сәулет, қала құрылысы, құрылыс және жер қатынастарын реттеу саласында түбегейлі реформалар жүргізілді. Мәселен, құрылыс нормалары мен ережелері жетілдірілді, қала құрылысы құжаттамалары мен Европалық құрылыс стандарттарын әзірлеу форматтары енгізілді, мемлекеттік қызметтер тізілімі қалыптасты. Мемлекеттік қызмет көрсету бойынша стандарттар әзірленді. Бірақ осы өзгерістерге қарамастан, жер телімін рәсімдеу мәселесі ең көп талқыланатын мәселелердің біріне айналды. Мемлекеттік қызмет агенттігі жыл сайын барлық салаларда мемлекеттік қызмет көрсету сапасы бойынша мониторинг жүргізеді. Мемлекеттік қызметтер мониторингі жөніндегі есепте ең күрделі рәсімдердің бірі жер участкесін алу және құрылысқа рұқсат алу мәселесі көрсетілген. 2018 жылы «Елдімекен шегінде объект салу үшін жер участкесін беру» саласында мемлекеттік қызметтер көрсету сапасының қоғамдық мониторингі мынадай мәселелерді анықтады: құжаттарды онлайн беру кезіндегі техникалық істен шығу, мемлекеттік органдардың келісілмеген жұмысы, құжаттарды қараудың ұзақ мерзімі, мемлекеттік органдар қызметкерлерінің біліксіздігі. Жалпы осы қызметті алу белгілі бір білімді, күш-жігерді және шығынды талап ететін басқа қызметтерді алуды қамтиды. Осыдан түсініксіз іс-әрекеттер алгоритмі – мәселелер туындайды. Бұдан басқа, жекелеген өңірлер үшін қызмет көрсету қолжетімсіз екендігі анықталды. 2018 жылғы «Doing Business» есебінің деректері бойынша, бизнеске теріс әсер ететін факторлардың бірі – «жер участкесін алу саласы және құрылысқа рұқсат беру», өйткені көптеген келісімдер алу қажет.

Мақалада мемлекеттік қызмет көрсетудің қолданыстағы «Елдімекен шегінде объект салу үшін жер участкесін беру» жүйесіне баға берілген. Бұл мемлекеттік қызмет әлеуметтік объектілерді салу немесе экономикалық даму үшін қажетті инвесторлық жобаларды іске асыру үшін ұсынылады. Талдау барысында «бір терезе» қағидаты бойынша жұмыс істемейтін мемлекеттік органдардың функциясының қайталануы, жер учаскесін беруге арналған құжаттар пакетін қарау және бекіту кезіндегі бюрократия сияқты мәселелер айқындалды. Талдау ақпаратқа қол жеткізуді шектеу, жерді беру рәсімдерінің ашық еместігі сыбайлас жемқорлықтың дамуына ықпал ететінін көрсетті. Мемлекеттік қызмет көрсету мерзімінің ұзақтығы, сөзсіз, сыбайлас жемқорлық құқық бұзушылық жасаудың тағы бір себебі болып саналады.

Осы мәселелерді шешу үшін «Елдімекен шегінде объект салу үшін жер учаскесін беру» мемлекеттік қызметінің бизнес үдерістерін оңтайландыру ұсынылды. Осыған байланысты баптың мақсаты мемлекеттік қызметті оңтайландыру болып саналады, бұл өтінішті қарау мерзімін қысқартуға, қайталанатын функцияларды жоюға, сондай-ақ мемлекеттік қызмет көрсету сапасын арттыруға және мемлекеттік органдар қызметінің ашықтығын арттыруға мүмкіндік береді.

Түйін сөздер: реинжиниринг, мемлекеттік басқарудағы бизнес-үдеріс, мемлекеттік қызметтер, «Азаматтарға арналған үкімет» мемлекеттік корпорациясы, жергілікті атқарушы орган.

Раслана Салманова, Рымкуль Исмаилова

Академия государственного управления
при Президенте Республики Казахстан, Нур-Султан, Казахстан

ОПТИМИЗАЦИЯ БИЗНЕС–ПРОЦЕССА ПО ПРЕДОСТАВЛЕНИЮ ЗЕМЕЛЬНОГО УЧАСТКА ДЛЯ СТРОИТЕЛЬСТВА ОБЪЕКТОВ

Аннотация. Вопрос эффективного использования земельного участка как и получения земельного участка от государства является одним из актуальных вопросов в Казахстане. Решение этих проблем озвучивается в различных стратегических государственных программах Казахстана. За последние десять лет в Казахстане были проведены радикальные реформы в области архитектуры, градостроительства, строительства и регулирования земельных отношений. Так, были усовершенствованы строительные нормы и правила, введены форматы разработки градостроительной документации и европейских строительных стандартов, сформирован реестр государственных услуг. Разработаны стандарты по предоставлению государственных услуг. Но, несмотря на все эти изменения, проблема оформления земельного участка остается одним из самых обсуждаемых вопросов. Агентство государственной службы ежегодно проводит мониторинг по качеству оказания государственных услуг во всех сферах. В отчете по мониторингу государственных услуг указывается, что одной из самых сложных процедур является получение земельного участка и получение разрешения на строительство. Общественный мониторинг качества оказания государственных услуг за 2018 год в сфере «Предоставления земельного участка для строительства объекта в черте населенного пункта» выявил такие проблемы, как: технический сбой при подачи документов онлайн, несогласованная работа государственных органов, долгие сроки рассмотрения документов, некомпетентность сотрудников государственных органов. В целом получение данной услуги включает в себя получение других услуг, требующих определенных знаний, усилий и затрат. Отсюда и вытекают проблемы – непонятный алгоритм действий. Кроме того, было выявлено, что услуга для отдельных регионов недоступна. По данным отчета 2018 года «Doing Business», одним из факторов, негативно влияющих на бизнес, является «сфера получения земельного участка и разрешение на строительство, так как необходимо получить большое количество согласований».

В статье дана оценка действующей системе оказания государственной услуги «Предоставления земельного участка для строительства объекта в черте населенного пункта». Данная государственная услуга предоставляется для строительства социальных объектов или реализации инвесторских проектов, которые необходимы для экономического развития. В ходе анализа были выявлены такие проблемы, как дублирование функции государственными органами, нефункционирующая система обращения по принципу «одного окна», бюрократия при рассмотрении и утверждения пакета документов на предоставление земельного участка. Анализ показал, что ограничение доступа информации, непрозрачность процедур выдачи земель способствует развитию коррупции. Длительность сроков оказания государственной услуги, безусловно, является еще одной причиной совершения коррупционных правонарушений.

Для решения этих проблем, предложено оптимизировать бизнес процессы государственной услуги «Предоставление земельного участка для строительства объекта в черте населенного пункта». В этой связи целью статьи является оптимизация государственной услуги, что позволит сократить сроки рассмотрения обращения, устранить дублирующие функции, а также повысит качество оказания государственной услуги и обеспечит прозрачность деятельности государственных органов.

Ключевые слова: реинжиниринг, бизнес-процесс в государственном управлении, государственные услуги, государственная корпорация «Правительство для граждан», местный исполнительный орган.

Information about authors:

Salmanova Raslana, second year doctoral student, Executive Doctorate in Public Management, The Academy of Public Administration under the President of the Republic of Kazakhstan, Nur-Sultan, Kazakhstan; r.salmanova@apa.kz; https://orcid.org/0000-0003-1335-1128

Ismailova Rymkul, Doctor of Economic Sciences, Full Professor in Economics, The Academy of Public Administration under the President of the Republic of Kazakhstan, Nur-Sultan, Kazakhstan; r.ismailova@apa.kz; https://orcid.org/0000-0002-8934-5181

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A. B. Amerkhanova[1], V. R. Meshkov[2]

[1]L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan;
[2]Plekhanov Russian University of Economics, Moscow, Russia.
E-mail: amerkhanova080@gmail.com, meshkov_vr@mail.ru

PROBLEMS OF STRATEGIC PLANNING OF OIL AND GAS INDUSTRY IN A TURBULENT ENVIRONMENT

Abstract. In market conditions the external environment, economy, technology, politics, culture and society in general that affect the organization's activities are constantly changing. Therefore, strategic analysis and planning is a tool for forming an attitude to the future of the organization taking into account these changes, as a tool for reacting and adapting to such changes.

To ensure the adaptability of strategic planning, effective contingency measures must be provided for in all types of planning. At the same time, at each stage of strategic planning, its adaptive potential must be realized.

In a competitive economy, most domestic enterprises are required to make qualitatively new decisions for long-term effective development. Planning should facilitate the adaptation of the enterprise to market requirements in accordance with the goals and objectives of the enterprise, its internal capabilities and environmental conditions. In this regard, planning is becoming more and more strategic. However, traditional long-term planning does not lose its relevance, since strategic planning is based on traditional long-term planning.

In developed market economies, tools for developing long-term development scenarios for companies have been the subject of research for decades. The experience of foreign forecasting is widely used by Kazakhstani companies today. However, as practice shows, direct use and copying of foreign experience in the development of strategies often lead to errors and distortions. In practice, Kazakh companies need to apply appropriate tools and mechanisms for strategic planning, coordinated and adapted to the specific risks.

The goals and main provisions of strategic planning of oil companies are discussed in the article. The role of the oil industry in the main macroeconomic indicators of the country's development is shown.

Key words: strategic planning, entrepreneurial activity, crisis, strategic planning process.

Introduction. At present time one of the main tasks for Kazakhstan is to increase the competitiveness of the country's economy, its regions, and enterprises. Modern trends in the development of the country's economy are characterized by a variety of forms of entrepreneurship with different organizational and legal status and type of ownership. For a civilized business focused on innovation, the study of entrepreneurship as an object of management becomes relevant.

Main part. Today, Kazakhstan's business structures are mostly represented by individual entrepreneurs, but small and medium-sized businesses are also distinguished. In 2018, according to the Statistics Committee of the MNE of Kazakhstan, medium and small businesses in Kazakhstan provided 27.1% of all jobs in the country and produced 25.4% of the gross domestic product. While in developed economies (the United States, the European Union, and China), medium and small businesses provide almost 80% of all jobs and produce 40 to 70% of the gross domestic product. Both small and large entrepreneurship solve their tasks set to achieve the goal, and face problems that are often similar [1].

The main problems of business structures in the Republic of Kazakhstan are low development level, unpredictability, "close horizons" of business planning. The demand for strategic planning of business is currently dictated by the need to take into account their actions in the market and be ready for possible changes, as well as the ability of business structures to justify their requests for funding and prove that they are able to successfully implement the proposed projects and get a significant financial return in the long term [2].

Despite the fact that significant experience in strategic business planning has been accumulated by this time, this problem remains actual and insufficiently studied.

There are still divergent interpretations of the concept of "strategic planning" in relation to business activities, there is a lack of development of comprehensive theoretical and methodological tools and practical mechanisms for strategic planning of business activities. In addition, there are different opinions in the literature concerning the use of certain tools for strategic planning of business activities in the field of industrial production, as well as the development of prospects for the business structures creation [3].

In modern conditions, when the requirements for the competitiveness of economic entities are increasing, strategic planning is designed to ensure the main parameters of the effectiveness of the business structures development, such as a stable market position, timely adaptation of production and management systems to dynamic changes in the external environment [4].

With the increasing dynamism of the economic environment, the planning process, which corresponds to the competitive type of response of the business structure, becomes insufficiently effective. In this case, the actions of business structures cannot be considered as a simple response to changes. So the role of strategic planning increases. The main purpose of strategic planning is to justify the choice and implementation of strategic priorities for the development of business structures based on modern scientific approaches and technologies [5].

The adaptability of economic entities to the changing market environment in modern sociodynamics is one of the important conditions for their successful functioning. A combination of actions that allow business to adapt to changes in market conditions ensures the competitiveness of the business, regardless of its size. Large, medium, small and micro enterprises are looking for their own ways to survive in the new conditions of existence. These can be evolutionary, gradual changes that follow the movements of the external environment. As practice shows, this path of trial and error in modern socio-economic dynamics is doomed to failure.

A more effective way, as demonstrated by the last 50 years, is strategic development, which is a set of actions that ensure business competitiveness, puts forward-looking planning in the framework of specific tools – a set of methods, procedures, tools that allow businesses to determine their position here and now and view it in the dynamic future [2].

In modern market conditions, the achievement of this goal determines the need to use a strategic approach in business, which explains the close relationship between the goal and the strategy for the development of business activities of the enterprise.

In practice, many Kazakh enterprises are characterized by the uncertainty of the strategic-target complex for the development of business activities. The usual goals are to get a "good" profit and develop business activities of the enterprise, strategies, established traditions or convenient for a specific situation. Such strategies lose their guiding and stabilizing effect, allow any creativity of personnel, justify any costs, and contribute to the dispersion of forces and funds[6].

Sometimes the purpose of business development is clearly defined by the management, but it is mainly used only for "internal" use.

Some aspects of the strategy for achieving a certain goal are brought to the middle management level on a case-by-case basis. This policy is based on confidentiality considerations, and often because the Manager does not give authority or assess the ability to" automatically" coordinate the activities of all employees who provide the adopted strategy. As a result, the staff has their own (and different) ideas about the goals and business development strategies of the enterprise, which are guided in their actions [7].

The lack of an adequate strategy for the development of business activities, even if there is a clearly formulated goal, provokes the acquisition of tactical advantages in the market at the expense of strategic ones. Maximum profit "today" is not always useful to the company. For example, it is sometimes advantageous to restrict sales to large wholesalers who may become competitors, or to provide" extra" benefits to buyers in order to increase the barrier to competitors entering the market. Long-term benefits fall out of the line staff's field of view if the method for achieving them is not set programmatically.

As a rule, entrepreneurs start a business in the area where they are most competent. This is more typical for small and medium-sized businesses. At the same time, such managers often lack professional managerial competencies, in particular, skills of strategic planning and forecasting. They are not able to critically assess the viability of their own business ideas and probabilistic models of market development, seeing only the positive sides of their beginnings.

A business plan drawn up by a future entrepreneur may contain a biased assessment of possible environmental disturbances, risks, and opportunities. Extrapolation of past trends to the future leads to one-direction and non-viability of the strategy, reducing the chances of the business structure to obtain and maintain a competitive advantage in the long term. If you do not have the skills of independent business planning, in order to develop a strategy and draw up a business plan, business leaders attract external consultants, whose work often results in standard strategies that are disconnected from real business practices and market conditions and therefore difficult to implement [8].

Entrepreneurs ' lack of skills and experience in managing change hinders the implementation of the strategy. It remains on paper – not implemented or revised. Even with a formalized strategy, top managers of an established business structure are focused on solving operational management tasks and making a profit in the short term.

In order to get a quick return on investment, they tend to participate in new risky and seemingly promising projects, while not wanting to invest in the development of the internal environment and forecasting possible scenarios for changes in the external environment. Operational problems dominate over strategic ones, which lead to the overload of top managers and force them to use a reactive type of management, which causes the loss of achieved positions in the market or business stagnation.

As for the development prospects of Kazakhstan, since the country's independence, it has been linked to long-term plans for the production of hydrocarbons, the income from which should become the basis for creating a diversified domestic economy. Refining industry identified among the leading sectors of the oil and gas complex. The realization of a long-term strategy of socio-economic development formulated by the first President of Kazakhstan in strategy "Kazakhstan – 2050" depends on the effective development of this industry.

There are 202 oil and gas fields located in the territory of the Republic of Kazakhstan. Projected recoverable oil resources are estimated at 7.8 billion tons, and natural gas is estimated at 7.1 trillion m^3. About 70% of these resources are concentrated in the Western regions of Kazakhstan. The majority of it is associated with subsalt fields which are at depths of about five thousand meters or more [9].

Oil production is carried out at 55 fields. The largest fields are Tengiz (oil), Uzen (oil and gas), Karachaganak (oil and gas condensate), Zhanazhol (oil and gas condensate), and Kalamkas (oil and gas). Oil companies cannot function without long-term planning.

At the moment in the domestic oil industry with a number of large foreign companies, representing more than 45 countries, including USA, UK, France, Italy, Switzerland, Germany, Russia, Japan, China, Indonesia and others. The largest investment activity is shown by such large companies as "North Kaspian operating company" (18%), JV "Tengizchevroil" (15%), JSC "Mangistaumunaigas" (12%), JSC "SNPS-Aktobemunaigas" (11%), JSC "Ozenmunaigas" (8%), JSC "Embamunaigas" (4%), JSC "Petro-kazakhstankumkolresorsiz" (3%), JSC Turgay — petroleum (3%), JSC Karazhanbasmunai (2.5%), and FC Buzachi operating Ltd (2 %) [1].

According to the data announced by departmental sources in recent years, Kazakhstan adheres to a pragmatic scenario aimed at a consistent increase in oil production to 95-100 million tons in 2020, to 110-115 million tons by 2030, and stabilization in 2040-2050 at the level of 110 million tons [10].

The main problems in the field of production and processing of oil and gas raw materials today include the shortage of Kazakhstan's specialized personnel, a small number of processing enterprises for hydrocarbon raw materials and a relatively small coefficient of recoverability of hydrocarbons.

One of the central issues that haven't been resolved to date is the shortage of qualified specialists in the oil and gas sector. This problem is directly related to the problems of the education system of the Republic of Kazakhstan. The personnel deficit of oil workers from Kazakhstan was felt almost at all times. Now, as before, this problem is solved by inviting specialists from abroad to senior positions.

When solving the tasks of dynamic development of oil and gas enterprises and the state as a whole, it is necessary not only to act decisively, but also to carefully consider future steps. In short, the oil and gas sector is the driving force of the socio-economic reforms being implemented in the Republic, and it is the conductor of modern innovative and managerial decisions.

The time-line of the project from exploration to commissioning of the field is 10-12 years. In the developed regions, with other favorable conditions, it is five years. On average, it takes another 5-7 years from the first oil to reach the project production level. Before a normal return on capital, which makes sense to invest money is 15 years. In other words, the average payback horizon for a field development project from scratch is 20-25 years. If, in addition, the project involves the use of new technologies, then it may only take a decade for this technology to mature. A good example is the development of shale oil fields in the United States. Industry pioneers started drilling their first wells in the 1990s, and their efforts paid off in the 2010s [11].

The development of a strategic plan, the final version of which must be based on extensive research and evidence, is a major challenge. To function effectively in a highly competitive environment, oil companies must constantly collect and analyze a huge amount of information about the industry, market, competitors, and other factors.

Strategic plans must be designed not only to remain coherent over long periods of time, but also to be flexible enough to be modified and reoriented if it is necessary. The overall strategic plan should be considered as a program that carries out the activities of an oil company for a predetermined period of time. At the same time, it is necessary to realize that the conflict and constantly changing business and social environment makes constant adjustments to the strategic plan inevitable.

Strategic planning is the only way to formally predict future challenges and opportunities, and therefore provides the basis for making appropriate management decisions. In addition, formal planning helps reduce risks when making management decisions, including by considering erroneous or inaccurate information about the Corporation's capabilities or the external situation. Planning, because it serves to formulate goals, helps participants in all business processes to create a unity of common purpose within the oil company [89].

A widespread methodological error that occurs in the strategic management of an oil company development is that certain aspects of development are considered and particular tasks are solved separately (the development of the production technological base, the formation of an investment program, the intensification of production), which leads to inconsistency, and often to the low level of realization of management decisions. Taking this into account, in order to improve the efficiency and coordination of management decisions, the development of an oil company should be considered as a single cross-functional business process. This process covers the analysis of the market environment of the system, the formation, coordination and optimization of options for "technological" development and financial and economic schemes for their implementation. This takes into account the results of operating and financial activities of the company, which operates on the basis of a unified methodology and modern information management technologies.

As a rule, the strategy of oil companies is aimed at expanding the scope of operations, increasing sales and profits. However, in real conditions, following such a strategy may be limited by numerous factors, the main of which are: market saturation, competition with manufacturers of similar petroleum products, the possibility of falling under the antitrust law when trying to displace competitors from the market, causing damage to the environment, etc.

To reduce the effect of such limiting factors, the following strategic approaches are used [12]:

– penetration of new geographical markets;

– development and supply of new types and grades of petroleum products to the existing or new market;

– acquisition of advanced production technology from another company or merging with a manufacturer in order to expand the range of products (this way is faster than developing new products in-house, but requires significant financial resources).

There are strategic principles that will allow the company to maintain its business by meeting the requirements of tomorrow, regardless of market volatility in the short term:

– Continuous management of the asset portfolio as a whole at significantly lower break-even prices, regardless of actual oil prices;

– Adhering to strict financial discipline;
– Shift the focus on maintenance of assets when investing and carrying out activities;
– It is necessary to replace the owner-operator model with an approach where only the owner is important and profitability is the priority;
– Implementation of the digitalization policy;
– Professional development of specialists to prepare them for work in the era of new technologies.

Strategic planning usually includes 4 areas of management activity:

1) Resource allocation program;
2) Ways to adapt to the external environment;
3) The direction of internal coordination;
4) Organizational strategic foresight.

The resource allocation program includes the allocation of usually limited organizational resources, such as investment funds, scarce management personnel, and technological expertise.

Adaptation to the external environment covers all actions of a strategic nature that improve the relationship of the Corporation with its external environment. Oil companies need to adapt to external conditions, both favorable and unfavorable, develop appropriate optimal options for action and ensure effective adaptation of the strategy to the surrounding conditions, primarily through the development of better production systems, through interaction with authorities, creating a favorable image, etc.

Internal coordination includes the coordination of strategic activities to show the strengths and weaknesses of the Corporation in order to achieve effective integration of internal actions of its business processes.

Ensuring effective internal operations is an integral part of the Corporation's management activities.

The search for organizational strategies is the main goal of organizational strategic foresight. In addition to other organizational tasks, it also solves the problems of systematic development of managers ' thinking by creating a training organization in which they can learn from previously made strategic decisions. The ability to learn from experience allows an oil company to correctly adjust its strategic direction and improve the level of management in the field of strategic management.

The following main stages of solving strategic planning tasks can be distinguished [12 p. 10]:

– Defining strategic development goals and criteria for achieving them;
– Diagnostics of problems and opportunities for the organization, including their identification, determining of causes and consequences for the organization;
– Development of various options for solving problems and / or using existing opportunities;
– Analysis of the likely consequences of implementing each of the planned options;
– Choosing the most appropriate option;
– Planning - moving from describing what should be done to describing how it should be done (creating budgets, scheduling schedules, distributing tasks among performers, etc.);
– Measuring and predicting results and comparing them with the intended goals;
– Assessment of trends and major changes occurring both within organizations and in the external economic environment;
– Informing the performers about elements of the strategic plan and creating a motivational environment for its implementation.

The implementation of these stages of the strategic planning process should ensure the formation of long-term strategic development programs for vertically integrated companies and monitoring their implementation. If the strategic planning function is successfully implemented in an oil company, then the formation of long-term programs will be based on a unified methodology, formalized models and methods, information technologies and software and algorithmic tools for decision support.

Conclusions. In March 2020, the corona virus epidemic triggered a sharp decline in demand for oil from China, one of the world's largest consumers of hydrocarbons. Over the past two years oil industry has provided more than 1 trillion USD revenue to the budget. If the price of oil falls to $ 25, the export customs duty will reach zero and revenues from oil companies will be zero. If current prices for "black gold" are maintained, the budget deficit of Kazakhstan may amount to 1.2% of GDP, and Treasury revenues from oil and gas exports will be reduced by 3 times. The main task that we face is to save job places. Given the low oil prices, there are still risks of losing job places in the oil and gas industry. Today, more than 2000 companies are represented in the country's oilfield services, which employ about 200 thousand employees. The situation on the world oil market is not expected to improve in the coming years [1 p. 12.].

If considered objectively, the cuts may not affect oil and gas companies and their direct contractors, but primarily oilfield service companies in Kazakhstan. In particular, this will be due to the completion of work on projects and budget cuts in oil and gas companies. For example, this summer, about 5,000 people will be released from the TCO's future expansion project.

A number of important measures need to be taken to maximize the preservation of jobs and reduce social tension in the regions:

- prevent revision of the cost of existing and new contracts for oilfield services;
- provide for indexation of existing contractor's contracts taking into account the growth of inflation and adjustment of the national currency exchange rate;
- analyze the financial condition of major oil companies;
- accelerate the implementation of new investment projects, in particular, the Karachaganak expansion project, where the investment volume is about $4 billion, and the construction of gas and chemical projects;
- support Kazakhstan oilfield service companies in exporting their services.

These and other measures can help to reduce the negative impact on the Republic's economy from a sharp drop in hydrocarbon prices and an outbreak of Corona virus.

Thus, the proposed measures for the introduction of modern methods of work at the enterprise level and the creation of a comprehensive strategic planning system are becoming more and more relevant for Kazakhstan's oil companies operating in highly competitive conditions. Despite the fact that strategic planning as a separate element does not guarantee success, it simultaneously creates conditions for the emergence of some important and favorable factors for the development of the company.

А. Б. Амерханова[1], В. Р. Мешков[2]

[1]Л. Н. Гумилев атындағы Еуразия ұлттық университеті, Нұр-Сұлтан, Қазақстан;
[2]Г. Плеханов атындағы экономика университеті, Мәскеу, Ресей

ТУРБУЛЕНТТІК ОРТА ЖАҒДАЙЫНДА МҰНАЙ ЖӘНЕ ГАЗ ШАРУАШЫЛЫҒЫН СТРАТЕГИЯЛЫҚ ЖОСПАРЛАУ МӘСЕЛЕЛЕРІ

Аннотация. Нарық жағдайында ұйым қызметіне әсер ететін сыртқы орта, экономика, технология, саясат, мәдениет салалары және жалпы қоғам үнемі өзгеріп отырады. Сондықтан стратегиялық талдау және жоспарлау осындай өзгерістерге реакция білдіру және бейімделу құралы ретінде аталған өзгерістер негізінде ұйымның болашағына көзқарас қалыптастыру құралы болып саналады.

Стратегиялық жоспарлаудың бейімделу сипатын қамтамасыз ету үшін жоспардың барлық түрінде күтпеген жағдай туындаған кезде тиімді шараларды қарастыруы қажет. Сонымен қатар, стратегиялық жоспарлау кезеңдерінде оның бейімделу әлеуеті іске асырылуы керек.

Бәсекеге қабілетті экономика жағдайында отандық кәсіпорындардың көпшілігінен ұзақмерзімді тиімді даму үшін сапалы жаңа шешім қабылдау талап етіледі. Жоспарлау кәсіпорынның мақсаты мен міндеттеріне, оның ішкі мүмкіндіктері мен қоршаған орта жағдайына сәйкес нарықтық талаптарға бейімделуге мүмкіндік беруі керек. Осыған байланысты жоспарлау барған сайын стратегиялық сипатқа ие болуда. Сонымен қатар, дәстүрлі ұзақмерзімді жоспарлау өзектілігін жоғалтпайды, өйткені стратегиялық жоспарлау дәстүрлі ұзақмерзімді жоспарлауды негізге ала отырып құрастырылады.

Нарық экономикасы дамыған елдерде компаниялар үшін ұзақмерзімді даму сценарийлерін жасау құралдары ондаған жылдар бойы зерттеу нысаны болып келді. Шетелдік болжау тәжірибесін бүгінде қазақстандық компаниялар кеңінен қолдануда. Алайда, тәжірибе көрсеткендей, стратегияларды әзірлеу кезінде шетелдік тәжірибені тікелей пайдалану және көшіру көбінесе қателіктер мен бұрмалауға әкеледі.

Тәжірибеде қазақстандық компаниялар тәуекел ерекшелігін ескере отырып, келісілген және бейімделген тиісті стратегиялық жоспарлау құралдары мен тетіктерін қолдану қажет.

Мақалада мұнай саласындағы компаниялардың стратегиялық жоспарлау мақсаттары мен негізгі ережелері қарастырылған. Мұнай өнеркәсібінің ел дамуының негізгі макроэкономикалық көрсеткіштеріндегі рөлі көрсетілген.

Түйін сөздер: стратегиялық жоспарлау, кәсіпкерлік қызмет, дағдарыс, стратегиялық жоспарлау үдерісі.

А. Б. Амерханова [1], В. Р. Мешков [2]

[1]Евразийский национальный университет им. Л. Н. Гумилева, Нур-Султан, Казахстан;
[2]Российский экономический университет им. Г. В. Плеханова, Россия

ПРОБЛЕМЫ СТРАТЕГИЧЕСКОГО ПЛАНИРОВАНИЯ НЕФТЕГАЗОВЫХ ХОЗЯЙСТВ В УСЛОВИЯХ ТУРБУЛЕНТНОЙ СРЕДЫ

Аннотация. В условиях рынка внешняя среда, в которой приходится действовать организации находится в постоянном изменении как в отдельных областях экономики, технологии, политики, культуры, так и общества в целом. В этой связи стратегический анализ и планирование являются одновременно и реакцией, и средством адаптации к таким изменениям, и формированием видения будущего организации в контексте этих изменений.

Чтобы обеспечить адаптивный характер стратегического планирования, все виды планов должны предусматривать действенные мероприятия на случай непредвиденных обстоятельств. Причем на каждом этапе стратегического планирования должен реализовываться свой адаптационный потенциал.

В условиях конкурентной экономики от большинства отечественных предприятий требуются качественно новые решения долгосрочного эффективного развития. Планирование должно позволить адаптировать предприятия к требованиям рынка, в соответствии с целями и задачами предприятия, его внутренними возможностями и условиями внешней среды. В этой связи планирование все больше приобретает стратегический характер. При этом традиционное долгосрочное планирование не теряет своей актуальности, поскольку стратегическое планирование не отрицает традиционное долгосрочное планирование, а вбирает его.

В странах развитой рыночной экономики инструменты разработки долгосрочных сценариев развития компаний являются предметом исследований на протяжении многих десятилетий. Зарубежный опыт прогнозирования сегодня широко применяется и казахстанскими компаниями. Однако, как свидетельствует практика, прямое использование и копирование зарубежного опыта для разработки стратегий часто приводит к ошибкам и искажениям. Необходимо применять в практике инструментарий и механизм стратегического планирования, который должны быть согласован и адаптирован к казахстанским компаниям с учетом специфики рисков.

Рассмотрены основные положения и цели стратегического планирования компаний нефтяной промышленности. Показана роль нефтяной отрасли в основных макроэкономических показателях развития страны.

Ключевые слова: стратегическое планирование, предпринимательская деятельность, кризис, процесс стратегического планирования.

Information about authors:

Amerkhanova A.B., Associate Professor of the Management Department of L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan; amerkhanova080@gmail.com; https://orcid.org/0000-0003-0465-272X

Meshkov V.R.**,** Ph.D., Associate Professor, Plekhanov Russian University of Economics, Moscow, Russia; meshkov_vr@mail.ru; https://orcid.org/0000-0001-6539-0159

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Р. А. Муратова

Казахский университет международных отношений
и мировых языков им. Абылай хана, Алматы,Казахстан.
E-mail: rose1950@mail.ru

РАЗВИТИЕ ИНДУСТРИИ ТУРИЗМА НА ОСНОВЕ РЕОРГАНИЗАЦИИИ СТРОИТЕЛЬНОГО КОМПЛЕКСА РЕСПУБЛИКИ КАЗАХСТАН

Аннотация. В статье рассматриваются основные направления развития туристической сферы Республики Казахстан. Туристская сфера является одним из наиболее перспективных направлений экономики любого государства. Подчеркивается мультипликативный эффект раазвития туристической деятельности для всех отраслей экономической деятельности страны. В статье приведены система учета показателей в статистике Республики Казахстан.

Для раскрытия туристического потенциал необходимо создание соответствующей инфраструктуры. Анализируются статистические данные развития сферы туризма за 2018 год на основании статистических данных Комитета по статистике республики. Рассмотрены показатели численности въехавших и выехавших из страны по регионам в разрезе санаторно-курортных зон. В работе подчеркивается структурная дифференциация туриских направлений и отдельных сфер.Рассматриваются направления развития инфраструктуры туристической сферы Республики Казахстан в разрезе имеющихся санаторно-курортных объектов и природно-охраняемых территорий регионов, в том числе входящих в объекты всемирного нследия ЮНЕСКО и имеющих уникальное значение. Отмечена необходимость реорганизации строительного комплекса страны для развития индустрии туризма и создания объектов инфраструктуры комплекса. Выделены конкретные направления развития строительного комплекса. В работе отмечается перспективность развития Мангыстауского региона, и всего Западного Казахстана. В статье отмечается перпективность развития традицонных санаторно-курортных зон и природоохраняемых территорий. Предложена концептуальная схема функционирования строительного концерна страны с выделением процессов интеграции туристических организаций, строительных подразделений и проектных и инжиниринговых фирм и компаний развитием сети предприятий строительной индустрии.

Ключевые слова: туризм, инфраструктура, отрасли экономической деятельности, строительный комплекс.

Введение. Туристическая отрасль является одной из наиболее экономически важных отраслей развития экономики. В некоторых странах доля валового внутреннего продукта, создаваемого в туристической сфере, достигает 60% в общей структуре. Туристическая сфера является наиболее востребованной отраслью ввиду незначительных финансовых вложений в развитие инфраструктуры, это наименее фондоемкая и ресурсоемкая отрасль, не требующая высокоиндустриального производства. Залогом привлекательности этого направления экономики являются благоприятные климатические условия, разнообразный животный и растительный мир, удобство природного ландшафта, наличие магистральных сетей и развитая инфраструктура. Одним словом, привлекательность всемирно известным туристическим объектам создает сама природная среда, а также интересная древняя и современная история. Казахстан до сих пор является для внешнего мира малоисследованной страной, с самобытной богатой культурой, уникальной разнообразной природой, памятниками эпохи палеолита. Достаточно напомнить о наскальных изображениях и скультурах Мангыстау, плато Устюрт, Мугоджарских горах, нскальных рисунках Восточного Казахстана [1].

Экономика Казахстана имеет многосекторный характер, в которой наиболее развиты первичный сектор экономики и частично вторичный сектор, то есть добывающие отрасли.Сфера услуг, в которой относится туристическая деятельность представлена относительно скромными размерами и вклад в создание валового внутреннего продукт страны не превышает 1%, но прогнозам заместителя председателя правления национальной компании «Kazakh Tourism» Тимура Дюйсенгалиева планируется довести эту величину до 8%, при этом вложения в инфраструктуру отрасли за этот период должны составить 1,5 млрд.тенге [2]. К тому же аналитики отмечают, что несмотря на рост числа прибывающих в страну эффективность туризма ниже, чем в той же Грузии, в которой имела место обратная статистика [3]. Необходимо отметить, что нынешняя ситуация с пандемией должна особенно остро ударить по развитию отрасль, и в настоящее время туризм является одной из наиболее экономически пострадавшей сферы услуг. Но вполне естественно, что после открытия границ и снятия ограничений в летний период международный и внутренний туризм вновь станет активно развиваться и приносить доходы.

Целью данного исследования является анализ процессов и возможностей формирования инфрастуктуры туристической отрасли на основе активизации деятельности строительного комплекса Республики Казахстан в этом направлении.

Задачами исследования является анализ состояния развития туристической сферы и размещения туристических объектов в регионах республики на основе реконструкции, модернизации, возведения новых объектов инфраструктуры туристической отрасли.

Методы исследования – анализ и выявлеиие тренда в развитии основных показателей туристической сферы, аналитические исследования. База исследования: статистические аналитические выкладки и экспертные данные.

Основная часть. В настоящее время изучение туризма стало самостоятельным научным направлением. Туризм, в основном, рассматривается как отрасль социально-экономического направления. В то же время при изучении этого научного направления необходимо опираться на знание законов природы, экологических законов, так как именно туризм, практически все его виды тесно взаимосвязаны с природной средой, в которой расположены туристские локации. Формирование объектов туризма основано на изучение основ экономической географии.Также немаловажное значение имеет и юридическая сторона турисктой деятельности. Эти вопросы особенно важны в международном туризме, так кк процедура оформления зарубежной поездки должна учитывать требования миграционного законодательства стран посещения, решение визовых вопросов и т.д. Осуществление туристской деятельности представляет собой важную сферу международных экономических отношений.

Развитию туризма как науки способствовали такие отечественные и зарубежные, как Гезгала Я. [5], Г.М. Дуйсен [6], Л.П. Валеевва С.В. [4], С.Р. Ердавлетов [7,8], С.Т Зиядин [9], В.А. Квартальнов [10], Никитинский Е.С. [11], Сапрунова В.Б. [12], А.А. Смаилов [13], Х, Тулегенова [14]. Шабалина [15] и многие другие.

Следует отметить, что развитие туристической отрасли имеет мультипликативный эффект и благодаря ей создается много дополнительных рабочих мест, производится различная продукция и оказываются услуги в смежных отраслях, непосредственно или косвенно связанных с туристической деятельностью. Вклад в валовой внутренний продукт республики оценивается через показатели валовой добавленной стоимости отраслей туризма (ВДСОТ) и создаваемой непосредственно в сфере туризма валовой добавленной стоимости (ВДНСТ).

В таблице 1 приведены данные по численности туристов за 2018 год: выехавших и въехавших, внутренних туристов в Республике Казахстан с указанием мест размещения.

Таблица 1 – Количество обслуженных посетителей по типам туризма
по Республике Казахстан за 2018 год (тыс. человек)

	Выездной	Въездной	Внутренний
Всего	10 646,2[1)]	8 789,3[1)]	5 864,7
из них			
местами размещения[2)]		830,9	4 695,9
санаторно-курортными организациями[3)]		2,2	296,9
особо охраняемыми природными территориями[4)]		364,9	871,9

1) Данные Пограничной службы Комитета Национальной Безопасности Республики Казахстан. 2) Данные общегосударственного статистического наблюдения по форме 2-туризм «Отчет о деятельности мест размещения». 3) Данные общегосударственного статистического наблюдения по форме 1-санаторий "Отчет о санаторно-курортной деятельности". 4) Оценка по данным ведомственного статистического наблюдения Комитета лесного хозяйства и животного мира Министерства сельского хозяйства Республики Казахстан по форме 1 ООПТ «Учет особо охраняемых природных территорий» [3].

Следует отметить, что въездные зарубежные посетители, в основном, совершают поездки, связанные с деловыми и личными целями, в общей сложности они редко используют места размещения и санатории, также особо охраняемые природные территории. Как видно из приведенных данных, в 2018 году жители республики чаще выезжали за пределы страны, превышая количество въехавших в страну на на 2 млн.человек, что соответствовало почти 20% разрыву показателей.

Доля внутренних туристов, посещающих туристические объекты Казахстана, составляла около 50% от числа выехавших за пределы страны. При этом внутренние туристы в основном останавливались в саторно-курортных зонах, оснащенных местами проживания. Из общего числа въехавших в страну туристов лишь 10% пользовались местами размещения. Это свидетельствует, помимо прочих факторов, о недостаточном развитии сервиса в регионах, особенно в отдаленных населенных пунктах. К тому же к лицам, посетившим нашу страну, относят и людей, совершающих деловые поездки и посещение родственников и друзей. Относить эти категории к туристам сложно, хотя разделение посетителелй и туристов условно, так как тот же бизнесмен, совершающий деловую поездку может осуществлять туристские поездки и экскурсии, а турист может и проявить деловую активность в налаживании производственных контактов. Особенности и неповторимость природной среды, разнообразие природно-климатических зон Казахстана является залогом туристической привлекательности, эти факторы должны стать стимулом развития туризма как одного из перспективных секторов экономики. Следует отметить, что растет число туристов, посещающих оосбо охраняемые природные территории, которые находятся под охраной государства и хозяйственная деятельность в них ограничена их особым статусом. Но для развития экологического туризма посещение особоохраняемых природных территорий (национальных парков, заповедников, заказников и пр.) должно сопровождаться соответствующим статусом экологического турима, наделенного правом контроля за соблюдением природоохранного законодательства. Этот статус должен побуждать самого туриста соблюдать эти требования. По нашему мнению, наделение туриста статусом контроля принесет и экономические выгоды, выявляя нарушителей и взимая с них в установленном порядке штрафы и принимая другие меры административного воздействия.

Следует отметить, что до 2008 года численность выезжающих из Казахстана была меньше численности въехавших страну. После кризисного периода произошло резкое увеличение числа выехавших из страны и разрыв в численности выехавших и въхавших, достиг своего апогея в 2015 году, когда число выехавших составило 11 млн.человек, а въехавших - лишь 6509 млн.чел, что почти на 50% меньше. Такая ситуация могла быть связана с улучшением благосостояния населения, чей жизненный уровень позволяет осуществлять туристические поездки за рубеж, а также деловыми поездками, связанными с учебой,бизнесом и поиском работы. Снижение же количества въездных туристов из-за рубежа вызвано, помимо прочих факторов, отсутствием национального туристского бренда Республики Казахстан и неэффективности маркетинговых инструментов в направлении повышения туристкой привлекательности страны для иностранных посетителей, в том числе и отечественного туриста, предпочитающего раскрученные туристские бренды познанию родной страны.

С улучшением общего уровня социально-экономического развития в Республике Казахстан стало больше внимания уделяться развитию индустрии туризма. В 2008 году был утвержден стандарт требований подготовки специалистов в области туризмах [16] и принята в 2010 году Программа правительства Республики Казахстан №1048 «Об утверждении Программы по развитию перспективных направлений туристской индустрии РК на 2010 – 2014 годы»[17].

Развитие туристской активности в республике имеет тенденции неуклонного роста. В государственной программе развития туризма к 2025 году намечается увеличение количества въездных посетителей (из-за рубежа) до 9 млн. человек, из них въездных туристов до 3 млн. человек, а также увеличение количества отечественных туристов (путешествующих внутри страны) до 8 млн. человек. Согласно госпрограмме рост числа занятых в туристской отрасли планируется довести до 650000 человек; рост объема туристских услуг, оказанных местами размещения в 2,5 раза; рост объема инвестиций в основной капитал в 3 раза [18].

Рассмотрим активность в области въездного туризма Республики Казахстан за 2018 годы.

Ниже в таблице 2 приведены статистические данные по численности въехавших и внутренних туристов за 2018 год, остановившихся в местах размещения, отдыхавших в санаторно-курортных организациях, посетивших особо охраняемые природные территории республики, а также приведена численность «самоорганизованных» въездных и внутренних посетителей в разрезе регионов страны с распределением их по санаторно-курортным зонам этих регионов.

Следует отметить, что численность самоорганизованных «диких» туристов составляла почти 50% от общего числа вьехавших и выехавших посетителей. Их размещение также может быть осуществляться в гостиничных комплексах, хостелах и пр. То есть емкость мест размещения, в отелях, кемпингах, хостелах и пр. должна покрывать потребности туристов в пристанищах. Создание инфраструктуры этих направлений туризма не требует значительных капитальных затрат на создание отелей, кемпингов, однако их наличие также необходимо для отдыха туристов, испытавших все прелести экстремальных условий туризма.

Таблица 2 – Количество обслуженных посетителей по областям
и курортным зонам Республики Казахстан за 2018 год, человек

	Количество въездных и внутренних посетителей	В том числе			Количество «самоорганизованных» въездных и внутренних посетителей (оценка)
		остановившихся в местах размещения	отдыхавших в санаторно-курортных организациях	посетивших особо охраняемые природные территории	
1	2	3	4	5	6
Республика Казахстан	6 839 433	5 279 406	298 085	1 261 942	3 947 962
Ақмолинская область	1 122 835	341 399	36 581	744 855	560 720
курортная зона «Щучье-Бурабай»	860 479	150 481	36 491	673 507	207 585
курортная зона «Зеренди»	95 503	48 085	–	47 418	105 806
Актюбинская область	105 249	100 450	4 546	253	251 067
Алматинская область	911 581	703 663	10 516	197 402	257 567
Алматинская курортная зона	614 624	426 342	854	187 428	32 285
Атырауская область	211 553	184 353	4 798	22 402	111 251
Западно-Қазахстанская область	120 537	112 321	8 216	–	103 322
Жамбылская область	116 523	103 912	12 611	–	233 117
Қарағандинская область	345 363	292 509	19 649	33 205	231 437
курортная зона «Қарқаралы»	82 140	49 628	–	32 512	14 751
курортная зона «Балқаш»	39 945	37 238	2 707	–	86 202
Қостанайская область	230 159	213 253	16 275	631	189 125
Қостанайская курортная зона	20 428	5 668	14 760		2 351
Қызылординская область	87 955	63 516	24 379	60	139 032

Продолжение таблицы 2

1	2	3	4	5	6
Маңғыстауская область	242 009	240 798	1 006	205	165 158
курортная зона «Кендерли»	17 791	17 586		205	2 000
Павлодарская область	290 084	150 537	15 556	123 991	142 169
курортная зона «Баянауыл»	154 238	32 342		121 896	11 467
Северно-Казахстанская область	129 894	126 740	3 154		96 772
Имантау-Шалқарская курортная зона	7 721	7 721			949
Түркестанская область	270 354	152 124	85 009	33 221	249 035
курортная зона «Сарыағаш»	60 547	9 492	51 055		37 473
Восточно-Казахстанская область	641 654	565 030	15 588	61 036	346 562
Алтайская курортная зона	81 907	74 457	7 450		26 066
Алакольская курортная зона	151 724	95 538	250	55 936	68 722
курортная зона «Буктырма»	65 410	64 481		929	8 883
курортная зона «Улан»	16 364	16 364			4 298
Катон-Карагайская курортная зона	5 260	717	671	3872	3 324
г.Нұр-Сұлтан	767 587	767 587			622 727
г.Алматы	1 120 991	1 084 991	36 000		375 072
"Шымбулақ" горнолыжный курорт	28 393	2 770	25 623		4 016
г.Шымкент	183 797	178 014	5 783		174 301

Примечание:Разрботано автором на основании данных комитета по статистике МНЭ РК [19].

Наибольшей популярностью у туристов пользовались мегаполисы Алматы, Нур-Султан в силу их сложившегося статуса культурной столицы и административного центра страны.

Анализируя степень популярности регионов страны, мы можем сделать вывод, что по местам размещения в числе лидеров входят Алматинская, Восточно-Казахстанская и Мангыстауская области.

Развитие туризма в Мангыстауской области имеет большие перспективы из-за удобного географического расположения на берегу уникального Каспия, наличия уникальных природных объектов, сакральных мест региона, а также перспективным промышленным развитием области, способствующим относительно высокому уровню благосостояния жителей региона. Следует отметить, что туристский потенциал всего западного региона республики также связан с активным развитием уровня инфраструктуры региона. Это полная газификация всех отдаленных поселков и аулов, наличие развитой сети транспортного сообщения. Близость и уникальность природных объектов, заповедных зоны, практически неисследованный ресурсный потенциал Западного Казахстана должны получить новое развитие в форме экологического, сельскохозяйственного, экстремального и этнографического и других видов туризма

Результаты исследования. В соответсвии с целевыми индикаторами Государственной программы развития туристской отрасли Республики Казахстан на 2019 - 2025 годы планируется: «… развитие наземной и портовой инфраструктуры - 80-е место в рейтинге "Индекс конкурентоспособности путешествий и туризма ВЭФ" к 2025 году (в 2017 году - 91-е место); - развитие инфраструктуры туристского сервиса -70-е место в рейтинге "Индекс конкурентоспособности путешествий и туризма ВЭФ" к 2025 году (в 2017 году - 97-е место)». Достижение этих целевых индикаторов должно спосбствовавать реформирование строительного комплекса для создния объектов инфраструктуры по заданным целевым индикаторам.

По нашему мнению, создание строительных концернов, интегрирующих строительную деятельность и туристский потенциал субрегионов, даст возможность повышения социально-экономического уровня развития как данного субрегиона, так и региона в целом. Анализ ситуации с состоянием обслуживающих объектов регионов свидетельствует о необходимости формирования и восстановления, реконструкции и модернизации инфраструктуры туристической отрасли.

В основе формирования регионального строительного концерна заложен принцип размещения головного офиса в опорном городе, а его дочерних компаний в субрегионах, функционирование которых должно охватывать создание объектов инфраструктуры для следующих основных направлений: курортно-оздоровительный туризм, туристическо-краеведческий туризм, транспортно-логистический центр (экстремальный,спортивный туризм) и этнографический (сельскохозяйственный туризм) с учетом экоономической специализацит каждого региона.

Для мегаполисов в составе регионального концерна не предусмотрено функционирование дочерних компаний в районах этих городов, так как в них, в основном, реализуются программы республиканского значения, а основной целью нашего исследования является развитие регионального строительства и улучшение социально-экономического положения регионов и развития их туристического потенциала.

В результате анализа социально-экономического и индустиального развития регионов, схем размещения производительных сил республики, развития депрессивных регионов и малых городов, приоритетов устойчивого развития по группам регионов нами сформирована схема развития и размещения инвестиционно-строительных концернов в регионах и их дочерних компаний в субрегионах.

Выбор каждого направления развития региона предопределяет отраслевую специфику деятельности дочерней компании концерна с учетом имеющегося природного-ресурсного потенциала региона. В настоящее время в республике функционируют 13 государственных национальных природных парков, 10 государственных природных заповедников, 6 государственных природных резервата, 50 государственных природных заказников. Кроме того, в республике действуют 127 геологических, 58 геоморфологических и 19 гидрогеологических объектов государственного природно-заповедного фонда республиканского значения, 5 государственных заповедных зон, 26 памятников природы, 5 государственных ботанических садов республиканского значения и 2 государственных природных парка местного значения.

Предлагается в регионах сформировать 16 региональных строительных концернов с субрегиональными дочерними компаниями. В таблица 3 приведены объекты санаторно-оздоровительного и туристико-краеведческого туризма, создания инфрструктурных новых объектов и (или) реконструкции, рсширения и модернизации действующих объектов инфраструктуры этих туристских локаций.

Таблица 3 – Размещение инвестиционно-строительных концернов

		Областной центр	Объекты санаторно-оздоровительного туризма	Объекты туристско-краеведческого туризма
Всего по Республике		16 концернов		
1	Акмолинская область	г.Кокшетау	Щучье-Бурабай курортная зона	Коргальджинский заповедник - объект Всемирного наследия; Государственный национальный природный парк «Кокшетау»; Государственный национальный природный парк «Буйратау»
2	Актюбинская область	г.Актобе	Санатории и оздоровительные зоны	Иргиз - Тургайский государственный природный - зоологический резерват
3	Алматинская область	г.Талды-Курган	Алматинская курортная зона	Иле-Алатауский государственный национальный природный парк; Государственный национальный природный парк «Алтын-Эмель» Государственный национальный природный парк «Кольсайские озёра»; Жонгар-Алатауский государственный национальный природный парк; Чарынский национальный парк; Алматинский государственный природный заповедник Государственный природный резерват «Иле-Балхаш».

Продолжение таблицы 3				
4	Атырауская область	г.Атырау	Санатории и оздоровительные комплексы	Государственный природный резерват «Акжайык»
5	Западно-Казахстанская область	г.Уральск	Санатории и оздоровительные комплексы	
6	Жамбылская область	г.Тараз	Санатории Мерке	Аксу-Жабаглинский государственный природный заповедник
7	Карагандинская область	г.Караганда	Қарқаралинская курортная зона	Улытауский государственный национальный природный парк
8	Костанайская область	г.Костанай	Балқашская курортная зона	Наурзумский государственный природный заповедник - объект Всемирного наследия Государственный природный резерват «Алтын Дала»
9	Кзыл-Ординская область	г. г.Кзыл-Орда	Санатории и оздоровительные комплексы	Барсакельмеский государственный природный заповедник
10	Мангистауская область	Актау	Кендерли курортная зона	Устюртский государственный природный заповедник
11	Туркестанская область	г.Шымкент	Сарыағаш курортная зона	Сайрам-Угамский государственный национальный природный парк Аксу-Жабаглинский государственный природный заповедник - объект Всемирного наследия Каратауский государственный природный заповедник - объект Всемирного наследия
12	Павлодарская область	г.Павлодар	Баянауылская курортная зона	Баянаульский государственный национальный природный парк; Государственный лесной природный резерват «Ертіс орманы»
13	Северо-Казахстанская область	г.Петропавловск	Имантау-Шалқарская курортная зона	Наурзумский государственный природный заповедник
14	Восточно-Казахстанская область	г.Усть-Каменогорск	Алтай курортная зона Алаколь курортная зона Буктырма курортная зона Улан курортная зона Катон-Карагай курортная зона	Мар Алакакольский государственный прироодный заповедник Западно-Алтайский государственный природный заповедник Государственный лесной природный резерват «Семей орманы»
15	г.Нур-Султан	г.Нур- Султан	Санатории и оздоровительные комплексы города	
16	г.Алматы	г.Алматы	Санатории и оздоровительные комплексы города	"Шымбулақ" горнолыжный курорт

Примечание: при разработке данных таблицы использованы материалы Википедии и официальные сайты областей Республики Казахстан
https://ru.wikipedia.org/wiki/Список_национальных_парков_Казахстана
https://ru.wikipedia.org/wiki/Список_заповедников_Казахстана
https://ru.wikipedia.org/wiki/Особо_охраняемые_природные_территории_Казахстана [20,21]

В таблице 3 не указаны транспортно-логистические центры регионов республики и центры развития сельскохозяйственного и этнографического туризма областей вследствие того, что они охватывают практически каждый населенный пункт региона и могут быть реализованы повсеместно.

Внутрикорпоративная структура строительного концерна материнской и дочерних компаний также включает инжиниринговые и туристические компании. Первые обеспечивают комплексный процесс реализации инвестиционнного проекта на стадии технико-экономического обоснования проекта, разработки проектно-сметной документации и внедрения в строительное производство.

Туристические компании выступают в качестве заказчиков возводимых строительных объектов туристической сферы и обеспечивают взаимосвязь с административными органами, транспортными и риэлтерскими компаниями, и т.д.

Размещение туристических объектов должно включать и такие направления туризма как экстремальный туризм. Но для любого вида туризма необходимо создание всего комплекса санитарно-бытовых условий, отвечающих потребностям как одиночного, так и массового туризма. Даже экологический туризм требует создания элементарных условий проживания и быта и транспортной доступности.

Строительное производство в процессе формирования инфраструктуры должно прежде всего сконтрировано на создании дорожной инфраструктуры, создание сети мотелей на магистральных трассах с соответствующими системами инженерных коммуникаций.Следует отметить, что в составе концернов в опорных городах не предусматривается формирование субрегиональных (районных) дочерних компаний.

Формирование концернов должно производиться на базе предприятий крупного и среднего строительного бизнеса республики и вследствие этого каждый концерн является основой интеграции строительного бизнеса, концентрирует деятельность разрозненных строительных организаций и предопределяет перспективы развития туристической сферы и всей экономики регионов (рисунок 1).

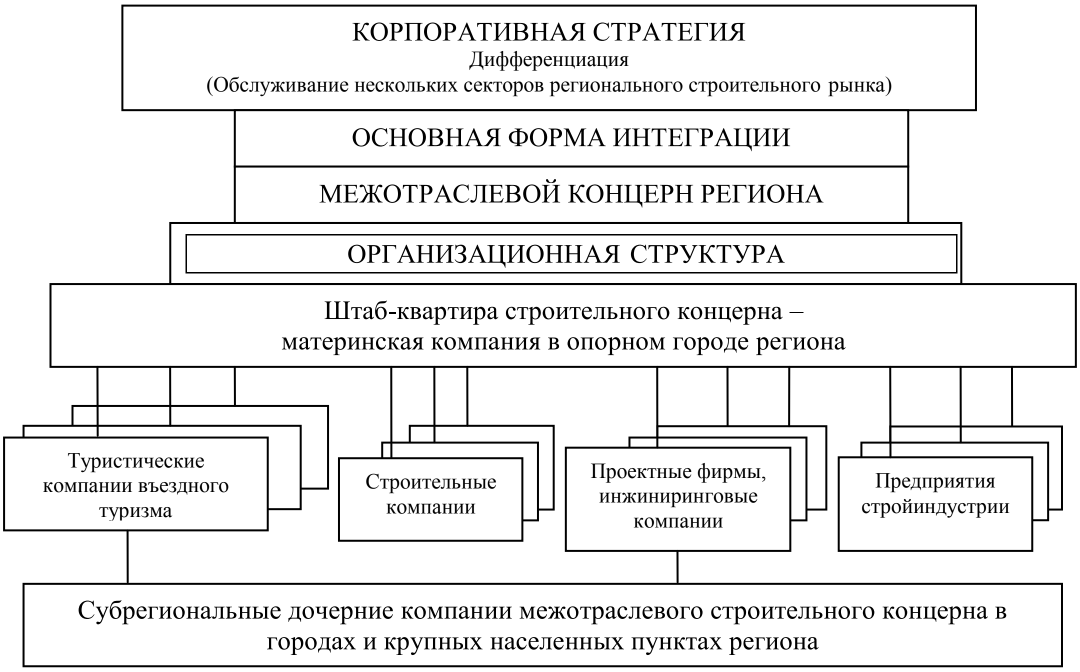

Рисунок 1 – Концептуальная схема интегрированного строительного концерна региона/
Примечание: составлено автором на основании [22]

Основной формой интеграции инвестиционно-строительного концерна является его межотраслевая направленность; то есть в технологической специализации работ будут выполняться весь комплекс общестромительных и специализированных работ по возведению объектов всего спектра – от культурно-бытового назначения до транспортного строительства. Для поддержания ресурсной базы отрасли в состав концерна предлагается включить предприятия строительной индустрии региона, что даст возможность осуществления замкнутого цикла строительной деятельности.

В процессе функционирования инвестицинного концерна будут реализовываться как региональные и местные малые проекты, так и мегапроекты развития туристической деятельности, для чего в составе концернов предусматривается формирование проектных и инжиниринговых компаний.

Выводы. Нами предлагается интеграция предприятий строительного бизнеса на базе крупных и средних строительных компаний, а также субрегиональные дочерние компании в городах и крупных населенных пунктах, основной задачей которой является модернизация инфраструктуры туристской сферы Республики Казахстан.

Развитие региональных строительных концернов, по нашему мнению, станет эффективным механизмом развития строительного бизнеса в региональной и субрегиональной сферах в создании развитой инфраструктуры туристической отрасли республики.

Предложенный перечень направлений размещения субрегиональных подразделений в регионах носит условный характер и должен быть скоординирован с учетом карты размещения туристических объектов областей во всех направлениях и его многообразных видах и формах.

Р. Ә. Мұратова

Абылай хан атындағы Қазақ халықаралық қатынастар
және әлем тілдері университететі, Алматы, Қазақстан

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ҚҰРЫЛЫС КЕШЕНІН ҚАЙТА ҰЙЫМДАСТЫРУ НЕГІЗІНДЕ ТУРИЗМ ИНДУСТРИЯСЫН ДАМЫТУ

Аннотация. Мақалада Қазақстан Республикасының туризм саласын дамытудың негізгі бағыттары қарастырылған. Туризм саласы кез келген мемлекет экономикасының перспективті бағыттарының бірі болып саналады. Туристік қызметті дамытудың елдің экономикалық қызметінің барлық салалары үшін мультипликативті әсері атап өтілді. Мақалада Reupsblick Kazakhstan статистикалық көрсеткіштер жүйесі берілген.

Туристік әлеуетті ашу үшін тиісті инфрақұрылым құру қажет. 2018 жылға арналған туризм саласының дамуы туралы статистикалық мәліметтер Республикалық Статистика комитетінің деректері негізінде талданады. Санаторий-курорттық аймақтар тұрғысынан аймаққа кіретін және кететін адам санының көрсеткіштері қарастырылады. Жұмыста туристік бағыттар мен жекелеген салалардың құрылымдық дифференциациясы кеңірек айтылған. Қазақстан Республикасының туристік инфрақұрылымының даму бағыттары қолданыстағы СПА объектілері мен аймақтардың табиғи қорғалатын аумағы, оның ішінде ЮНЕСКО-ның Бүкіләлемдік мұра сайттарына кіретін және ерекше маңызы бар аумақ аясында қарастырылады. Туризм индустриясын дамыту үшін елдің құрылыс кешенін қайта құру және кешеннің инфрақұрылымдық нысандарын құру қажеттілігі атап өтілді.

Құрылыс кешенін дамытудың нақты бағыттары көрсетілген. Мақалада Маңғыстау облысының және бүкіл Батыс Қазақстан дамуының болашағы туралы айтылған. Мақалада дәстүрлі санаторий-курорттық аймақтарды және қорғалатын табиғи аумақтарды дамыту перспективалары көрсетілген. Туризм ұйымдарының, құрылыс бөлімдерінің және жобалық-конструкторлық фирмалар мен компаниялардың құрылыс индустриясындағы кәсіпорындар желісін дамыту арқылы интеграциялық процестерді анықтау негізінде елдің құрылыс концерні жұмыс істеуінің тұжырымдамалық схемасы ұсынылады. Жұмыста аймақтық мамандану салалары мен индустриялық даму мен көпсалалы экономиканың даму ерекшеліктері қарастырылған. Шығарма барлық субъектілерді эко-экономикалық қызметке әрі қарай біріктіру арқылы туристік қызметті кеңейту мүмкіндігіне баса назар аударады. Жұмыста аймақтардың туристік әлеуетінің кейбір бағыттарының даму жолдары көрсетілген. Мақалада Қазақстан Республикасы экономикасының перспективті секторын дамытуда мемлекеттік саясатты жетілдіру қажеттілігі айтылған.

Аймақтық бөлімшелерді аймақтарға орналастыру бағыттарының ұсынылатын тізбесі шартты және облыстардың туристік объектілерін барлық бағыттар бойынша орналастыру картасын және оның алуан түрлері мен формаларын ескере отырып келісілуі керек.

Түйін сөздер: туризм, инфрақұрылым, экономикалық қызмет салалары, құрылыс кешені.

R. A. Muratova

Kazakh University of international relations and world languages
named after Abylai Khan, Almaty, Kazakhstan

DEVELOPMENT OF THE TOURISM INDUSTRY BASED ON THE REORGANIZATION OF THE CONSTRUCTION COMPLEX OF THE REPUBLIC OF KAZAKHSTAN

Abstract. The article discusses the main directions of development of the tourism sector of the Republic of Kazakhstan. The tourism sector is one of the most promising areas of the economy of any state. The multiplicative effect of the development of tourism activities for all sectors of the country's economic activity is emphasized. The article presents a system of accounting indicators in statistics Reupsblick Kazakhstan.

To unlock the tourism potential, the creation of appropriate infrastructure is necessary. The statistical data on the development of the tourism sector for 2018 is analyzed on the basis of the statistical data of the Committee on Statistics of the Republic. The indicators of the number of people entering and leaving the country by region in the context of sanatorium-resort zones are considered. The paper emphasizes the structural differentiation of tourism destinations and individual spheres. The directions of the development of the tourism infrastructure of the Republic of Kazakhstan are examined in the context of the existing spa facilities and nature-protected territories of the regions, including those belonging to UNESCO World Heritage Sites and of unique importance. The need for reorganization of the country's construction complex for the development of the tourism industry and the creation of infrastructure facilities of the complex is noted.

The specific directions of the development of the construction complex are highlighted. The paper notes the prospects for the development of the Mangystau region, and the whole of Western Kazakhstan. The article notes the prospects for the development of traditional sanatorium-resort zones and protected areas. A conceptual scheme of the functioning of the country's construction concern is proposed with the identification of the integration processes of tourism organizations, construction divisions and design and engineering firms and companies by developing a network of enterprises in the construction industry. The paper considers the areas of regional specialization and the features of industrial development and the development of a multisectoral economy. The work emphasizes the possibility of enhancing tourism activities through the further integration of all actors in eco-economic activity. The work reflects the directions of development of certain areas of tourist potential of the regions.

The article emphasizes the need to enhance public policy in the development of a promising sector of the economy of the Republic of Kazakhstan.

The article emphasizes. that the proposed list of directions for the placement of subregional units in the regions is conditional and should be coordinated taking into account the map of the placement of tourist facilities of the regions in all directions and its diverse types and forms.

Key words: tourism, infrastructure, branches of economic activity, construction complex.

Information about author:

Muratova Roza Ashimovna, candidate of economic sciences, docent of Department of «Management and Marketing», Faculty of Economics and Law, Kazakh Abylai Khan University of International Relations and World Languages, Almaty, Kazakhstan; rose1950@mail.ru; https://orcid.org/0000-0002-5382-0024

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G. T. Shakulikova[1], Zh. K. Yerzhanova[2], Zh. Zh. Gabbassova[2],
R. A. Karabassov[3], A. T. Abdykarimova[4], T. K. Kuangaliyeva[5]

[1]Atyrau University of Oil and Gas, Atyrau, Kazakhstan;
[2]West Kazakhstan Agrarian and Technical University n.a. Zhangir Khan, Uralsk, Kazakhstan;
[3]Kazakh Agrotechnical University n.a. S. Seifullin, Nur-Sultan, Kazakhstan;
[4]Karaganda Economic University of Kazpotrebsoyuz, Karaganda, Kazakhstan;
[5]Eurasian National University n.a. L. N. Gumilyov, Nur-Sultan, Kazakhstan;
E-mail: rector_aogu@mail.ru, ganar_000@mail.ru, Dzhuma1981@mail.ru,
karabasov.rasul@mail.ru, aliyata@mail.ru, ambal1974@mail.ru, Kuantu_80p@mail.ru

US INVESTMENTS IN PRIORITY SECTORS OF THE ECONOMY OF KAZAKHSTAN

Abstract. In the conditions of self-isolation, a small and medium business suffered as a result of a pandemic, however, large business remained afloat due to large “long money”. Large business in Kazakhstan is mainly a raw material business, i.e., the mining industry, as a priority, has not suspended its activities. The tasks in the field of attracting investment remained the same. For Kazakhstan, in the direction of attracting foreign investment, firstly, it is worth identifying competitive sectors of the economy. Secondly, clearly understand the key factors in the development of these industries. Thirdly, to conduct a comparative analysis and assess the advantages and disadvantages in relation to other countries, which will be the main competitors in this industry. Fourth, identify potential investors. Fifth, optimize the activities of the coordinating agency or body that is responsible for investments in Kazakhstan. For US investors, the stock market in Kazakhstan is very small. It presents mainly companies in the mining and financial sectors of the economy, as well as the public sector. The limited financing opportunities in the stock market do not allow providing higher returns on investment funds, and this in turn negatively affects the influx of potential investors and investors.

Key words: investments, priority sector, competitiveness, advantages, disadvantages, finances.

Introduction. Kazakhstan is the country with the most market-oriented economy in Central Asia. Kazakhstan accounts for 70% of total GDP and 80% of total FDI inflows to the region. The growing openness and integration into global and regional trade and production processes is one of the main factors in the dynamic growth of the economy.

The country's GDP grew by 4.1% as of September 2018 and is expected to continue its growth in the medium term. Foreign trade for 8 months of 2018 increased by 22%. It is expected that the volume of foreign trade in this year closer to the mark of $ 100 billion, with exports accounting for 65% of total trade.

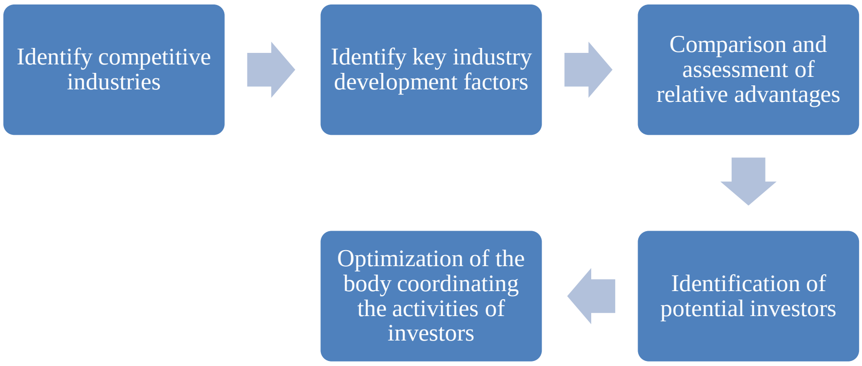
The Astana International Financial Center, established in July 2017, is the main institution for protecting investors. AIFC embodies the best practices of leading financial centers in New York, Singapore, London and Dubai. The platform’s partners are NASDAQ, the largest US financial institutions, Morgan Stanley and Goldman Sachs.” Over 700 of them were created in collaboration with American companies. These companies play an important role in attracting international capital and best practices to Kazakhstan, meeting the ever-growing demand for Kazakhstani exports both in the region and internationally.

Main part. “The Government of Kazakhstan considers the visit of the American trade mission as an integral part of the practical implementation of the agreements of the Leaders of the two states,” Mamin emphasized.

The Secretary of Commerce noted that the United States intends to continue to diversify areas of cooperation with Kazakhstan.

According to him, “if previously the main directions of American capital were the mining and energy sectors of Kazakhstan, today we intend to invest in the development of infrastructure, processing, engineering, agriculture, and a number of other high-tech industries”

Below is a general outline of the construction of investment activity in Kazakhstan based on the allocation of certain industries and their development through foreign investment. This approach will increase the competitiveness of the country's economy and individual industries.



Scheme of attracting investment to Kazakhstan

What is, tags must be formed vision. I am referring to a share in US investments in the operating industry in the mining industry. They have the potential and competitive advantage. Layer is agriculture. And everything was in order.

Nobody wants him to start a new world Between his native Fina and the old center. His path should help strengthen the position that will be held in Central and South Korea, in his native finale, in the center, for example, in Dubai and Singapore. One of the many goals is to attract and participate in various investment proposals aimed at introducing new technologies based on the principles of kinship, which leads to the attraction of new and new parties.

According to experts, US economic resources, projected resources in the US, including all economic resources, range from 8 to 18 million tons, or from 58 to 130 million people per year. All that is needed for this is that the son should only be in Kai, or in Scotland, and at sea can be in the range from 5 to 12 million tons, or from 36 to 88 million years ago.

One of those who can be an independent republic is not able to develop these huge resources for its energy resources. The process of attracting direct and foreign investment in the oil and gas industry, in which there is everything that is needed, is all that happens, first of all, due to the fact that problems eventually arise.

Insightful penetration and measure, and life, and fate, occurring due to the fact that in our forces were not only children, but also in our days. Today, the ranking of the share of compounds in SPI is as follows: Chevron - 50%, Mobile - 25%, NOC “Ka - for - Hoyle" - 20%, Russian-Russian mission - 5%. ATP Tengizchevroil is the country's largest oil and oil production and oil production in the country's GNP.

Chevron is the owner and operates for the production of polyethylene, thermoplastic pipes used in the heating system, chi. In 2013, more and more new types of water equipment, including water, and other sports.

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In 2015, Allen Global, a lube oil and petroleum product processing equipment company, set up a company in Kazakhstan, Allen Filtration Eurasia LLP, to provide equipment to the Eurasian market. Components made in the USA are brought to Kazakhstan, where they are assembled and then sold and delivered to the CIS countries. [1].

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- International consortium “Ka - za - hsta - nka - spiyshelf” with the participation of Mobil and Phillips Petroleum Co. (according to the signed Production Sharing Agreement of the Caspian offshore project, the total revenues of partners over 40 years of operation will amount to about 600 billion US dollars);

- development of the Karachaganak field (Texaco - 20%). Total revenues from the development of this oil and gas condensate field are estimated at 35 billion US dollars;

- Arman joint venture for the development of oil fields in the Mangistau region with the participation of Oryx (50%). The volume of oil production in 1998 amounted to 247 857 tons;

- joint development of the Dead Kultuk area with the participation of Oryx and Exxon;

- JV Tulpar-Munai Ltd. on exploration and production of hydrocarbons in the fields of Aktobe and West Kazakhstan region with the participation of Mobil;

development of the North Buzachi field with the participation of Texaco (its share is 65%);

- Caspian Pipeline Consortium (Chevron - 15%, Mobil - 7.5%, Oryx - 1.75%, LUKArco - 12.5%);

- FIOC is the owner and operator of a 97.5 percent stake in the Sazankurak oil field and has a 51.83% stake in the joint venture Condensate Holdings LLP, established to develop the Chinarevsky oil and gas condensate field. FIOC also owns 22.5% in the Central Asia Oil Oil joint venture engaged in oil exploration in the Caspian region.

Taking an active part in the development of Kazakhstan’s energy resources, American oil companies note the insufficient capacity of existing export pipelines. Currently, oil is delivered to world markets both through Russian pipeline systems and through the so-called “temporary transportation schemes” using sea and rail transport. According to the estimate of времен m of Kazakhstani experts, - share of the “temporary option” is not less than 50% of the total объема of exported oil.

A confident and long-term presence of the US capital in joint economic projects with Kazakhstan has reliable official political support from official Washington - in June 1997, the Caspian Sea region was included in the zone of American national interests.

In February last year, the Special Assistant to the President of the United States and the Head of the CIS Department of the Council for the United States Security, Mr. William Kortney, who was better known for his first university speech in Kazakhstan, was the first to speak at the University of Kazakhstan. that the USA - strongly supports private investment in the Caspian’s energy resources and our role is to improve the conditions for investors and the new independent states to have a wider choice - ”, thereby confirming the main aspects of American foreign policy regarding the Republic of Kazakhstan.

I believe that the bluish Federal Reserve, along with the continued power of the American consumer and US economy, will create additional growth potential for US stocks in the first half of 2020. However, as we begin the second half of the new year and enter the midst of the election cycle, periods of volatile volatility and general apathy of investors, it is likely to be based on changing forecasts of who may or may not be in the Oval Office, and which political party may or may not may control Congress after November 15th. As a result, a strategy that focuses on the “Tale of Two Cities” forecast, which provides for the susceptibility of paying dividends to US stocks with some element of protection against falling, may turn out to be worth considering.

2. Demand for Tax-Free revenues remains high: while the YI curve remains challenged and changes to the current cap in place for state and local tax (O) deductions are unlikely, demand for attractive sources of tax-free income will remain high 2020. This demand is likely , will be the highest among residents most affected by the SALT limit in states such as New York, New Jersey, and California. For those who aren't in the know, the CCA deduction is linked to the Tax and Job Reduction Act (TCJA) of 2017, which limited the total SAL deduction to $ 10,000. Demand for tax-free income was generally high in 2019, as evidenced by 47 consecutive weeks of positive net cash inflows to U.S. municipal bond funds.

3. Mergers and acquisitions in the biotechnology sector are likely to continue: many investors think about biotechnologies in 2020, since mergers and acquisitions were in the headlines for 2019. According to the Chimera research team, 28 mergers and acquisitions in the biotechnology industry were announced in 2019, including the Recent Announcement on the Planned Acquisition of Novartis The Medicines Company. The squeezing of margins, the threat of drug price controls and patent expiration in the new year will challenge large pharmaceutical companies to look for alternative income substitutes. One of these alternatives in 2020 is likely to be the acquisition of small capitalized biotechnology companies with innovative drugs close to the final stage of FDA approval.

4. Continued, preferred Become a preferred source of income: Dependable distribution is important for investor-oriented income and preferred securities can help ensure such distributions. Preferred securities, also commonly called preference shares, are a hybrid type of securities that combines various characteristics of both stocks and debts. Although most issuers of preferred shares are banks, there are also other types of issuers, including insurance companies, utilities, REIT, industrial and diversified financial services. As a result, investors may want to continue to use preferred securities, as they did in 2019, and also consider using portfolios of preferred securities, including various types of issuers, to meet their income needs in 2020.

5. ESG-based strategies are gaining in popularity: sustainable, responsible and efficient investment is a topic of investment that is growing in popularity around the world. Strategies related to this topic, which often include criteria for evaluating environmental, social, and managerial factors (ESGs), as well as the investment benefits of the stock, continue to attract more investment assets. According to the Forum on Sustainable and Responsible Investments, the global assets managed by the strategy grew to $ 11.6 trillion in 2018 from $ 178 billion in 2005 - an increase of 6,417%! I expect this trend to continue in 2020, provided that the investment performance of these strategies remains strong on a relative basis.

6. Finding value in dividends. Dividends have long been an important part of the total earnings equation for investors in common stocks. I tend to look at companies that regularly distribute dividends and have a constant history of growing distributions over time in a more favorable light. In other words, I believe that such companies have a higher level of financial well-being. In addition, stocks that pay dividends also typically have characteristics that are favorable in value compared to investment growth approaches. If in 2020 the yield curve remains in doubt and the stock market volatility returns in the second half of the year, look for regular payers of dividends and value-oriented investment strategies that over the past decade have taken a place in growth-oriented investment strategies to surpass.

7. International stocks attract investment flows. Although significant uncertainty remains in 2020 for international economies and international markets, including Brexit (which seems likely now) and further negotiations on trade agreements, the prospects for global economic growth have improved thanks to JP Morgan's forecast for world GDP in 2020. growth of 2.5% against the forecast of GDP growth of 1.7% for the United States. I expect emerging markets to outperform developed markets internationally in 2020, provided that Phase 2 trade negotiations between the US and China do not go the wrong way in the direction of a new round of tariffs.

8. A strong consumer stimulates further growth in e-commerce: data on the strength of consumers in the USA can be found in the sales data for the holiday shopping season 2019. According to a CNBC article entitled "Record Online Sales Drive Holiday Sales in the United States," total holiday sales, excluding cars, increased 3.4% compared to 2018, when online sales were leading.

E-commerce sales accounted for 15% of total retail sales and grew 19% from a year earlier to a new record high, according to MasterCard retail sales data for the period from November 1 to December 24, 2019. I expect further growth in online trading in 2020, which should benefit not only e-commerce companies, but also companies that receive significant revenue from activities carried out in the e-commerce ecosystem.

9. The implementation of AI is growing in many industries: the use of artificial intelligence (AI) will continue to be implemented in 2020 in many industries, from finance to healthcare and automobiles, disrupting the work of many companies and, in some cases, transforming results. from these companies. Also called machine learning or deep learning, AI is usually associated with companies whose technology focuses on automating cognitive processes such as speech recognition, deep learning, and visual navigation. Another innovative technology, which is also expected to gain growth in implementation in 2020, is cybersecurity, partly due to new rules, as well as an increased risk of malware attacks, data hacking and hacking in general.

Balancing consensus with opposing parties: Although there is an overwhelming one-sided sentiment among investors, whether positive or negative, and assets moving in the direction of this one-sided sentiment, it may be time to consider taking some form of the opposite approach. The same can be said about the less favorable opinions of analysts regarding the shares of some companies, which otherwise might seem healthy and have the opportunity to grow. Coming out of the year when everything seemed to work, it might be worth considering investing in an equity portfolio of attractive companies that did not work in 2019 or, as consensus of analysts suggests, will not work in 2020, despite strong fundamental indicators.

Disclosure: Hennion & Walsh Asset Management currently has appropriations as part of its managed money program, and Hennion & Walsh currently has appropriations in certain SmartTrust UITs in accordance with several portfolio management ideas for consideration mentioned above.

The benefits that Kazakhstan receives from US companies can be divided into several categories. Firstly, these are direct cash - in the form of taxes on the activities of companies. Secondly, opening their subsidiaries, branches, joint ventures, American companies create jobs for local residents. Thirdly, American companies help Kazakhstan diversify its economy by creating additional enterprises and projects that are needed to support the main business - and that - by buying goods and services from local suppliers. For example, Chevron opened two plants for the production of pipes and valves, while the main business is oil production. Fourth, the transfer of - advanced technology and expertise to local organizations and employees. And fifthly, it is the support of social projects and the development of society.

Traditionally, oil companies invest a lot in social projects in the region and the country. So, for example, from 1993 to 2015, TengizChevroil (Chevron) invested over $ 1.1 billion in social projects and programs in the Atyrau region alone. The company's activities are also manifested in other regions of the country. For example, a company regularly buys modern equipment for hospitals in the cities of Almaty and Astana, supports schools, colleges, universities and research centers throughout the country, and conducts free trainings for small businesses. Thus, in total since 1993, Chevron has paid the Republic of Kazakhstan about $ 112 billion. In 2015 alone, the amount of direct payments to the state amounted to 8.2 billion dollars. ExxonMobil is no exception and similarly sponsors healthcare and education projects [47].

While social projects in the west of Kazakhstan are usually sponsored by oil companies, in the east of Kazakhstan this is the role of the AES group of companies. For example, the company built - orphanages - in Semey and Ust-Ka - menogorsk, acquired equipment and machinery for organizing healthcare. The company pays special attention to war veterans and children. In addition to social projects, AES, as a global innovator in the field of electricity, has a number of the latest technologies in the field of energy storage. By introducing its Advancion technology (energy storage solution) in our hydropower plant, AES will help Kazakhstan achieve its goal of achieving more economical consumption of natural resources.

International financial institutions such as Citi are very important for Kazakhstan. Firstly, as a rule, they are the largest global investors in the financial industry. Secondly, with the help of their world experience, they help Kazakhstan and local enterprises to attract capital in international markets. Thirdly, they are the preferred banks for foreign investors due to their global presence. Obviously, foreign investors will trust Citibank more than other Kazakhstan banks.

US investors who are represented in Kazakhstan, represented by international companies, are actively involved in the implementation of large investment projects. Based on the identified problems in the development of investment activities of companies, it is worthwhile to offer a number of recommendations aimed at expanding the investment activities of these investors:

- expansion of companies' access to direct investments. Most companies in Kazakhstan do not have access to financing by international organizations. Basically, all funding comes through several intermediaries in the person of the government and the banking sector of Kazakhstan. But it is necessary to increase the corporate governance system of the corporation, which is a potential recipient of financing from a foreign investor.

- increasing the transparency of corporate governance will allow the investor to see the investment object more clearly and clearly and conduct the investment project more efficiently. There is still a threat in Kazakhstan companies that if they fully disclose all information about their activities, the state may take part of the profits from the company and nationalize it. In this regard, it is worth carrying out information work to clarify the importance of full and timely disclosure of information about the company. Decreased business transparency inhibits the development of company management and, therefore, the business itself.

Reduces the investment attractiveness of the company in the market. Measures to increase the transparency of information on corporate governance and ethics are carried out, but do not yet meet the requirements of developed world stock exchanges. For example, corporate reporting still lacks information to prevent insider trading, lacks information on all material facts related to issues on which a shareholder must cast votes for proxy at meetings of shareholders. In addition, the development of a corporate governance code in many corporations is considered as simply a mandatory document in order to enter the stock market. And does not carry any real value. This attitude of company managers causes distrust among foreign investors, and also contributes to conflict situations between shareholders and company managers. And this, in turn, discourages potential investors and reduces actual investment in the business. Also, the issue of improving corporate governance is directly related to the personal ethics of the company's top managers, their honesty and openness, and their overall mentality.

- improve the quality of work of state bodies that are involved in the coordination of investment projects and their implementation. As noted in the work, one of the important problems of investment activity of international institutional investors is the lengthy process of consideration and approval of investment projects;

- reduction and elimination of corruption in Kazakhstan. Most institutional investors who work in Kazakhstan report in their reports the negative impact of corruption on the effectiveness of investment projects. In this regard, it is necessary to toughen the punishment for corruption offenses. This is a common Kazakhstan problem that affects all sectors of the economy. The negative impact of this phenomenon is expressed in overstating the cost of estimates, the purchase of goods and services that may not meet the stated requirements, and insufficient monitoring of the project. As a result, this is reflected in the economic result of the investment project, in which the resources of international institutional investors and the state are involved.

- If we talk about the development of investment activities of insurance companies and US investment funds in Kazakhstan, then we need to provide them with access to a wider range of financial instruments for investments. Do not limit them to a meager selection of the tools that are available to them now. They should try themselves on more risky assets and only in this way Kazakhstani companies will be able to gain experience in investing and increase investment attractiveness. In addition, if access to a wider range of financial instruments is ensured, this will facilitate the influx of new international insurance companies, which today are almost gone in Kazakhstan. It should be at the legislative level to allow them to invest in other securities, possibly with a lower credit rating than at the moment. After all, an investment fund or an insurance company must earn money on investments. They themselves are interested in improving the return on assets and ensuring financial stability in the market. This step will allow them to improve their skills, as they will have to more deeply and thoroughly analyze the investments and certain stocks of domestic or foreign companies. And the ratings of international rating agencies are not always true. If we recall the mortgage crisis in the USA in 2007, then just mortgage bonds, which had high credit ratings, collapsed. And only after their value began to rapidly decline, rating agencies that began to lower their rating, which further aggravated the situation in stock markets around the world. And if allowed to invest only in securities with a rating of at least “BBB-”, this does not mean that these investments will be successful.

- To attract investors from the United States to Kazakhstan, it is necessary to develop a financial market. For example, the stock market of Kazakhstan is still in its infancy. In this regard, information work should be carried out among the population and investors about the advantages and opportunities of the stock market. It takes time for a large number of stories to be formed about successful Kazakhstani companies, about investors who were able to profit in the stock market. To increase the financial literacy of the population. Since one of the problems of the slow development of the Kazakhstan stock market is the distrust of private and institutional investors in the Kazakhstan stock market.

Г. Т. Шакуликова[1], Ж. К. Ержанова[2], Ж. Ж. Габбасова[2], Р. А. Карабасов[3], А. Т. Абдикаримова[4], Т. К. Куангалиева[5]

[1]Атырау мұнай және газ университеті, Атырау, Қазақстан;
[2]Жәңгір хан атындағы Батыс Қазақстан аграрлық-техникалық университеті, Орал, Қазақстан;
[3]Сейфуллин атындағы Қазақ агротехникалық университеті, Нұр-Сұлтан, Қазақстан;
[4]Қазтұтынуодағы Қарағанды экономикалық университеті, Қарағанды, Қазақстан;
[5]Гумилев атындағы Еуразия ұлттық университеті, Нұр-Сұлтан, Қазақстан

ҚР ЭКОНОМИКАСЫНЫҢ БАСЫМ СЕКТОРЛАРЫНА АҚШ ИНВЕСТИЦИЯЛАРЫ

Аннотация. Пандемия нәтижесінде өзін-өзі оқшаулау жағдайында шағын және орта бизнес зардап шекті, алайда ірі бизнес үлкен «ұзақ ақша есебінен жүзіп қалды». Қазақстандағы ірі бизнес шикізат болып саналады, яғни өндіруші өнеркәсіп өз қызметін тоқтатқан жоқ. Инвестиция тарту саласындағы міндеттер бұрынғыдай қалды. Қазақстан үшін шетелдік инвестицияларды тарту бағытында, біріншіден, экономиканың бәсекеге қабілетті салаларын айқындау керек. Екіншіден, осы салаларды дамытудың негізгі факторларын нақты түсіну керек. Үшіншіден, осы саладағы негізгі бәсекелестер болып саналатын басқа елдерге қатысты артықшылықтар мен кемшіліктерді салыстырмалы талдау және бағалау. Төртіншіден, әлеуетті инвесторларды анықтау. Бесіншіден, Қазақстандағы инвестициялар үшін жауапты үйлестіруші Агенттіктің немесе органның қызметін оңтайландыру. АҚШ инвесторлары үшін Қазақстанның қор нарығы өте аз. Онда негізінен экономиканың тау-кен және қаржы саласының компаниялары, сондай-ақ мемлекеттік сектор ұсынылған. Қор нарығындағы қаржыландырудың шектеулі мүмкіндіктері инвестициялық қорларға табыстың неғұрлым жоғары нәтижелерін қамтамасыз етуге мүмкіндік бермейді, ал бұл өз кезегінде әлеуетті салымшылар мен инвесторлардың ағынына теріс әсер етеді.

City сияқты халықаралық қаржы мекемелері Қазақстан үшін өте маңызды. Біріншіден, олар қаржы саласындағы ең ірі жаһандық инвесторлар болып саналады. Екіншіден, әлемдік тәжірибенің көмегімен олар Қазақстанға және жергілікті кәсіпорындарға халықаралық нарықтарда капитал тартуға көмектеседі.

Үшіншіден, олар жаһандық қатысудан шетелдік инвесторлар үшін қолайлы банктер болып саналады. Шетелдік инвесторлар қазақстандық басқа банктерге қарағанда Ситибанкке көбірек сенім артатыны анық.

Қазақстан Астананың жаңа халықаралық қаржы орталығын іске қосуды жоспарлап отыр. Оның іске қосылуы Дубай мен Сингапур үлгісі бойынша Қазақстанның Орталық Азиядағы халықаралық қаржы орталығы ретіндегі ұстанымын нығайтуға көмектесуі тиіс. Көптеген мақсаттардың бірі салық және кеден жеңілдіктерін ұсыну жолымен шетелдік инвестицияларды тарту, сондай-ақ шетелдік судьяларды тартуға мүмкіндік беретін қаржы соттарының халықаралық тәжірибесі негізінде заңдық дауларды шешу тетіктерін енгізу, сондай-ақ англосаксон құқықтық жүйесін пайдалану деп аталады.

Қаржы секторындағы қадағалау органы айқындайтын қаржы құралдарының қолданыстағы жиынтығы тұрақтылық пен қолайлы кіріс талаптарына жауап беретін толыққанды әртараптандырылған портфель қалыптастыруға мүмкіндік бермейді. Бесіншіден, Қазақстанның қор нарығын дамыту. Бұл тұрғыда халық пен инвесторлар арасында қор нарығының артықшылықтары мен мүмкіндіктері туралы ақпараттық жұмыс жүргізу керек. Қор биржасында Эмитенттер қатарында ұсынылатын компаниялардың көп саны қажет. Халықаралық институционалдық инвесторлар қаржы нарықтары туралы өте жақсы хабардар болғандықтан және олар үшін ақпараттық жұмыс жүргізудің қажеті жоқ, оларға инвестициялау үшін жаңа мүмкіндіктер қажет, ал қазақстандық қор биржасы инвесторды қызықтыратын осындай мүмкіндіктердің тым шектеулі жиынтығына ие.

Шетелдік инвестициялардың ағынын ынталандыру және олардың пайдаланылуын қаржылық бақылау үшін шетелдік инвестицияларды басқарудың ұйымдық құрылымын және осы құрылым мамандары пайдаланатын құқықтық және экономикалық құралдардың кең арсеналын қамтитын сыртқы көмекті тарту үдерісін

мемлекеттік реттеу тетігінің пәрменділігін жетілдіру; тәуекелді сақтандыру және қайта сақтандыру жүйесін жетілдіру; шетелдік инвесторларды сапалы және уақтылы ақпараттық қамтамасыз етуді жолға қою қажет; басқа да бірқатар шараларды жүзеге асырған жөн, ең бастысы, Қазақстан Республикасының инвестициялық саясаты икемді, прагматикалық және болып жатқан ішкі және сыртқы экономикалық шындыққа сәйкес болуы тиіс.

Түйін сөздер: инвестициялар, басым сектор, бәсекеге қабілеттілік, артықшылықтар, кемшіліктер, қаржы.

Г. Т. Шакуликова[1], Ж. К. Ержанова[2], Ж. Ж. Габбасова[2], Р. А. Карабасов[3], А. Т. Абдикаримова[4], Т. К. Куангалиева[5]

[1]Атырауский университет нефти и газа, Атырау, Казахстан;
[2]Западно-Казахстанский аграрно-технический университет им. Жангир-хана, Уральск, Казахстан;
[3]Казахский Агротехнический университет им. С. Сейфуллина, Нур-Султан, Казахстан;
[4]Карагандинский экономический университет Казпотребсоюза, Караганда, Казахстан;
[5]Евразийский национальный университет им. Л. Н. Гумилева, Нур-Султан, Казахстан

ИНВЕСТИЦИИ США В ПРИОРИТЕТНЫЕ СЕКТОРА ЭКОНОМИКИ РК

Аннотация. В условиях самоизоляции в результате пандемии пострадал малый и средний бизнес, однако, крупный бизнес в силу больших «длинных денег остался на плаву». Крупным бизнесом в Казахстане является сырьевой, то есть добывающая промышленность не приостановила свою деятельность. Задачи в области привлечения инвестирования остались прежними. Для Казахстана в направлении привлечения иностранных инвестиций, во-первых, стоит определить конкурентоспособные отрасли экономики. Во-вторых, четко понимать ключевые факторы развития этих отраслей. В-третьих, провести сравнительный анализ и оценить преимущества и недостатки по отношению к другим странам, которые будут являться основными конкурентами в данной отрасли. В-четвертых, определить потенциальных инвесторов. В-пятых, оптимизировать деятельность координирующего агентства или органа, который отвечает за инвестиции в Казахстане. Для инвесторов из США фондовый рынок Казахстана является очень маленьким. На нем представлены в основном компании горнодобывающей и финансовой отрасли экономики, а также государственный сектор. Ограниченные возможности финансирования на фондовом рынке не позволяют обеспечить более высокие результаты доходности инвестиционным фондам, а это в свою очередь негативно отражается на притоке потенциальных вкладчиков и инвесторов.

Финансовые международные учреждения очень важны для Казахстана. Во-первых, как правило, они являются крупнейшими глобальными инвесторами в финансовой отрасли. Во-вторых, с помощью своего мирового опыта, они помогают Казахстану и местным предприятиям привлекать капитал на международных рынках. В-третьих, они являются предпочтительными банками для иностранных инвесторов из-за глобального присутствия. Очевидно, что иностранные инвесторы будут больше доверять Ситибанку, чем другим казахстанским банкам.

Казахстан планирует запустить новый Международный Финансовый Центр Астаны. Его запуск должен помочь укрепить позиции Казахстана в Центральной Азии как международного финансового центра, по примеру Дубая и Сингапура. Одной из многих целей называют привлечение иностранных инвестиций путем предложения налоговых и таможенных льгот, а также внедрение механизмов решения юридических споров на основе международной практики финансовых судов, позволяющее привлечение иностранных судей, а также использование англосаксонской правовой системы.

Существующий набор финансовых инструментов, который определяется надзорным органом в финансовом секторе, не позволяет сформировать полноценный диверсифицированный портфель, который бы отвечал требованиям устойчивости и приемлемой доходности. В-пятых, развивать фондовый рынок Казахстана. В этом плане следует проводить информационную работу среди населения и инвесторов о преимуществах и возможностях фондового рынка. Необходимо большее количество компаний, которые будут представлены в числе эмитентов на фондовой бирже. Так как международные институциональные инвесторы очень хорошо осведомлены о финансовых рынках, и для них не нужно проводить информационную работу, им нужны новые возможности для инвестирования, а Казахстанская фондовая биржа обладает слишком ограниченным набором таких возможностей, которая бы заинтересовала инвестора.

Для стимулирования притока иностранных инвестиций и финансового контроля за их использованием необходимо совершенствовать действенность механизма государственного регулирования процесса

привлечения внешней помощи, включающего организационную структуру управления иностранными инвестициями и широкий арсенал правовых и экономических средств, используемых специалистами этой структуры; совершенствовать систему страхования и перестрахования рисков; налаживать качественное и своевременное информационное обеспечение иностранных инвесторов; осуществлять целый ряд других мер, но главное – инвестиционная политика Республики Казахстан должна быть гибкой, прагматичной и соответствующей происходящим внутренним и внешним экономическим реалиям.

Ключевые слова: инвестиции, приоритетный сектор, конкурентоспособность, преимущества, недостатки, финансы.

Information about authors:

Shakulikova Gulzada Tanirbergenovna, Rector, Professor, Doctor of Economics, Atyrau University of Oil and Gas, Atyrau, Kazakhstan; rector_aogu@mail.ru; https://orcid.org/0000-0002-3867-9747

Erzhanova Zhanar Kuttykbaevna, Ph.D., West Kazakhstan Agrarian and Technical University named after Zhangir Khan, Uralsk, Kazakhstan; ganar_000@mail.ru; https://orcid.org/0000-0001-6795-1263

Gabbasova Zhumakyz Zhaksygereevna, West Kazakhstan Agrarian and Technical University named after Zhangir Khan, Uralsk, Kazakhstan; Dzhuma1981@mail.ru; https://orcid.org/0000-0001-7841-4981

Karabasov Rasul Asylbekovich, Candidate of Economic Sciences, acting associate professor, Kazakh Agrotechnical University named after S. Seifullin, Department of Marketing and Service, Nur-Sultan, Kazakhstan; karabasov.rasul@mail.ru; https://orcid.org/0000-0003-1963-3097

Balkibaeva Aida Maksutovna, PhD in Economics, Kazakh Agrotechnical University named after S. Seifullin, Nur-Sultan, Kazakhstan; ambal1974@mail.ru; https://orcid.org/0000-0002-2569-7524

Kuangalieva Tursynzada Kuangalievna, PhD in Economics, Eurasian National University named after L.N. Gumilyov, Nur-Sultan, Kazakhstan; Kuantu_80p@mail.ru; https://orcid.org/0000-0002-4684-0836

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I. D.Turgel[1], A. Zh. Panzabekova[2], N. V.Symaniuk[1]

[1]Ural Federal University, Yekaterinburg, Russia;
[2]Institute of Economics of Science Committee of the Ministry
of Education and Science RK, Almaty, Kazakhstan.
E-mail: turgel@k96.ru, panzabekova.aksana@ieconom.kz, n.v.symaniuk@urfu.ru

ARRANGEMENT OF THE NATIONAL SYSTEMS OF REGULATORY IMPACT ASSESSMENT: EXPERIENCE OF RUSSIA, KAZAKHSTAN, AND UZBEKISTAN

Abstract. The present research is aimed at comparative analysis of approaches to the arrangement of the national systems on the regulatory impact assessment in the post-Soviet countries – Russia, Kazakhstan, and Uzbekistan, revealing of existing problems in arranging the regulatory impact assessment in the mentioned countries, and formulating of the best practices in arranging the regulatory impact assessment to improve the activity and effectiveness of this institute.

The results of the research can be used by the state governmental bodies of Russia, Kazakhstan, and Uzbekistan, supranational structures of the Eurasian Economic Union to justify the most effective ways of adoption and implementation of the managerial decisions in the field of regulatory policy, to enhance the transparency of the state policy in the post-Soviet countries, and forming of the effective interaction model of the state, business, and civil society. Following the research results, the prospective trends of the national systems of the regulatory impact assessment development are suggested.

Key words: arrangement of the national systems of regulatory impact assessment, regulatory impact assessment, post-Soviet countries, comparative researches.

Introduction. Russia, Kazakhstan, and Uzbekistan are undertaking a large-scale modernization of methods and technologies of the governmental policy aimed at improving the activity and effectiveness of the governmental regulation. One of the key trends of modernization is introducing of institutes favoring the broadening of direct and back connections between the state, business, and civil society. One of such institutes is the regulatory impact assessment (hereinafter as RIA). The institute of regulatory impact assessment allows for the system approach to the processes of conducting, changing, and annulment of legal rules regulating the economic activity, and ensures, as consequence, significant improvement of quality of regulation and justification of changes in the rules and regulations of the economic activity. The introducing of the RIA transforms the content and forms of implementation of the most functions of the contemporary state, raises the analytical justification of the made decisions to the qualitatively new level, and stimulates the rationality of the whole governmental apparatus activity.

In this regard, especially interesting is a comparative estimation of approaches to the arrangement of the national systems of RIA applied in Russia, Kazakhstan, and Uzbekistan. The first steps on introducing RIA institute were made in Russia and Kazakhstan at the end of 90-s of the past century, and Uzbekistan made it a little later, in the beginning of the current century. However, it is already possible to indicate the high role of this institute in limiting the abundant regulation, increasing the transparency of the state policy.

The circumstances mentioned above have determined the topicality and practical relevance of the conducted research. The research is aimed at comparison of approaches to forming of the national systems of RIA in Kazakhstan, Russia, and Uzbekistan, revealing of problems and justification of recommendations for this institute development in the analyzed countries. The selection of the countries was based on its high interest in modernizing the state policy, borrowing of the best managerial practices, and development of economic integration.

Methodology and methods of research. Methodology of the research is based on methods and approaches that can be conditionally divided into three groups. The first group forms the approaches to study the institutional bases to construct the national systems of the regulatory impact assessment. Here it is necessary to note the works by I.P. Sydorchyuk [1], V.D. Krivov, D.G. Vladimirov [2], A.Ye. Shastitko [3]. These works are especially important for forming of ideas on the role of RIA in the system of the state management, institutional bases of its forming (integrity of laws, traditions and sustainable practices of economic behavior), and priorities of the state regulatory policy.

The second group contains the works in which authors make the comparative researches of the national systems of regulatory impact assessment in foreign and adjacent countries. The important role for forming the criteria for comparison of the national systems of RIA have the proceedings by Oermann M. & Schulz W. [4], Marchewka-Bartkowiak K. [5]. For the analysis of the situation in the developing and post-social countries especially significant are the works by Kamkhaji, J. C., Ladegaard, P., & Lundkvist, P. [6], I.D. Turgel, A.Zh. Panzabekova [7], A.Ye. Golodnikova, D.B. Tsygankova [8], Shamkova Yu.V., Doroshenko S.V. [9]. The authors of these works underline that the problems of the national systems of RIA have a system character. To understand its reasons, it is important to study the existing practices of division of authority between the levels and branches of power, common vector of the state economic policy development, and interest of a definite country in modernizing of the state management.

Third group represents the works of authors analyzing the issues of forming and development of the national systems of RIA in individual countries on the post-Soviet territory. The known Kazakhstan researchers G.B. Kysykova, S. Akhmetzhanova, K. Kopeshova consider the organizational issues of the scientific expertise of laws and regulations draft projects [10] and issues of regulatory decisions quality improve [11]. The long-form comparative estimations of the TIA institute in Russia and Kazakhstan are described in the proceedings by I.Turgel, A.Panzabekova, N.Symanyuk [12], and I.Tyurgel, A.Panzabekova, Z.Satpayeva [13].

Along with this, the available researches do not have sufficient works describing the comparative analysis of the RIA national systems forming in the individual post-Soviet countries actively involved into the processes of economic integration. It also should be noted that there are almost no researches on the analysis of the situation in the field of the regulatory impact in Uzbekistan. Meanwhile, during the recent years the country has been actively modernized, it becomes open, and large efforts are directed into the reformation of the state management system. This research provides a step forward to solve the mentioned above problems.

The RIA national systems were compared by the following fields: равнение национальных систем ОРВ проведено по следующим направлениям:

1. They key stages of RIA introduction into the practice of the state and municipal administration
2. Factors characterizing the national system of the RIA organization
3. The management levels on which the RIA is implemented
4. Digital technologies in RIA organization

These trends were selected basing on approaches formulated to compare the national and regional institutes of RIA in the works by I.Rakhmeyeva [14] and M.Ni [15].

Introduction of the RIA institute into the system of the state and municipal administration. In Russia, the starting point for forming of a new system of assessment was 1997 when the government of the Russian Federation adopted a Decree #1009 “On Rules on preparing laws and regulations by federal bodies of the executive power and its state registration” dated August 13, 1997. These rules provided an opportunity to external experts to conduct work on preparing conclusions for laws and regulations of federal bodies of the executive power submitted for the state registration, and conditions of the forwarding of the regulations draft to the Ministry of Finances to estimate the budget consequences of its adoption [16]. It is also necessary to note the Decree of the Russian Federation government #260 dated June 1, 2004 “On the order of the Russian Federation government and provisions of the Executive Office of the Russian Federation Government” [17] that for the first time fixed the order according to which the legislative act drafts regulating the relations of the entrepreneurship activity entities or its relations with the State, and influencing on macro-economic indicators of the country development are forwarded to the Ministry of Economic Development and Trade of the Russian Federation for the approval.

Almost at the same time Kazakhstan also started forming of contemporary approaches to RIA (1997-1998). Here, the introduction of the impact assessment legislation started with adoption of the Law of the Republic of Kazakhstan #213 “On the laws and regulations” dated March 24, 1998 that fixed the main principles for the scientific expertise of the legislative acts drafts [18]. The formation of the methodical base of assessment started with the approval of the Decree of the government of the Republic of Kazakhstan #598 “On measures on improving the regulatory activity” dated May 30, 2002 (together with Rules of scientific expertise) [19]. These legislative acts not only determined an opportunity of scientific expertise, but described the process of scientific expertise of legislative acts (legal, criminal, linguistic, anti-corruption, and ecological).

In Uzbekistan, the preparation to the RIA system creation started in 2006. The Republican Coordination Council on stimulating and development of small and private entrepreneurship assigned to investigate an opportunity of introduction of such methods in Uzbekistan to improve the business environment. In 2008, the Cabinet Council of the Republic of Uzbekistan adopted a Decree “On measures on introducing the system of legislation acts assessment” to improve the system of development, adoption, and monitoring of the legislation acts implementation [20]. The same year, 8 pilot draft legislations were analyzed, and basing on the RIA procedures three of them were declined.

The terminology for indicating the assessment process differed in each country (table 1). Within this research the authors, in general case, use a term “Regulation impact assessment”.

Table 1 – Terminological approaches to characterize the regulation impact assessment

Country	Term
Russia	Regulatory impact assessment Оценка регулирующего воздействия
Kazakhstan	Until 2014 — Assessment of social and economic effects of laws; from 2015 — Analysis of regulatory impact (ARI) – an obligatory procedure for legislative acts in the field of entrepreneurship [21]
Uzbekistan	The system of legislation acts impact assessment (SLAIA)

The next stage is transfer to RIA on a permanent, system basis. At this stage, the detailed methodical directions are formed that not only describe the common schemes of RIA, but contain concrete directions, algorithms, formats of these procedures. The state authority bodies responsible for regulatory policy forming are established. In 2010, the Russian Federation government adopted a decree that fixed RIA on the legislative level [22], and a leading role in the field of RIA is assigned to the Ministry of Economic Development and Trade. In 2012-2013, the decree of the President of the Russian Federation #601 “On the main trends on improving a system of the state administration” dated 07.05.2012 [23] determined the main aspects of RIA and the main trends of this institute development for the mid-term perspective, and fixed the necessity of public discussion procedure of the legislative acts drafts and RIA results, and determines the RIA introduction on the level of the Russian Federation members from 2014, and local self-government authorities from 2015.

In Kazakhstan, the direct introduction of the RIA elements started in 2011 when the Rules of the scientific expertise was added with an obligation of the governmental body-developer to assess the social and economic consequences of the adopted legislation drafts. In addition, it was stipulated to conduct the scientific economic expertise of the draft laws of the Republic of Kazakhstan by an independent scientific organization, and its organizer was the Ministry of Economics and Budget Planning of the Republic of Kazakhstan. The practical guide for the RIA were the Methodical recommendations on estimating the social and economic consequences of the adopted legislation drafts action of 2011, the Concept of the state regulation of the entrepreneurship activity until 2020. The Concept assumed to create on a permanent bases until 2020 a centralized system of public analysis of the regulatory impact of the existing and newly introduced norms of laws and instruments of economic regulation and introduction on its basis the coordination of the legislation acts by the unions of private entrepreneurship entities acting within the adoption of these legal norms on the base of the international experience [24]. At the present time, in effect is the Law of the Republic of Kazakhstan #480-V “On legislative acts” dated April 6, 2016 that determines the peculiarities of development and adoption of the legislative acts related to the interests of the private entrepreneurship entities including the obligation of the bodies-developers to forward a draft legislative act related to the interests of the private entrepreneurship entities to the accredited unions of the private entrepreneurship entities and the National chamber of entrepreneurs of the Republic of Kazakhstan to receive an expert approval and obligation to conduct the meetings of expert council if an expert approval on the legislative act requires corrections and requirement of such a meeting by a member of the expert council [25].

In Uzbekistan, the requirements on development of the RIA practice are fixed by a decree of the President of Uzbekistan #UP-4609 “On additional measures for further improvement of the investment climate and business environment in the Republic of Uzbekistan” dated April 7, 2014. [26]. Implementing the requirements of this decree, on December 2, 2014 the Cabinet council of the Republic of Uzbekistan adopted a decree #328 “On measures for introduction of a system of legislation acts impact on entrepreneurship activity”. This decree approves the Status on the order of impact assessment of the developed projects and adopted legislative acts through the United portal of interactive state services [27].

National systems of RIA arrangement. The specifics of the national system of RIA arrangement is determined by three main signs. First – selection of authorized body. Second – distribution of authorities between the authorized body and bodies-regulators.

There are several approaches to the selection of the authorized body. Within the first approach, a new specialized state body with corresponding functions can be established. This model, on the one hand, allows the authorized body for maximum concentration on the problems of RIA arrangement, and to find a solution for principal issues on enhancing the quality of the state regulation of economics. On the other hand, it makes the authorized body more politically vulnerable as it actually contradicts it to other elements of the state administration system.

Within the second approach the functions are laid on already existing body of the executive power. In this case it is important that during the difficult stage of the RIA national system establishment there is an opportunity to use knowledge, qualification and other resources of structures operating for a long time, the expenditures on introducing a new management instrument are optimized.

Within the third approach, the country may have no body responsible for the RIA arrangement in whole, but the conditions and order of the RIA are determined by the bodies – developers of legislative acts.

The analyzed countries have chosen the second approach. In Russia, since 2010, the authorized body in the field of RIA on the federal level is the Ministry of Economic Development of RF. In Kazakhstan it is the Ministry of the National Economics. In Uzbekistan it is the Ministry of Justice. These authorized bodies implement functions on elaborating the state policy and legislative regulation in the field of regulatory impact assessment.

Talking about distribution of authorities in the field of RIA, there are three most spread models - centralized, decentralized, and mixed. The model configuration is determined by power distribution between the body-regulator (developer of the legislative act) and authorized body on arranging two main processes: conduction of RIA with summary report preparation; quality control of conclusions.

The centralized model assumes the designation of an authorized body of the executive power responsible for preparation of conclusions regarding the RIA. The developers (regulators) forward to it the regulation drafts with corresponding documents on the base of which it makes the assessment. The centralized model helps to ensure the higher quality of RIA reports. However, the authorized body may have no specialists having enough expertise in different fields of economics for regulation of which this or that legislative act is prepared.

Within the decentralized model, the responsible for the RIA are bodies – developers of the draft legislative acts, and organizational and methodical support of the assessment process and quality control of conclusions is laid on the authorized body.

Under the mixed model, the functions are distributed in the way that the body-regulator and authorized body participate together in the RIA process, and the authorized body continues to be responsible for the final result – RIA quality. Sometimes, within the mixed model, under the authorized body there could be a coordination (or advisory) board. The coordination board usually discusses the issues regarding which more useful are collective decisions, for example, reasonability of the proposed regulation and necessity to develop a draft legislative act; necessity to implement the detailed regulation impact assessment etc.

In Russia, from 2010, there was the centralized model of RIA. The assessment was conducted directly by the Ministry of Economic Development of Russia. From July 1, 2013 there was a transfer to the decentralized model. The RIA reports are being prepared by the developers, federal bodies of the executive power. Most of the regions also apply the decentralized model, although it is not obligatory.

Kazakhstan also had a way from the centralized to decentralized model. First, the authorized body was the organizer of the scientific economic expertise of draft legislative acts. From 2011 more active became the role of bodies-regulators that earlier just actually waited for the expertise results. The regulators started preparing the Passports on assessing social and economic consequences of the adopted draft laws. And, finally, from 2016 the bodies-regulators prepare a report on the assessment that is forwarded to the authorized body.

It is more difficult to make conclusions on the model used in Uzbekistan. Formally, currently Uzbekistan is closer to the decentralized model. The legal department of the body-regulator has to make a legal expertise in three directions:

– Concordance with the Constitution and laws of the Republic of Uzbekistan, other legislative acts, rules of legislative technique, and justification and reasonability of reference rules application,

– Availability of provisions and norms creating conditions for corruption and other law infringements in the system of the state power and management bodies,

– Availability of provisions and norms introducing excessive administrative and other restrictions for entrepreneurship entities leading to the appearance of unfounded expenditures of entrepreneurship entities.

The Ministry of Justice receives a draft legislative act with expertise results of the body developer. In turn, the Ministry of Justice also examines the draft legislative act according to three criteria mentioned above. The scheme of power distribution between the body-regulator and authorized body is united on the state and regional levels [28].

However, in the open access there is no approved form of expert conclusion with a list of obligatory questions that could be used by a body-regulator and the Ministry of Justice. The conclusions are not published in the open access neither by a bode-regulator or an authorized body. That is why it is difficult to conclude on content concordance of legal expertise approval by the body regulator and authorized body.

In general view, the information on power distribution in the field of RIA in Russia, Kazakhstan, and Uzbekistan is shown in table 2.

Table 2 – Distribution of power regarding RIA

Country	Authorized state body	Model of power distribution	Possibility to choose a model of power distribution at the subnational level
Russia	Ministry of Economic development of RF	Decentralized (earlier – centralized). Currently, the centralized form, in some cases, is used during the introduction of new types of RIA.	yes
Kazakhstan	Ministry of the National Economics of the Republic of Kazakhstan (legal successor of the Ministry of Economics and Budget planning)	Decentralized (earlier - centralized)	yes
Uzbekistan	Ministry of Justice of the Republic of Uzbekistan	Formally decentralized*	no
*Insufficient information in open sources for final conclusion			

Levels of management at which RIA is conducted. From the view of the management level at which the assessment is made (table 3) the widest cover is observed in Russia. Here, RIA is conducted at all levels of management – state, regional, and local. In Russia, the process of RIA introduction into the activity of local self-government authorities started recently – from January 1, 2015 RIA is conducted by the capitals of Russian Federation members, from January 1, 2016 - urban districts and municipal regions, from January 1, 2017 – settlements. At the end of 2015 it was decided that the Russian Federation member has a right to determine a list of municipal regions and urban districts in which the regulatory impact assessment is obligatory.

In Kazakhstan, the RIA procedure is conducted on the state and regional levels. According to the current legislation, the local representative and executive bodies forward the draft legislation acts related to the interests of entrepreneurs to the accredited associations of private entrepreneurship entities and to the National chamber of entrepreneurs with obligatory attachment of the explanatory note to receive the expert approval. However, it is necessary to note the lack of methodical provision of RIA procedures for the authority bodies of subnational level and formal approach to its implementation in regions. For the RIA development at the regional level, the training workshops aimed at explanation of conditions and requirements on RIA institute introduction into the practice of regional and local government bodies are held.

In Uzbekistan, the regulatory impact assessment is conducted on the state and regional levels. On the regional level in Uzbekistan, the RIA is implemented by the government executive power bodies at administrative divisions of the first grade – in 12 regions, 1 autonomous republic, and 1 city of central subordination.

The RIA is also developed on the supranational level. Russia and Kazakhstan are the initiators of establishment and active members of the Eurasian Economic Union. The Eurasian Economic Union (EAEU) is an international organization of economic integration that ensures free movement of goods and services, capital and labor force, implementation of the coordinated, agreed or uniform policy in economic sectors. The permanently active supranational regulating body of the EAEU is the Eurasian Economic Commission (EEC) that considers a wide range of issues of macroeconomic, customs, financial, currency, energy policy etc.

Considering the importance of the decisions made by the EEC for the development of economies of the EAEU member countries, from July 1, 2013 it applies RIA to draft decisions of the Eurasian Economic Commission. This refers to the drafts on the issues of customs legislation; state control, obligatory requirements to products, implementation of works and services; estimation of concordance and safety of production processes. These are also subjected to public discussion. This procedure is the main instrument of the interaction between the EEC and business community in the process of preparation of supranational regulatory decisions in the Eurasian Economic Union. So, the national regulatory policy of Kazakhstan and Russia is constructed considering not only the specifics and demands of the national states, but considering the priorities of political and economic integration of the EAEU member countries. The general view of the information on the levels of management at which RIA is implemented is shown in table 3.

Table 3 – Level of management at which the regulatory impact assessment is implemented

Country	Level of management			
	Supranational (EAEU)	National	Regional	Local
Russia	•	•	•	•
Kazakhstan	•	•	•	–
Uzbekistan	–	•	•	–

Digital technologies in RIA arrangement. Forming of the national RIA models is implemented not in isolation, but within the general logics of the state management systems basing on the application of new digital technologies. Russia, Kazakhstan, and Uzbekistan work actively on introducing digital technologies in the field of the state administration, denote the national priorities in digitization. Along with this, the degree of concretization of these priorities regarding RIA differs significantly. The Russian Federation has developed an individual federal project “Digital state administration” within the national program “Digital economics of the Russian Federation” [29]. It assumes the creation of the united national system of development and adoption of regulatory decisions in RF by 2024 covering all legal agents of the legislative initiative. The Republic of Kazakhstan has adopted the national program “Digital Kazakhstan” (2018-2022); one of its aims is “Transfer to digital state” [30]. This trend assumes the conceptual transformation of the state functions into the infrastructure of services rendering to population and business. However, the subprogram does not present the concrete view of the regulatory policy under digitization. Uzbekistan currently discusses the Concept of the national strategy “Digital Uzbekistan 2030”. As the priority of the modernization of the state administration system it denotes the creation of the state administration system based on digital data [31].

Digitalization of the state administration field, in practice leads to redistribution of goal-setting functions in RIA. Now, formulating the strategic view of digitalization in RIA the authorized bodies must consider the positions of Ministries responsible for issues of digital development of economics and state in the analyzed countries. In Russia, it is the Ministry of digital development, communication and mass media (established in 2018 on the base of the Ministry of communication and mass media), in Kazakhstan – the Ministry of information and social development of the Republic of Kazakhstan (established by joining of the Ministry of social development and the Ministry of information and communication), in Uzbekistan – the Ministry for development of the information technologies and communications (established in 2015). All ministries were established on the base of already existing bodies of the executive power, but with significant broadening of authorities.

The most extensive and important example of RIA digitization is application of the official Internet-portals for placement of draft legislative acts and results of its public discussion. In Russia, the official Internet-portal www.regulation.gov.ru was run in 2012. In Kazakhstan, the Internet-portal https:// legalacts.egov.kz/ “Open legislative acts” for placement of draft legislative acts was run recently, in August 2018. In Uzbekistan, the first version of a service on discussing the draft legislative acts and estimation of the existing legislative acts affecting the entrepreneurship activity was run in 2015 on a united portal of interactive state services. Currently, In Uzbekistan, this function is implemented by the Internet-portal regulation.gov.uz

The created portals are aimed at providing the feedback with a user (comments, voting); form the public view regarding the advancement of this or that innovation in the field of legislative acts; accumulate the information base for the final reporting. The official Internet-portals are represented by user-friendly interfaces allowing a user to participate in discussion of interested projects, structure and generalize information on the current stage of the rule-making process.

In Russia, along with the federal portal, the important is the information and analytical portal www.orv.gov.ru. The portal presents the best practices in RIA, opinions of experts on discussing issues regarding the development of assessment, information and training materials, monthly and annual reports of the Ministry of Economic Development on RIA implementation. In 2019, a new information-analytical portal www.knd.ac.gov.ru was created. This portal accumulates the legislative information, opinions of experts and public discussions on conducting in Russia of so-called regulatory guillotine (large-scale review and cancellation of legislative acts having negative impact on general business climate and regulatory environment) [32]. The “guillotine” task is to create, in the fields of regulations, a new system of clear and exact requirements to economic entities, relieve the excessive administrative load on the entrepreneurship activity entities, and decrease the risks of damage of the defended values. Thus, the implementation of RIA called into existence the whole spectrum of digital services becoming a pilot version of digital platform accumulating the rule-making processes, selection of strategic priorities of development of RIA institute and discussion platform.

Conclusion. The conducted research allowed concluding the following:

1. Introduction of RIA institute into the system of the state and municipal administration in Russia and Kazakhstan started almost at the same time (1997 – 1998). Uzbekistan started this process a little later, in 2006 – 2008. The introduction of RIA started with the adoption of the legislative base that defined the order and conditions of RIA implementation in general sense. Then, the state elaborated more detailed procedure of RIA implementation by formulating definite algorithms, mechanisms of the regulatory policy fulfillment. At the same time, in Russia, unlike other two countries, this procedure is implemented even on the municipal level.

2. To estimate the national system of RIA the important issue is the structure of the authorized body. All three analyzed states have selected a strategy according to which the functions of the authorized body are implemented by already existing body of the executive power. In addition, there is an issue of power distribution between the authorized body and bodies-regulators (draft legislative acts developers). Depending on this, the centralized, decentralized, and mixed models are discussed. Russia and Kazakhstan

passed its way from centralized to decentralized system that shows the transformation of the regulatory policy. Currently, the reports on RIA implementation are prepared by the bodies-developers of RIA. The situation in Uzbekistan is more complex as it has less experience in RIA implementation. Formally, we can state that the system is also decentralized, but there is no enough information in the open sources to make such a conclusion.

3. Regarding the levels of RIA application, we note that the largest cover is in Russia. The RIA, here, is applied on federal, regional, and local levels, there is a legislative base describing in details the mechanisms of this procedure implementation on each level. In Kazakhstan and Uzbekistan, the RIA is implemented only on the national and regional levels. In addition, Kazakhstan and Russia construct the interaction within the supranational bodies. Thus, from July 1, 2013 the RIA was introduced for draft decisions of the Eurasian Economic Commission which activity is aimed at economic integration of the Eurasian region countries.

4. It is obvious that the digitalization penetrates to the sphere of the state administration. The President of the Russian Federation, in his Address to the Federal Assembly in 2019 has noted a necessity to adopt federal laws aimed at development of digital economics, and creation and introduction a digital platform operating in pilot mode to receive the addresses of the entrepreneurship activity entities if there is a pressure on them on the part of law-enforcement agencies [34]. The RIA system is not an exception. Russia, Kazakhstan, and Uzbekistan have developed and apply a legislative base on digitalization of the state administration. For RIA implementation they have created special service allowing discussing and assessing the draft legislation acts and receive a feedback. It is also possible to state that the indicated services are a base for accumulation of rule-making processes, determination of strategic trends of RIA, and represent a sort of discussion platform.

И. Д. Тургель[1], А. Ж. Панзабекова[2], Н. В. Сыманюк[1]

[1]Урал федералдық университеті, Екатеринбург, Ресей;
[2]Қазақстан Республикасы Білім және ғылым министрлігінің Экономика институты, Алматы, Қазақстан

РЕТТЕУШІЛІК ЫҚПАЛДЫ БАҒАЛАУДЫҢ ҰЛТТЫҚ ЖҮЙЕЛЕРІН ҰЙЫМДАСТЫРУ: РЕСЕЙ, ҚАЗАҚСТАН ЖӘНЕ ӨЗБЕКСТАН ТӘЖІРИБЕСІ

Аннотация. Зерттеу Кеңестен кейінгі кеңістіктегі мемлекеттердегі – Ресей, Қазақстан және Өзбекстандағы реттеушілік ықпалды бағалаудың ұлттық жүйелерін ұйымдастыру тәсілдеріне салыстырмалы талдау жүргізуге, аталған елдердегі реттеушілік ықпалды бағалауды ұйымдастырудың қолданыстағы мәселелерін анықтауға, сондай ақ осы институттың тиімділігі мен қолданымдылығын жоғарылату мақсатында оны ұйымдастырудың ең ұтымды тәжірибелерін қалыптастыруға бағытталған. Зерттеу жүргізу үшін тап осы мемлекеттерді таңдау кездейсоқ емес, өйткені бұл мемлекеттер Кеңестен кейінгі кеңістікте орналасқан және оларда мемлекеттік саясаттың транспаренттілігін жоғарылату мақсатында қабылданатын нормативтік-құқықтық актілерді кешенді бағалау тәжірибесі 90-жылдардың соңына дейін болмаған. Сондықтан реттеушілік ықпалды бағалаудың ұлттық жүйелерін қалыптастыру үдерісіне салыстырмалы талдау жүргізу ерекше өзекті мәселеге айналып отыр.

Зерттеу барысында әдістер кешені қолданылған, бұл әдістерді шартты түрде үш топқа топтастыруға болады: 1) реттеушілік ықпалды бағалаудың ұлттық жүйелерін құрудың институционалды тәсілдерін зерттеу әдістері; 2) алыс және жақын шет елдердегі реттеушілік ықпалды бағалаудың ұлттық жүйелерін компаративтік зерттеулер; 3) Кеңестен кейінгі кеңістіктегі жекелеген мемлекеттердегі реттеушілік ықпалды бағалаудың ұлттық жүйелерінің құрылуы мен дамуын талдау. Көрсетілген әдістемелік кешенді қолдау Ресей, Қазақстан және Өзбекстандағы реттеушілік ықпалды бағалауды іске асырудың барлық негізгі бағыттарын қамти отырып, реттеушілік ықпалды бағалаудың ұлттық жүйелеріне жүйелі түрде салыстырмалы талдау жүргізуге мүмкіндік берді. Одан басқа, қазіргі уақытта Кеңестен кейінгі кеңістіктегі жекелеген елдердегі реттеушілік ықпалды бағалаудың ұлттық жүйелерін зерттеуге арналған жұмыстар санының аз екендігін авторлар анықтаған. Осы зерттеу аясында көрсетілген мазмұнды мәселені шешуге талпыныс жасалған.

Зерттеу барысында компаративистік зерттеу жүргізу үшін авторлар төрт негізгі бағытты көрсеткен: мемлекеттік және муниципалдық басқару тәжірибесіне реттеушілік ықпалды бағалауды енгізудің шешуші кезеңдері; реттеушілік ықпалды бағалауды ұйымдастырудың ұлттық жүйелерін сипаттайтын факторлар; реттеушілік ықпалды бағалау іске асатын басқару деңгейлері; сондай ақ реттеушілік ықпалды бағалауды ұйымдастырудағы цифрлық технологиялар.

Зерттеу нәтижелері Ресей, Қазақстан және Өзбекстанның мемлекеттік билік органдары, Еуразиялық экономикалық одақтың ұлтүсті құрылымдарының реттеу саясаты аумағындағы басқару шешімдерін қабылдау және іске асырудың анағұрлым тиімді жолдарын негіздеу үшін, Кеңестен кейінгі кеңістіктегі елдердегі мемлекеттік саясаттың транспаренттілігін жоғарылату үшін, сонымен қатар, мемлекет, бизнес және азаматтық қоғамның өзара әрекеттесуінің тиімді үлгісін қалыптастыру барысында қолданылуы мүмкін. Зерттеу нәтижесінде реттеушілік ықпалды бағалаудың ұлттық жүйелерін дамытудың басым бағыттары ұсынылған.

Түйін сөздер: реттеушілік ықпалды бағалаудың ұлттық жүйелерін ұйымдастыру, реттеушілік ықпалды бағалау, Кеңестен кейінгі кеңістік, компаративтік зерттеулер.

И. Д. Тургель[1], А. Ж. Панзабекова[2], Н. В. Сыманюк[1]

[1]Уральский федеральный университет, Екатеринбург, Россия;
[2]Институт экономики Министерства образования и науки Республики Казахстан, Алматы, Казахстан

ОРГАНИЗАЦИЯ НАЦИОНАЛЬНЫХ СИСТЕМ ОЦЕНКИ РЕГУЛИРУЮЩЕГО ВОЗДЕЙСТВИЯ: ОПЫТ РОССИИ, КАЗАХСТАНА И УЗБЕКИСТАНА

Аннотация. Настоящее исследование направлено на проведение сравнительного анализа подходов к организации национальных систем оценки регулирующего воздействия в странах постсоветского пространства - России, Казахстане и Узбекистане, выявление существующих проблем в организации оценки регулирующего воздействия в указанных странах, а также формулирование лучших практик организации оценки регулирующего воздействия с целью повышения действенности и эффективности данного института. Выбор стран для проведения исследования не случаен, ведь данные государства представляют собой постсоветское пространство и до конца 90-х годов не имели опыта комплексной оценки принимаемых нормативных правовых актов в целях повышения транспарентности государственной политики. Именно поэтому особую актуальность приобретает проведение сравнительного анализа процесса формирования ***национальных*** систем оценки регулирующего воздействия.

Исследование проведено с использованием комплекса методов, которые условно можно подразделить на три группы: 1) способы изучения институциональных подходов к построению национальных систем оценки регулирующего воздействия; 2) компаративные исследования национальных систем оценки регулирующего воздействия в странах дальнего и ближнего зарубежья; 3) анализ становления и развития национальных систем ОРВ в отдельных странах постсоветского пространства. Использование указанного методологического комплекса позволило провести сравнительный анализ национальных систем оценки регулирующего воздействия системно, затрагивая все основные направления реализации ОРВ в России, Казахстане и Узбекистане. Кроме того, авторами было установлено, что в настоящее время представлено небольшое количество исследований, посвящённых национальным системам ОРВ в отдельных странах постсоветского пространства. В рамках данного исследования предпринята попытка решить обозначенную содержательную проблему.

В ходе исследования авторами обозначены четыре основные направления для проведения компаративистского исследования: ключевые этапы внедрения ОРВ в практику государственного и муниципального управления; факторы, характеризующие национальную систему организации ОРВ; уровни управления, на которых реализуется ОРВ, а также цифровые технологии в организации ОРВ.

Результаты исследования могут быть использованы органами государственной власти России, Казахстана и Узбекистана, наднациональными структурами Евразийского экономического союза для обоснования наиболее эффективных путей принятия и реализации управленческих решений в области регуляторной политики, повышения транспарентности государственной политики в странах постсоветского пространства, а также формирование эффективной модели взаимодействия государства, бизнеса и гражданского общества. По итогам исследования предложены перспективные направления развития национальных систем оценки регулирующего воздействия.

Ключевые слова: организация национальных систем оценки регулирующего воздействия, оценка регулирующего воздействия, постсоветское пространство, компаративные исследования.

Information about authors:

Turgel Irina Dmitriyevna, Doctor of Economics, Professor, Director Deputy on Science of the High School of Economics and Management, Ural Federal University, Yekaterinburg, Russia; turgel@k96.ru; https://orcid.org/0000-0001-8647-7739

Panzabekova Aksana Zhakitzhanovna, Candidate of Economics, Docent, Director Deputy on Science of the Institute of Economics of the Ministry of Education and Science of the Republic of Kazakhstan, Almaty, Kazakhstan; aksanat@mail.ru; https://orhid.org/0000-0002-6389-9637

Symaniuk Nina Vasilyevna, Candidate of Juridical Sciences, Docent of the Department of Theory, Methodology and Legal support, Institute of Economics and Management, Ural Federal University, Yekaterinburg, Russia; n.v.symaniuk@urfu.ru; https://orcid.org/0000-0002-8446-857X

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Zh. Z. Arynova[1], A. T. Abdykarimova[2], M. К. Zhetpisbayeva[2], Z. A. Salzhanova[2], N. B. Kuttybaeva[2], G. K. Kenges[3]

[1]Buketov Karaganda State University, Karaganda, Kazakhstan;
[2]Karaganda Economic University of Kazpotrebsoyuz, Karaganda, Kazakhstan;
[3]Kazakh Agrotechnical University named after S.Seifullin, Nur-Sultan, Kazakhstan.
E-mail: mamatai1966@mail.ru, aliyata@mail.ru, rimakeu@mail.ru,
satname.@bk.ru, nurg_78@mail.ru, gulji@mail.ru

COMPETITIVENESS OF THE REGION AS A TRANSFORMATION BASIS FOR THE ECONOMY OF THE REPUBLIC OF KAZAKHSTAN

Abstract. In the era of globalization, the development of countries with a small open economy largely depends on the intensity of using various forms of international economic relations, among which the competitiveness of each country plays a special role. At the present stage of development, the problem of competitiveness is central to the economic policy of the state. Creating competitive advantages over an opponent becomes a strategic direction of the state and its bodies and applies to all levels of the hierarchy: products (goods and services), enterprises, industries, regions and the country as a whole, but the country's competitiveness is of particular importance. The competitiveness of the region is determined in comparison with other similar facilities. This characteristic refers to estimated indicators, therefore, it assumes, along with the subject and subject of the assessment, the presence of certain criteria. Evaluation criteria (goals) may be the market position, the pace of development, the ability to pay for the borrowed funds received, consumer properties in relation to the price of the goods, etc.

Key words: competitiveness, region, transformation, economy, state.

Introduction. The competitiveness of the region reflects the level of efficiency in managing its economy. The latter is one of the factors regulating the economy of the region, which is a driving force for the development of a particular region and the regional community as a whole. Therefore, as a criterion for assessing the competitiveness of the region, it is advisable to choose the pace of development of the regions of Kazakhstan, which are asymmetric in nature.

Regional asymmetries are gaps (deviations) that are stable in time and space in the conditions and results of regional development relative to the legislatively or normatively established system of standards and the level of their economic development, the reduction of which ensures equalization of conditions for a more complete realization of the constitutional rights of citizens in meeting social needs, and in the long run contributes to the development of the country as a whole.

Any region can be classified into three groups obtained on the basis of a combination of spatial (regional population density) and economic (GDP per capita regions) factors: production localization, sources of increasing profitability growth and knowledge centers.

Main part. Production location regions are low- or middle-income regions. Productivity in these regions is achieved through low costs.

Their attractiveness is in the absence of negative aspects of urbanization. The factors determining their competitiveness lie in the basic infrastructure and accessibility: low cost location, lack of congestion, affordable housing and the availability of cheap human resources.

Regions of increasing profitability are regions with high growth rates, with an average population density and a clear economic structure (dynamically developing regions). In these regions, the benefits of the concentration of resources arise only in certain sectors, which are important sources of income.

Foreign firms’ managers are suited to gain if acquire local context and local (or Diaspora-) based partner (public or private) prior to regional or standalone entry. Despite multiple headwinds, both economies retain strong international business potential and hope for an economic and social resurrection.

Figure 1 – Five forces of economic and social transformation

Implementation of flexibility, sustainability, and dynamics of modern economy is largely determined by the state of its infrastructure. According to this, the level of complexity and completeness of development of infrastructural complex influences the sense and characteristics of territorial and sectorial organization of public production, as well as quality and living standards of regions' population. Formation of clear priorities of the development will allow determining the coordinated strategic directions, reaching the balance of the planned actions which requires significant resource and organizational expenses (Strategic planning, 2015), providing increase of the quality of infrastructure of regional economy, its transformation into a complex, multilevel system, in view of implementation of innovations which model transformations that are dictated by new economic situation and by new requirements of consumers and economic subjects to infrastructural services.

The infrastructure of regional economy – with optimal connection between its elements – forms a single sustainable system which increases the general efficiency of economic development and is capable to ensure the synergetic effect. At that, the latter is very topical under conditions of instability of the global and national economies (Infrastructure of region, 2015). That’s why it is necessary to form a strategy of complex adaptive systemic development of regional infrastructure from the position of provision of balance of its components: provisional, productive, investment, innovational, market, and social. Formation of this strategy, correspondingly, supposes development of goals and tasks of improving the infrastructure of regional economy and interconnected priorities of its development.

A strategy of systemic development of infrastructure of regional economy is a long-term qualitatively determined direction of development, based in a variety of systematized actions, allowing – on the basis of strategic priorities – determining the preferred tools and measures for implementation of procedures, parameters, and processes of development of regional infrastructure. The offered strategy requires development of new scientific approaches and practical actions which conform not only to modern conditions, but to offered perspectives of development of the infrastructure of regional economy. Systemic character of the strategy of development consists in consideration of regional infrastructure as a complex of interconnected and interacting objects as parts of its component.

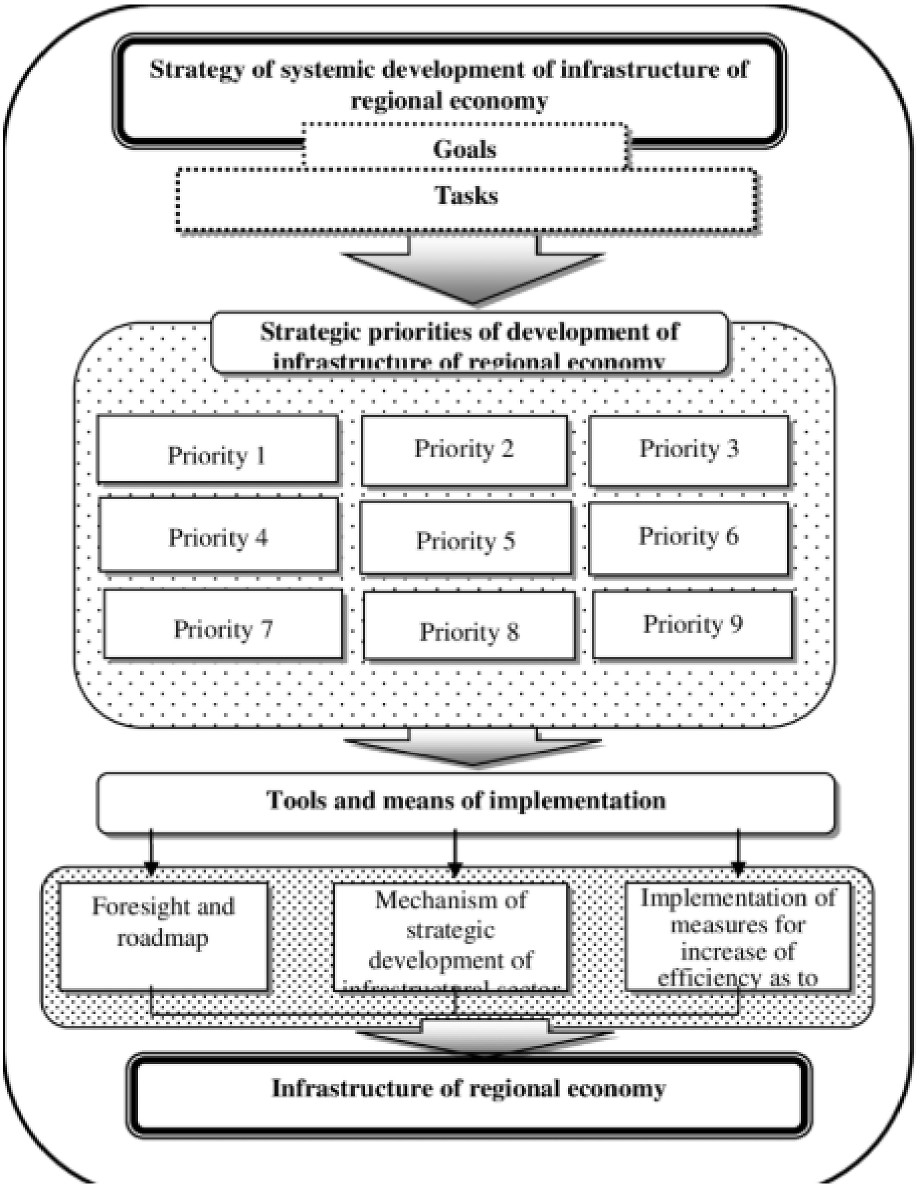

Figure 2 – Strategy of systemic development of infrastructure of regional economy

Thus, by the nature of the development of the dynamics and structure of Kazakhstan's foreign trade, one can ascertain the increase in the importance of trade relations between the republic and its partners in the EAEU in terms of the effect of mutual trade on the qualitative parameters of the national economy (stimulation and growth of industrial production, technological development and the increase in the share of value added in export), which generally meets the objectives of increasing the country's competitive potential and contributes to targeted development programs.

Summarizing the analysis, we should single out a circle of problems that contribute to the growth of regional asymmetry and reduce the level of competitiveness of the region:

– heterogeneous adaptation of regions with different economic structures to functioning in conditions of market competition;

– the branch principle of economic management, which determines the stimulation of only basic areas with a high degree of territorial localization; insufficiently intensive cooperation between different regions;

– weakening of the role of the state regarding the regulation of regional economic development and the alignment of imbalances in pace and direction;

– asymmetrical influence of the state through existing mechanisms on the development of different regions.

The results of the analysis indicate that the synchronization of the interests of the state and the region in a separate territory will not only increase its economy, but ultimately lead to a reduction in development imbalances between regions. Moreover, management of the region's economy is of particular importance.

Management is a particularly significant function of the region. The historical successes of the region are largely determined not by natural resources and technologies, but by the effectiveness of managing the economy of their territory. Therefore, some regions are progressing, while others are not. However, as international experience testifies, such a management role can be realized only under favorable internal and external conditions. This is, first of all, reliance on objective economic laws, proven principles of market management, the world practice of successful business, the effectiveness of the system of regulation of the economy of the region

A clear concept of economic management should play the role of the most important factor in building a prosperous region and serve as a stimulating condition for the development of society. Such a concept should be part of the meso-management system, permeate its content, theoretically substantiate the economic system of the regions forming the country [2].

One of the most urgent tasks of the region is to build a management model that can ensure the competitiveness of the territory's economy. Today, the region's competitiveness is one of the most influential concepts in development economics and practical politics [3]. At the same time, the industry of the regions, both in terms of the technical and technological base and in terms of the sectoral structure, does not meet modern requirements. The result of this situation is its lagging behind a number of developed and new industrial regions. The lack of a systematic understanding of one's own competitiveness (or lack of competitiveness), together with the absence of any strategy for its formation, creates a risk for the regions of the Republic of Kazakhstan to remain investment-unattractive and uncompetitive [4].

The interdependence of the processes of competitiveness and economic growth of the region, as well as the complexity and depth of the required transformations of its economy in accordance with global trends, determine the need to highlight the factors and conditions for ensuring the competitiveness of the region's economy. In this case, we are talking about creating a model for managing the region's economy.

The main components of this model are management as a set of relevant principles, management organization (functions) and management strategy (methods).

Management is based on the principles of reproduction of the life support system, legal regulation of management, social orientation, innovative orientation, preservation of our own raw materials, the unity of management theory and practice, and the region's competitiveness.

Management, first of all, should ensure the preservation of the ecosystem, resource-saving reproduction of all its components. In this case, the region becomes an object of economic and legal regulation. Economic and legal regulation of management processes, compliance with international and state regulations governing various processes in all areas of the region's economy, reduction of subjectivity in management should ensure the legitimacy of managing the economy of the territory. One of the main goals of management should be the harmonious development of society, the disclosure and realization of its potential opportunities, improving the welfare of the population and the quality of life in the region.

The structural source of management is development based on factors of production, investment, and innovation. To increase the competitiveness of the region, management should be focused on ensuring investment of innovations mainly in new technologies and management [5]. The implementation of innovative management orientation in modern conditions requires its appropriate organization.

The regulation of the management organization must take into account the features of functions and tasks, for the implementation and implementation of which it must be adapted. It seems that the functional content of the organization for managing the economy of the region includes lawmaking, the implementation of laws, the protection of rights and freedoms, and control over the implementation of laws.

The interaction of these functions provides an innovative orientation of management and the implementation of a resource-saving strategy for the region, which should be aimed at preserving regional raw materials, their rational use, import and export of new technologies.

Conclusion. Resource conservation, in turn, is the basis of a management strategy, which includes a number of successive stages: analysis of the environment, determination of the mission and goals, choice of strategy, strategy implementation, evaluation and monitoring of strategy implementation.

The implementation of the above stages of the management strategy ensures the realization of the potential of the regional economy. The successful realization of this potential is directly dependent on the unity of management theory and practice. In accordance with this principle, any managerial decision in the field of functioning and development of the region must meet the logic, principles and methods of management and solve one of the practical problems aimed at realizing the economic potential of the region.

The economic potential of the region includes human, resource, scientific, technical, institutional and production potentials. In order to realize the potential of the region to the maximum, to realize all state plans and programs for regional development, it is necessary to correctly place emphasis, find an area in which the existing potential of the region is revealed at 100%, determine the strengths and weaknesses of the region.

Ж. З. Арынова[1], А. Т. Абдикаримова[2], М. К. Жетписбаева[2], З. А. Сальжанова[2], Н. Б. Куттыбаева[2], Г. К. Кеңес[3]

Академик Е. А. Бөкетов атындағы Қарағанды университеті, Қарағанды, Қазақстан;
Қазтұтынуодағы Қарағанды экономикалық университеті, Қарағанды, Қазақстан;
С. Сейфуллин атындағы Қазақ агротехникалық университеті, Нұр-Сұлтан, Қазақстан

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ЭКОНОМИКАСЫНЫҢ ТРАНСФОРМАЦИЯЛЫҚ НЕГІЗІ РЕТІНДЕ АЙМАҚТЫҢ БӘСЕКЕГЕ ҚАБІЛЕТТІЛІГІ

Аннотация. Жаһандану дәуірінде шағын экономикасы бар елдердің жоғары дәрежедегі даму жағдайы халықаралық экономикалық қатынастардың түрлі формаларын қолдану қарқындылығына байланысты, олардың арасында әр елдің бәсекеге қабілеттілігі ерекше рөл атқарады. Дамудың қазіргі кезеңінде бәсекеге қабілеттілік мәселесі мемлекеттің экономикалық саясатында басты орын алады. Қарсыласқа қарағанда бәсекелестік артықшылықтар жасау мемлекет пен органдардың стратегиялық бағыты болып есептеледі және иерархияның барлық деңгейіне қолданылады: өнімдер (тауар мен қызметтер), кәсіпорындар, салалар, аймақтар және тұтастай алғанда ел, оның бәсекеге қабілеттілігі ерекше мәнге ие.

Аймақтың бәсекеге қабілеттілігі оның экономикасын басқарудағы тиімділік деңгейін көрсетеді. Соңғысы – белгілі бір аймақтың және тұтастай алғанда аймақтық қауымдастықтың дамуының қозғаушы күші болып табылатын аймақтың экономикасын реттейтін факторлардың бірі. Сондықтан аймақтың бәсекеге қабілеттілігін бағалау критерийі ретінде табиғатында асимметриялы емес Қазақстан аймақтарының даму қарқынын таңдаған дұрыс.

Аймақтық асимметрия – заңнамалық немесе нормативтік түрде бекітілген стандарттар жүйесіне және олардың экономикалық даму деңгейіне қатысты аймақтық даму жағдайы мен нәтижелері бойынша уақыт пен кеңістіктегі тұрақты, ал олардың азаюы жағдайларды теңестіруді қамтамасыз ететін олқылықтар (ауытқулар), азаматтардың әлеуметтік қажеттіліктерді қанағаттандырудағы конституциялық құқығын толығырақ іске асыру болашақта тұтастай алғанда елдің дамуына ықпал етеді.

Өндіріс орналасқан аймақтар – табысы төмен немесе орташа өңірлер. Бұл аймақтарда өнімділікке төмен шығындар арқылы қол жеткізіледі. Олардың тартымдылығы урбанизацияның жағымсыз жақтары жоқ жағдайда байқалады. Бәсекеге қабілеттілігін анықтайтын факторлар базалық инфрақұрылымға және қол жетімділікке, яғни арзан орналасу, қолжетімді тұрғын үй және арзан адам ресурстарының болуы негізделеді.

Табыстың өсу аймағы – өсу қарқыны жоғары, халықтың орташа тығыздығы және нақты экономикалық құрылымы бар аймақтар (қарқынды дамып келе жатқан аймақтар). Бұл аймақтарда ресурстарды шоғырландырудың пайдасы маңызды табыс көзі болып саналатын белгілі бір салаларда ғана пайда болады.

Менеджмент, ең алдымен, экожүйенің сақталуын, оның барлық компоненттерінің ресурстарды үнемдеуді қамтамасыз етуі керек. Бұл жағдайда аймақ экономикалық және құқықтық реттеудің объектісіне айналады. Басқару үдерістерін экономикалық және құқықтық реттеу, аймақ экономикасының барлық салаларындағы түрлі үдерістерді реттейтін халықаралық және мемлекеттік ережелерді сақтау, басқарудағы субъективтіліктің төмендеуі аумақ экономикасын басқарудың заңдылығын қамтамасыз етуі керек. Менеджменттің негізгі мақсаттарының бірі қоғамның үйлесімді дамуы, оның әлеуеттік мүмкіндіктерін ашу және іске асыру, халықтың әл-ауқаты мен аймақтағы өмір сапасын жақсарту болуы тиіс.

Түйін сөздер: бәсекеге қабілеттілік, аймақ, қайта құру, экономика, мемлекет.

Ж. З. Арынова[1], А. Т. Абдикаримова[2], М. К. Жетписбаева[2],
З. А. Сальжанова[2], Н. Б. Куттыбаева[2], Г. К. Кеңес[3]

[1]Карагандинский университет им. академика Е. А. Букетова, Караганда, Казахстан;
[2]Карагандинский экономический университет Казпотребсоюза, Караганда, Казахстан;
[3]Казахский агротехнический университет им. С. Сейфуллина, Нур-Султан, Казахстан

КОНКУРЕНТОСПОСОБНОСТЬ РЕГИОНА КАК ТРАНСФОРМАЦИОННАЯ ОСНОВА ЭКОНОМИКИ РЕСПУБЛИКИ КАЗАХСТАН

В эпоху глобализации развитие стран с малой открытой экономикой во многом зависит от интенсивности использования разнообразных форм международных экономических отношений, среди которых особую роль играет конкурентоспособность каждой страны. На современном этапе развития проблема конкурентоспособности занимает центральное место в экономической политике государства. Создание конкурентных преимуществ перед соперником становится стратегическим направлением деятельности государства и его органов и касается всех уровней иерархии: продукции (товаров и услуг), предприятий, отраслей, регионов и страны в целом, но особую важность приобретает именно конкурентоспособность страны.

Конкурентоспособность региона отражает уровень эффективности управления его экономикой. Последнее является одним из факторов, регулирующих экономику региона, который является движущей силой развития конкретного региона и регионального сообщества в целом. Поэтому в качестве критерия оценки конкурентоспособности региона целесообразно выбрать темпы развития регионов Казахстана, которые имеют асимметричный характер.

Региональные асимметрии – это пробелы (отклонения), которые являются стабильными во времени и пространстве в условиях и результатах регионального развития относительно законодательно или нормативно установленной системы стандартов и уровня их экономического развития, снижение которых обеспечивает выравнивание условий для Более полная реализация конституционных прав граждан на удовлетворение социальных потребностей и, в конечном итоге, способствует развитию страны в целом.

Регионы размещения производства – это регионы с низким или средним уровнем дохода. Производительность в этих регионах достигается за счет низких затрат.

Их привлекательность заключается в отсутствии негативных аспектов урбанизации. Факторы, определяющие их конкурентоспособность, заключаются в базовой инфраструктуре и доступности: дешевизна местоположения, отсутствие заторов, доступное жилье и наличие дешевых людских ресурсов.

Регионами повышения прибыльности являются регионы с высокими темпами роста, со средней плотностью населения и четкой экономической структурой (динамично развивающиеся регионы). В этих регионах выгоды от концентрации ресурсов возникают только в определенных секторах, которые являются важными источниками дохода.

Руководство, прежде всего, должно обеспечить сохранение экосистемы, ресурсосберегающее воспроизведение всех ее компонентов. В этом случае регион становится объектом экономико-правового регулирования. Экономическое и правовое регулирование процессов управления, соблюдение международных и государственных норм, регулирующих различные процессы во всех сферах экономики региона, снижение субъективности в управлении должно обеспечить легитимность управления экономикой территории. Одной из основных целей управления должно быть гармоничное развитие общества, раскрытие и реализация его потенциальных возможностей, повышение благосостояния населения и качества жизни в регионе.

Ключевые слова: конкурентоспособность, регион, трансформация, экономика, государство.

Information about authors:

Arynova Zhanna Zainishevna, Kandidates degree in Economic sciences, Academician E. A. Buketov Karaganda University, Karaganda, Kazakhstan; mamatai1966@mail.ru; https://orcid.org/0000-0003-3365-2534

Abdikarimova Aliya Toleutaevna, PhD in Economics, Karaganda Economic University of Kazpotrebsoyuz, Karaganda, Kazakhstan; aliyata@mail.ru; https://orcid.org/0000-0001-5440-9803

Zhetpisbaeva Mukhtarima Kaskataevna, Academic degree: Candidate of Economic Sciences, Karaganda Economic University of Kazpotrebsoyuz, Karaganda, Kazakhstan; rimakeu@mail.ru; https://orcid.org/0000-0002-1341-3563

Salzhanova Zaure Abildinovna, Doctor of Economics, Professor, Karaganda Economic University of Kazpotrebsoyuz, Karaganda, Kazakhstan; satname.@bk.ru; https://orcid.org/0000-0003-0763-3399

Kuttybaeva Nurgul Bolatovna, PhD, Senior Lecturer, Karaganda Economic University of Kazpotrebsoyuz, Karaganda, Kazakhstan; nurg_78@mail.ru; https://orcid.org/0000-0001-8250-4111

Kenges Gulzhihan Kengeskyzy, Candidate of Economic Sciences, Kazakh Agrotechnical University named after S. Seifullin, Nur-Sultan, Kazakhstan; gulji@mail.ru; https://orcid.org/0000-0001-8529-8923

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O. Artemenko[1], S. Anzorova[1], P. Gasanova[1],
M. Nikitina[2], S. Fedorova[3], D. Petrukhina[1]

[1]Russian Federation Presidential Academy of National Economy
and Public Administration, Moscow, Russia;
[2]V. I. Vernadsky Crimean Federal University, Simferopol, Russia;
[3]FSEI HPE Of the "Mari State University", Yoshkar-Ola, Republic Of Mari El.
E-mail: inpo_rus@mail.ru, anzorova-sp@ranepa.ru, gasanova-pm@ranepa.ru,
inecondep@mail.ru, svetnikfed65@yandex.ru, petrukhina-dv@ranepa.ru

SCHOOL - A TOOL OF CONSOLIDATION

Abstract. In modern conditions of the world economy's monopolization, sanctions, the flow of external migration of the labor force is an urgent problem of the necessity at the state level to preserve the cohesion and unity of the multiethnic Russian society. The article examines the historical development of Russia, where the school as a social institution performs not only an educational function but also the role of consolidating the multiethnic composition of the state. Russian language and culture fulfill this role through the school.

Russian is historically considered as the language of integration of nations who have passed their ethnogenesis on the territory of Russia, their spiritual and cultural rapprochement with the Russians by the method of N. I. Ilminsky while preserving the native languages of students. Performing the function of consolidation, the Russian language acted as an integrator of nations, not their assimilator, as evidenced by statistics on the actual existence of more than 230 languages and dialects of nations.

The article notes that in Russian politics before the reconstruction period, the school, performing a consolidating function, was a tool for leveling the ethnic characteristics of students, through unitary language training, forming national-Russian bilingualism.

The analysis of scientific sources shows that such conditions before the reconstruction period led to objective facts not manifestations of interethnic conflicts. Also, during the entire Soviet period, literary languages were created and developed, and dialects were preserved to some extent, but, unfortunately, the functions of native languages were narrowed in social spheres. Describing the post-soviet period, cultural and linguistic diversity is noted, which is a significant source of social conflicts and political discussions. Under these conditions, cultural and linguistic state homogeneity becomes a subject of dissatisfaction in the public life of speakers of minority languages. The problem arises as to how to guarantee the participation of each language group in the life of a multilingual society with their socio-cultural integration, without violating international human rights legislation.

Key words: school, language, poly-ethnic society, consolidation, identity.

Introduction. Modern monopolization of the world economy, sanctions, flows of external migration of labor, all these objective factors determine the overall modernization of society and in particular the education system, the formation of a new way of life, and the social behavior of citizens. In these conditions, cultural and linguistic diversity begins to dominate the real household environment, which is a significant source of social conflicts and political discussions [1]. This situation makes it necessary to develop procedures at the state level aimed at preserving the cohesion and consolidation of multi-ethnic Russian society. In these processes, one of the main roles belongs to the school education system, and in particular to the implementation of language education policy [2]. To develop an effective model of educational activities aimed at removing inter-ethnic tension, it is necessary to analyze the past and present, which allows us to understand the causes of problems and forecast prospects.

During the period of socialist construction of the Russian state, the development of language policy was based on the principles of language development's dependence of legitimacy on the laws of social development, using a comparative-historical approach [3]. This approach, narrowing the sphere of functioning of the native language [4], allowed creating and developing literary languages and preserving dialects to some extent [5]. After the 30s of the twentieth century, minimal conditions were created for the preservation of native languages. However, the number of disappeared languages was also minimal [6]. Science, culture, and the media played a positive role in preserving the functioning of languages, not schools. The school helped to preserve the quality of the language (grammatical foundations). Russian language materials used the same concepts: "Russian language"," native language"," national language", i.e. Russian was not included in the native languages. Unified requirements were developed for textbooks and school dictionaries in native languages, and textbooks in Russian were developed taking into account the language environment: for students who are native speakers of Abkhazian-Adyg, Turkic, Finno-Ugric languages. The methodological materials for textbooks were developed considering the level of Russian language proficiency (for both proficient and non-proficient).

Analyzing the post-soviet period of Russia's development, we can distinguish three stages in the implementation of language education policy.

The first stage from 1992 to 2007. To satisfy the poly subject social order, the law of the Russian Federation "on education" was adopted in 1992. As a result, all schools, without exception, introduce a regional (national-regional) component of the education's content. The overall result of the component introduction was an increase in the number of languages learning from 21 in 1989 to 31 in 1993. The number of languages taught in schools as a subject has increased from 44 to 68 [7]. By 2007, the number of languages studied had increased to 89, and 29 of them were taught in those languages [8]. Since 2005, as part of the national-regional component, schools in some regions have started to introduce the compulsory study of the state language of the Republic by reducing the hours for learning Russian, which has caused dissatisfaction from the parent community.

Federal law No. 309-FZ came into force on December 1, 2007 [9]. We can stress the second stage. It was necessary to bring the norms of the Law of the Russian Federation "on education" in line with the norms of the Constitution of the Russian Federation [10]. In accordance with the new law, the school must develop a basic educational program with an ethnocultural orientation. It was assumed that the study of native languages will be implemented as part of the main educational program, formed by participants in the educational process and only at the request and choice of participants in the educational process.

In December 2012, a new version of the Federal law "on education in the Russian Federation" is published and the third stage of implementation of the language education policy begins. In accordance with article 14 of this law, it was necessary to use the following concepts: "state language of the Russian Federation" "state language of the Republic of the Russian Federation", "native language, among the nations' languages in Russia". The Federal state educational standards developed in these years did not provide the study of subjects "State language of the Russian Federation", "Native language (Russian)". In August 2018, Federal law No. 317 – FZ was adopted [11]. According to the law, "parents and legal representatives of students choose (at the request of parents) both the language of education and the language of study. These changes, for the first time in history, have legally established the Russian language as a native language.

To study a new independent academic subject "Native language (Russian)", it is necessary to develop new Federal state educational standards, sample work programs on this subject for all levels, textbooks, trained teachers, and manuals. The new subject should be aimed at preserving the Russian cultural dominant [12]. At present, certain difficulties arise on all these issues.

For objective reasons, it is impossible to organize study for many languages among the languages of other nations in Russia [13,14]. Almost all languages, except 16, do not have textbooks in the Federal list of textbooks [15]. Teachers are not trained in many languages. There are no funds for organizing the teaching of languages among the other nations' languages in Russia. The resolution of these problems will help to consolidate the multi-ethnic community of Russians.

Analysis of publications. To develop the stated topic, it is necessary to analyze the legislative acts of the Federal level and the level of the constituent republics of the Russian Federation, which establish the rights to preserve and develop the native language and regulate the conditions for the implementation of language education policy. The Constitution of the Russian Federation [10] establishes the right to use the native language, to freely choose the language of communication, education, training, and creativity (article 26, part 2). At the same time, the Russian Federation guarantees all its peoples the right to preserve their native language and create conditions for its study and development (article 68, part 3). Following the constitutional logic, Federal educational legislation establishes similar conditions for the implementation of language education policy (articles 11 and 14). However, there is a complex of factors that do not allow creating conditions for the implementation of constitutional rights to learn the native language, which creates conditions of inter-ethnic tension. Currently, almost all classes are poly-ethnic in their composition and, therefore, it is impossible to divide them into groups based on different native languages. At this moment, there are more than 230 languages and dialects in Russia. To remove the negative trends of increasing contradictions between speakers of minority and majority languages, the presidential decree established the Foundation for the preservation and study of native languages of the different nations in the Russian Federation [15]. The Ministry of education of the Russian Federation created the Institute for the development of the native languages of other nations in the Russian Federation [19,22].

Thus, when the legally-established rights and linguistic minority community demanding the creation of conditions for studying the native language, there is the problem of finding the model of optimal balance between mechanisms of social integration, the formation of national civic identity and the creation of conditions for the preservation and development of other nations' languages in a multi-ethnic state. This model is necessary to preserve a consolidated society and the integrity of the state. It will be empirically successful only if a balance can be found between the recognition of individual language communities and the language requirements of existing economic and political systems [21,20].

The results of the research. Analysis of scientific sources, legislative and regulatory acts shows that during the entire post-Soviet period, unfortunately, it was not possible to create a full-fledged Dialogic school with instruction in the native language. A school that would form, on the one hand, a full-fledged modern citizen of Russia, and, on the other, a native speaker of a high-quality native language and culture. Such a school would create conditions for meeting the educational needs of numerous nations of Russia and would ensure their peace and harmony.

Analyzing the practice of implementing new legislative norms in terms of studying languages among the nations' languages of the Russian Federation, we can conclude that in order to remove the problems that arise in the organization of General education activities, the Ministry of education of the Russian Federation needs to make several amendments to the regulations: FES, the order on the procedure for developing exemplary basic educational programs at all levels[16], variants of exemplary curricula, considering the specifics of the model of General education organizations aimed at preserving the languages and cultures of the nations of Russia and in particular to create conditions for teaching in their native languages. In the Federal state educational standards of primary and basic general education, in terms of requirements for the results of mastering subjects, should include requirements for the subjects "State language of the Russian Federation", "Native language", "Native language (Russian)".Create the conditions so that in the registry approximate basic educational programs there was a program of ethnic and cultural orientation. Provide variability in the structure of basic educational programs at all levels of education in the FES. For teachers, it is necessary to develop qualification requirements for the level of native language proficiency.

The practice of the last ten years indicates the need to develop the Concept of the state language policy of the Russian Federation in accordance with the instruction of the President of the Russian Federation from 01.03.2020 № PR-355, item 4 (a) to submit proposals for its development [17,23].

Conclusion. In order to create conditions for maintaining peace and harmony in a multi-ethnic society, special attention from the state is required for school with instruction in the native language among the nations' languages of Russia and school with the study of the native language. The obtained research results are necessary for federal education authorities. Considering the proposals made in the work and making certain changes and additions to departmental regulations, conditions will be created in general education organizations for more complete satisfaction of ethnocultural educational needs.

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О. Артеменко[1], С. Анзорова[1], П. Гасанова[1], М. Никитина[2], С. Федорова[3], Д. Петрухина[1]

[1]Ресей Федерациясы Президенті жанындағы Ресей халық шаруашылығы және мемлекеттік қызмет академиясы, Мәскеу, Ресей;
[2]В. И. Вернадский атындағы Қырым федералды университеті, Симферополь, Ресей;
[3]Марий мемлекеттік университеті, Йошкар-Ола, Марий Эл Республикасы

МЕКТЕП – БІРІКТІРУ ҚҰРАЛЫ

Аннотация. Тарихи орыс тілі Ресей аумағындағы этногенезден шыққан бұрынғы халықтардың бірігу тілі ретінде қарастырылады, олар орыс тілімен рухани және мәдени жақын болғандықтан Н.И. Ильминский әдісі бойынша өз ана тілдерін сақтап қалған. Шоғырландыру қызметін атқарған орыс тілі халықтардың интеграторы болғанымен, ассимилятор ретінде әрекет етпеді, бұл – 230-дан астам халық тілдері мен диалек-тілерінің нақты өмір сүруінің статистикасы.

Мақалада Ресей саясатында қайта құру кезеңіне дейін мектепті біріктіру функциясын атқарған ұлттық-орыс қостілдігін қалыптастыратын унитарлық тілдік оқыту арқылы білім алушылардың этникалық сипаттамаларын нивелирлеу құралы болғандығы атап көрсетілген. Ғылыми дереккөздерді талдау қайта құру кезеңіне дейінгі мұндай жағдайлар ұлтаралық қақтығыстардың көрінбеуінің объективті фактілеріне әкелгенін көрсетеді.

Сондай-ақ бүкіл Кеңес кезеңінде әдеби тіл қалыптасып дамыды және белгілі бір дәрежеде диалектілер сақталды, бірақ, өкінішке орай, әлеуметтік салаларда ана тілдерінің функциясы тарылды. Посткеңестік кезеңді сипаттай отырып, әлеуметтік қақтығыстар мен саяси пікірталастардың елеулі көзі болып саналатын мәдени және тілдік алуан түрлілік байқалады. Бұл жағдайда мәдени және тілдік мемлекеттік біртектілік азшылық тілдерін тасымалдаушылардың қоғамдық өмірінде қанағаттанбаудың мәніне айналады.

Әрбір тілдік топтың адам құқығы туралы халықаралық заңнаманы бұзбай, олардың әлеуметтік-мәдени интеграциясы кезінде монотілді социум өміріне қатысуына қалай кепілдік беру мәселесі туындайды. Қазіргі уақытта халықаралық конвенцияларда тілдік теңдік, білім беру саласында азшылық тілдерін және көп дәрежеде мектеп тілін пайдалануда кемсітушіліктің болмауы сынды қағидаттар бекітілген.

Бұл бөлімде ұлттық немесе этникалық, діни және тілдік азшылықтарға жататын адам құқықтарының БҰҰ декларациясы әмбебап болып саналады. Тіл ақпаратты тарататын және сана-сезімді қалыптастыратын ең іргелі коммуникативтік және репрезентативті жүйелердің бірі бола отырып, әлеуметтік интеграцияға және әлемге көзқарас әлемнің белгілі бір бейнесін қалыптастыруға үлес қосады. Осылайша тіл топтық сананы қалыптастыруда және ұжымдық бірегейлік символын құруда маңызды рөл атқарады.

Көпшілік тілі мемлекеттік мәртебедегі, сондай-ақ топтық сананы қалыптастыруда және көпұлтты ұжымдық жалпы азаматтық бірегейлік символын құруда маңызды рөл атқарады. Тарихи қалыптасқан жағдайда, бірыңғай тілдік көпшілік ресми тілінде мектептік оқыту арқылы қоғамда өзі туралы азшылықтың тілдік қоғамдастықтары мәлімдеген жағдайда, әлеуметтік интеграция тетіктерін іске асыру, жалпы мемлекеттік азаматтық бірегейлікті қалыптастыру және көпұлтты мемлекет халықтарының тілдерін сақтау мен дамытуға жағдай жасау арасындағы оңтайлы арақатынас моделін іздестіру қажеттілігі атап өтіледі. Көпұлтты қоғам бірлігін, мемлекет тұтастығын сақтау және жанжалды нивелирлеу үшін дәл осындай үлгі қажет. Егер азшылық тілдерінің дамуы мен көпшілік тілімен шарттасқан мемлекеттің экономикалық және саяси дамуының жағдайын жасау арасындағы тепе-теңдікті таба алатын болса, ол мектептегі білім беруде эмпирикалық табысқа ие болады.

Мектептің көпұлтты азаматтық қоғамды шоғырландыру институты ретінде қалыптасуына және осы үдерістегі тілдің рөліне жүргізілген тарихи талдау тілдік жағдайдың көптүрлілігін ескере отырып, жалпы білім беру қызметін ұйымдастыру моделін құруға мүмкіндік береді.

Түйін сөздер: мектеп, тіл, көпэтникалық қоғам, біріктіру, бірегейлік

О. Артеменко, С. Анзорова, П. Гасанова, М. Никитина, С. Федорова, Д. Петрухина

[1]Российская академия народного хозяйства и государственной службы
при Президенте Российской Федерации, Москва, Россия;
[2]Крымский федеральный университет им. В. И. Вернадского, Симферополь, Россия;
[3]ФГБОУ ВО "Марийский государственный университет", Йошкар-Ола, Республика Марий Эл

ШКОЛА – ИНСТРУМЕНТ КОНСОЛИДАЦИИ

Аннотация. Исторически русский язык рассматривается как язык интеграции народов, прошедших свой этногенез на территории России, их духовного и культурного сближения с русскими по методу Н.И. Ильминского, сохраняющего при этом родные языки учащихся. Выполняя функцию консолидации, русский язык выступал как интегратор народов и никак не их ассимилятор, о чем свидетельствует статистика о реальном существовании более 230 языков и диалектов народов.

В статье отмечается, что в российской политике до перестроечного периода школа, выполняя консолидирующую функцию, являлась инструментом нивелирования этнических характеристик обучающихся, через унитарное языковое обучение, формирующее национально-русское двуязычие.

Анализ научных источников свидетельствует о том, что такие условия до перестроечного периода приводили к объективным фактам непроявления межнациональных конфликтов. Также за весь советский период создавались и развивались литературные языки и в той или иной степени сохранялись диалекты, но, к сожалению, в социальных сферах сужались функции родных языков. Характеризуя постсоветский период, отмечается культурное и языковое многообразие, которое является заметным источником социальных конфликтов и политических дискуссий. В этих условиях культурная и языковая государственная однородность становится предметом неудовлетворенности в общественной жизни носителей языков меньшинств. Возникает проблема, как гарантировать участие каждой языковой группы в жизни моноязычного социума при их социокультурной интеграции, не нарушая международного законодательства о правах человека.

В настоящее время существуют международные конвенции, в которых закреплены принципы языкового равенства, отсутствия дискриминации использования языков меньшинств в области образования и, в большей степени, школьного. В этой части универсальной считается Декларация ООН прав лиц, принадлежащих к национальным или этническим, религиозным и языковым меньшинствам.

Язык, являясь одной из наиболее фундаментальных коммуникативных и репрезентативных систем, транслирующих информацию и формирующих сознание, вносит свой вклад в социальную интеграцию и в формирование определенной картины мира – взгляда на мир. Таким образом, язык выполняет важную роль в формировании группового сознания и построении символа коллективной идентичности.

Язык большинства в статусе государственного также выполняет важную роль в формировании группового сознания и построении символа многонациональной коллективной общегражданской идентичности. В условиях, когда на фоне исторически сформированного, через школьное обучение на официальном языке единого языкового большинства, в обществе заявляют о себе языковые общности меньшинства, отмечается необходимость поиска модели оптимального соотношения между реализацией механизмов социальной интеграции, формирования общегосударственной гражданской идентичности и создания условий сохранения и развития языков народов многонационального государства. Для сохранения сплоченности многонационального общества, целостности государства и нивелирования конфликтов именно такая модель необходима. Она будет иметь эмпирический успех в школьном образовании в том случае, если удастся найти баланс между созданием условий развития языков меньшинств и экономического и политического развития государства, обусловленных языком большинства.

Проведенный исторический анализ становления школы как института консолидации многонационального гражданского общества и роли языков в этом процессе позволяет выстраивать модели организации общеобразовательной деятельности с учетом многообразия языковой ситуации.

Ключевые слова: школа, язык, многоэтническое общество, консолидация, идентичность.

Information about authors:

Artemenko Olga, Ph.D., Associate Professor, corresponding member of RAES, The Russian Presidential Academy of National Economy and Public Administration, Moscow, Russia; inpo_rus@mail.ru; https://orcid.org/0000-0001-5236-5560

Anzorova Svetlana, Ph.D., Associate Professor, The Russian Presidential Academy of National Economy and Public Administration, Moscow, Russia; anzorova-sp@ranepa.ru; https://orcid.org/0000-0001-9648-5935

Gasanova Patimat, Doctor of Science, Professor, The Russian Presidential Academy of National Economy and Public Administration, Moscow, Russia; gasanova-pm@ranepa.ru; https://orcid.org/0000-0001-7261-3808

Nikitina Marina, Doctor of Economic Sciences, Professor, V.I. Vernadsky Crimean Federal University; inecondep@mail.ru; https://orcid.org/0000-0003-4928-8650

Fedorova Svetlana, Doctor of Science, Professor, Mari State University, Yoshkar-Ola, Russia; svetnikfed65@yandex.ru; https://orcid.org/0000-0001-8163-8273

Petrukhina Daria, senior researcher, The Russian Presidential Academy of National Economy and Public Administration, Moscow, Russia; petrukhina-dv@ranepa.ru; https://orcid.org/0000-0001-9656-4000

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Asnul Dahar Minghat[1], A. Ana[2], Suhaida Jamaludin[1], Siti Salina Mustakim[3], Petr V. Shumov[4]

[1]Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia;
[2]Department of Home Economics Education, Universitas Pendidikan Indonesia;
[3]Faculty of Educational Studies, Universiti Putra, Malaysia;
[4]Law Institute named after M. M. Speransky, Vladimir State University, Vladimir, Russia.
E-mail: asnul@utm.my

IDENTIFICATION OF TEACHING COMPETENCIES AMONG TVET INSTRUCTORS TOWARDS THE REALIZATION OF 4TH INDUSTRIAL REVOLUTION

Abstract. Developing in the field of technical and vocational education and training (TVET) continuously is a challenge for the career of TVET instructors to maintain their success. It is very necessary to encourage teachers for making progress in teaching and efficient learning. It is also of great importance to have the ability to understand the skills that are required by their job needs. From a broader perspective, those trained through the processes of vocational learning will meet the labor market's skill needs. In the aftermath of this study, teaching should be focused on the profile of the teaching competencies of the TVET-instructor. The Delphi approach was the compilation, interpretation, and evaluation of qualitative data in this study. Qualitative data was collected from the 11 expert panels of TVET, based on their skills and experience. The quantitative data were collected using the questionnaire set by the researcher based on the competence of the teaching elements proposed by the Delphi system. The random sampling technique was used as respondents from five selected public skills training institutions in the selection of 106 mechanical engineering and manufacturing technology instructors. Research findings have shown that the dimension of teaching technique is important for teaching profiles of competencies at the instructors of the Public Skills Training Institution TVET. In the context of mastering the competence for the implementation of the 4th Industrial Revolution, the study also found that the use of project-based learning methods is ranked as the lesser in teaching methodology as it should be reinforced at five selected training institutions for public skills.

Keywords: education, teaching, competency, vocational education.

Introduction. It is important to note that when teaching Information and Communication Technologies and other disciplines, it is necessary to rely both on the general experience of pedagogy, world teaching, and education technologies, and on the most modern, innovative developments, addressed both to archetypal structures and processes of development of the intelligence of students (creative and reproductive skills), and properties that are new and only emerging (such as patchwork thinking, thinking, mediated by ICT, etc.). It is important to understand that training in the field of technology should be combined with the improvement of training in the field of the humanities and social sciences and practices: a person is formed and develops as a whole, he cannot be limited to an orientation towards "robotic resistance" and competitiveness in the field of ICT and technology in general. A person is a person, a partner, and a professional, not just a work function. The training of a modern specialist in the sacred by the imperatives of the sixth and seventh technological orders should be global.

Malaysia is concerned that the elements start at the school level when it comes to developing human resources. Hence, Malaysia's education system provides students with the ability to develop their carrier paths as early as the age of seventeen. For example, in secondary school, numerous vocational training courses were provided for those students who showed more interest in the hands-on subject. The Ministry of Education (MOE) has developed a blueprint for an educational reform program that sets out policies, priorities, strategies, and action plans for developing our country's education system to meet the needs and demands of the students from industry.

In 1964 two public technical vocational training institutions were established in Malaysia to provide youth training, namely as the Kemahiran Tinggi Belia Negara Institute (IKBN), Dusun Tua, and the Latihan Perindustrian Institute of Kuala Lumpur (ILP). Essentially, more than 500 public TVET institutions provide different programs at all levels of education. TVET progression from 1964 and there is a lot of institution under TVET such as Giatmara, Kemahiran Mara Institute, Politeknik and in 2012 the transformation of existing vocational schools into vocational schools under the Ministry of Education for Post-Secondary Students (as early as 16 years of age) and diploma graduates (MOE 2012) prompted a major shift in TVET delivery. The goal of Vocational College is to reach 70% graduation in a skilled worker, 20% further study, and 10% as a technopreneur (MOE, 2017). A curriculum includes Technology for Electrical and Electronic Engineering, Civil Engineering Technology, Mechanical Engineering & Manufacturing Technology, Industry, Hospitality and Tourism, Information and Communication Technology, and Vocational College Agriculture.

The vocational school goal is to cultivate students with skills and experience in the vocation sector, in addition to preparing them for higher education. Students must adapt their ideas based on the practical study course they have selected. The practical element of employment should teach students how to solve work environment problems.

A significant part plays in teaching TVET students who need hands-on instruction, expertise, and preparation for TVET instructors. Besides being an educator, they should make an effort to acquire knowledge for the implementation of the Fourth Industrial Revolution, particularly knowledge in their field of expertise and also technical know-how. The improvement of TVET teacher competence may be a factor in contributing to the growth of skills and TVET instructors. Teachers must be prepared to teach as a help in the growth of TVET teacher competency. Preparations that TVET teachers need to undertake start learning resources adapted to the curriculum, teaching strategies, skills, and particularly pedagogy competencies (Asnul et. al., 2020). Teachers should make an effort to explore the best possible way and prepare for the needs of their students while at the same time being more innovative in conveying the subject. Expressed that TVET teachers are highly trained and experienced in the field and can demonstrate skills in teaching delivery and assessment and develop and advance their careers regularly by acquiring more experience and expertise in the field (Guthrie, 2010). This work aims at identifying elements of the profile of teaching the competencies of the TVET instructors.

Method. This research included a sample of students of TVET teachers, from the course in Mechanical Engineering and Manufacturing Technology at five selected Public Skills Training Institutions (PSTI). Delphi Study was conducted in TVET institutions to identify the scopes of teacher profile teacher competency skills. This research is made up of both qualitative and quantitative data. The qualitative analysis approach has been the Modified Delphi technique. Meanwhile, questionnaires were the tools for quantitative analysis. A total of 106 respondents, who are instructors for TVET at five chosen PSTI. The teaching competency was the area for ability in this analysis. The idea and the literature were discussed and reviewed during the planning stage. The process at the stage was defined in figure 1. The concept was examined to determine how important TVET instructors' teaching competency is towards implementing IR 4.0. The study carried out with a conceptual flowchart, focused on constructive literature as illustrated in figure 1.

Result and Discussion. First, as we can remember in the literature review segment, there was plenty of teaching competency definition that appeared in books, posts, and websites. Primarily the argument raised by the previous researcher was about the lack of teaching skills at TVET institutions. Based on the previous teaching skills teachers report, it appears a teacher requires high teaching quality to choose the most suitable teaching strategies, procedures, and learning practices.

The instructor is expected to play an effective role in generating educated, qualified, disposition, character, positive attitude, dedication, and discipline of human capital in organizationally produced technical and vocational education. The role of a TVET teacher is not limited to learning the right technical and vocational skills, as well as generic skills such as language abilities, communication, creativity, ability to meet the challenges, and aiming to achieve the Vision 2020 objectives. Hence, the findings for research questions were explained in the next section to achieve the purposes of this study.

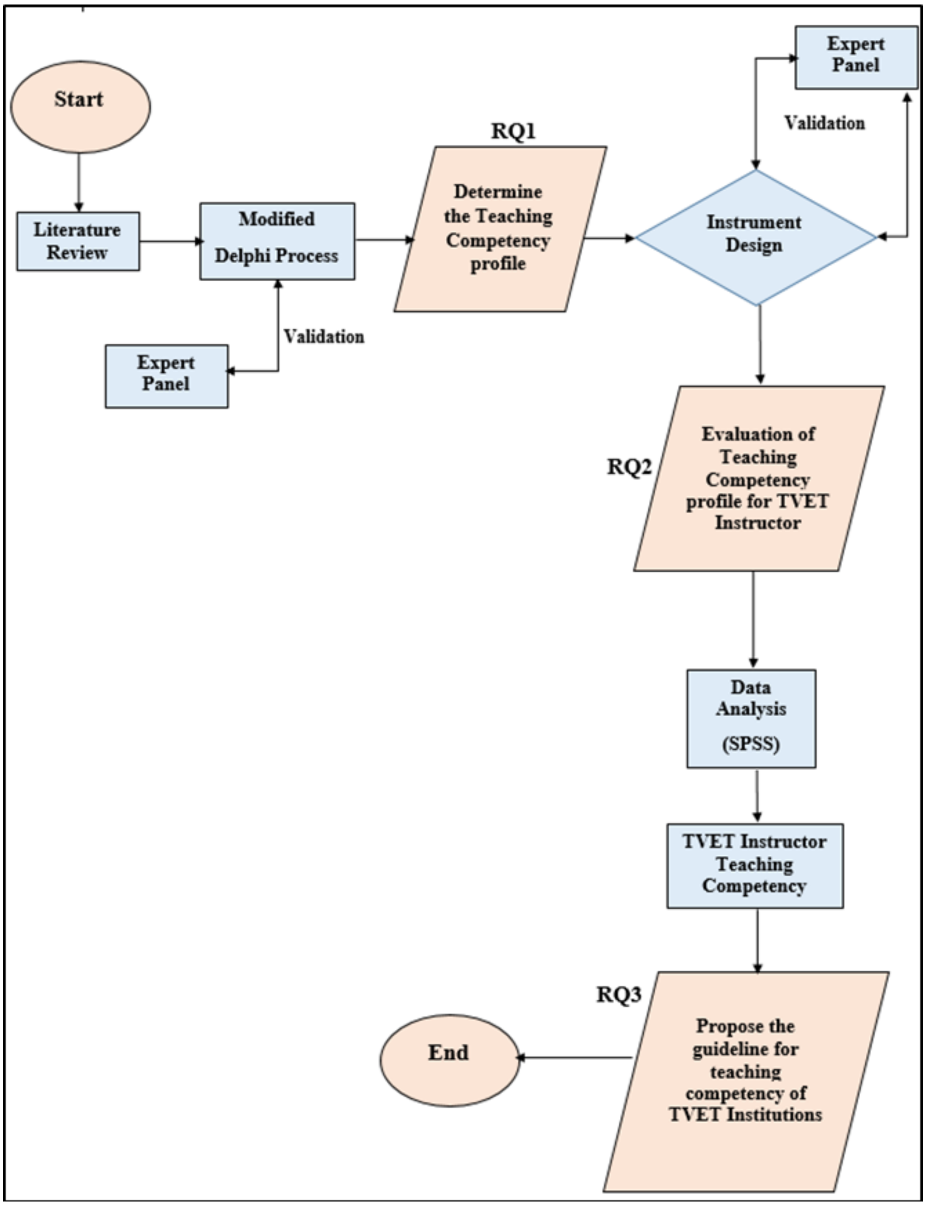

Figure 1 – Flowchart of Study

Elements of Teaching Competencies for TVET Instructor. The Delphi Method was conducted with 11 panels of experts among TVET institutions at the Kemahiran Tinggi Belia Negara Sepang Institute. At first, the researcher comes up with the problem statement and after that, the Delphi method procedure obtained the teaching competency elements for TVET instructors extant ant academic literature provides some theoretical discussion regarding the factors of significance in determining the teaching competency elements among the TVET instructors. During the Delphi method, the expert panel addressed a few issues like the technical expertise that gives instructors the skills. Ultimately, the researcher chooses the teaching skills because the implementation of Industrial Revolution 4.0 is necessary to improve those skills among TVET instructors. If the researchers have created the method, the researcher selects an acceptable three of the panel of experts available to answer the questions and suggestions. The outcome of this Delphi Procedures suggested the core elements for teaching skills, teaching techniques, curriculum and programming modules, and finally the knowledge of the earner. The section below provides a summary of the findings of the Delphi Method Analysis, and the sub-item of the three main teaching skill clusters is mentioned in table.

The Sub elements of Teaching Competency

The Main Elements for Teaching Competency	Sub - Elements for Teaching Competency
	Adopt innovative teaching methods
	Cooperate with colleagues
	Given descriptive assessment
	Use new technology
	Use the project method
	Organize activities outside the classroom
Curriculum and programs modules	Add to basic content with new information
	Use extra material
	Incorporate contemporary issues into the lesson
Knowledge of Learner	Allow students to speak
	Discuss workshop problems with students
	Allow students to do self-assessment

Teaching Methodology. The way the technological expertise is applied, which is included in the 4th IR emergence. The aim of teaching methods at TVET institutions that move from traditional teaching to the combination of applied technologies from Industry 4.0. This item for teaching TVET instructors aspiring to the newly developed and implemented technologies became acquainted with Industry 4.0's true potential and capabilities. To TVET institutions, the concept of education 4.0 is an example; this form of education aims to expose the young and experienced workers to the progressive ideas of business revolution 4.0.

Vocational pedagogy is a series of decisions in which student achievement made by vocational teachers during the student learning process, and observed whether they relate to teaching strategies, pedagogical decisions, or new technologies that could be applied to teaching (OECD, 2011). Vocational pedagogy combines theoretical and practical aspects of teaching and learning that have real-life or real work experience; vocational teachers should be able to teach theoretical and practical aspects of their discipline. When teachers want to take action to improve the consistency of the teaching and learning process, they need to make pedagogical decisions. Pedagogical decisions should not be overlooked in the teaching and learning process, as they relate to the role of teachers in deciding the student learning course and the professional experience of instructors (Prachagool, 2016).

Curriculum and Programmed Modules. TVET's program focuses on a job title that plays a major role in generating skilled and semi-skilled labor in the workplace. MOE launched a new curriculum based on capacity by 80 percent and philosophy by 20 percent. This implementation requires that all teachers at TVET institutions be versatile and receptive to an effective teaching approach. TVET teachers' skills, for instance, teach practical research with example. We relate the practical research of TVET education and its applications in the situation at work. Institutional research laboratories are required, where students can perform or observe experiments while providing technical science information. In Kazakhstan's Institute of Metallurgy and Ore Beneficiation, there are numerous laboratories where future engineers can perform experiments with their qualified supervisors; they also have access to plants and factories (Kenzhaliev et al., 2019; Koizhanova et al., 2020). TVET institutions should also be able to provide the institutions with the latest technology machinery to cater to new information and skills between instructors and students.

Knowledge of Learner. Throughout the training session (OECD, 2011), teachers decided that the best way to do so was to teach in small groups, task guides, and problem-solving methods. When explaining how to do the job, the instructor should avoid taking short cuts, concentrating on expectations that are reasonable but also applicable to the workplace for learners to follow, and testing learner understanding by asking questions. It's because students at TVET institutions have various strengths, abilities, and levels of experience and are more confident when the teacher is in their community to make sure they do the right practice (Brewe & Comyn, 2015). The teachers should have an open-minded approach to learn, relearn, and unlearn to become skilled vocational practitioners in their respective fields as a result of rapid changes in culture, technology, and the business.

It is important to note that when teaching ICT (Information and Communication Technologies) and other disciplines TVET, it is necessary to rely both on the general experience of pedagogy, world technologies of teaching and upbringing, and on the most modern, innovative developments addressed both to archetypal structures and processes of development of the intelligence of students (creative and reproductive skills), and properties that are new and only emerging (such as patchwork thinking, thinking mediated by ICT, etc.) (Arpentieva et al, 2020; Badalov et al, 2020; Kassymova et al, 2020; Kenzhaliyev et al, 2020). It is important to understand the pros and cons of digital learning and its impact on the development of students' thinking and other functions. It is also important to consider the pros and cons of project-based learning itself: adaptation to an unknown future always relies on a solid foundation, consisting of a well-meaningful and high-quality implementation of the experience of generations. There is nothing that arises from scratch and again, without being connected with past achievements and successes. It is also important to understand that training in the field of technology must be combined with the improvement of training in the human and social sciences and practices: a person is formed and develops as a whole, it cannot be limited to an orientation towards "robotic resistance" and competitiveness in the field of ICT and technology in general (Arpentieva et al, 2020; Kassymova et al, 2020). A person is a person, a partner, and a professional, not just a work function. His projects are life projects, not just plans for the development, maintenance, and repair of technical equipment. The training of a modern specialist in the sacred by the imperatives of the sixth and seventh technological orders should be global (Badalov et al, 2020; Kassymova et al, 2020). In this context, it is also important to activate the publication activity of students and teachers, their analysis of their experience in improving project and other teaching methods (Arpentieva et al, 2020; Kenzhaliyev et al, 2020).

Technology innovation continues to alter and change the teaching system and the learning process (Dunwill, 2016; Triyono et al, 2020;). More transition will take place in the future. To keep abreast of the new industrial revolution 4.0 (Ana et al., 2019; Triyono et al., 2020), teachers need to periodically refresh their knowledge of teaching methods, the concept of enhancing the curriculum element, and the various backgrounds of knowledge learners. Teachers have to rediscover and empower themselves with the latest technologies, equipment, and services to reach the 4th IR.

Most teachers do not develop their skills according to innovative technologies and do not have a teaching method, but some innovative teaching methods do happen by chance. The instructor's competencies should be regularly checked by empirical research in conjunction with the improvement research. Teachers' main challenge is to make changes to the vocational education system, and they have to deal with all the changes effectively. The future will be different from past and present in several respects. Education should be effective and efficient learning should take place in the learning process. Teachers should revise their curriculum annually in order to create a good learning atmosphere. Instructors also need new teaching skills to cope with all of these changes and the teachers' credentials need to be redefined.

The professional knowledge, practical skills, and attitudes of instructors towards ICTs are needed because they play an important role in the teaching process (Kumar et al, 2008). Digital competence is a key role in the current global event such as COVID 19 whereby the education system switched from campus-based education to online education in which students can study at home. To examine the ICT skills of TVET teachers in Malaysia, questionnaire items such as ICT understanding, ICT competencies, and ICT attitudes (Abu Obaideh et al, 2012) were used. Based on their study, we found that the ICT expertise of TVET instructors was above average, that the ICT skills of instructors were at a moderate level, and that their attitudes to ICT had been positive. To ensure successful ICT adoption, teachers should be equipped with information and skills (Muktiarni, et al., 2019).

Conclusion. The teaching skills of TVET instructors in Malaysia were at a satisfactory level, while industry and researchers suggested that Malaysia and neighboring countries still lack trained instructors. In summary, the findings of this study came out with the three teaching skills of the TVET teacher which include teaching methodology, curriculum, and programming element, essentially the knowledge of the learners' personalities. A good teacher should possess all the possible features to sympathize with the learners' conditions and their learning styles. It is beneficial to prepare the current generation of vocational pedagogues for planning, carrying out, and evaluating lessons in a right way.

А. Д. Мингхат[1], А. Ана[2], С. Джамалудин[1], С. С. Мустаким[3], П. В. Шумов[4]

[1]Разак технологиялық және информатика факультеті, Технология университеті, Малайзия;
[2]Тұрмыстық білім беру бөлімі, Пендикикан университеті, Индонезия;
[3]Оқу-зерттеу факультеті, Путра университеті, Малайзия;
[4]Заң институты, М.М. Сперанский, Владимир мемлекеттік университеті, Владимир, Ресей

4 - ИНДУСТРИАЛДЫ РЕВОЛЮЦИЯНЫ ЖҮЗЕГЕ АСЫРУДА ТжКБ ОҚЫТУШЫЛАРЫНЫҢ АРАСЫНДА ОҚЫТУ ҚҰЗЫРЕТТЕРІН АНЫҚТАУ

Аннотация. Қазіргі таңда техникалық және кәсіптік білім беру мен оқытуды (ТжКБ) дамыту ТжКБ оқытушыларының біліктілігін көтеру міндеті болып саналады. Олардың жұмысының жоғары сапасын қамтамасыз ету үшін үнемі технологиялық (әдіснамалық) және оқытуды түбегейлі жақсарту, оқытушыларды жаңа тәсілдермен және оқыту технологиясымен жетілдіруді қамтамасыз ету қажет. Жаттықтырушылардың мамандық бойынша талап етілетін құзіреттерді анықтау қабілеті жоғары сапалы оқыту мен оқуды қамтамасыз ету үшін қажет. Сонымен бірге, еңбек нарығының құзіреттілік қажеттіліктері білім беру ортасының талаптары мен жағдайларына, кәсіптік оқыту процестері мен күтілетін нәтижелерге сәйкес келуі керек. Сондықтан, бұл зерттеу негізінде ТжКБ оқытушысының құзіреттілік бейініне назар аударылды. Delphi әдісін қолдана отырып, зерттеліп отырған мәселе бойынша негізгі эмпирикалық мәліметтер жиналды, олар талданды және бірқатар сапалы мәліметтер түрінде ұсынылды. ТжКБ мамандарының 11 тобынан сапалы мәліметтер жиналды: олардың білімі, дағдылары мен тәжірибелері жалпы зерделеуге алынды. Delphi процесінде бұрын анықталған оқу элементтерінің құзыреттілігін түсінуге бағытталған авторлық зерттеу сауалнамасын қолдану арқылы сандық деректер жиналды. Машина жасау және өндіріс саласындағы 106 мұғалімді іріктеуде кездейсоқ іріктеу әдісін қолданды. Бұл жаттықтырушылар респондент ретінде кәсіби шеберлік мамандарын дайындайтын бес түрлі мемлекеттік оқу орындарында жұмыс істейді. Зерттеу нәтижелері студенттердің ТжКБ оқытушыларының құзіреттілік бейінін игеруді қамтамасыз ету үшін оқыту әдістемесінің болуы мен жетілдірілуі қажеттігін көрсетеді. Төртінші өнеркәсіптік революцияның (алтыншы және жетінші технологиялық тәртіпке көшу) талаптарын орындау үшін қажетті құзыреттерді игеру тұрғысынан жобалық оқытуды енгізу мен оңтайландырудың маңыздылығын ерекше атап өту қажет. Жобалық оқыту әдісін кеңінен қолдану оқытудың әдіснамасына азырақ сәйкес келеді, оны мемлекеттік басқарудың бес таңдалған институтында жетілдіру қажет. Осы технологиялардың көмегімен ақпараттық-коммуникациялық технологияларды және басқа пәндерді оқыту кезінде педагогиканың жалпы тәжірибесіне, оқыту мен білім берудің әлемдік технологияларына, сонымен бірге архетиптік құрылымдар мен студенттердің зияткерлік даму процестерін қарастыратын заманауи, инновациялық әзірлемелерге де сенім арту қажет (шығармашылық және репродуктивті дағдылар) және жаңа және пайда болатын қасиеттер (мысалы, ойша ойлау, АКТ арқылы ойлау және т.б.). Сандық оқытудың ұтымды мен жағымсыз жақтарын және оның оқушылардың ойлау және басқа да функцияларын дамытуға әсерін түсіну маңызды. Сондай-ақ, жобалық оқытудың жақсы жақтары мен кемшіліктерін ескерген жөн: белгісіз болашаққа бейімделу әрдайым ұрпақтар тәжірибесін байыпты және сапалы жүзеге асырудан тұратын сенімді негізге сүйенеді. Технологиялар саласындағы оқытуды гуманитарлық және әлеуметтік ғылымдар мен практикада оқытуды жетілдірумен ұштастыру қажет екенін түсіну керек: адам тұтастай қалыптасады және дамиды, ол «роботтық қарсылыққа» бағдарлаумен және жалпы АКТ және технологиялар саласындағы бәсекеге қабілеттілікпен шектелмейді. Адам – тек жұмыс функциясы емес, тұлға, серіктес және кәсіпқой. Алтыншы және жетінші технологиялық бұйрықтардың маңыздылығына байланысты заманауи маман даярлау жаһандық сипатта болуы қажет.

Түйін сөздер: оқыту, оқыту, құзіреттілік, техникалық білім.

А. Д. Мингхат [1], А. Ана[2], С. Джамалудин[1], С. С. Мустаким[3], П. В. Шумов[4]

[1]Разакский факультет технологии и информатики, Университет Технологии, Малайзия;
[2]Департамент домашнего хозяйства образования, Университет Пендидикан, Индонезия;
[3]Факультета педагогических исследований, Университет Путра, Малайзия;
[4]Юридический институт им. М. М. Сперанского,
Владимирский государственный университет, Владимир, Россия

ВЫЯВЛЕНИЕ ПЕДАГОГИЧЕСКИХ КОМПЕТЕНЦИЙ СРЕДИ ПРЕПОДАВАТЕЛЕЙ ТПО ДЛЯ РЕАЛИЗАЦИИ 4-Й ПРОМЫШЛЕННОЙ РЕВОЛЮЦИИ

Аннотация. Развитие в мире технического и профессионального образования и обучения (ТПО) является вызовом совершенствования профессии инструкторов ТПО. Для обеспечения высокого качества их работы необходимо постоянное технологическое (методическое) и содержательное совершенствование их подготовки, обеспечение освоения инструкторов новыми подходами и технологиями обучения. Способность инструкторов определять компетенции, требуемые профессией, очень важна, чтобы гарантировать высокое качество преподавания и обучения. При этом потребности в компетентности рынка труда должны соответствовать требованиям и условиям образовательной среды, процессам и ожидаемым итогам профессионального обучения. Поэтому данное исследование было сосредоточено на профиле преподавательской компетентности преподавателя ТПО. С помощью метода Дельфи были собраны основные эмпирические данные по изучаемой проблеме, они были проанализированы и представлены в виде ряда качественных данных. Качественные данные были собраны на примере 11 групп экспертов среди ТПО: изучению повергались их знания, умения и опыт в целом. Количественные данные были собраны с использованием авторской исследовательской анкеты, ориентированной на осмысление компетенций учебных элементов, выделенных ранее в процессе Дельфи. При отборе 106 преподавателей в области машиностроения и производства использован метод случайной выборки. Эти преподаватели работают в пяти различных государственных учебных заведениях, готовящих специалистов в сфере профессиональных навыков в качестве респондентов. Результаты исследования показывают необходимость наличия и совершенствования методологии преподавания для того, чтобы гарантировать усвоение учащимися профиля компетенций в преподавателях ТПО. В контексте освоения компетенций, необходимых для осуществления запросов четвертой промышленной революции (перехода к шестому и седьмому технологическому укладу), нужно особенно подчеркнуть важность внедрения и оптимизации проектного обучения. Широкое использование метода обучения на основе проектов классифицируется как меньшее в методике преподавания, что должно быть улучшено в пяти выбранных государственных учебных заведениях по обучению навыкам. Важно отметить, что при обучении информационно-коммуникационным технологиям и иным дисциплинам с помощью этих технологий необходимо опираться как на общий опыт педагогики, мировые технологии обучения и воспитания, так и на самые современные, инновационные разработки, обращенные как к архетипическим структурам и процессам развития интеллекта учащихся (творческим и репродуктивным умениям), так и свойствам, являющимся новыми и только формирующимися (такими как лоскутное мышление; мышление, опосредованное ИКТ, и т.д.). Важно понимать плюсы и минусы цифрового обучения и его влияния на развитие мышления и иных функций учащихся. Также важно учитывать плюсы и минусы собственно проектного обучения: адаптация к неизвестному будущему всегда опирается на наличие прочной основы, состоящей из хорошо осмысленно и качественно реализуемого опыта поколений. Также важно понимать, что подготовка в сфере технологий должна сочетаться с совершенствованием подготовки в сфере гуманитарных и социальных наук и практик: человек формируется и развивается как целостность, он не может ограничиваться ориентацией на "роботоустойчивость" и конкурентоспособность в сфере ИКТ и технологий в целом. Человек – личность, партнер и профессионал, а не просто рабочая функция. Подготовка современного специалиста в связи с императивами шестого и седьмого технологических укладов должна носить характер глобальной.

Ключевые слова: обучение, преподавание, компетенция, техническое образование.

Information about authors:

Minghat A.D., PhD (Technical and Vocational Education) from The National University of Malaysia, MSc (Vocational Education) from Universiti Putra Malaysia, B. Tech. Ed (Civil Eng) from Universiti Teknologi Malaysia; asnul@utm.my; https://orcid.org/0000-0002-6831-110X

Ana A., PhD in Technical and Vocational Education, Senior Lecturer of the Department of Home Economics Education, Universitas Pendidikan in Indonesia; ana@upi.edu; https://orcid.org/0000-0001-6480-951X

Jamaludin S., Postgraduate MSEE, Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia.

Mustakim S.S., PhD in Educational Measurement, Senior Lecturer of the Department of Foundation Studies, Faculty of Educational Studies, Universiti Putra Malaysia; mssalina@upm.edu; https://orcid.org/0000-0002-6233-1417

Shumov P.V., Candidate of Law (PhD in Law), Associate Professor of the Department of Civil Law and Procedure, M.M. Speranskiy Law Institute (Law Institute named after M.M. Speranskiy), Vladimir State University, Vladimir, Russia; pshumov@gmail.com; https://orcid.org/0000-0001-9275-9791

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М. А. Борибаева, К. Б. Байгисова, А. К. Сугирбекова, А. Б. Жукина

Академия Гражданской Авиации, Алматы, Казахстан.
meruert_b@mail.ru, kymbat_b@mail.ru, cugir.72@mail.ru

КОМПЬЮТЕРНОЕ ТЕСТИРОВАНИЕ КАК ОДНА ИЗ ФОРМ ИТОГОВОГО КОНТРОЛЯ ЗНАНИЙ ОБУЧАЮЩИХСЯ ПО ДИСЦИПЛИНЕ «ФИЗИКА» В УСЛОВИЯХ ДИСТАНЦИОННОГО ОБРАЗОВАНИЯ

Аннотация. В статье приводится методика использования, организация и содержание компьютерного тестирования для итогового контроля знаний по курсу «Физика», так как в условиях интенсивной компьютеризации современного высшего образования одним из средств диагностики учебных достижений все чаще выбирают компьютерное тестирование. Поэтому на современном этапе развития образования, с переходом к личностно-ориентированному обучению возникает потребность в тестовом контроле на всех этапах образования. Деятельностный подход предполагает органическое сочетание в тестах развивающей и контролирующей функций и использование так называемого обучающего контроля. Более того, с введением Единого национального тестирование возникла необходимость специально готовить обучающихся к новой – тестовой форме контроля, а более широко – мотивировать обучающегося на успех, избавить его от страха перед экзаменом, создать комфортную обстановку.

В статье обоснована важность применения компьютерного тестирования в образовательном процессе. В образовательном процессе тесты имеют большое значение, поскольку по результатам их выполнения можно судить не только об уровне знаний, но и о степени развитости некоторых личностных качеств, об успешности или неуспешности определённого этапа обучения для всей группы или отдельных обучающихся. Тесты предполагают наличие у пользователя определённого объёма информации, поэтому они чаще всего используются как метод контроля при закреплении или повторении материала. Применение тестового контроля выполняет несколько функций, среди них диагностическая функция, которая выделяется как самостоятельная. Она состоит в том, что преподаватель может не только проконтролировать уровень знаний и умений обучающихся, но и выяснить причины обнаруженных пробелов, чтобы затем их устранить.

Также в статье представлены критерии оценки тестов.

Указаны предназначения тестов для оценки уровня развития мышления, умения применить знания для решения практических задач, а также умения анализировать причины и результаты тех или иных физических явлений.

В статье представлены некоторые итоги и анализ результатов педагогического эксперимента по внедрению данной методики, проведенного на кафедре Общенаучных дисциплин Академии Гражданской Авиации. В таблице и на диаграмме показаны динамика роста успеваемости обучающихся по семестрам.

Ключевые слова: методика, компьютерное тестирование, педагогический эксперимент, контроль.

Физика, несомненно, является одной из основополагающих дисциплин в высшем техническом образовании, и знание ее фундаментальных закономерностей является необходимым для дальнейшего успешного освоения специальных дисциплин. Учебный процесс по дисциплине физика представляет собой сложный комплекс разнообразных занятий: лекции, семинары, практические занятия и лабораторные работы. Одной из особенностей модульно-рейтинговой системы образования является накопительный характер оценки, и каждый вид занятий, соответственно, включается в формирование общего рейтинга обучающегося. Практические занятия способствуют закреплению знаний обучающихся, полученные на лекциях и семинарах по данной дисциплине. Лабораторный практикум позволяет разобраться в сути физических процессов и явлений, приобрести навыки экспериментальной работы, понять, как «работают» на практике законы и закономерности физики, оценить область их применения для будущей профессиональной деятельности и, наконец, пробудить интерес к дальнейшему самостоятельному изучению дисциплины и понимаю физической картины мира в целом.

В условиях интенсивной компьютеризации современного высшего образования одним из средств диагностики учебных достижений все чаще выбирают компьютерное тестирование.

При разработке автоматизированного контроля знаний для занятия по итогам курса «Физика» учитывалось следующее:

– контроль знаний с помощью компьютера должен быть помощником преподавателю в определении эффективности работы студентов, а не заменять индивидуальную работу преподавателя с ним;

– вопросы тестов должны выявить усвоение основных понятий изучаемой темы и умение использовать свои знания для решения практических задач;

– положительный результат теста должен соответствовать необходимому развитию базовой системы понятий;

– контроль должен стимулировать активную деятельность по самостоятельному изучению дисциплины;

Для осуществления итогового контроля по завершении курса дисциплины были составлены [4] тесты, уровень которых соответствует уровню вопросов Типового учебного плана образовательной программы. Основные преимущества тестирования [5] как метода контроля в данном случае очевидны: объективность и независимость (выставление оценки является стандартизованной процедурой и не зависит от личности преподавателя); наглядность (контроль проводится открыто, по одинаковым для всех критериям, результаты известны непосредственно после теста и доступны всем участникам, обучающиеся могут адекватно оценить не только свой результат, но и результаты других участников тестирования); возможность при небольших затратах времени осуществлять контроль знаний всей учебной группы; возможность каждому обучающемуся получить индивидуальное задание, охватывающее все основные вопросы раздела (модуля). Итоговый контроль проводился в форме компьютерного тестирования и к выполнению теста студенты могли быть допущены при наличии всех сданных работ по данному курсу. Для каждого раздела (модуля) были разработаны тесты, содержащие 20-25 вопросов по 15 темам, из которых программа выбирает 40 – по 1-ой из каждой темы в произвольном порядке, они и составляют вариант задания. Все вопросы теста выдаются студентам за 7-10 дней до итогового занятия для подготовки, что стимулирует самостоятельную работу обучающегося по повторению и систематизация ранее полученных знаний, а также поиску и использованию новой информации. На выполнение теста обучающегося предоставляется 1 попытка на 40 минут. Критерии оценки теста следующие:

– менее 11 правильных ответов – оценка «F»;
– 11-20 правильных ответов – оценка «D»;
– 21-27 правильных ответов – оценка «C»;
– 28-35 правильных ответов – оценка «B»;
– 36 и более правильных ответов – оценка «A».

Студентам, не получившим положительную оценку за тестирование, назначается время для пересдачи после окончания основного контроля, и дается еще 2 попытки для сдачи теста. После использования всех попыток окончательный результат учитывается при составлении итогового рейтинга обучающегося за семестр.

Остановимся более подробно на содержании тестов и критериях их оценки. Как уже было сказано выше, вопросы составлены [2] на основе Типового учебного плана образовательной программы, то есть уровень их сложности не ниже среднего. Для примера можно привести несколько вопросов по разным разделам [6].

Вопрос по разделу «Механика» по теме «Ламинарный и турбулентный режимы течения жидкостей»:

Выберите признаки ламинарного течения: 1) течение стационарное, 2) тонкие слои жидкости скользят друг относительно друга, 3) в идеальной жидкости ламинарное течение остается таковым при любых скоростях, 4) силы трения между слоями реальной жидкости невелики, а средняя по сечению трубы скорость течения мала, 5) гидродинамические характеристики (скорость давление и др.) быстро и нерегулярно изменяются во времени, 6) слои движущейся жидкости интенсивно перемешиваются

1) 1, 2, 3, 4
2) 1, 2, 3, 5
3) 5, 6
4) 6
5) 5

Вопрос по разделу «Молекулярно-кинетическая теория идеальных газов» по теме «Среднее число столкновений и средняя длина свободного пробега молекул»:

Молекулы аргона при нормальных условиях испытывают $6{\cdot}10^9$ столкновений в секунду при средней длине свободного пробега $6.35{\cdot}10^{-8}$ м. Средняя скорость поступательного движения молекул аргона равна

1) 381 м/с
2) 400 м/с
3) $4{\cdot}10^5$ м/с
4) $2{\cdot}10^3$ м/с
5) $41{\cdot}10^3$ м/с

Вопрос по разделу «Основы термодинамики» по теме «Цикл Карно и его КПД для идеального газа»:

В диаграмме $P-V$ цикл Карно состоит из

1) двух изотерм и двух адиабат
2) двух изохор и двух изотерм
3) двух изохор и двух адиабат
4) двух адиабат и двух изобар
5) двух изобар и двух изотерм

Вопрос по разделу «Оптика» по теме «Интерференция»:

В установке Юнга имеется два источника света: красный с длиной волны 700 нм и фиолетовый с длиной волны 400 нм. Расстояние между красными полосами на экране в опыте Юнга равно 3,5 мм, а координата третьего красного максимума равна 10,5 мм. Если включить фиолетовый источник, то …

Выберите один из 5 вариантов ответа:

1) расстояние между полосами увеличится, координата максимума уменьшится;
2) расстояние между полосами увеличится, координата максимума увеличится;
3) расстояние между полосами уменьшится, координата максимума увеличится;
4) расстояние между полосами уменьшится, координата максимума уменьшится;
5) расстояние между полосами не изменится, координата максимума не изменится.

Из приведенных примеров видно, что ответы на подобные вопросы требуют не только определенного уровня и объема знаний, но и умения применить эти знания для решения практических задач, а также умения анализировать причины и результаты тех или иных физических явлений. Так как уровень сложности вопросов можно определить как средний и выше, а объем материала достаточно велик, то критерии оценки можно считать высокими. Однако эти критерии выглядят обоснованными, как побуждающие к систематической учебной деятельности, обеспечивающие постоянство и интенсивность самостоятельной работы, ведь обучение в Академии Гражданской Авиации уже предполагает более высокую организованность и мотивацию обучающихся к обучению. Ограничение общего числа попыток до трех также вполне целесообразно, это способствует более ответственному отношению к тесту и как следствие более качественной подготовке к нему. Кроме того, ограничение количества попыток, значительное число (40) вопросов теста, индивидуальность каждого задания не оставляет возможности надеяться на «случайное попадание» или списывание у товарища. Работа в коллективе в данном случае скорее предполагает обмен информацией при совместной подготовке к тесту, а не во время его прохождения. Выдача заранее всех вопросов теста и возможность исправить оценку способствует целеустремленной самостоятельной работе обучающихся и побуждает к обязательному повторению материала всего раздела, в дальнейшем это может стать хорошим заделом для подготовки уже непосредственно к экзамену.

Использование тестов для контроля знаний на итоговом контроле развивает чувство ответственности, побуждает к обязательному выполнению определенного объема учебной работы и помогает формированию и привитию навыков самооценки. Индивидуальность заданий повышает мотивации обучающегося, стимулирует серьезное отношение к самостоятельному изучению дисциплины и развивает познавательный интерес. Все это позволяет судить о достаточно высокой эффективности подобного метода контроля.

В целом можно сказать, что совокупность оценок за все итоговые занятия сопоставима с экзаменационной оценкой обучающегося за семестр (так как охват материала для подготовки к тестам достаточно обширен), а успешность прохождения тестов от модуля к модулю заметно увеличивается. Некоторые результаты эксперимента представлены в таблице и на диаграмме.

Анализ контроля итоговых знаний обучающихся
Академии гражданской авиации по дисциплине Физика

№	Группы	1-й рубежный контроль успеваемость %	2-й рубежный контроль успеваемость %	Итоговый
1	1	90	90	50
2	2	94	88	78
3	3	79	77	55
4	4	100	50	50
Итого		91	77	58

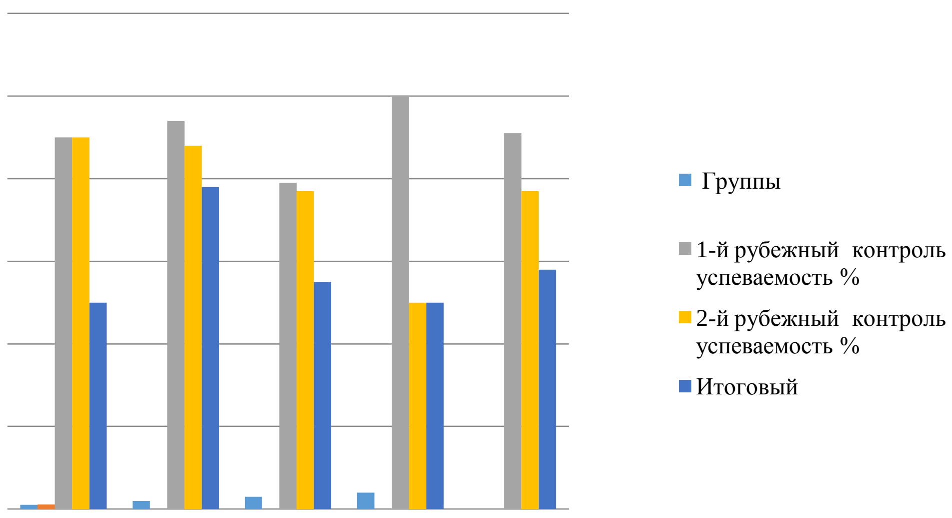

Диаграмма контроля знаний обучающихся АГА по дисциплине Физика

Из проведенных педагогических экспериментов можно сделать вывод, что применение компьютерного тестирования в качестве итогового контроля знаний вместе с традиционными методами контроля выполняет поставленные перед ним задачи. Оно позволяет осуществлять эффективный, качественный, достаточно объективный и наглядный контроль при рациональных затратах времени, стимулирующий обучающихся к постоянной интенсификации самостоятельной работы, создает условия не только для эффективного обучения, самостоятельной учебной деятельности и профессиональной подготовки обучающихся, но и для всестороннего развития личности. Такая организация контроля по дисциплине физика способствует формированию у студентов ключевых компетенций, например, таких как (согласно Примерным программам для дисциплины физика, утвержденным научно-методическим советом по физике при Министерстве образования и науки РК):

– способность приобретать новые знания в области физики, в том числе с использованием современных образовательных и информационных технологий;

– способность использовать знания основных физических теорий для решения возникающих фундаментальных и практических задач, самостоятельного приобретения знаний в области физики;

– способность выстраивать и реализовать перспективные линии интеллектуального, культурного, нравственного и профессионального саморазвития и самосовершенствования;

– настойчивость в достижении цели, способность критически переосмысливать накопленный опыт;

– обладание умением читать и анализировать учебную и научную литературу по физике.

Таким образом, можно заключить, что применение подобной методики и организации контроля в вузе позволяет успешно решить задачи по совершенствованию всех составляющих учебного процесса, способствует повышению качества обучения и помогает реализовать преиму-щества модульно-рейтинговой системы и компетентностного подхода к обучению.

М. А. Борибаева, К. Б. Байгисова, А. К. Сугирбекова, А. Б. Жукина

Азаматтық Авиация Академиясы, Алматы, Қазақстан

ҚАШЫҚТАН БІЛІМ БЕРУ ЖАҒДАЙЫНДА ФИЗИКА ПӘНІ БОЙЫНША БІЛІМ АЛУШЫЛАРДЫҢ БІЛІМІН ҚОРЫТЫНДЫ БАҚЫЛАУ ФОРМАЛАРЫНЫҢ БІРІ – КОМПЬЮТЕРЛІК ТЕСТІЛЕУ

Аннотация. Мақалада физика курсы бойынша алған білімді қорытынды бақылауда компьютерлік тестілеу әдісін ұйымдастыру мен әдіс мазмұны сипатталған, өйткені қазіргі заманғы жоғары білім беруді қарқынды компьютерлендіру жағдайында компьютерлік тестілеу білім жетістіктерінің диагностикалық құралдарының бірі ретінде көбірек таңдалуда. Сондықтан, білім берудің қазіргі даму кезеңінде тұлғалық-бағдарланған оқытуға көшумен бірге, білім берудің барлық кезеңінде тестілік бақылау қажет етіледі. Іс-әрекет тәсілі дамытушы және бақыланатын функцияларды тестілеу кезінде оқыту мен жаттықтыруды ұйымдастыруда бақылау деп аталатын құралдарды қолданады.

Сонымен қатар, Ұлттық бірыңғай тестілеуді енгізу арқылы студенттерді бақылаудың жаңа – тест түріне, ал кеңірек алғанда, оқушыны жетістікке жетуге ынталандыру, емтихан алдындағы қорқыныштан арылту және жайлы жағдай жасау үшін арнайы дайындау қажеттігі пайда болды. Мақала компьютерлік тестілеуді оқу үдерісінде қолданудың қажеттілігін негіздейді. Білім беру үдерісінде тесттің маңызы өте зор, өйткені оларды іске асырудың нәтижелері бойынша білім деңгейіне ғана емес, сонымен қатар белгілі бір жеке қасиеттердің даму дәрежесіне, бүкіл топқа немесе жекелеген студенттерге дайындықтың белгілі бір кезеңінің сәтті немесе сәтсіздігіне баға беруге болады. Тест пайдаланушыда белгілі бір ақпараттың бар екендігін болжап біледі, сондықтан олар көбінесе материалды бекіту немесе қайталау үшін бақылау әдісі ретінде қолданылады. Осыған байланысты білім алушыларға арналған тесттерге ерекше орын беріледі. Олар тек білім беру мәселелерін шешуге ғана емес, сонымен қатар білім алушыларды тестпен жұмыс істеуге үйретуге, тест тапсырмаларын орындаудағы тәжірибесін жинақтауға, өзін-өзі басқаруға, өз қателіктерін тауып, түзету қабілетін дамытуға бағытталған. Тесттік бақылауды пайдалану бірнеше функцияларды орындайды, олардың арасында тәуелсіз диагностикалық функция бар. Бұл оқытушы білім алушылардың білімі мен дағдыларын бақылап қана қоймай, олқылықтардың себептерін анықтап, содан кейін оларды жою мүмкіндіктерін айқындайды. Сонымен қатар, компьютерлік тестілеу бақылаудың басқа түрлерінен артықшылықтарын қарастырады.

Тест элементтерінің мазмұнынан бірнеше мысалдар келтірілген: олардың тестілерді әзірлеуде нормативті-критериалды талаптарға сәйкестігі; тест түрінде тапсырмаларды әзірлеу ережесі; тестілеу нәтижелерін өңдеудің негізгі математикалық және статистикалық әдістері; оқу нәтижелерін тестілеуге арналған компоненттер мен элементтерді әзірлеу әдістері.

Мақалада тестілерді бағалау критерийлері келтірілген. Ойлаудың даму деңгейіне, білімді практикалық есептерді шешуде қолдана білуге, сондай-ақ белгілі бір физикалық құбылыстардың себептері мен нәтижелерін талдау қабілетіне баға беруге арналған тесттердің мақсаты көрсетілген.

Жұмыста Азаматтық авиация академиясының жалпы ғылыми пәндер кафедрасында өткізілген осы әдістемені жүзеге асырудағы педагогикалық эксперименттің кейбір нәтижелері мен талдауы келтірілген. Кестеде және диаграммада семестр бойындағы студенттердің үлгерімінің динамикасы көрсетілген.

Түйін сөздер: әдістеме, компьютерлік тестілеу, педагогикалық тәжірибе, бақылау.

M. A. Boribayeva, K. B. Baigisova, A. K. Sugirbekova, A. B. Zhukina

Academy of Civil Aviation, Almaty, Kazakhstan

COMPUTER TESTING AS ONE OF THE FORMS OF FINAL CONTROL OF STUDENTS' KNOWLEDGE ON THE DISCIPLINE OF PHYSICS IN CONDITIONS OF DISTANCE EDUCATION

Abstract. The methodology of use, organization and content of computer testing for a final control of knowledge on Physics course is given in the article. Since in the conditions of intensive computerization of modern higher education, computer testing is increasingly chosen as a means of diagnosing educational achievements. Therefore, at the present stage of the education development, with the transition to student-centered learning, arises a need for test control at all stages of education. An active approach involves an organic combination in tests of developing and controlling functions and the use of so-called educational control. Moreover, with the introduction of the Unified National Testing, it became necessary to prepare students for a new test control form and more broadly – to motivate a student to succeed, deliver him from fear of examinations, to create a comfortable environment.

The article substantiates the importance of using computer testing in an educational process. In the educational process, tests are of great importance, as well as by the results of their execution it is possible to judge not only about the level of knowledge, but also about the degree of development of some personal qualities, about the success or failure of a certain stage of training for the whole group or individual students. Tests suggest that a user has a certain amount of information, so they are most often used as a control method for fixing or repeating material. In this regard, tests for students are given a special place. They should be focused not only on solving educational problems, but also on teaching the student how to work with test, accumulating his experience in completing test tasks, developing the ability to control himself, find and correct his own mistakes. A use of test control performs several functions, among them a diagnostic function, which stands out as an independent one. It consists in the fact that the teacher can not only monitor the level of knowledge and skills of students, but also find out the causes of the gaps found, then to eliminate them.

The advantages of computer testing over other forms of control are also considered.

Some examples from the contents of test items are given. Their compliance with regulatory and criteria-oriented requirements in the development of tests. Rules for the development of tasks in a test form; basic mathematical and statistical methods for processing test results, methods for developing components and elements of resource support for testing learning outcomes.

The article also presents the criteria for evaluating tests.

The purpose of the tests to assess the level of thinking development, ability to apply knowledge to solve practical problems, as well as the ability to analyze the causes and results of certain physical phenomena are indicated.

The article presents some results and analysis of the results of a pedagogical experiment on implementation of this methodology, carried out at the Department of General Scientific Disciplines of the Academy of Civil Aviation. The dynamics of growth in student academic performance by semester is shown in the table and the diagram.

Key words: methodology, computer testing, pedagogical training, control.

Information About Authors

Boribayeva Meruert A., Master of Physics, Senior Teacher, Department of General Science, Academy of Civil Aviation, Almaty, Kazakhstan; meruert_b@mail.ru; https://orcid.org/0000-0002-1552-7038

Baigisova Kymbat B., PhD, Assoc. Professor, Department of General Science, Academy of Civil Aviation, Almaty, Kazakhstan; kymbat_b@mail.ru; https://orcid.org/0000-0003-1962-9338

Sugirbekova Akmaral K., Master of Physics, Senior Teacher, Department of General Science, Academy of Civil Aviation, Almaty, Kazakhstan; cugir.72@mail.ru; https://orcid.org/0000-0002-0539-0920

Zhukina Anara B., Candidate of Physical and Mathematical Sciences, Assoc. Professor, Department of IT and Automation, Kazakh National Agrarian University, Almaty, Kazakhstan; anar_71_08@mail.ru; https://orcid.org/0000-0003-1942-8632

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Doolotbai Babaev[1], Meiriban Gussenova[2,3], Aizhan Sapargaliyeva[3]

[1]Kuwait International University, Bishkek, Kyrgyz Republic;
[2]Kazakh-American University. Republic of Kazakhstan;
[3]Zhetysu State University n.a. I. Zhansugurov. Republic of Kazakhstan.
E-mail: king_bara@mail.ru, meiriban@mail.ru, aizhan_sapargaliyeva@mail.ru

SPECIFICS OF CREATIVE ACTIVITY OF A TEACHER-PSYCHOLOGIST IN THE CONDITIONS OF INTEGRATED TRAINING

Abstract. The article presents the features of psychological and pedagogical support in the conditions of integrated learning. The role of a teacher - psychologist in the design and organization of psychological and pedagogical support of the educational process is considered. The main directions of psychological and pedagogical support for the development of professional competence of a teacher, the specifics of his creative activity are formulated. The main conditions for the effectiveness of programs of psychological and pedagogical support are considered. At the present stage of development in the Republic of Kazakhstan, there are deep socio-economic transformations that require new approaches to the system of vocational education. The First President of the Republic of Kazakhstan Elbasy N. A. Nazarbayev pays attention to the development of science and education in the program "100 concrete steps" in five institutional reforms. Special emphasis is placed on improving the competitiveness of graduates and the growth of the educational sector.

The article considers the theoretical features of the priority tasks of higher education, strengthening the resource base, expanding the practical component of scientific and educational activities, investments in the preservation and development of human capital, which is the main priority of the State program for the development of education of the Republic of Kazakhstan for 2011 – 2020.

The paper describes the need for specialists who can productively organize interaction and relationship in the "person-to-person" system. In these conditions, the problems of training specialists in the so-called "helping professions" (psychologists, social workers, etc.) become urgent. The article describes the current socio-economic situation in Kazakhstan, which also determines the order for specialists of this profile who have the qualities and skills of activity in this field, which requires the modernization of training students in the relevant specialties of the higher education system. Both domestic and foreign experts are increasingly calling the XXI century the century of "man". The article considers that in modern socio-economic conditions, the problem of developing creative abilities remains one of the most important problems of human society.

It is particularly relevant in modern society, because education as a resource of science, technology and art is undergoing radical changes today, due to the need for continuous adaptation to rapidly changing dynamic socio-economic conditions. In addition, the paper describes the fact that this is due to the constantly increasing volume of information, which is forced to operate a modern specialist in any field, and the process of integrating the Sciences, which requires a person not only extensive knowledge, but also a higher creative level of thinking development.

Key words: creative activity, pedagogy, higher education, education in the Republic of Kazakhstan, teacher-psychologist, integrated training, innovations in education, modernization.

Introduction. Modern education is characterized by systemic changes in structure and content. Rethinking the priorities of education, the role of the student as a subject of the educational process, as well as social changes, cause non-traditional approaches to solving many educational problems. One of the leading trends in the development of modern education is the integration of its content [1].

The literal content of the concept of "integration" was introduced in the 60s of the XIX century by the Englishman G. Spencer (from Latin integration-whole), but it did not reflect the real content of the processes that are defined by this term today [2].

In dictionaries, the concept of "integration" is defined as the integration of previously isolated parts, elements, and components into one whole, which is accompanied by complication and strengthening of connections and relationships between them [3]. Philosophers define it as the process of movement and development of a certain system, in which the frequency and intensity of interactions of its elements increases – their interaction increases and their relative independence in relation to one another decreases. In this case, new forms may appear that did not exist in the history of this system [4]. The formation of connections, further significant interdependencies, the appearance of qualitatively new properties inherent only in the totality of interrelated elements, processes, phenomena – all this is nothing more than a consistent establishment of integrity [5].

Integration is broadly understood as the process of becoming whole. The definition of integration as a process of interpenetration does not mean the dissolution of one into the other, but their unity, that is, the preservation of interacting systems and the establishment of mutual contacts between them [6].

It can be concluded from the definition of integration that it is more likely to occur when:

- there is a formerly independent things, processes, phenomena;
- there are objective prerequisites for their unification [7];
- integration occurs by establishing significant relationships that determine and change the functioning of the elements that are integrated;
- the result of merging is a system that has integrity properties [8].

Methodology. The methodological basis of the research is documents on improving the management system in the educational environment, the main provisions of modern psychology and pedagogy of higher education, revealing the content and ways of forming professional competencies.

Method of research:

- interview, survey of students, students and teachers, monitoring the educational activities of students and students;
- pedagogical experiment;
- statistical processing of experimental results;
- study and analysis of documents on education, psychological, pedagogical and methodological research of problems of implementation of the applied orientation of higher education (state program of education development of the Republic of Kazakhstan for 2011-2020, etc.);
- development of a model for the implementation of applied orientation in the context of specialized training;
- modeling of technology for teaching pedagogical tasks;
- qualitative analysis of research results.

Results. Many researchers (I. V. Dubrovina, V. V. Rubtsov, L. M. Fridman, etc.) believe that a teacher-psychologist [9] (or a practical psychologist working in the field of education) carries out his professional activity within the framework of the psychological service in education, being an active participant in it [10]. According to the authors, the work of this specialist cannot be considered outside the context of the psychological service of education. Therefore, we consider it legitimate to analyze this issue in more detail [11].

Professional vocation is a complex phenomenon that is characterized by a complex of personal qualities of a specialist, his socio-psychological readiness to implement the functions of a teacher-psychologist as a specialist of helping professions [12].

We are interested in the definition of diagnostic activity given by K. S. Akhmetkarimova. In its understanding, diagnostic activity involves a scientifically organized process of obtaining information about the state of the object of activity, special processing of this information in order to establish and verify the diagnosis with subsequent corrective actions on it to achieve a given goal [13]. Based on the studied material, the authors propose the following structure of creative characteristics of a teacher-psychologist in the process of integrated learning (table):

Main characteristics of creative activity of a teacher-psychologist in the process of integrated learning

Types of professional activities	Content
psychodiagnostic	Psychological diagnostics is a special psychological examination of a person or group that allows you to get psychological information for the purpose of making a psychological diagnosis of students [14].
correctional - developmental	Purposeful psychological and pedagogical influence on a mentally healthy student in order to change (correct) or prevent deficiencies and deviations in development, as well as the overall development of the individual. Content of participants in the educational process.
advisory	Consulting activities contribute to the development of the personality of participants in the educational process; helps them in solving personal, interpersonal, professional and other problems; disclosure of psychological resources that provide independent solutions to problems [15].
preventive	It is designed to timely prevent possible violations in the mental development of the individual participants of the educational process, to create favorable conditions for its development at each age stage.
evaluative	It is aimed at analyzing changes in cognitive processes, mental states, and personal reactions in students as a result of psych - corrective influences.
prognostic	It is aimed at designing psychophysiological, adaptive and socio-psychological functions of the student.
enlightening	Introducing teachers, students (pupils) and their parents to psychological knowledge [16].
teaching	Specially organized activities for the purpose of informing, awareness and practical application of knowledge. Teaching activities include classes, electives, clubs, etc.
career guidance	Activities that assist students in professional self-determination or in choosing a profession [17].
scientific-methodical	Activities based on pedagogical and psychological science.
socio-pedagogical	Activities that contribute to the successful socialization of participants in the educational process. The essence of socialization is the implementation of such processes as adaptation, integration, self-development and self-realization of the individual [18].
educational	Purposeful activity to organize the life of students (pupils), their parents, teachers, which aims to create conditions for the full development of the individual [19].
managerial	Purposeful activities related to the organization [20], coordination and control of the activities of participants in the educational process.
Note: compiled by the authors.	

Summarizing the above, we can conclude that under the psychological and pedagogical support of the teacher-psychologist as a specialist in the process of integrated training, we will understand the joint activity of teachers to create pedagogical conditions aimed at improving the professional training of the teacher-psychologist as a specialist, based on the principles of personality-oriented education. In other words, psychological and pedagogical support is, in fact, all the work performed by teachers and students to improve professional training, in which the teacher acts as a teacher-manager and manages the process of training a teacher-psychologist as a specialist in the process of integrated learning, in particular, the process of their professional creative training, and students are active participants in this process [21].

In addition, we assume that in the process of professional creative training of a teacher-psychologist as a specialist of the integrated learning system, innovative learning technologies should be used, in our opinion, also contributing to the improvement of professional training.

Conclusions. Thus, based on the analysis of literature sources, we can note that the problem of studying the creative readiness of a teacher - psychologist for integrated learning is not sufficiently sanctified in modern research. At the same time, many authors point to the need to identify socio-psychological problems caused by the introduction of integrated education, as well as to develop ways to overcome them. The problem of research and formation of professional and psychological readiness for the integration process of future teachers-psychologists, which is associated with the transition stage of the development of the special education system at the present time, is of particular relevance. In addition, based on the research, we found that future teachers-psychologists are not psychologically ready to work in an integrated learning environment, which is manifested by the lack of special knowledge, lack of motivation to work with students, as well as lack of experience in interacting with problem groups. This fact makes it necessary to organize and conduct targeted work on the formation of psychological readiness for integrated learning as a component of professional creative readiness of future teachers-psychologists at the present stage of development of the special education system.

Д. Б. Бабаев[1], М. Ш. Гусенова[2,3], А. Ж. Сапаргалиева[3]

[1]Халықаралық Кувейт университеті, Бішкек, Қырғыз Республикасы;
[2]Қазақ – Америка университеті, Қазақстан;
[3]І. Жансүгіров атындағы Жетісу мемлекеттік университеті, Қазақстан

КІРІКТІРІЛГЕН ОҚЫТУ ЖАҒДАЙЫНДАҒЫ ПЕДАГОГ-ПСИХОЛОГТЫҢ ШЫҒАРМАШЫЛЫҚ ҚЫЗМЕТІНІҢ ЕРЕКШЕЛІГІ

Аннотация. Мақалада интеграцияланған оқыту жағдайында психологиялық-педагогикалық сүйемелдеу ерекшеліктері берілген. Білім беру үдерісін психологиялық-педагогикалық сүйемелдеуді жобалауда және ұйымдастыруда педагог-психологтың рөлі қарастырылады. Педагогтың кәсіби құзыреттілігін дамытуды психологиялық-педагогикалық сүйемелдеудің негізгі бағыттары, оның шығармашылық қызметінің ерекшелігі қалыптасады. Психологиялық-педагогикалық сүйемелдеу бағдарламалары тиімділігінің негізгі шарттары қарастырылды. Қазақстан Республикасында дамудың қазіргі кезеңінде кәсіптік білім беру жүйесіне жаңа көзқарасты талап ететін терең әлеуметтік-экономикалық өзгерістер орын алуда. Қазақстан Республикасының Тұңғыш Президенті Н. Ә. Назарбаев «100 нақты қадам» бағдарламасында бес институционалдық реформада ғылым мен білім беруді дамытуға көңіл бөледі. Бұл ретте шығарылатын кадрлардың бәсекеге қабілеттілігін арттыруға және білім беру секторының артуына ерекше назар аударылды.

Мақалада жоғарғы мектептің басым міндеттерінің теориялық ерекшеліктері, ресурстық базаны нығайту, ғылыми білім беру қызметінің тәжірибелік құрамдас бөлігін кеңейту, Қазақстан Республикасында білім беруді дамытудың 2011-2020 жылдарға арналған мемлекеттік бағдарламасының басты басымдығы болып саналатын адам капиталын сақтау мен дамытуға инвестициялар қарастырылған.

Жұмыста «адам-адам» жүйесінде өзара қарым-қатынас және оны нәтижелі ұйымдастыруға қабілетті мамандарға деген қажеттілік сипатталған. Бұл жағдайда «көмек көрсететін мамандықтар» (психологтар, әлеуметтік қызметкерлер және т.б.) деп аталатын мамандарды даярлау мәселелері өзекті болып отыр. Мақалада Қазақстанда қалыптасқан әлеуметтік-экономикалық жағдай сипатталған, ол сондай-ақ осы саладағы қызметтің сапасы мен дағдысы бар аталған бейіндегі мамандарға тапсырыс береді, бұл жоғары білім беру жүйесінің тиісті мамандықтары бойынша студенттерді даярлауды жаңғыртуды талап етеді. Отандық және шетелдік мамандар XXI ғасыр – «адам» ғасыры деп жиі атайды. Мақалада қазіргі әлеуметтік-экономикалық жағдайларда шығармашылық қабілеттілікті дамыту мәселесі адам қоғамының маңызды мәселелерінің бірі болып қалатыны жан-жақты қарастырылды.

Ол қазіргі қоғамда ерекше өзектілікке ие болып отыр, өйткені білім беру ғылым, техника және өнер ресурсы ретінде бүгінде жылдам өзгеріп жатқан серпінді әлеуметтік-экономикалық жағдайларға үздіксіз бейімделу қажеттілігіне байланысты түбегейлі өзгерістерге ұшырайды. Сонымен қатар, жұмыста бұл кез келген салада заманауи маман жұмыс істеуге мәжбүр болатын үнемі қар көшкіні артып келе жатқан ақпарат көлемімен және адамнан кең білімді ғана емес, сонымен қатар ойлау дамуының жоғары шығармашылық деңгейін талап ететін ғылым интеграциясы процесімен байланысты.

Түйін сөздер: шығармашылық қызмет, педагогика, жоғары білім беру, ҚР білім беру, педагог-психолог, интеграцияланған оқыту, білім берудегі инновациялар, жаңғырту.

Д. Б. Бабаев[1], М. Ш. Гусенова[2], А. Ж. Сапаргалиева[3]

[1]Международный Кувейтский университет, Бишкек, Кыргызская Республика;
[2]Казахско-Американский университет, Казахстан;
[3]Жетысуский государственный университет им. И. Жансугурова, Казахстан

СПЕЦИФИКА ТВОРЧЕСКОЙ ДЕЯТЕЛЬНОСТИ ПЕДАГОГА-ПСИХОЛОГА В УСЛОВИЯХ ИНТЕГРИРОВАННОГО ОБУЧЕНИЯ

Аннотация. В статье представлены особенности психолого-педагогического сопровождения в условиях интегрированного обучения. Рассматривается роль педагога-психолога в проектировании и организации психолого-педагогического сопровождения образовательного процесса. Формулируются основные направления психолого-педагогического сопровождения развития профессиональной компетентности педагога, специфика его творческой деятельности. Рассмотрены основные условия эффективности программ психолого-педагогического сопровождения. На современном этапе развития в Республике Казахстан происходят глубокие социально-экономические преобразования, которые требуют новых подходов к системе профессионального образования. Первый Президент Республики Казахстан Лидер Нации Н.А. Назарбаев в программе «100 конкретных шагов» в пяти институциональных реформах уделяет внимание развитию науки и образования. Особый акцент при этом сделан именно на повышение конкурентоспособности выпускаемых кадров и рост образовательного сектора.

В статье рассмотрены теоретические особенности приоритетных задач высшей школы, укрепление ресурсной базы, расширение практической составляющей научно-образовательной деятельности, инвестиций в сохранение и развитие человеческого капитала, который является главным приоритетом Государственной программы развития образования Республики Казахстан на 2011 – 2020 годы.

В работе описана потребность в специалистах, способных продуктивно организовать взаимодействие и взаимоотношение в системе «человек-человек». В этих условиях актуальными становятся проблемы подготовки специалистов так называемых «помогающих профессий» (психологов, социальных работников и др.). В статье охарактеризована сложившаяся в Казахстане социально-экономическая обстановка, которая также определяет заказ на специалистов данного профиля, обладающих качествами и навыками деятельности в этой сфере, что требует модернизации подготовки студентов в соответствующих специальностях системы высшего образования. И отечественные и зарубежные специалисты все чаще называют XXI век веком «человека». В статье рассмотрено то, что в современных социально-экономических условиях проблема развития творческих способностей остается одной из важнейших проблем человеческого общества.

Особую актуальность она приобретает в современном обществе, ибо образование как ресурс науки, техники и искусства претерпевает сегодня коренные изменения, связанные с необходимостью непрерывной адаптации к быстро меняющимся динамичным социально-экономическим условиям. Кроме того, в работе описано то, что это связано с постоянно лавинно увеличивающимся объемом информации, которым вынужден оперировать современный специалист в любой области, и процессом интеграции наук, требующим от человека не только обширных знаний, но и более высокого творческого уровня развития мышления.

Ключевые слова: творческая деятельность, педагогика, высшее образование, образование в РК, педагог- психолог, интегрированное обучение, инновации в образовании, модернизация.

Information about the authors:

Babaev Doolotbai Babaevich, Doctor of pedagogical sciences, Professor, Kuwait International University, Bishkek, Kyrgyz Republic; king_bara@mail.ru; https://orcid.org/0000-0002-6227-1960

Gussenova Meiriban Shakhgussenovna, Doctoral student, master of sciences, Zhetysu State University n.a. I. Zhansugurov, Kazakh-American University, Kazakhstan; meiriban@mail.ru; https://orcid.org/0000-0002-5605-0117

Sapargaliyeva Aizhan Zhanisovna, Doctor of philosophy (PhD), senior lecturer of the Department of pedagogy and psychology, Zhetysu State University named after I. Zhansugurov, Taldykorgan, Kazakhstan; aizhan_sapargaliyeva@mail.ru; https://orcid.org/0000-0001-7252-9120

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S. Sh. Gussenova[1,3], D. B. Babaev[2], E. Zh. Smagulov[3]

[1]International Educational Corporation, Kazakhstan;
[2]Kuwait international University, Bishkek, Kyrgyz Republic;
[3]Zhetysu State University n.a. I. Zhansugurov, Taldykorgan, Kazakhstan.
E-mail: cocochaneli@bk.ru, king_bara@mail.ru, smagulovezh@mail.ru

THE CONCEPT OF INFORMATION AND EDUCATIONAL ENVIRONMENT IN THE CONTEXT OF UPDATED EDUCATION

Abstract. Currently, there is a rapid development of information technologies, the restructuring of the system of education and upbringing of the younger generation to a new level. All this forces modern society to move forward, keep up with scientific and technological progress and time. Today, the key issue of modernizing education is to improve its quality and bring it in line with international standards. The emphasis is not on the acquired knowledge, but on the process of applying this knowledge.

The article deals with the main directions of development of the education system and theoretical aspects of the development of the information and educational environment in the context of updated education. A new generation of school children can easily master any new digital and multimedia technology. Teachers are tasked with directing the student's development vector in the right direction. To do this, methods of working with students are being improved.

The article describes pedagogical technology as information technology, since the basis of the technological process of learning is the acquisition and transformation of information. The paper considers a single information and educational space that can provide students with the opportunity to use a wide range of educational content (electronic textbooks, video courses, etc.), using interactive technologies to compensate for gaps in education, to realize their creative abilities through participation in various competitions, olympiads, festivals, conferences. Use the system of additional education without interrupting training due to various factors. The Internet environment for teenagers has long been clear and close, and it is believed that it can become a productive platform for improving education. As one of the areas of relevance of the research, the authors will determine the current trends in the development of computer science as a science, in particular, the transition to e-learning in the framework of updated education.

The developers of modern educational standards emphasize the need to create an information and educational environment (IEE) in educational organizations that ensures the formation of universal educational actions of students. Thus, the understanding of the environment as a field of obtaining information is replaced by the understanding of the environment as a field of constructing ways of students ' activities. Such an environment from the point of view of the conducted research should be created on the basis of the system integration of ICT tools into the traditional educational environment. The complexity of the work of teachers is due to the lack of a unified model of integrative IEE in educational organizations. The search for effective ways to integrate traditional and innovative environments largely depends on the activities of subject teachers, who are able to turn the potential of the subject-oriented IEE to achieve qualitatively new educational results. The article presents a theoretical description of integrative activity-based IEE, which can serve as a basis for innovative activity of teachers.

The article reveals the content and structure of the information and educational environment. The leading approaches to defining the concept of information and educational environment in pedagogical science are substantiated. The features of creating this environment in a secondary school are revealed. The authors conclude that the creation of an information and educational environment is one of the most important indicators of the quality of the education system.

Key words: educational environment, updated education, information support, innovations in education, pedagogy, education, modernization, training.

Introduction. The concepts of "educational environment" and "informational educational environment" are not identical. The modern stage of education development is characterized by informatization, as a result of which the educational environment has become an information-informational and educational environment (IEE). IEE is a product of Informatization of the educational sphere [1]. The main goal of the IEE is to ensure the transition of education to a new quality state corresponding to the information society. IEE is a means of implementing and implementing the educational process and educational interaction, which has become informational under the influence of Informatization [2].

The IEE is a multi-level hierarchical environment. There are the following levels:

- General education IEE,
- IEE of an educational institution
- personal IEE [3].

The IEE contains resources of the social and information environment used in education, specialized resources – information and educational (IER) and electronic educational (EER) resources, methodological resources, and ICT resources. In modern education, they have become a means of supporting the teaching of any educational course in educational institutions at all levels [4]. It should be noted that the state educational standard in the Republic of Kazakhstan is part of the educational environment. This is a legal document that expresses the company's order, the procedure and conditions for its implementation. At the same time, it regulates not only the implementation and development of education, but also the development of the educational environment itself [5]. The formation of information and educational environment in the context of updated education is impossible without the design of certain electronic educational resources (table 1).

Table 1 – Examples of different media and tools for various pedagogical tasks
in the creation of electronic educational resources

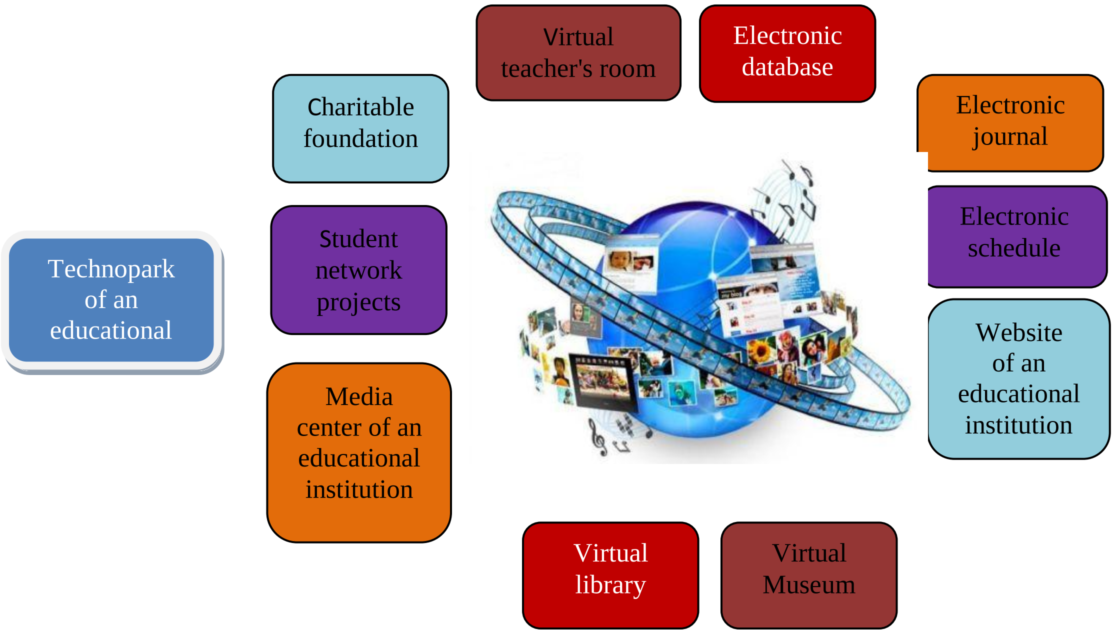
Educational task	Media and tools
Navigation	Buttons, links, animations, maps pages, table of contents, navigation tree, search, help
The clarification, document, observation	Text (explanation, detail, guidance on the use, the comment text, tooltip)
The show models, examples, presentations	Photos (new camera) Diagram (it depends on the quality of the image from the selected resolution when shooting) Screenshot (how to transfer photos to the computer) Circuit (diagram of the parts of the camera) process Model (block diagram) [6]
Demonstration of qualitative and quantitative relations	The concept map (Visual map of the distribution of the distance learning system MOODLE in the world) Diagram (structure of the institution) Graph (correlation between stress and life expectancy) [7]
Show changes over time	Animation (change of clouds before a storm) Applet (effect of standard deviation on shape of normal curve distribution), Video (display of the electronic shutter of the camera) Simulation (how alcohol affects reaction time) [8]
Show hidden concepts (difficult in a simple explanation, abstract)	Graphic analogies (how to calculate compound interest) Animation (how blood flows into the heart and out of it) [9]
Video practical work	Simulation (adding and dropping a paragraph of text in the document)
Note: compiled by the authors	

Methodology. In the course of the research, General research methods were used: methods of analyzing the educational process: horizontal, vertical, ratios, comparisons, and others.

To study the essence of the information and educational environment in the context of updated education, general scientific and special research methods were used:

- review of literature sources, legal framework;
- analytical method;
- observation;
- learning experience;
- pedagogical experiment, etc.

Results. Creating an information and educational environment in an educational organization is one of the main tasks and means of solving high-quality training of students [10]. The main direction in the activity of the school at present is to teach students the skills to work with information. In this regard, the information educational environment of the organization should include a system of hardware, software, specialists and users, databases that implement information processes. In the content context, these are media libraries, websites, virtual information boards, e-learning applications, methodological developments, Internet resources, etc. [11]. In fact, the information and educational environment is a system in which the structure and information flows are optimized taking into account new approaches to the organization and content of all educational activities in the organization (figure).



Author's model of information and educational environment in the context of updated education.
Note: compiled by the authors

An effectively developed information and educational environment includes five elements:
1. Displaying information;
2. Guide to what to do [12];
3. Exercises for understanding and remembering;
4. Evaluation to determine whether it is necessary to repeat or move to the next stage;
5. Interactivity [13].

These five elements can be embedded in e-learning or used in combination with mixed learning. Although almost all of these items can be implemented without the use of mass media, multimedia makes them more effective and meaningful [14]. Providing a person with the ability to perceive video and audio media has an advantage over each of these capabilities separately (table 2).

Table 2 – Principles of effective use of electronic educational resources in the formation of information and educational environment with elements of updated education

Principles	Description
Multimedia	Training with the use of text and graphics is better than using only text
Spatial relationship	While teaching, accompanied by text and graphics is better when corresponding text and graphics are placed next to each other [16]
Temporary link	While teaching, accompanied by text and graphics is better when corresponding text and graphics are displayed simultaneously, not one after another
Consistency	When training it is better if the text, graphics, or sound is not redundant.
Modality	When learning is better when animation is accompanied by narration than animation accompanied by onscreen text.
Redundancy	When learning is better when animation is accompanied by narration than if the animation is accompanied by narration and on-screen text [17].
Individual differences	The effect of these principles more strongly expressed when learning the initial knowledge than the knowledge of a high level, and for very remote students than for geographically remote little
Note: compiled by the authors.	

In addition, since these two channels are designed to process different information, their integration into multimedia tools is very successful, since it takes advantage of both systems [15]. The link between text and graphics potentially allows you to better understand and build a mental model.

Modern science is continuously and dynamically developing and differentiating. The flow of scientific information is growing. Categories and concepts of science are becoming more complex and more capacious. The effectiveness of students ' training is determined to a large extent by the quality of their mastery of innovative technologies.

Conclusions. Thus, the results of the study confirmed the hypothesis, showing the importance of improving the information and educational environment of the university, as well as the theoretical and practical significance of the phenomenon of "pedagogical Informatics" as the most important determinant of the effectiveness of the educational process at the university.

In this study, a structural and functional model of information - the role and place of pedagogical Informatics in the structural and content model of the fundamental educational process, the theoretical and methodological model of the information culture of the individual and the use of electronic educational resources are presented, the pedagogical conditions for the effective functioning of the information and educational environment of the University are identified, the content of the technologization of training in higher school is determined, a pedagogical technology for forming the basic principles of using electronic educational resources as an important component of the formation of the information and educational environment in the context of updated education is proposed.

С. Ш. Гусенова[1,3], Д. Б. Бабаев[2], Е. Ж. Смагулов[3]

[1]Халықаралық білім беру корпорациясы, Қазақстан;
[2]Халықаралық Кувейт университеті, Бішкек, Қырғыз Республикасы;
[3]І. Жансүгіров атындағы Жетісу мемлекеттік университеті, Қазақстан

ЖАҢАРТЫЛҒАН БІЛІМ БЕРУ КОНТЕКСТІНДЕГІ АҚПАРАТТЫҚ-БІЛІМ БЕРУ ОРТАСЫ ҰҒЫМЫ

Аннотация. Қазіргі уақытта ақпараттық технологиялардың қарқынды дамуы, өскелең ұрпақты тәрбиелеу мен білім беру жүйесін жаңа деңгейге қайта құру жүріп жатыр. Осының барлығы заманауи қоғамды алға жылжуға, ғылыми-техникалық прогреске және уақыттан қалмай әрекет етуге мәжбүрлейді. Бүгінгі таңда білім беруді жаңғыртудың басты мәселесі – оның сапасын арттыру, әлемдік стандарттарға сәйкестендіру. Алынған білімге емес, дәлірек айтқанда, осы білімді қолдану үдерісіне баса назар аударылады.

Мақалада білім беру жүйесін дамытудың негізгі бағыттары және жаңартылған білім беру контекстінде ақпараттық-білім беру ортасын дамытудың теориялық аспектілері қарастырылады. Оқушылардың жаңа буыны сандық және мультимедиялық техниканың кез келген жаңалықтарын қиындықсыз меңгереді. Педагогтердің алдында оқушының даму векторын қажетті бағытқа бағыттау міндеті қойылады. Ол үшін білім алушылармен жұмыс істеу әдістері жетілдіріледі.

Мақалада педагогикалық технология – ақпараттық технология ретінде сипатталған, өйткені оқытудың технологиялық процесінің негізі ақпаратты алу және түрлендіру. Жұмыста бірыңғай ақпараттық-білім беру кеңістігі қарастырылады, ол оқушыға білім беру контенттерінің (электрондық оқулықтар, бейне курстар және т.б.) кең жиынтығын пайдалану мүмкіндігін, интерактивті технологиялар арқылы білім берудегі олқылықтарды өтеу, түрлі конкурстарға, олимпиадаларға, фестивальдерге, конференцияларға қатысу арқылы өзінің шығармашылық қабілеттерін іске асыру мүмкіндігін береді. Әртүрлі факторларға байланысты оқуды үзбей қосымша білім беру жүйесін пайдалану. Жасөспірімдер үшін интернет ортасы бұрыннан түсінікті және жақын, ол білім беруді жетілдіру үшін өнімді алаңға айналуға қабілетті деп саналады. Зерттеудің өзектілігі бағыттарының бірі ретінде авторлар информатиканың ғылым ретінде дамуының заманауи үрдістерін, атап айтқанда, жаңартылған білім беру аясында электрондық оқытуға көшуді анықтайды.

Қазіргі заманғы білім беру стандарттарын әзірлеушілер білім беру ұйымдарында білім алушылардың әмбебап оқу іс-қимылдарын қалыптастыруды қамтамасыз ететін ақпараттық-білім беру ортасын (АББО) құру қажеттілігін атап көрсетеді. Осылайша, ақпаратты алу саласы ретінде ортаны түсіну білім алушылардың қызмет тәсілдерін құрастыру саласы ретінде ортаны ұғынумен алмасады. Мұндай орта жүргізілген зерттеулер тұрғысынан АКТ құралдарын дәстүрлі білім беру ортасына жүйелі интеграциялау негізінде құрылуы тиіс. Педагогтардың жұмысындағы қиындық білім беру ұйымдарында интегративтік АББО бірыңғай моделінің жоқтығынан туындайды. Дәстүрлі және инновациялық орталарды интеграциялаудың

тиімді тәсілдерін іздеу көбінесе пәндік АББО әлеуетін сапалы жаңа білім беру нәтижелеріне қол жеткізуге аудара алатын пән мұғалімдерінің қызметіне байланысты. Мақалада педагогтардың инновациялық қызметіне негіз бола алатын интегративті іс-әрекет – АББО теориялық сипаттамасы берілген.

Мақалада ақпараттық-білім беру ортасының мазмұны мен құрылымы ашылады. Педагогикалық ғылымдағы ақпараттық-білім беру ортасының ұғымын анықтаудың жетекші тәсілдері негізделген. Жалпы білім беретін мектепте осы ортаны құру ерекшеліктері анықталды. Авторлар ақпараттық-білім беру ортасын құру білім беру жүйесі сапасының маңызды көрсеткіштерінің бірі деген қорытындыға келеді.

Түйін сөздер: білім беру ортасы, жаңартылған білім беру, ақпараттық қамтамасыз ету, білім беру инновациялары, педагогика, тәрбие, жаңғырту, оқыту.

С. Ш. Гусенова[1,3], Д. Б. Бабаев[2], Е. Ж. Смагулов[3]

[1]Международная образовательная корпорация, Казахстан;
[2]Международный Кувейтский университет, Бишкек, Кыргызская Республика;
[3]Жетысуский государственный университет им. И. Жансугурова, Казахстан

ПОНЯТИЕ ИНФОРМАЦИОННО-ОБРАЗОВАТЕЛЬНОЙ СРЕДЫ В КОНТЕКСТЕ ОБНОВЛЕННОГО ОБРАЗОВАНИЯ

Аннотация. В настоящее время происходит стремительное развитие информационных технологий, перестройка на новый уровень системы образования и воспитания подрастающего поколения. Все это заставляет современное общество двигаться вперёд, успевать за научно-техническим прогрессом и временем. На сегодняшний день ключевой вопрос модернизации образования – это повышение его качества, приведение в соответствие с мировыми стандартами. Делается акцент не на полученные знания, а именно на процесс применения этих знаний.

В статье рассматриваются основные направления развития системы образования и теоретические аспекты развития информационно-образовательной среды в контексте обновленного образования. Новое поколение школьников без труда осваивает любые новинки цифровой и мультимедийной техники. Перед педагогами ставится задача направить вектор развития ученика в нужном направлении. Для этого совершенствуются методы работы с обучающимися.

В статье описана педагогическая технология как информационная технология, так как основу технологического процесса обучения составляет получение и преобразование информации. В работе рассматривается единое информационно-образовательное пространство, которое может предоставить учащемуся возможность пользоваться широчайшим набором образовательных контентов (электронных учебников, видеокурсов и т.п.), с помощью интерактивных технологий компенсировать пробелы в образовании, реализовывать свои творческие способности через участие в различных конкурсах, олимпиадах, фестивалях, конференциях, пользоваться системой дополнительного образования, не прерывая обучение из-за разных факторов. Интернет-среда для подростков давно понятна и близка и считается, что она способна стать продуктивной площадкой для совершенствования образования. Как одно из направлений актуальности исследования авторами определяются современные тенденции развития информатики как науки, в частности, при переходе к электронному обучению в рамках обновленного образования.

Разработчики современных образовательных стандартов подчеркивают необходимость создания в образовательных организациях информационно-образовательной среды (ИОС), обеспечивающей формирование универсальных учебных действий обучающихся. Таким образом, понимание среды как области получения информации сменяется пониманием среды как области конструирования способов деятельности обучающихся. Подобная среда с позиций проведенных исследований должна создаваться на основе системной интеграции средств ИКТ в традиционную образовательную среду. Сложность в работе педагогов обусловлена отсутствием единой модели интегративной ИОС в образовательных организациях. Поиск эффективных способов интеграции традиционной и инновационной сред во многом зависит от деятельности педагогов предметников, которые способны обратить потенциал предметной ИОС на достижение качественно новых образовательных результатов. В статье представлено теоретическое описание интегративных деятельностных ИОС, которые могут служить основой для инновационной деятельности педагогов.

В статье раскрывается содержание и структура информационно-образовательной среды. Обоснованы ведущие подходы к определению понятия информационно-образовательной среды в педагогической науке. Выявлены особенности создания данной среды в общеобразовательной школе. Авторы приходят к выводу о том, что создание информационно-образовательной среды выступает одним из важнейших показателей качества системы образования.

Ключевые слова: образовательная среда, обновленное образование, информационное обеспечение, инновации в образование, педагогика, воспитание, модернизация, обучение.

Information about the authors:

Gussenova Sevil Shakhgussenovna, Doctoral student, master of sciences, International Education Corporation. Zhetysu State University n.a. I. Zhansugurov, Kazakhstan; cocochaneli@bk.ru; https://orcid.org/0000-0002-5684-3440

Babaev Doolotbai Babaevich, Doctor of pedagogical sciences, Professor, Kuwait International University, Bishkek, Kyrgyz Republic; king_bara@mail.ru; https://orcid.org/0000-0002-6227-1960

Smagulov Esengali Zheksembaevich, Doctor of pedagogical sciences, Professor, Zhetysu State University n.a. I. Zhansugurov, Taldykorgan, Kazakhstan; smagulovezh@mail.ru; https://orcid.org/0000-0003-2055-9808

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С.К. Кудайбергенова[1], А.Т. Камзанова[1], М.К. Жолдасова[1], З.Б. Мадалиева[1], С.А. Несипбаев[2], А.М. Кустубаева[1]

[1]Казахский национальный университет им. аль-Фараби, Алматы, Казахстан;
[2]Медицинский центр «Керуен-Medicus», Алматы, Казахстан.
E-mail: sandugash.kudaibergenova@kaznu.kz, manzura.zholdasova@kaznu.kz,
kamzanova.altyngul@ kaznu.kz, zabyra.madalyeva@kaznu.kz,
sultannessipbayev@gmail.com, almkusto@kaznu.kz

ИССЛЕДОВАНИЕ ВЗАИМОСВЯЗИ ДЕПРЕССИИ И ЛИЧНОСТНЫХ ОСОБЕННОСТЕЙ

Аннотация. Согласно статистике, депрессия, ведущая к снижению качества жизни и росту суицидального риска, является одним из самых распространенных психических расстройств в мире и в Казахстане. В связи с этим актуальным является выявление личностных факторов, которые могут быть как предикторами депрессий, так и оказывать существенное влияние на течение, лечение и профилактику, депрессий, особенно если она выявляется впервые. Теоретический анализ показал различные методические подходы к исследованию данной проблемы, исследователями выделен ряд конкретных личностных характеристик, влияющих или взаимосвязанных с депрессивным состоянием, однако полученные результаты неоднозначны.

В эмпирической части исследования были проанализированы личностные особенности испытуемых с впервые диагностированной депрессией, полученные с помощью методик Шкала депрессии Гамильтона, «Эмоциональный интеллект», «Большая пятерка», «Шкала позитивного и негативного аффекта». Выявлены статистически достоверные взаимосвязи депрессии с показателями эмоционального интеллекта, а также со шкалами «Экстраверсия – интраверсия», «Привязанность – обособленность», «Экспрессивность – практичность». У депрессивных испытуемых показатель эмоционального интеллекта «Внимание к эмоциям» различается в зависимости от пола и возраста.

Полученные результаты могут быть использованы для решения научных и прикладных задач по выявлению, лечению, профилактике депрессивных состояний.

Ключевые слова: депрессия, личностные характеристики, эмоциональный интеллект, впервые диагностированная депрессия.

Введение. Согласно статистике Всемирной организации здравоохранения, депрессия является одним из самых распространенных психических расстройств в мире. На март 2018 года число страдающих данным заболеванием в мире оставляло 264 миллиона человек [1]. В Казахстане, согласно статистике ВОЗ за 2017 год, депрессия составляла порядка 4,4% от общей численности населения, что, с учетом официальных статистических данных по количеству населения в стране, составляло порядка 794 000 человек (показатели не стандартизированы по возрасту) [2,3].

Депрессивные состояния могут значительно ухудшать самочувствие и вести к психологическим и физическим страданиям, снижению качества жизни, при неблагоприятном течении – к суицидальному поведению и инвалидизации человека. Проблема высокого суицидального риска, буллинга, особенно среди молодежи, актуальна для нашей страны [4,5]. Негативное бремя депрессии ведет к значительному ухудшению жизнедеятельности человека в личной, учебной, трудовой, социальной сферах.

Первичное выявление депрессий зачастую осложнено стигматизацией данного расстройства в обществе, их стертой симптоматикой, а также более выраженной представленностью соматических, а не психических симптомов. Особенно это проявляется при депрессиях легкой и умеренной степени выраженности. Первично при депрессии такой степени выраженности, население, чаще всего, обращается не к психиатрам, а в обычные районные поликлиники к терапевтам, либо к психологам и психотерапевтам. Правильная организованная и своевременная психологическая диагностика уже при первичном обращении раскрывает особенности протекания депрессии у конкретного пациента, значительно сокращает сроки лечения, помогает найти главные мишени психологической, либо психотерапевтической работы с клиентом.

Вопрос о взаимосвязи личностных характеристик с депрессией является одним из ключевых в диагностике и лечении данного недуга, поскольку с одной стороны, знание личности клиента помогает в поиске возможных предикторов депрессивных состояний, с другой стороны, в уже протекающих депрессиях определенные характерологические особенности могут быть как смягчающим, так и отягчающим обстоятельством. Прослеживание связей между личностными особенностями и депрессией также полезно с точки зрения понимания процессов развития расстройств настроения.

В связи с вышеизложенным, в настоящее время для оказания качественной психологической и медицинской помощи актуальным и востребованным является исследование взаимосвязи депрессивных эпизодов и личностных характеристик, особенно для лиц с впервые диагностированной депрессией.

Степень разработанности проблемы. Влияние и взаимосвязь личностных характеристик и депрессивных состояний исследовались в клинической психологии и психиатрии достаточно широко [6]. Личность – это не фиксированный набор характеристик, в котором участвуют как врожденные, так и приобретенные качества (например, характер и темперамент). Сразу оговоримся, что в рамках нашего исследования это не принципиальный вопрос, мы не ставили целью выяснить, какой их компонентов личности – наследуемый или средовой – влияет больше.

В концепциях, связывающих конструкты «Депрессия-Личность», можно выделить несколько моделей [7,8]:

1. Депрессия и личностные особенности имеют общую этиологию, но они не связаны напрямую, есть еще третьи переменные, которые и определяют общую картину заболевания;
2. Депрессивные состояния и личностные особенности представляют собой этиологически разные состояния, но при этом для депрессии свойственны крайние степени проявления каких-либо характеристик, однако связь здесь не линейная;
3. Личностные характеристики являются «предшественниками» депрессий. Усиление какой-либо личностной особенности предшествует по времени и выступает как специфический фактор риска или предрасполагающее условие, уязвимость для клинической манифестации депрессии;
4. Патопластическая модель взаимосвязи личностных конструктов и депрессии делает акцент на том, что именно они определяют качественные характеристики, тяжесть депрессивной симптоматики, течение, а также исход депрессивного расстройства.

Если остановиться на конкретных личностных характеристиках, влияющих или взаимосвязанных с депрессивными состояниями, то можно выделить, прежде всего, *нейротизм*. Повышенный уровень нейротизма часто отмечался у депрессивных пациентов, также в некоторых исследованиях говорится, что нейротизм, в совокупности с наличием стрессовых жизненных событий, создает повышенный риск и уязвимость к депрессии, при этом имеют место различия в проявлении нейротизма в зависимости от возраста, расы, пола [9-14].

Эмоциональный интеллект, который отвечает за понимание своих эмоций и способность регулировать эмоции, также важен для объяснения депрессивных состояний. На клинической выборке испытуемых было установлено, что способность управлять и контролировать эмоции была связана с тяжестью депрессии и далее отражалась в значительном дефиците способностей распознавать и выражать эмоции. Снижение характеристик эмоционального интеллекта повышает уязвимость к депрессии [15-17].

По сравнению со здоровыми испытуемыми, депрессивные больные характеризуются более интенсивным переживанием *гнева/враждебности/агрессии*. Одновременно у депрессивных пациентов отмечался более интенсивный страх перед последствиями агрессии, а также стремление подавлять свои негативные эмоции. Обнаружено, что внешние/вербальные проявления гнева в группах депрессивных пациентов отмечались реже, чем в группе нормы, однако об их наличии свидетельствует внешняя оценка невербального поведения пациентов. Уровень агрессии связан со степенью тяжести депрессии, а также с гендером [18,19].

Было выявлено, что уязвимость к депрессии выше у лиц, склонных к *зависимости в межличностных отношениях*. Роль межличностной зависимости как фактора личностной уязвимости к депрессии безоговорочно признавалась исследователями как психоаналитической, так и когнитивной ориентации. Однако специфичность этой черты для депрессии некоторыми авторами подвергалась сомнению. Эмпирические исследования показали, что среди лиц юношеского возраста зависимость не является предиктором депрессии. Показатели зависимости в межличностных отношениях у выздоровевших больных в период ремиссии были значимо выше, чем преморбидные оценки зависимости до болезни. Интервенционные исследования показали, что депрессия у лиц с выраженной межличностной зависимостью требует более продолжительной аналитически-ориентированной психотерапии [20].

Значение *экстраверсии* как фактора риска депрессивных состояний исследовалось, но его значение оценивается по-разному: от сильного до полного отсутствия связи. Экстраверсия часто рассматривается в интеграции с нейротизмом, влияют также и половозрастные особенности исследованных лиц [13,14,21,22].

Анализ предыдущих исследований показал, что в оценке взаимосвязи депрессивных состояний и личностных особенностей сложно делать однозначные выводы, поскольку проведенные исследования были построены на разных методологических основаниях. Например, это могли быть семейные сравнительно-сопоставительные исследования между депрессивными пациентами и их здоровыми родственниками, близнецовый метод и генетические исследования, сравнительный анализ лиц со стойкой ремиссией депрессии и без нее, лонгитюдные исследования показателей тех или иных личностных характеристик до и после депрессивного эпизода. Также проведенный анализ показал влияние половозрастных факторов на характер связи между депрессией и личностными характеристиками.

Целью настоящего исследования стало изучение взаимосвязи депрессии и личностных характеристик у лиц с впервые диагностированной депрессией (верифицированный диагноз F.32) на русскоязычной казахстанской выборке.

Материалы и методы. Диагностическое психологическое исследование проводилось на базе центра когнитивной нейронауки КазНУ имени аль-Фараби и Республиканского научно-практического центра психического здоровья г. Алматы. В данную статью включены результаты только русскоязычной выборки. Предварительно проект исследования прошел экспертизу и получил одобрение Локального этического комитета медицинского факультета Высшей школы общественного здравоохранения КазНУ им. аль-Фараби (протокол № IRB-A042 26.04.2018). Участие в исследовании было добровольным, и испытуемыми подписывался лист информированного согласия, который полностью знакомил участника с целями и задачами исследования и возможность отказа от участия на любом из этапов исследования.

Для достижения поставленных целей были выбраны следующие диагностические инструменты, переведенные и адаптированные на русский язык:

1. Шкала депрессии Гамильтона (Hamilton Rating Scale for Depression, Hamilton, 1960, русскоязычная версия Ассанович М., 2017 [23,24]). Представляет собой полуструктурированное интервью, которое проводит специалист (в нашем случае психолог). Позволяет дифференцировать 4 уровня депрессии. Вычисляется итоговый показатель (далее в тексте обозначается как ШГ). Оцениваются следующие симптомы: депрессивное настроение, чувство вины, суицидальные мысли, снижение работоспособности, психомоторные нарушения, желудочно-кишечные симптомы, общесоматические симптомы, снижение либидо, снижение веса.

2. Методика на диагностику эмоционального интеллекта Trait Meta Mood Scale, разработанная Salovey at all (1995), была адаптирована на русский язык в 2009 году [25,26]. Методика состоит из 30-ти вопросов и имеет 3 шкалы: внимание к собственным эмоциям (далее по тексту – ВЭ); понимание собственных эмоциональных состояний (далее по тексту – ПЭ), способность к регуляции настроения и негативных эмоциональных переживаний (далее по тексту – РЭ).

3. Тест «Большая пятерка» (Big Five, Digman J.M., 1990; Goldberg L.R.,1993, русскоязычная версия Хромова А.Б. [27-29]) направлен на исследование 5 факторов личности: «Экстраверсия –

интроверсия» (далее по тексту - ЭИ); «Привязанность – обособленность» (далее по тексту - ПО); «Самоконтроль – импульсивность» (далее по тексту - СИ); «Эмоциональная неустойчивость – эмоциональная устойчивость» (далее по тексту - ЭУ); «Экспрессивность – практичность» (далее по тексту - ЭП).

4. Шкала позитивного и негативного аффекта ШПАНА (Positive and Negative Affect Schedule, Watson, Clark, Tellegen, 1988, русскоязычная версия Осина Е., 2012 [30,31]). Состоит из 20 утверждений и позволяет выделить показатели позитивного аффекта (далее по тексту - ПА) и негативного аффекта (далее по тексту - НА).

С учетом нормальности распределения данных, для проверки выдвинутых нами гипотез, были проведены процедуры подтверждения надежности опросников с показателем альфа Кронбаха, корреляционного анализа с использованием r-критерия Пирсона, однофакторный дисперсионный анализ ANOVA, подсчитаны средние значения и стандартные ошибки отклонения в сравниваемых группах. Для статистического анализа была использована программа SPSS 15.0.

Выборка. В выборку первоначально было включено 60 человек, критерии включения в группу - возраст испытуемых от 18 до 45 лет, критерии исключения - наличие ранее диагностированных психоневрологических заболеваний, а также прием психоактивных препаратов менее, чем за 2 недели до исследования. Наличие-отсутствие депрессии верифицировалось врачом-психиатром в соответствии с критериями группы F32.0 (депрессивное расстройство) Международной классификации болезней 10-го пересмотра [32]. Анализу были подвергнуты данные по 52 испытуемым (8 человек были исключены). У 42 человек (80,8% выборки) верифицирован диагноз «Депрессивный эпизод» (F.32), у 10 человек (19,2%) депрессии и других психических нарушений не выявлено.

Результаты и их обсуждение.

1. Результаты статистической обработки тестов и определения альфа Кронбаха показали надежность использованных тестов и представлены в таблице 1.

Таблица 1 – Показатели альфа Кронбаха по психометрическим тестам

Методики	Шкала Гамильтона	Большая Пятерка					Методика на эмоциональный интеллект			Шкала позитивного и негативного аффекта	
		ЭИ	ПО	СИ	ЭУ	ЭП	ВЭ	ПЭ	РЭ	ПА	НА
Значение Альфа Кронбаха	0,810	0,847	0,868	0,877	0,890	0,861	0,919	0,909	0,853	0,764	0,766

Согласно требованиям к проведению психодиагностических процедур, значения альфа Кронбаха ближе к 0,8 и выше говорят о высокой надежности и валидности использованного психодиагностического инструментария.

2. На первом этапе нашего исследования мы решили проверить гипотезу о взаимосвязи между депрессией и личностыми характеристками, для чего провели процедуру корреляционного анализа. Статистически значимые результаты корреляционного анализа представлены в таблице 2.

Таблица 2 – Значимые корреляционые связи между показателями депрессии и личностными характеристками (кэффициент r-Пирсона)

Коррелируемые шкалы	ЭИ	ПО	СИ	ЭУ	ЭП	ПЭ	РЭ
РЭ	0,44**	0,49**	0,32*		0,36*		
ПА							0,28*
НА	-0,43**	-0,48**	-0,39**	-0,28*	-0,35*	-0,33*	-0,41**
ШГ	-0,28*	-0,32*			-0,31*		-0,37**
Примечание. Уровни значимости: **p<0,01, *p<0,05							

Как видно из приведенных данных, имеются достоверно значимые корреляции между показателями депрессии и эмоционального интеллекта, причем эта связь отрицательная: чем выше показатели эмоционального интеллекта, тем ниже уровень депрессии и наоборот – снижение депрессии сопровождается улучшением способностей эмоционального интеллекта. Так, с возрастанием уровня депрессивного состояния снижается степень способности понимать собственные эмоции и эмоции других людей ($p<0,05$), что выражается в ухудшении способности соотносить эмоции с обозначающих ими словами, а также в снижении способности понимать и интерпретировать простые и комплексные чувства (например, смешанные /одновременные чувства любви и ненависти, страха и удивления).

Еще одна важная составляющая эмоционального интеллекта – способность регулировать свои эмоции. Было выявлено, что с возрастанием уровня депрессии достоверно снижается способность регулировать эмоциональное состояние ($p<0,01$). То есть мы можем говорить, что депрессивные состояния характеризуются ухудшением способности смягчать/подавлять негативные переживания и удерживать положительные эмоции, а также трудностями в управлении своим психоэмоциональным состоянием. Способность к восстановлению и управлением эмоциями достоверно связана с уровнем позитивного и негативного аффекта: чем выше способность к эмоциональной саморегуляции, тем в большей степени индивид способен к переживанию позитивных эмоций, быть эмоционально вовлеченным и высоко энергичным ($p<0,05$), низкая эмоциональная саморегуляция сопровождается не только возрастанием депрессивности, но и возрастанием таких негативных эмоций, как страх, напряженность, гнев, вина, отвращение и т.д.

Наши эмпирические данные о взаимосвязи эмоционального интеллекта и депрессии перекликаются с результатами исследований, полученными разными группами авторов на клинических выборках пациентов с депрессией. Они подтверждают идею о том, что низкие значения эмоционального интеллекта повышают уязвимость к депрессивным состояниям. Хороший эмоциональный интеллект, являющийся важной частью общего интеллекта, позволяет развивать продуктивные межличностные отношения и иметь лучшую социальную поддержку, что важно для предотвращения депрессии [15-17,33] .

Выявлены статистически значимые коррекционные связи между депрессивным состоянием и факторами «Экстраверсия – интроверсия» (ЭИ), «Привязанность – обособленность» (ПО), «Экспрессивность – практичность» (ЭП) 5-ти факторной модели личности. В исследованной нами выборке лиц с впервые диагностированной депрессией отмечаются следующие закономерности:

– С возрастанием уровня депрессии наблюдается снижение экставертированности, общительности, нарастание интровертированного локуса и снижение межличностной активности ($p<0,05$).

– С возрастанием депрессивности отмечается также нарастание тенденции дистанцироваться от окружения ($p<0,05$). Авторы методики «Большая пятерка» считают, что индивидуумы с низкими показателями по шкале «Привязанность-обособленность» имеют обособленную позицию при взаимодействии, испытывают трудности в понимании других, их больше волнуют собственные проблемы, чем проблемы окружающих их людей, при этом они стремятся к совершенству.

– Рост депрессивности отрицательно коррелирует с показателями шкалы «Экспрессивность – практичность» ($p<0,05$). Это говорит о том, что с ростом уровня депрессивного состояния имеет место уменьшение легкости, беззаботности, экспрессивности, при этом снижается гибкость и чувство юмора, поведение становится более практичным, а взгляд на мир более «трезвым», критичным и реалистичным.

Хотя в нашем исследовании акцент был сделан на выявлении корреляционных связей депрессивных состояний с личностными характеристиками, мы обнаружили взаимосвязь всех шкал «Большой пятерки» с настроением. Эмпирические результаты показали достаточно большое число статистически значимых отрицательных корреляционных связей негативного аффекта (шкала НА) со всеми шкалами «Большой пятерки» (показатели корреляции r находятся в диапазоне от -0,44 до -0,28 для $p<0,01$) и шкалой РЭ опросника эмоционального интеллекта ($p<0,01$). То есть мы можем сказать, что снижение способностей эмоционального интеллекта сопровождается нарастанием интроверсии, дистанцированности, снижением самоконтроля, тенденцией к эмоциональной и поведенческой ригидности, а также ухудшением непосредственности и легкости в общении, снижением энергетического потенциала, неспособностью к приятной эмоциональной вовлеченности.

Конечно, корреляционные связи не могут быть доказательством прямых причинно-следственных связей, но мы можем предположить, что такие факторы личности, как характе-ристики эмоционального интеллекта, показатели шкал «Экстравертированность – интровертированность», «Привязанность-обособленность», «Экспрессивность-практичность» связаны с риском развития депрессивной симптоматики. Если анализировать все выявленные нами зависимости в комплексе, то мы можем утверждать, что впервые диагностированные депрессивные эпизоды уже сопровождаются ухудшением социально-психологического взаимодействия между человеком и его социальным окружением, снижением уровня адаптированности и способности контролировать и осознавать свое поведение, быть «чутким» к своему внутреннему миру.

3. Далее был проведен сравнительный анализ личностных профилей испытуемых с депрессией в зависимости от пола (24 женщины и 18 мужчин) и возраста (младшая возрастная группа – от 18 до 25 лет и старшая возрастная группа – от 26 до 45 лет) с использованием однофакторного дисперсионного анализа ANOVA, поскольку их значимость показана во многих исследованиях [11,12,18,19,34].

Были выявлены значимые различия в показателе ВЭ по гендерному (F=4,60; p=0,04) и возрастному (F=6,09; p=0,02) признакам (см. рисунок 1).

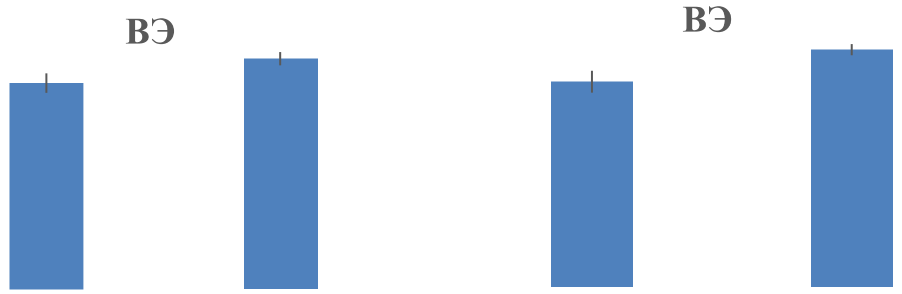

Рисунок 1 – Средние значения шкалы «Внимание к эмоциям» (ВЭ) по методике эмоционального интеллекта в разрезе гендера и возраста

Как видно из рисунка 1, в группе депрессивных лиц статистически значимые различия выявлены по эмоциональному интеллекту, точнее по такой его составляющей, как «Внимание к эмоциям» (ВЭ). Способность сосредотачиваться на своих эмоциях и идентифицировать лучше выражена у женщин, чем у мужчин (p<0,05), а также у более старших по возрасту испытуемых с впервые диагностированной депрессией по сравнению с молодыми (p<0,05).

Для нашего эмоционального опыта и поведения важно, что переживание чувств и их называние (определение) - различные феномены. Внимание к своим эмоциям - результат когнитивных процессов, которые трансформируют перцептивные переживания во внутренний опыт. Оно имеет большое значение для закрепления опыта, эмоциональной экспрессии и межличностной коммуникации, поскольку лежит в основе правильного распознавания и понимания своих чувств. Данная характеристика эмоционального интеллекта способствует более эффективной коммуникации, поскольку позволяет адекватно идентифицировать, описывать, перерабатывать и в дальнейшем выражать эмоции. Если внимание к своим эмоциям снижено, это может привести к алекситимии – неспособности к идентификации и описанию своих эмоций, к трудностям в дифференциации эмоций и телесных ощущений и высокому риску развития психосоматической симптоматики и других невротических расстройств.

Хотя в абсолютных показателях шкал выявленные различия не очень велики, их знание крайне полезно при проведении психологической работы и фармакологического лечения депрессивных пациентов. Возможно, в коррекционной работе психолога с депрессивными пациентами более молодого возраста, а также в работе с пациентами мужского пола мишенью терапии может стать развитие/восстановление способности к вниманию и идентификации своих эмоциональных состояний и профилактика алекситимии, поскольку специалисты (врачи, психологи) в своей работе во много опираются на отчеты клиентов о своем состоянии.

Анализ отдельных симптомов депрессии по шкале Гамильтона показал, что у мужчин, по сравнению с женщинами, статистически достоверно выше такой показатель, как желудочные симптомы (p=0,03). В разрезе диагностики мы можем рекомендовать специалистам обращать внимание на данный симптом у мужчин как на предиктор возможной депрессии.

В старшей возрастной группе, по сравнению с более молодыми испытуемыми на статистически значимом уровне сильнее выражено переживание чувства вины, недовольство собой ($p<0,01$). Чувство вины связано с заниженной самооценкой и самобичеванием, что может стать первоочередной психотерапевтической мишенью в работе с депрессивными пациентами более старшего возраста.

4. Еще один важный вопрос, интересовавший нас: имеются ли отличия в личностных характеристиках у лиц с разным уровнем депрессии (нет депрессии, легкий уровень депрессии, умеренно выраженный уровень депрессии). Разделение на группы по уровню депрессии мы провели на основании Шкалы Гамильтона. Сравнение было проведено с помощью однофакторного дисперсионного анализа ANOVA, по результатам которого были выявлены значимые различия по показателям ПО ($F=4,00$; $p=0,02$), ЭП ($F=3,23$; $p=0,04$) и ПА ($F=4,08$; $p=0,02$) между группами с различным уровнем депрессии (рисунок 2).

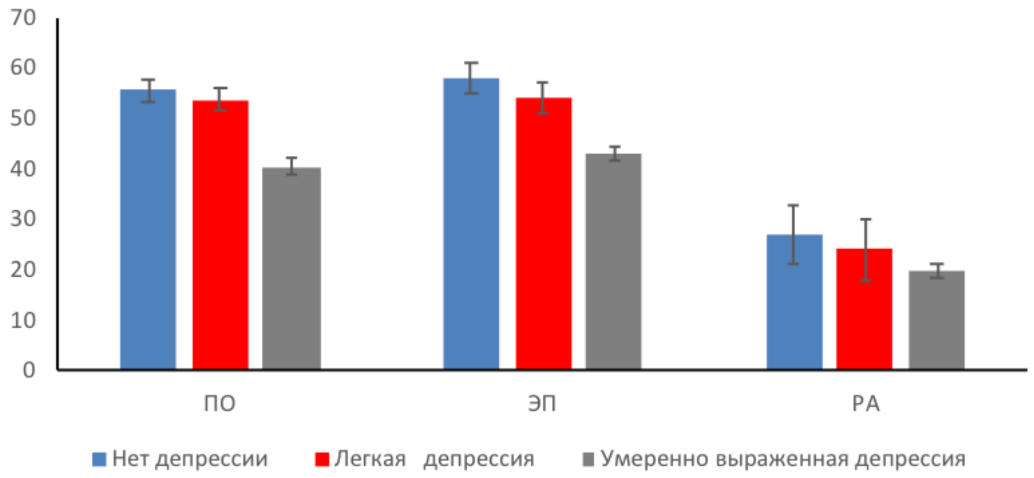

Рисунок 2 – Средние значения шкал «Привязанность-обособленность» (ПО), «Экспрессивность-практичность» (ЭП) по методике «Большая 5», «Позитивный аффект» (ПА) по методике ШПАНА в трех группах

Полученные результаты выявили статистически достоверные различия в личностных характеристиках испытуемых с разным уровнем депрессии. По шкалам «Привязанность – обособленность», «Экспрессивность – практичность», а также по шкале позитивного аффекта лица с выраженной депрессией статистически достоверно отличаются от лиц без депрессии (голубой и серый столбцы, рисунок 2). В то же время не выявлено различий по данным шкалам на границе «нет депрессии – легкая депрессия» (голубой и красный столбцы, рисунок 2). Это говорит о том, что статистически достоверные различия в вышеперечисленных личностных особенностях проявляются только при более выраженных депрессивных эпизодах, а на начальных этапах депрессии они могут быть не заметны.

Выводы. Определенные личностные особенности связаны с риском развития или наличием депрессивных эпизодов. Анализ данных, полученных при использовании методик Шкала депрессии Гамильтона, «Эмоциональный интеллект», «Большая пятерка», «Шкала позитвного и негативного аффекта» показал статистически значимую взаимосвязь показателей эмоционального интеллекта, а также шкал «Экстраверсии-интраверсии», «Привязанности - обособленности», «Экспрессивности – практичности» с депрессивными состояниями. Выявлены различия в выраженности показателей эмоционального интеллекта у депрессивных испытуемых в зависимости от гендера и возраста. Однако эти различия, скорее всего, будут проявляться при более выраженном уровне депрессии.

В симптоматической картине депрессии у мужчин, по сравнению с женщинами, ярче выражен такой симптом, как желудочные недомогания; у лиц более старшего возраста, по сравнению с молодыми лицами, ярче проявляются такой симптом, как переживание чувства вины и заниженная самооценка.

Полученные нами данные могут быть полезны при оказании психологической и медицинской помощи, так как первые эпизоды депрессии могут маскироваться под соматические недомогания, либо протекать без ярко выраженных основных симптомов. В качестве рекомендаций при проведении коррекционно-консультативной работы необходимо акцентировать внимание на повышение эмоционального интеллекта у депрессивных пациентов, а также перспективность работы по поддержанию баланса позитивных и негативных эмоций как профилактической меры по развитию депрессивных состояний.

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С. К. Кудайбергенова[1], А. Т.Камзанова[1] , М. К. Жолдасова[1],
З. Б. Мадалиева[1], С. А. Несипбаев[2] , А. М.Кустубаева[1]

[1]Әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан;
[2]«Керуен-Medicus» медициналық орталығы, Алматы, Қазақстан

ДЕПРЕССИЯ МЕН ТҰЛҒАЛЫҚ ЕРЕКШЕЛІКТЕРДІҢ ӨЗАРА БАЙЛАНЫСЫН ЗЕРТТЕУ

Аннотация. Дүниежүзілік денсаулық сақтау ұйымының (ДДҰ) статистикасына сәйкес, депрессия әлемдегі ең көп кездесетін психикалық бұзылыстардың бірі болып саналады. Тұлғалық сипаттамалардың депрессиямен өзара байланысы туралы мәселе аталған ауруды диагностикалау мен емдеудегі шешуші факторлардың бірі болып есептеледі, өйткені бір жағынан, клиенттің жеке тұлғасын білу депрессиялық жағдайлардың болжамын іздеуге көмектеседі, екінші жағынан, жалғасып келе жатқан депрессияда белгілі бір сипаттамалық белгілер жеңілдететін немесе ауырлататын жағдай болуы мүмкін. Тұлғалық ерекшеліктер мен депрессия арасындағы байланысты бақылау көңіл-күй бұзылысының даму үдерістерін түсінуге де пайдалы.

Тұлғалық ерекшеліктер мен депрессиялық күйдің әсері мен өзара байланысы клиникалық психология мен психиатрияда кеңінен зерттелген, дегенмен депрессиялық күй мен тұлғалық ерекшеліктердің өзара байланысын бағалауда біржақты тұжырым жасау қиын, өйткені жүргізілген зерттеулер әртүрлі әдіснамалық негізде жасалған.

Зерттеудің мақсаты – депрессия мен тұлғалық сипаттамаларының өзара байланысын, сонымен бірге Қазақстандық популяцияда депрессия негізінде алғаш қойылған диагнозды (тексерілген диагноз F.32.0) адамдардағы депрессиялық күй ерекшеліктерін зерттеу.

Материалдар мен әдістер. Мақсатқа жету үшін орыс тіліне аударылған және бейімделген келесі диагностикалық құралдар таңдалды: Гамильтон ұсынған депрессия шкаласы (HRSD, Hamilton, 1960, Асанович М. орыс тілді нұсқасы, 2017), эмоциялық интеллект әдістемесі (Trait Meta Mood Scale TMMS, Salovey at all, 1995, орыс тілді нұсқасы Толегенова А., Кустубаева А., 2009), «Үлкен бестік» әдістемесі (Big Five, Digman J.M., 1990; Goldberg L.R.,1993, орыс тілді нұсқасы Хромов А.Б.), ПАНАШ (Positive and Negative Affect Schedule, Watson, Clark, Tellegen, 1988, орыс тілді нұсқасы Осин Е., 2012).

52 сыналушы бойынша мәліметтер талданды. Депрессиялы эпизод диагнозы (F.32) 42 адамға (іріктеменің 80,8%) МКБ критерийлеріне сәйкес психиатр тексерді, 10 адамда (19,2%) депрессия немесе басқа психикалық бұзылыс болған жоқ.

Қорытынды. Тұлғаның кейбір белгілері даму қаупіне немесе депрессиялық эпизодтардың болуына байланысты. HDRS, TMMS, BF, PANAS әдістерін қолдану арқылы алынған мәліметтерді талдау эмоциялық интеллект көрсеткіштері ($p = 0.01$), сонымен қатар «Экстраверсия-интраверсия», «Жақын болу – оқшаулану», «Экспрессивтілік-практикалық» ($p = 0,05$) көрсеткіштері депрессиялық күймен статистикалық маңызды байланысын көрсетті. Депрессиялық күйдегі сыналушылардың эмоциялық интеллект көрсеткіштерінің айқын дәрежедегі айырмашылықтары жынысы мен жасына байланысты анықталды ($p=0.04$). Алайда бұл айырмашылықтар депрессияның айқын деңгейімен байланысты болуы мүмкін.

Ерлердегі депрессияның симптомдық көрінісінде әйелдермен салыстырғанда, асқазан белгілері анағұрлым айқын ($p = 0.027$), жасы үлкен адамдарда, жастармен салыстырғанда, кінәлі сезіну, өзін-өзі төмен бағалау сияқты симптом көп байқалады.

Алынған мәліметтер психологиялық және медициналық көмек көрсетуде пайдалы болуы мүмкін, өйткені депрессияның алғашқы эпизодтары өзін соматикалық ауру ретінде көрсете алады немесе негізгі белгілерсіз жалғасады. Депрессияға ұшыраған науқастарды түзету және кеңес беру жұмыстарын жүргізуге арналған ұсыныстар ретінде біз эмоциялық интеллектпен жұмыс істеуге, сондай-ақ депрессиялық жағдайларды дамытудың алдын алу шарасы ретінде оң және теріс эмоция тепе-теңдігін сақтауға жұмыс атқару перспективасына назар аударғымыз келеді.

Түйін сөздер: депрессия, тұлғалық сипаттамалар, эмоциялық интеллект, депрессия деп алғаш қойылған диагноз.

S. K. Kudaibergenova[1], A. T. Kamzanova[1], M. K. Zholdasova[1], Z. B. Madalieva[1], S. A. Nessipbayev[2], A. M. Kustubaeva[1]

[1]al-Farabi Kazakh National University, Almaty, Kazakhstan;
[2]Medical center «Keruen-Medicus», Almaty, Kazakhstan

THE RELATIONSHIP BETWEEN DEPRESSION AND PERSONALITY

According to the World Health Organization (WHO), depression is one of the widespread mental disorders in the world. To study the relationship between personality traits and depression is an important problem for both: diagnosis and treatment of depression. Personality traits may serve as predictors of depressive states on the one hand, and improvement or worsening of the depression treatment. Determination of the relationship between personality traits and depression is also helpful in understanding the developmental processes of mood disorders.

Interrelations between personality characteristics and depressive states has been studied quite widely in clinical psychology and psychiatry. However, it is difficult to have certain conclusions in assessing the relationship of depressive states and personality traits, because studies were based on different methodological grounds.

The aim of the study is to define relationship between depressive symptoms and personality characteristics in the first time diagnosed depressive patients on Kazakhstani sample.

Materials and methods. Hamilton Rating Scale for Depression as a semi-structured interview (HRSD, Hamilton, 1960, Russian version of Assanovich M., 2017), Trait Meta Mood Scale (TMMS, Salovey at all, 1995, Russian version of Tolegenova A., Kustubaeva A., 2009), Big Five (BF, Digman JM, 1990; Goldberg LR, 1993, Russian version of Khromov A.B.), Positive and Negative Affect Schedule (PANAS, Watson, Clark, Tellegen, 1988, Russian version of Aspen E., 2012). All methods were translated and adapted into Russian language.

Participants were 52 volunteers. The diagnosis of depressive episode (F.32) was verified in 42 people (80.8% of the sample) in accordance with the DSM criteria by a psychiatrist, in 10 people (19.2%) there were no depression or other mental disorders.

Conclusions. Certain personality traits were associated with a risk of depressive episodes development. Results of HDRS, TMMS, BF, PANAS tests showed a statistically significant relationships between the level of depression and emotional intelligence ($p<0.01$), and Extraversion, Neuroticism, Conscientiousness ($p<0.05$). Differences in emotional intelligence were found in groups depending on gender and age ($p<0.05$). However, differences are more pronounced with increase in the level of depression.

The most often symptoms of depression presented in men were gastric symptoms, and are more pronounced ($p<0.05$) in older participants. However, the most presented symptoms in young people were feelings of guilt, low self-esteem.

Research results can be useful for psychological and medical assistance. It’s important for the first episodes of depression, since depression may occur with simple somatic symptoms or absence of symptoms. Recommendations are to pay more attention for developing emotional intelligence during psychological trainings. Also, to maintain a balance of positive and negative emotions is a preventive measurement for the improvement depression treatment.

Key words: depression, personality traits, emotional intelligence, first diagnosed depression.

Information about the authors:

Kudaibergenova Sandugash Kansarovna, candidate of psychological sciences, senior lecturer of the Department of General and Applied Psychology, Al-Farabi Kazakh National University, Almaty, Kazakhstan; sandugash.kudaibergenova@kaznu.kz; https://orcid.org/0000-0001-9297-8089

Kamzanova Altyngul Tustikbaevna, postdoc at the Center for Cognitive Neuroscience of Al-Farabi Kazakh National University, Almaty, Kazakhstan; kamzanova.altyngul@kaznu.kz; http://orcid.org/0000-0002-7097-3460

Zholdasova Manzura Kenesbekkyzy, Ph.D, researcher at the Center for Cognitive Neuroscience, Al-Farabi Kazakh National University, Almaty, Kazakhstan; manzur777@gmail.com; http://orcid.org/0000-0002-8186-9650

Madalieva Zabira Bekeshovna, Doctor of Psychological Sciences, Professor, Head of the Department of General and Applied Psychology, Al-Farabi Kazakh National University, Almaty, Kazakhstan; zabyra.madalyeva@kaznu.kz; http://orcid.org/0000-0003-4890-9240

Nessipbayev Sultangali Abenovich, Ph.D, Psychiatrist of the Medical center «Keruen-Medicus», Almaty, Kazakhstan; sultannessipbayev@gmail.com; http://orcid.org/0000-0001-7084-4020

Kustubaeva Almira Melsovna, candidate of biological sciences, Director of the Center for Cognitive Neuroscience of Al-Farabi Kazakh National University, Almaty, Kazakhstan; almkust@gmail.com; http://orcid.org/0000-0001-6575-6288

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N. L. Seitakhmetova[1], D. U. Kussainov[2], Z. K. Ayupova[3], G. Kuttybekkyzy[2], M. M. Nurov[2]

[1]National Academy of Sciences of the Republic of Kazakhstan, Almaty, Kazakhstan;
[2]Kazakh National Pedagogical University named after Abai, Almaty, Kazakhstan;
[3]Kazakh National Agrarian University, Almaty, Kazakhstan.
E-mail: nseytakhmetova@bk.ru, daur958@mail.ru, zaure567@yandex.ru,
guskoni_92@mail.ru, markhabat-nur@mail.ru

THE ESSENCE AND CONTENT OF ISLAMIC EDUCATION IN THE REPUBLIC OF KAZAKHSTAN: THEORETICAL AND METHODOLOGICAL FOUNDATIONS

Abstract. Islamic education is the component of the educational process in post secular society, because the post secularity today acquires another sense than in the last century. Post secularity as the continuation of the secular process in the modern historical, sociocultural and political processes was found as an epoch, involving the secular educational projects in the modern time. If in the past century theology education was distanced from pragmatism of the secular educational practices, finding them too utilitarian and maintenance of man in the world; today theologies, designing the religious education, enter the modern scientific secular dialogues in the standardized programs of education. Criticism of the secular education was related to the problem of crisis of the western thinking. The well-known thinkers of the West declared about this crisis.

Key words: education, philosophy of education, secular education, Islamic education, secularization, modernization of religious education, model of education, religious sphere, theological education, ideology.

The relevance of the topic. In the modern conditions the Republic of Kazakhstan pays more and more attention to the Islamic education. Islamic education, as one of the fundamental phenomena in the educational practice, is developed in the form of dialogical attitude, projecting modern thinking, avoiding the Western model of education, which is increasingly criticized by the experts in this field [1, p.19]. But we are not criticizing Western models of education; we are just trying to clarify the question of the ontological meaning of the education and its content.

The goal is to reveal the ontological meaning of Islamic education and its aimed to training the professional specialist, developing his ability to think, including critical thinking. In Islamic education there is an attitude of openness that promotes and “provokes” reflection and communication. Developing the ability to communicate is another task that is being implemented in Islamic educational practice. Building a dialogue between the people in Islamic educational practice is aimed at achieving agreement, mutual understanding, the center of the dialogue is “You”, not “Me”, while in the Western theory of communication, “I” prevails. This determines the difference in the ways of thinking of Eastern and Western people.

For a broad discussion on this issue, it is necessary to involve secular scientists and theologians to develop alternative strategies and conceptual teaching methods. Globalization processes contributed to the understanding of world civilization as a single planetary process, in which education also acquired a global character.

When modeling Islamic education in a post-secular society, we must keep in mind new fundamental attitudes in the Humanities of the world science [2, p. 199]. Yes, however, Islamic education in the era of information technology is carried out in accordance with the new technologies and the needs of modern

Islamic people. The discourses of Islamic education should focus on modern techniques, in order to be "modernized" [3, p.58]. To solve them it is necessary to reveal the ultimate meanings of education. Fundamental approaches to education should be carried out from the standpoint of philosophy; this is how it is possible to reveal the content, subject of education and consistency. The philosophy of education in Islam differs from other trends in this area: from the American-pragmatic, non - Marxist, pedagogical-anthropological and post-modernist ethical dominant and dialogism. The foundations of the educational system laid by Comenius, Pestalozzi, Froebel, Herbart, and Humboldt represent classical educational models in our time. Since the development of classical German philosophy, education has become the subject of deep philosophical reflection from the standpoint of the classical methodology.

In the humanitarian practice of mankind the philosophy and education are two concepts that clarify the ultimate meanings of being and reveal of human ontology [4, p.21].

That is why the philosophy of education is formed into the separate direction of the humanities in the context of studying and teaching philosophy, pedagogy, anthropology, and cultural studies. About the owl noted the great Abay Kunanbayev [5, p.21]. The pluralism of discursive practices in education are implemented through the techniques, such as deconstruction, transgression, trans dimensional, palimpsest, etc.

Materials and methods of research. The research methodology is based on a dialectical method, freed from materialistic or idealistic monism and based on a pluralistic, multilinear interdependence of all social phenomena. We also used the method of dialectical interdependence and interaction of methods: theoretical and empirical, historical and logical, induction and deduction in the study of the formation and development of education in the world philosophical heritage, which takes into account the main ideas of Plato, Aristotle, Abu Nasr al-Farabi and other classics of world philosophy on the problems of anthropology and education. The method of structural and functional analysis, which has been tested and justified for a long time in the Humanities in Western countries, was also used [6, p.16].

Education in Kazakhstan, and in any society is the most important problem, and the future of the country depends on its solution. Religious education, especially Islamic education, is now involved into the range of political problems. The politicization of Islamic education levels its ontological meaning [7, p.30]. This is why the question of Islamic education begins with the question of reforming education in General, and of reforming Islamic education, in particular.

Research results. Spiritual education cannot be realized by the means of science by itself. Postmodernism has not destroyed the meaning of life; rather it is a product of an era, in which the meaning of life has been lost. Spiritual experience is something that, according to postmodernism, is superfluous for a person living in a "network maze" (U. Eco), because no experience can be support in the world in which "God died" (F. Nietzsche). Full freedom of the plural positions of the modern education opens up the possibility to create an infinite number of them along with the previous, quantitatively limited. And in such circumstances, accepting or rejecting the position will not make the significant difference. The problem of alienation, which since the 30-s of the twentieth century has been the focus of Western philosophy, is declared by postmodernists to be devoid of any meaning, and therefore the problem of alienated education has lost its relevance and meaning.

After the collapse of the Soviet Union in 1990-s began the religious stage of the religious revival, which was supported by the authorities, since the collapse of the Soviet power has started, and Communist ideology and religion could help fill this ideological vacuum. Another inevitable process since independence has been the migration of religious missionaries from South Korea, the United States, and India. However, the share of "international" religious movements (followers of Jehovah, Krishna, etc.) among the indigenous population, most of which referred themselves as representatives of the Muslim faith, was insignificant. Diplomatic relations with the countries of the Islamic world have led to the penetration of various currents into the territory of Kazakhstan. It is known that diplomatic relations between Kazakhstan and the number of Islamic States (Pakistan, Libya, Egypt, etc.) were founded in 1992. Establishing and developing relationships in the first five years of independence opened up new opportunities for the foreign missionaries. Missionary missions, due to the weak social status of the state, successfully penetrated the country, replenishing their ranks with young Kazakhstanis [8, p.81]. The main type of sponsorship, in contrast to the previous one, provided free secondary and higher education (in some cases, providing dormitories for non-resident students). Some students were able to study in Egypt, Libya, Saudi Arabia, Pakistan and Turkey for free. Some students, especially those who were educated in Saudi Arabia and Pakistan, treated religion with the certain fanaticism, and observed the rites with fanatical strictness, which was characteristic of the Khan-balit school (mazkhab), rather than the Hanafi school - traditional for the Kazakh people, which includes Muslim representatives of Kazakhstan [9, p.91]. According to the number of religious scholars, Khan-balit mazkhab, like Wahhabism, does not exclude the idea of religious extremism and Islamic fundamentalism, seeks to overthrow the secular power and establish the religious one. The main current of Islam in the country is the Hanafi school, whose followers are not only the indigenous population-Kazakhs, but also Uighurs, Uzbeks and others [10, p.5]. Other adherents of Sunni Islam, but the Shafi'i mazkhab are Chechens. Despite the fact that the mazkhab is not officially registered, the mosque in Almaty has been opened in 1998. On the territory of the South Kazakhstan region, Sufism continues to develop and replenish its ranks, whose followers worship Kh.A. Yassaui and perform "Hajj" to his mausoleum, located in Turkestan.

Conclusion. In the conclusion we would like to note that the classical system of education that arose in the context of Islamic faith under the influence of reformist ideas, acquires the modernist in the light of contemporary realities, updating any new problems, but always remains its unchanged the meaning is moral, which is the paradigm for the exercise of a person. "Education" and "morality" in the concept of Islamic education are identical concepts, there is no doubt that the person, studying the Koran and Sunnah, natural Sciences and Humanities will be the moral person, since religious education is not only teaching religion, but it is learning the connection with God. Everyone knows that the Muslim world was the huge communicative educational space, where representatives of different nationalities lived, studied and philosophized.

Н. Л. Сейтахметова[1], Д. Ө. Құсайынов[2], З. К. Аюпова[3],
Г. Құттыбекқызы[2], М. М. Нұров[2]

[1]Қазақстан Республикасының Ұлттық ғылым академиясы, Алматы, Қазақстан;
[2]Абай атындағы Қазақ ұлттық педагогикалық университеті, Алматы, Қазақстан;
[3]Қазақ ұлттық аграрлық университеті, Алматы, Қазақстан;

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ ИСЛАМДЫҚ БІЛІМНІҢ МӘНІ МЕН МАЗМҰНЫ: ТЕОРИЯЛЫҚ-ӘДІСНАМАЛЫҚ НЕГІЗДЕРІ

Аннотация. Ислам білімі – постсекулярлы қоғамдағы білім беру үрдісінің құрамдас бөлігі, өйткені бүгінгі таңда постсекулярлылық өткен ғасырға қарағанда түбегейлі өзге мағынаға ие. Постсекулярлылық қазіргі тарихи, әлеуметтік-мәдени және саяси процестерде секулярлы процестің жалғасы ретінде діни білім беруді жаңғырту және оны қазіргі заманғы зайырлы білім беру жобаларына тарту іс жүзіндегі әдіс ретінде пайда болды. Егер өткен жүзжылдықта теологиялық білім беру зайырлы білім беру практикаларының прагматизмінен, оларды тым утилитарлы және әлемдегі адамның мәні мен мақсаты туралы мәселеден алып шығатын болса, бүгінде теологтар діни білім беруді үлгілеп, заманауи ғылыми, зайырлы дискурстарды стандартталған оқыту бағдарламаларына енгізеді. Зайырлы білім беруді сынау батыстық ойлау дағдарысының мәселесімен байланысты болды. Бұл дағдарыс туралы батыс ойшылдары мәлімдеген болатын. Қазақстан Республикасында азаматтардың шет елдерде теологиялық білім алуын қатаң реттеуге бағытталған заң күшіне енді. Оны қабылдау бастамашылары осылайша қазақстандық дін қызметкерлерінің қатарын жалған дінтанушылардан, ал қоғам жалған діни идеялардан тазартудан үмітті. Бұл шараны Қазақстан қоғамы бірауыздан қолдаған. Ол түсінікті жағдай, өйткені азаматтарымыздың бөтен діни дәстүрлермен әуестенуі рұқсат етілген шектен шығып, одан да қауіпті формаларға ие бола бастайды. Кейбір сарапшылар бұл үдерісті бақылауға алған. Отыз жыл бұрын көптеген мәселелерге байланысты елімізде діни бағыттағы жекелеген сенім иелерінің болғаны бәрімізге белгілі. Бірақ сол кезде халықтың дінге деген қызығушылығы артып, мемлекетке осы салада тәртіп орнату үшін арнайы заң қабылдауға және тіпті тұтас министрлік құруға тура келеді деп кім болжай алды? Қазақстан азаматтарының 90%-ға жуығы өздерін діндарларға жатқызады, олардың 70-тен астамы мұсылмандарға жатады. Бірақ олардың кейбіреулері ғана осы дінді шын мәнінде түсінеді және шынайы исламды радикалды жалған діндерден ажыратуға қабілетті. «Қазақстан мұсылмандары діни басқармасының Астанадағы кеңсесінде Египет Араб республикасы әл-Азһар университетіне қарасты имамдардың білімін жетілдіру курсына жолдама алған имамдармен кездесу өтті» деп хабарлайды («Нұр Астана» орталық мешітінің баспасөз қызметінен). Соңғылардың арасында тегін діни білім іздеу арқылы елден еш кедергісіз кеткен, ал кейін дипломмен бірге бөтен дәстүр мен идеологияны алып келген

біздің отандастарымыз да көп. Алғаш рет шетелдік теологиялық білім беруге тыйым салу қажеттілігі діни саладағы мемлекеттік саясат тұжырымдамасында жазылған. Ол діни қызмет және діни бірлестіктер туралы жаңа заң жобасын дайындау кезінде ерекше идеологиялық негіз болды. Демек, ондағы нормалардың, оның ішінде шетелдік жоғары оқу орындарында оқуға тыйым салатын нормалардың негізділігіне қатысты күмән болмауы тиіс.

Түйін сөздер: білім беру, білім беру философиясы, зайырлы білім беру, ислам білімі, секуляризация, діни білім беруді жаңғырту, білім беру моделі, діни сала, теологиялық білім беру, идеология.

Н. Л. Сейтахметова[1], Д. У. Кусаинов[2], З. К. Аюпова[3], Г. Куттыбеккызы[2], М. М. Нуров[2]

[1]Национальная академия наук Республика Казахстан, Алматы, Казахстан;
[2]Казахский национальный педагогический университет им. Абая, Алматы, Казахстан;
[3]Казахский национальный аграрный университет, Алматы, Казахстан

СУЩНОСТЬ И СОДЕРЖАНИЕ ИСЛАМСКОГО ОБРАЗОВАНИЯ В РЕСПУБЛИКЕ КАЗАХСТАН: ТЕОРЕТИКО-МЕТОДОЛОГИЧЕСКИЕ ОСНОВЫ

Аннотация. Исламское образование – составляющая часть образовательного процесса в постсекулярном обществе, поскольку постсекулярность сегодня приобретает кардинально иной смысл, нежели в прошлом веке. Постсекулярность как продолжение секулярного процесса в современных исторических, социокультурных и политических процессах обретается как эпоха, в которой практически произошла модернизация религиозного образования и вовлечение его в светские образовательные проекты современности. И если еще в прошлом столетии теологическое образование дистанцировалось от прагматизма светских образовательных практик, находя их слишком утилитарными и уводящими от вопроса о смысле и назначении человека в мире, то сегодня теологи, моделируя религиозное образование, вводят современные научные, светские дискурсы в стандартизированные программы обучения. Критика светского образования была связана с проблемой кризиса западного мышления. Об этом кризисе заявляли известные мыслители Запада. В Республике Казахстан вступил в силу закон, призванный жестко регулировать получение гражданами теологического образования за рубежом. Инициаторы его принятия надеются таким образом очистить ряды казахстанских священнослужителей от псевдопроповедников, а общество – от псевдорелигиозных идей. Данная мера – одна из тех, которую казахстанская общественность поддержала чуть ли не единогласно. Оно и понятно: увлечение наших граждан чужими религиозными традициями начинает выходить за рамки допустимого и приобретать все более опасные формы. Как считают некоторые эксперты, если бы этот процесс взяли под контроль еще лет тридцать назад, то многих проблем, связанных с религиозной ориентацией отдельных верующих в нашей стране, можно было бы избежать. Но кто в то время вообще мог предположить, что интерес населения к религии возрастет настолько, что государству придется принимать специальные законы для наведения порядка в этой сфере и даже создавать целое министерство? Согласно статистике, около 90 % граждан Казахстана относят себя к верующим, из них более 70 – к мусульманам. Но проблема в том, что лишь единицы из них действительно разбираются в тонкостях этой религии и способны отличить истинный ислам от радикальных псевдоучений. Остальные, как правило, плывут по течению и верят тем, кто более красноречив и убедителен. Этим давно и успешно пользуются разного рода вербовщики и псевдопроповедники. Среди последних как раз таки много наших сограждан, которые когда-то беспрепятственно уезжали из страны в поисках бесплатных религиозных знаний, а обратно вместе с дипломами привозили чужие традиции и чужую идеологию. Впервые необходимость запрета на зарубежное теологическое образование была прописана в Концепции государственной политики в религиозной сфере. Она стала своеобразной идеологической основой при подготовке нового законопроекта о религиозной деятельности и религиозных объединениях, который, кстати, прошел серьезнейшую общественную дискуссию. Следовательно, сомнений относительно обоснованности содержащихся в нем норм, в том числе запрещающих обучение в зарубежных вузах, быть не должно.

Ключевые слова: образование, философия образования, светское образование, исламское образование, секуляризация, модернизация религиозного образования, модель образования, религиозная сфера, теологическое образование, идеология.

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Information about authors:

Seitakhmetova N.L., corresponding member of the National Academy of Sciences of the Republic of Kazakhstan, Chief Researcher of the Institute of Philosophy, Politology and Religion of the National Academy of Sciences of the Republic of Kazakhstan, Doctor of Science in Philosophy, Almaty, Kazakhstan; nseytakhmetova@bk.ru; https://orcid.org/0000-0001-7583-5406

Kussainov D.U., Doctor of Science in Philosophy, Professor, Kazakh national pedagogical University named after Abai, Almaty, Kazakhstan; daur958@mail.ru; https://orcid.org/0000-0003-4274-5986

Ayupova Z.K., Doctor of Science in Law, Professor of Law, Kazakh National Agrarian University, Almaty, Kazakhstan; zaure567@yandex.ru; https://orcid.org/0000-0002-5925-1619

Kuttybekkyzy G. Doctoral student, Kazakh national pedagogical University named after Abai, Almaty, Kazakhstan; guskoni_92@mail.ru; https://orcid.org/0000-0002-0018-1871

Nurov M.M. Doctoral student, Professor, Kazakh national pedagogical University named after Abai, Almaty, Kazakhstan; markhabat-nur@mail.ru; https://orcid.org/0000-0002-1219-3298

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Amrekul Abuov[1], Bakhytzhan Orazaliyev[2], Aktoty Raimkulova[3]

[1]Akhmet Yassawi International Kazakh-Turkish University, Turkestan, Kazakhstan;
[2]L. N. Gumilyov Eurasian National University, Nur-Sultan, Kazakhstan;
[3]The Ministry of Culture and Sport of the Republic of Kazakhstan, Nur-Sultan, Kazakhstan.
E-mail: naukakaz@mail.ru

THE ISLAMIC WORLD IN THE CONTEXT OF MODERNIZATION IN THE ERA OF GLOBALIZATION: DYNAMICS AND PROSPECTS

Abstract. Geographical migration, intercultural and inter-civilizational interactions are not the only phenomena of the last decade of the XX century. The search for knowledge and the spread of the teachings of Allah (Christianity, Islam or Buddhism) and the search for livelihoods are among the reasons that trade and migration inevitably lead people to interact with one another. Wars and political arrogance, aimed at expanding the borders of the empire, and the constant attempt to rule the world are another factor in the reorganization of power to create global alliances. Given this, we can say that globalization is not a new phenomenon. After the Industrial Revolution and the rise of world capitalism, with the advent of lighter and faster communications, transport and other infrastructure, relations between the peoples of the world, cultural dialogue, interaction have grown and become more and more new every year. began to happen.

To get an idea of the main features of modernization, it is necessary to refer to the experience of industrial societies in Europe and North America. Historical, scientific and technological progress has played a key role in the transformation of traditional European feudal society into a modern capitalist society. As a result of this progress, developing on the basis of pragmatism, the relations between new social classes, individuals and groups were reorganized, which underwent significant changes.

Key words: globalization, period, renewal, Islam, world, dynamics, perspective.

Introduction. The crisis of unification in the Middle East may be a phenomenon that has been observed since the beginning of the XIX century. At that time, the region had its first and main conflicts with modern Europe. The beginning of this conflict was the French invasion of Egypt (1798-1801). By disseminating technologies and ideologies, creating new administrative and political institutions, and especially by carrying out military reforms, Europe could make a huge difference in traditional Egyptian society.

However, significant progress in industrialization, education and urbanization was made only after the relocation of French troops to the region. Decades later, the first signs of modern Egyptian nationalism began to appear in the country.

According to the Russian scientist A.L. Buryakovsky, who clarified this issue from the point of view of the philosophy of religion, said, "modern the philosophy of religion, being the successor of the philosophy of the past, the philosophy of the Enlightenment, as well as the philosophy of the Christian and European eras, seeks to find a common ground between religion, morality and reason." intellectual measurement” [1].

This study does not consider a Eurocentric approach and does not seek to change religion and morality rationally. In the controversial context of the methods and values of the achievements of modern philosophy of religion, A.L. Buryakovsky proposes the following solution: "It is an attempt at universal integration, an attempt to feel a new basis for international cooperation, instead of forcing the whole world to follow the leadership of the Western Christian community."

Although modernization is still used as a process in non-Western societies, the results of this process also differ from the experience of the peoples of Europe. The most important of these restrictions was to influence the mechanism of modernization of the Western colonial powers in order to achieve their interests. It is well known that most non-Western societies have experienced the process of modernization under the severe pressure of modernized colonial Europe.

In this sense, the reconstruction of traditional structures has been more successful than the creation of new ones capable of replacing the old ones. In essence, non-Western societies were not allowed to carry out full-fledged modernization, as these trends were constantly changing. As a result, the losers overtook the winners in terms of their number. At the same time, the early stages of modernization led to the expectation of greater good results, and the results were encouraging, largely due to the cultural dominance of colonial forces in non-Western societies.

The end of modernization in the Arab world coincided with the growing interdependence of different national economies, the emergence of more capacious and diverse forms of international division of labor beyond national borders, which previously did not allow to "squeeze" the world thanks to high-speed communications. But the idea and practice of "globalization" reflects the reality of today, "in their own interests to disguise the dominance of a group of industrialized countries that control and direct all major processes in the context of "global unity".

Discussion. R.G. Landa rightly points out that "changes in life, character, and customs under the influence of Western modernization undermine the traditional Islamic monopoly in these areas of Muslim life, which has provoked a backlash from both Islamic officials and more traditionalist religious communities." If the process of modernization and globalization of Islamic countries leads to the rapid pauperization of the majority of Muslims, the impoverished rural population, the accelerated urbanization of the population from Senegal to Indonesia is a social upheaval in the form of non-existent marginalized "lubricants". »Leads to accumulation. And the West, first and foremost the United States, has done a lot to blow up this bomb." [2]

Renewal or reform of religious systems and philosophical and religious doctrines According to Levin, "Religion is accompanied by a change in the living conditions of believers. Indicators and characteristics of the propensity of religion depend on its structural features "[3]. The adaptability of Islam is high. Indestructible dogmatists in the form of fangs of faith: predestined by belief in one and only God, all angels, the coming of Muhammad (peace be upon him) and the afterlife. In addition, it has a variable component: social norms of behavior and Sharia law. This is as Z.I. Levin points out, "Islam's reform is hypothetically possible through a social understanding of religious doctrine. When we are talking about the reform of Islam, the traditional or historical Shari'a in its religious and legal norms is considered on this basis [3]. For example, Z.I. Explaining Levin's views, consensus, disliked, weak hadiths, etc. If we look at the background of the concepts, they do not contain strict imperatives, and therefore means a region that allows reform.

According to Z.I. Levin, the possibilities for reforming Islam are also limited, because it "does not have a mechanism of strict self-organization, similar to the Christian church, which introduces, approves and introduces new ones." We are also looking for opportunities to make the Sharia more relevant, and in the context of globalization, this may be "very necessary." In fact, at the time of the emergence of Sharia law, it was very necessary for the Arab tribes of that time, and its spread was relevant. According to Levin, it is necessary to find new ways of relevance of this Shari'a in the age of globalization, and it seems that Islam has the potential for it.

Similar processes were taking place in other Arab countries; however, the forms and accents that these processes take have influenced different outcomes. Regardless of the differences between the various Arab societies, renewal, in general, has been the driving force behind all these events. According to Emerson, the collapse of traditional social institutions and the strengthening of new social forces are two important elements that have contributed to the growth of modern nationalism [4].

European modernism, to a certain extent, was an inspiring force for the peoples of the Middle East. They intended to restructure their societies in accordance with the new principles derived from the European experience. Thus, the modernist European concepts of state and nationalism made their way to the Middle East. At the same time, the collapse of the Ottoman Empire led to the formation of the modern Middle Eastern states and their borders, especially in the interests of the colonial powers in the Eastern Mediterranean.

Renewal begins as a driving force in the search for a single type of Muslim nation. It must be acknowledged that this process cannot be stopped when scientific and technological progress is at the heart of the process of renewal. The challenge facing the Middle East is their ability to adapt to the ongoing social and political changes that accompany renewal. This basic appeal calls for the solution of the following three tasks: ensuring peace and stability in regional politics, economic development and democratization.

According to them, the most pressing issue in Islamic countries is the advocates of modernization, which begins with the policy of Westernization, trying to promote the values of Western compromise in Muslim society. As a result, traditional values are weakened and no ethics based on traditional values can develop. At the same time, in the moral and ideological vacuum, the use of alien norms in the socio-economic sphere under the motto of economic development and material progress is intensifying.

Of course, the modernization process in different countries will be local. According to A.V. Malashenko, some other reforms will be successful in the relatively advanced countries - Turkey, Egypt, Tunisia, Morocco and Jordan. Kazakhstan, Kyrgyzstan and Uzbekistan have high hopes for him. At the other pole, Yemen, Sudan, and Bangladesh, which benefit from modernization as the majority of society, will continue to live by traditional laws and norms.

Modernization in the oil-producing countries of the Persian Gulf, especially in Saudi Arabia, seems urgent. The huge annual oil profits of Arab exporters have become not only a springboard for social reform, but also a financial basis for conservation. However, the oil-rich archaic will not last indefinitely, and at the same time the reserves of these minerals will be depleted. This is understood by the Saudi authorities, who in the first decade of the XXI century were given a very difficult task, such as reforming society. There is an objective need for modernization and reform: a relative decline in oil revenues, the West's search for sources of non-oil hydrocarbons, including a reduction in the energy consumption of engines, including automotive engines, and a relentless pursuit of "alternative fuels." If the demand for oil remained high or even increased in the first decade of this century, then interest in it (at least in today's quantities) may still be significantly lower.

The modernization of Saudi society "creates similar processes in neighboring oil-producing countries." Renewable changes in the Persian Gulf will face significant opposition. "

The globalization of the world economy and communications, as well as the need for civic institutions that operate outside the jurisdiction of the government, have led to an increase in the number of non-governmental organizations based on religious principles in the Muslim world. This was not a new trend for the Muslim world, as such institutions were established in the 40s and 50s of the twentieth century. The most important of these structures was the International Organization of Islamic Brotherhood. In the 1960s, the League of Islamic Scholars and other organizations such as the North American Islamic Youth Association emerged. With the intensification of globalization, Islamic-oriented institutions began to emerge. Their emergence was due to the interaction of two main factors. First, the strengthening of the economic power of some Islamic states has allowed them to support some multilateral non-governmental organizations. Second, the process of Islamic renaissance has created a need for new organizations capable of implementing international programs, as well as the growing influence of cultural globalization and the West's ideological struggle against the Islamic world.

Due to the growing influence of Western values, many Muslim countries view globalization as an attempt by the United States to achieve cultural, economic, and political hegemony. In fact, they see globalization as a new form of imperialism or a new stage of capitalism in the age of electronics. Others see globalization as a new form of colonialism, the role of the new colonizing country (metropolis) in the United States, and the role of its colonies - still supplying not only raw materials, but also equipment, labor, capital and components for the production process. The principle that most of the rest of the countries that are part of it still play is still in place. Today, this position is reflected not only in Islamic countries, but also in the public consciousness of other nations of the world.

Among the negative effects of globalization, there are a number of factors. First, the growing social stratification of the rich and the extremely poor. Second, the mutual weakening of national financial systems. At the same time, the richest countries will emerge from the crisis at the expense of others. Third, the loss of sovereignty of states in favor of transnational corporations.

At the same time, it can be concluded that the Muslim world is exposed to the negative effects of globalization due to its weak level of economic, social, educational, cultural and scientific development. Such a rule does not allow many Islamic countries to effectively counter the threat of globalization, to resist its negative effects, to overcome the growing pressure and to protect themselves from the destructive effects of a global phenomenon that does not recognize these borders and removes all obstacles in its path.

Well-known Russian researcher A.V. Malashenko said "At the forefront of the development of the Muslim world is the modernization of society,". They will be directed to enter the process of globalization, consciously or unconsciously seek to find their rightful place in it.

The scientific idea of the consequences of the expansion and deepening of globalization, not to mention the forms of future development of traditional societies in the new conditions, was not at all ready to objectively accept their nature and goals, not only in the Arab world, but in all Muslim countries. Research and recommendations in this area are based on traditional declarative statements about the negative or positive effects of globalization on the economy, politics and culture.

Measures to liberalize the economy, which have begun in many countries in the region, open up new prospects for Muslim countries. These reforms reflect the inevitable and growing impact of modern trends in global development, such as globalization, informatization, the introduction of new technologies. Influenced by these trends in the Arab world, its leaders have increasingly advocated the creation of an inter-Arab economic space, "common Arab" and "common Islamic" markets in the century that has opened its doors. Efforts for economic integration of countries within the League of Arab States have intensified. Specific methods of such integration provided for the free movement of capital, goods and labor, as well as the gradual unification of customs tariffs.

According to B.V. Dolgov, “the process of globalization is an objective law and, in certain cases, can really solve many modern problems, such as poverty, illiteracy, disease eradication, ecological balance. It will help to eradicate nationalism, religious fanaticism and regional conflicts. "

In this regard, the modern economic and socio-political structure of Muslim countries, despite all the complexities of such adaptations, their relevance and necessity are obvious.

In addition, B.V. Dolgov argues that the success of globalization, which is projected to benefit all nations, will be possible, first, if "rich countries renounce their regional selfishness." Secondly, such success is due to the creation of certain universal moral, ethical and humanitarian foundations that contribute to the rapprochement and mutual understanding of peoples of different cultures.

The consequences of the integration of developing countries into the process of globalization are ambiguous: its positive results were attributed to the Russian researcher L.P. Zudina attributes "the spread of the latest technologies and methods of labor organization, the opening of national markets and the free movement of capital, the increase in much-needed investment, the expansion of all forms of communication between the peoples of the planet." "On the other hand," he said, "globalization has led to economic stratification of individual countries, increased social costs, impoverishment and collapse of uncompetitive industries and enterprises, resulting in rising unemployment, and so on." [5].

Conclusion. Thus, in the era of globalization, when competitiveness is the main condition for economic success, the country is forced to seek its place in the alliance with other countries that are historically similar, mainly neighboring, but also more distant, but more developed, to strengthen their personal position. This is due to the fact that with the acceleration of globalization, not only in the economic sphere, but also in many other areas, the interdependence of countries that differ from each other will increase. In order not to lag behind in world development, Muslim countries must adapt to the system of market relations, both at the international and regional levels, which at the same time is in conflict with certain economic and political interests. Moreover, this is an objective historical process that should be considered by all countries of the world, including Muslim countries.

The fate of backward and developing countries is a global issue, and their rehabilitation is one of the most pressing issues. And how it actually happens. Of course, free flight in the sea of globalization has created some difficulties for Kazakhstan. This is due, firstly, to the fact that in market trade, globalization, the "start" is not one, one is too far from the border, and some, too close to it, that is, each country is at a different distance from the border, which is not global, of course, cosmic injustice. Kazakhstan, too, was a newly liberated state from the depths of the collapsed socialist system, which, having recovered from the crisis, was thrown into the sea of globalization.

Ә. Әбуов[1], Б. Оразәлиев[2], А. Райымқұлова[3]

[1]Қожа Ахмет Ясауи атындағы Халықаралық қазақ-түрік университеті, Түркістан, Қазақстан;
[2]Л. Н. Гумилев атындағы Еуразия ұлттық университеті, Нұр-Сұлтан, Қазақстан;
[3]Қазақстан Республикасы Мәдениет және спорт министрлігі, Нұр-Сұлтан, Қазақстан

ЖАҺАНДАНУ КЕЗЕҢІНДЕ ЖАҢАРУ АЯСЫНДАҒЫ ИСЛАМ ӘЛЕМІ: ДИНАМИКАСЫ МЕН ПЕРСПЕКТИВАСЫ

Аннотация. Географиялық көші-қон, мәдениетаралық және өркениетаралық өзара ықпалдастықтар ХХ ғасырдың соңғы он жылдығына ғана тән феномен емес. Білім іздестіру мен Аллаһ туралы ілімді (христиандық, ислам немесе буддизм) тарату, тіршілік ету құралдарын іздестірудегі сауда мен көші-қон адамдарды бір-бірімен қарым-қатынас жасауға ерікті-еріксіз түрде алып келетін себептердің бірі. Империя шекарасын кеңейте түсуді мақсат еткен соғыстар мен саяси кеудемсоқтықтар, әлемді түгелдей басқаруға ұдайы әрекет жасау жаһандық альянстар жасау үшін билікті қайта құрушы тағы бір фактор болып саналады. Осыларды ескерсек, жаһандану жаңа құбылыс емес деп айтуға болады. Индустриалдық революциядан және әлемдік капитализмнің өрлеуінен соң, неғұрлым жеңіл әрі аса жылдам коммуникациялар, көлік пен басқа да инфрақұрылым пайда болғаннан кейін әлем халықтарының арасындағы қарым-қатынастар, мәдени сұхбаттастықтар, өзара қарым-қатынас одан сайын ұлғая түсті және олар жыл өткен сайын жаңаша сипатқа ие бола бастады.

«Жаңарту» термині дәстүрлі қоғамдық құрылымдар жария түрде көрсетілетін, соның негізінде экономикалық, әлеуметтік, саяси және мәдени салаларда жаңасы қалыптасатын үрдіске қатысты болып келеді. Жаңартудың басты ерекшеліктері туралы түсінік алу үшін Еуропа мен Солтүстік Американың индустриалды қоғамдарының тәжірибелеріне жүгіну қажет. Тарихи, ғылыми-технологиялық прогресс дәстүрлі еуропалық феодалдық қоғамның заманауи капиталистік қоғам болып қайта құрылуынан кейін басты рөл атқарды. Осы прогрестің нәтижесінде прагматизмнің базасында дами келе, жаңа әлеуметтік таптар, индивидумдар мен топтардың арасындағы қатынастар қайта жасалды, олар елеулі өзгерістерге ұшырады.

Индустрияландыру, қалаға шоғырландыру мен білім беру осы өзгерістердің негізгі қозғаушы күштері болды. Адамның қоршаған орта мен әлеуметтік салаға бақылау орнатудағы шапшаң ілгерілеуі модернизм идеологиясын дамытты. Саясаттағы демократиялық ұстаным қоғамды саяси-әлеуметтік тұрғыдан реконструкциялаудың заманауи формасы болды.

Жаңару термині қоғамды зерттеу үшін қолданылған кезде оның дамуына бастапқыда үлес қосқан ғалымдардың еңбектерінде де бірден сынға ұшырады. Алайда бұндай жайт жаңарту мектебімен дамытылған тұжырымдаманың толыққандылығын төмендетпеуі тиіс. Даму үлгісі ретіндегі еуропалық тәжірибемен олардың өткен тарихына қатыссыз барлық халық айналысуы тиіс деген пікір Қайта өрлеу дәуіріне бастап, бүгінгі күнге дейін үстемдік алып келеді.

Жаңару мектебінің жақтастары сипаттайтын еуроцентризм, оларды қоғамның өзге халықтарының тәжірибелеріне негізделген қарапайым үлгілеріне үндеу тастаған ерекшеліктерін байқамауға мәжбүрлейді. Сонымен қатар, осы мектептің жақтастарының жаңарту теориясын жай ғана құбылыстарды талдауға арналған құрал ретінде қолданбай, идеология ретінде де, қандай да бір сәуегейлік ретінде де қолдануын қателік деп таныған жөн.

Түйін сөздер: жаһандану, кезең, жаңару, ислам, әлем, динамика, перспектива.

А. Абуов[1], Б. Оразалиев[2], А. Раимкулова[3]

[1]Международный казахско-турецкий университет им. Ходжи Ахмеда Ясави, Туркестан, Казахстан;
[2]Евразийский национальный университет им. Л. Н. Гумилева, Нур-Султан, Казахстан;
[3]Министерство культуры и спорта Республики Казахстан, Нур-Султан, Казахстан

ИСЛАМ В КОНТЕКСТЕ МОДЕРНИЗАЦИИ В ЭПОХУ ГЛОБАЛИЗАЦИИ: ДИНАМИКА И ПЕРСПЕКТИВЫ

Аннотация. Географическая миграция, межкультурные и межцивилизационные взаимодействия – не единственные явления последнего десятилетия XX века. Поиск знаний и распространение вероучений (христианство, ислам или буддизм) и поиск средств к существованию являются одними из причин того, что торговля и миграция неизбежно приводят людей к взаимодействию друг с другом.

Войны и политическое высокомерие, направленные на расширение границ империи, и постоянная попытка править миром являются еще одним фактором в реорганизации власти для создания глобальных альянсов. Учитывая это, мы можем сказать, что глобализация не является новым явлением. После промышленной революции и подъема мирового капитализма, с появлением более легкой и быстрой связи, транспортной и другой инфраструктуры, отношения между народами мира, культурный диалог, взаимодействие росли и с каждым годом становились все более и более новыми началами.

Термин «модернизация» относится к процессу публичного представления традиционных социальных структур и формирования новых в экономической, социальной, политической и культурной сферах. Чтобы получить представление об основных особенностях модернизации, необходимо обратиться к опыту индустриальных обществ Европы и Северной Америки. Исторический, научно-технический прогресс сыграл ключевую роль в превращении традиционного европейского феодального общества в современное капиталистическое общество. В результате этого прогресса, развивающегося на основе прагматизма, отношения между новыми социальными классами, отдельными лицами и группами были реорганизованы, что претерпело значительные изменения.

Индустриализация, урбанизация и образование были основными движущими силами этих изменений. Быстрый прогресс человека в управлении окружающей средой и социальной сферой развил идеологию модернизма. Демократическая позиция в политике стала современной формой политической и социальной перестройки общества.

Когда термин «обновление» использовался для изучения общества, он сразу же подвергся критике в работах ученых, которые изначально способствовали его развитию. Однако это не должно умалять полноты концепции, разработанной школой модернизации. Идея о том, что европейский опыт как модель развития должен практиковаться всеми народами, независимо от их прошлой истории возобладала со времен Ренессанса и до наших дней.

Евроцентризм, описанный сторонниками Школы Возрождения, заставляет их не замечать особенностей, которые апеллируют к простым моделям общества, основанным на опыте других народов. В то же время сторонники этой школы ошибочно используют теорию обновления не только в качестве инструмента для анализа явлений, но и в качестве идеологии и формы гадания.

Ключевые слова: глобализация, период, обновление, ислам, мир, динамика, перспектива.

Information about author:

Abuov Amrekul**,** The actor of culture, of The Republic of Kazakhstan doctor of philosophical sciences, professor The vice predident on the social support and upbrining issues «Akhmet Yassawi International Kazakh-Turkish University, Turkestan, Kazakhstan; naukakaz@mail.ru; https://orcid.org/0000-0002-4408-3923

Orazaliyev Bakhytzhan,Candidate of Philosophical Sciences, Associate Professor of the Eurasian National University; Orazali_BA@mail.ru; https://orcid.org/0000-0002-6834-7612

Raimkulova Aktoty, Doctor of Art History on musicology and musical art, DBA, Minister of Culture and Sports of the Republic of Kazakhstan; aqtoty.raimqulova@gmail.com; https://orcid.org/0000-0002-0826-3652

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B. R. Karabalayeva[1], S. Pelshe[2], N. L. Seitakhmetova[3]

[1]Kazakh National Academy of Arts named after T. K. Zhurgenov, Almaty, Kazakhstan;
[2]Latvian University of Arts, Riga, Latvia;
[3]National Academy of Sciences of the Republic of Kazakhstan, Almaty, Kazakhstan.
E-mail: balnur_karabalaeva@mail.ru , nseytakhmetova@bk.ru

MODERNIZATION PROCESSES IN THE MODERN FINE ART

Abstract. Today, in the visual arts of Kazakhstan, the actual art is developing dynamically. Although the popularity of new technologies has been observed only in the last decade, there are selected, unique works in the actual art of Kazakhstan. The artists received the core of actual art they were interested in from the conceptual art of Russia. It began to expand, because in General, within the framework of conceptual art, social and basic ideas were very well developed. This affected not only the spiritual process, but also people's thoughts. The main search for contemporary art can be observed in the creation of mythological images. The attempt of brush masters to abstract originates from bold fantasies that smoothly pass to iconic images, along with various ways of image; there are attempts to convey the idea of compositional works. In the article, the authors review the space of historical development of the art of Kazakh painting. In addition, the modern art of painting in Portugal is offered as an analysis of the set themes and positions of modern art of painting, comparative analyses are provided. Today’s visual art landmarks will be used to analyze the predictive and critical point of view of the past and future.

Key words: contemporary art, painting, visual arts of Western Europe, installation, comparative art, future, national trends, conceptual art, nomadic traditions, European modernism.

The relevance of the topic. The theme of our article is mainly based on the spiritual world, the consciousness of each person, formed on the basis of heterogeneity of symbols and various phenomena, where you can feel the joy of life, the simple life of the steppe. The art of this period is largely characterized by the versatility of the artistic language and the concept of styles that have preserved their high level of professionalism as a tradition laid down in previous periods. At some exhibitions, you can see the revival of the style of fauvism, surrealism, avant-garde, abstraction that appeared in the beginning of the XX century in Europe. This is, of course, due to the fact that the conditions of interaction and influence of different cultures are the constant and natural process. All these are significant factors in the overall cultural development. This, however, also applies to the visual arts. Starting from this moment, you can notice the emergence of new trends in the visual arts of Kazakhstan. This is a symbolic conceptual approach, a new realism, and also considered “contemporary art”, and others. Let’s try to weigh the thematic boundaries of most of the works of modern Kazakh fine art and the depth of consciousness of artists. However, it should be noted that it is necessary to remember the general opinion. These symbolic foundations are the origins of modern Kazakh pictorial art. It is not a mistake to mention that symbolism opened the way to modern design and lighting of Kazakh painting. The basics of symbolism begin with the creation of S. Aitbayev (Bahyt) 1960s-70s, ovetensis “tarbinskiy painting”. They are continued in the system of object, formal installation and abstract painting, filled with modern mystical mythology. In the early 1990s, a lot of new phenomena appeared in the actual art of Kazakhstan. One of the outstanding personalities of this phenomenon was A. Sydykhanov, who participated in the formation of the national school of painting of Kazakhstan. It is not superfluous to say that he was the founder of the “national new style” direction in Kazakhstan.

Materials and methods of research. A. Sydykhanov, who started his career in professional painting with the stage of national style, the search for self-expression, sought to show the symbolic and conceptual movement of iconic works, freedom, and mutual harmony in the pictorial art of Kazakhstan. Continuing this direction, such masters of the brush as A. Esdauletov, B. Bapishev, took their places on the horizon of fine art in Kazakhstan. Also, another side of the phenomena that arose in the early 1990s is defined by such groups as “Turkestan”, “Shymkent Transavangard”, “Red Tractor”, “Journey to the East”, “Observatory of the Left Without Share” (S. Atabekov, M. Narymbetov, S. Bayaliev, V. Simakov), “Road Junction” in Almaty.

The goals set for these groups are associated with the stated direction of “modern style”. In addition, we want to draw attention to the requirements of the artist of this period. The artist did not think that the knowledge of experimenters is so necessary. The experience also helped allied artists. Their work became popular due to a high degree of personal criticism.

In this regard, in parallel with the independence of Kazakhstan, a large number of independent exhibition halls are opened in the regions. Exhibition halls set themselves non-commercial, creative requirements. Currently, some of the exhibition halls require the opposite.

One of the first is the exhibition hall “X”, which features an original lively exhibition “Green triangle”, “Road” (1989) and “Quarter of Artists”, etc., which became an example for a talented generation of young people. Local talented artists B. Bapishev, V. Lyuko, A. Esdauletov, E. Kozaryan and others took a direction to the countries of mythological characters of the fairy-tale world. They have made a great contribution to strengthening their own experience and skills. In addition, the organizers paid special attention to the meaning of the names of the presented exhibition halls. One of them “Tengri Umay” is the source of the Turkic people, connected with ethnic traditions, and is explained as a symbolic magic of three units and the source of vision of everything, and the name “ARK” means the chronicle-spiritual symbolic proximity of the art of the East and West (for example, “lack Square” by Malevich and the black stone in the Kaaba in one sense).

Research results. While reviewing the history of this modern Kazakh fine art, we analyzed the differences between modern Kazakh art and Western modern art (Portuguese modern fine art). It is worth noting that the main goal here is to compare the main theme and main idea of modern Kazakh painting with the main idea of Western Europe. First, we will review the works of art that are displayed in the Museum of modern art Serralves, built by the Portuguese architect Alvara Siza Vieira, located in the city of Porto in Portugal.

We witnessed the exhibition of Paula Rego and openly saw the drama in the artist’s works. At the same time, we have seen that modern problems of human existence exist not only in a certain country, but also in the world. The work of Paulo Rego demonstrates special manifestations of the human psyche. Deep philosophical portraits that lead a person to gloomy reflections, and works of critical view in the guise of an animal, contribute to the coverage of socially significant problems. He mercilessly criticized domestic problems between men and women, including the place of women in the society [1].

Today the family problem between the woman and man is a big global topic. Since this topic was raised from the very beginning of the existence of mankind, it has not lost its relevance today. We clearly see in the artist’s works such qualities, inequality, loneliness, and others that bring suffering and frustration to the human soul. And, thus, the viewer suffers along with the character of the work. This is shown through the color, based and artistic skill of writing a psychological portrait in the artist’s works.

Paulo Rego of the Portuguese artists is distinguished by a pronounced display of figurative art in his own work with the features of monumentality. Thanks to the monumental images, we see a lot of the artist’s image in his works, which criticizes a person in the society, especially a woman. In this connection, we inevitably recall the conclusion of Salvador Dali “Surrealism is Me”. Because no matter what image of the character the artist portrays in his works, he conveys all the tragedy and dramatic decisions in his image. So the artist shows through his works that the whole situation in the society can pass not only through his thoughts, but also feel his nature [2].

The Serralves Museum also has a wide range of works such as Video Art, Installation, Invoice, which are examples of modern fine art. Among these works we will find works by artists such as V. Principio, M. Oliveira, Match, etc. Thanks to the works of these artists, we can see a collection of life conclusions with the modern material foundations.

Unlike video clips, video art is created for space, and modern Portuguese artists, who freely used these features, have brought their works closer to the audience’s perception. From a number of video art works, thanks to the beauty of nature and perspective depth in artistic patterns, we will be able to penetrate into another world. Video works expressed not only in black and white, but also in multi-colored tones, attract people with their unusual way of transmission. In addition, the uniqueness of the exhibition in the Serralves Museum also contributes to the value of the work. For example, one video art work may be interesting, because it is located alone in the same room. In an audience, such as a movie theater, the audience tries to make the most of the video art work that will interest them as much as possible. The connection between the work and the audience in the twentieth century works in the special way.

Along with the Serralves Museum, we are witnessing the MAAT Museum of architecture and technology (Museum of art, architecture and technology) in Lisbon, Portugal, as well as the Chiado Museum of national and contemporary art (Chiado), which presents works made through video art models of works on a unique theme [3].

The Museum of architecture and technology was founded as an expanded version of the Central Museum of power plants and electric networks, located in the capital of Portugal. The main goal of the Museum is to show the connection between technology and art. When such a unique idea is presented, the world Press Photo exhibition of electricity is held in the Museum of electric networks.

Thanks to these features, we see that we can connect the heritage of our country with the present day, show the history and past of the country through the art. Thanks to the numerous historical relics of the Kazakh people that link the heritage of the historical art with modern art in our country, we can increase the number of viewers in the museums. Works of electricity, placed in the Museum of modern art, attract the viewer independent working appliances of electrical networks. And the new form of the Museum is the second Museum of modern art, which leads a person to another world. In other words, through Museum exhibits aimed at linking the past with the present and demonstrating the capabilities of the modern technology, the viewer can formulate a lot of thoughts.

In the modern artificial space, the concepts of thought, the imagination of a person, lead to the appearance of a modern person. In this way, the viewer can have a dialogue with a modern person. With the help of media art, you can hear one conceptual word, based on each work, turning the sounds to yourself. This opens the way to understanding the main idea of the work [4]. And in some works there are no thoughts at all. This could mean a dead end. However, these media art works are found not only in Portuguese artists, but also in the works of Kazakh artists. In this regard, we can say that Kazakh media art is considered on an equal footing with the works of Western artists. But if you look at what the main feature is, it is in the past and present. In particular, the future is shown usually in the modern works of art that we see in Portuguese art museums, such as Seralves, MAAT and Chiado. And the analysis of this future is the main goal of this task.

And the past is the main theme of the modern Kazakh fine art. Because the singing of history is a source of acquaintance and presentation of the Kazakh people. For that Kazakh artists have been through the history and have created their works through the transformation of the arch-typical images. Here we can see the significance and value of the works of modern Kazakh art that have historical significance. Next in line is the definition of the stages that we have left to create media works that link the past and present. At the same time, seeing in some works of Western European art that have a long history of thoughts about hopelessness, you can perceive this as a “dead end” in art. However, we must not forget that these works, balanced by philosophical thoughts, are directly related to the activity of the self-consciousness of each person. And the intelligent field of human consciousness undoubtedly adds it to the wave of certain thoughts. In other words, we recall Yves Klein’s conclusion that the viewer can make content out of a work by himself. This mystery increases the value of the work [5].

Installation style in the art of the twentieth century, which was headed by Marcel Duchamp, has become one of the main styles of the modern artist. The artist strives to convey his thoughts and ideas through the material features of the objects that were used in the installation. During the review of works of fine art by Portuguese artists, we saw the exhibition “Design and architecture” at the national and contemporary art Museum of Chiado. The exhibition presents transformations of drawings of famous world buildings. Using these diagrams, the depth of thought is shown in media art. In addition, the space of the future world is shown.

From the works of artists based on space and depth, to fine art with the help of modern media technology, it is possible to replace a lot of objects with an illusory space, widely demonstrating to the audience the possibilities to penetrate into distant space worlds through the foundations of perspective depth in the laws of composition [6]. The peculiarity of this exhibition is that compositional schemes in the field of design and architectural art are presented in a computer, technical, as well as in an installation version. Because of the works of architectural media that represent the future world space in the form of chaos, we lose the freedom to predict the future. We look into the future not with a happy look, but with fear. However, it also praises the truth. As any white has its black color, so all circumstances are in the hands of the future. If you go deep into the works of Portuguese artists who teach you to look at any thing with a realistic view, you can see the presence of a deep truth [7].

And in modern Kazakh fine art, widely covered topics are closely related to mythology and religion. They became the main characters of the works of archetypal images of Tengri, Kok Bori, Shaman, Baksy, Korkyt and others, turned into their compositional and form outlines. These themes have been gaining relevance in Kazakh visual art since the 1980s and today they occupy their exclusive places in media art works with transformable diverse format images [8].

In general, through the review of Portuguese monuments of art and culture, we were able to see many gaps and achievements in the Kazakh culture. As we noted above, the absence of national ornaments on our modern architectural monuments is one of our main gaps, and the themes of linking the past with the present in the visual arts, the foundations of historical education are our main achievements. In this regard, we show that we must specifically develop this specificity [9, p.145].

But we must remember that art is a mirror of today. Creating a myth about the past and future is carried out in the soul of the artist, with excited thoughts and imagination. In other words, the fruits of each artist's thoughts will become historical data for the current and future generations. Given this situation, the main achievement would be to show not the image of the past and future, but the image and state of today. Because only you and we can see today, and the vague myths and tomorrow-oriented future have not seen it. Special attention is paid to the revival and introduction of ethno-cultural symbols of the Kazakh people as a special sign of the formation of the national identity of Kazakhstan and the awakening of its national consciousness. In this regard, the history of Kazakhstan has the great importance as an ethno-cultural symbol. The Message of the First President of the Republic of Kazakhstan N.A. Nazarbayev to the People in 2019 states: "The Basis of the national identity is determined by the discovery of the national code. In addition, the third spiritual modernization of the Kazakh people opens up wide opportunities for history, self-knowledge" [10]. The basis of the spiritual revival and the discovery of the national code specified in this message the balance by the increase of mythological consciousness. Mythology is history and orientation to the future. Legends, fairy tales that complement our history, ultimately revive the myth. The wise sayings shows that without knowing the past, it is impossible to navigate to the future. And in the early 1980s, the formation of freedom of their own knowledge, a worldview based on the mythical principles, singing of the history of the past by Kazakh artists, passing it on to the present generation was started.

"Focus Kazakhstan" project is implemented within the framework of the "Rukhani Zhangyru" Program as part of its special project "Modern Kazakh culture in the global world", aimed at promoting the art of Kazakhstan in the world cultural and intellectual space. A distinctive feature of the project is a comprehensive approach to its implementation, consisting of a presentation part and a professional educational program for the artists. The project is aimed at creating interest among the foreign public in artists, who create the diverse picture of Russian contemporary art. Exhibition designed to show the work of artists from different periods and generations, to explore Kazakhstan art in the context of the global art scene, to identify the narratives of art of Kazakhstan of the XX-XXI centuries through the study of the work of artists of the Soviet period and contemporary artists show the continued artistic tradition and the birth of modern art in the period of independence. At the same time, the national Museum of Kazakhstan for the first time initiated the opening of an art residence for Kazakhstani artists abroad. From June 1 to September 30, artists can acquire new knowledge, skills and experience in the workshops and studios of the Betania House of Artists (Berlin).

Conclusion. The undisclosed theme of shamanism, the Turkic world, and archetypal images (Baks, Dukh, Kok-Bori, Umai, Tengri), which was not disclosed to the West, caused a demand for works by Kazakh artists, and thus became known in the foreign countries. Of course, this is a great opportunity and a reasonable position in the matter of learning and acquaintance with the country. We cannot refute artists who are realistic about today's life and the situation in society. It is obvious that no one can describe the truth of each period better than an artist of this period.

Б. Р. Карабалаева[1], С. Пельше[2], Н. Л. Сейтахметова[3]

[1]Т. Қ. Жүргенов атындағы Қазақ ұлттық өнер академиясы, Алматы, Қазақстан;
[2]Латвия өнер университеті, Рига, Латвия;
[3]Ұлттық ғылым академиясы, Алматы, Қазақстан

ЗАМАНАУИ БЕЙНЕЛЕУ ӨНЕРІНДЕГІ МОДЕРНИЗАЦИЯЛЫҚ ҮДЕРІСТЕР

Аннотация. Қазақстан Республикасының Тәуелсіздік жылдарында суретшілер Қазақстанның бейнелеу өнерінің дамып келе жатқан бағыттарына – символдық, концептуалды, реалистік бағыттарға сүйене отырып, шығармашылық бағыттарын қайта пайымдай бастады. Қазіргі Қазақстан өнерін – шығармашылық ізденіс, стереотиптерден бас тарту, қазіргі заман мәселелерін түсіндіретін бейненің жаңа стильдері дамуда сипаттауға болады. Қазақ халқының әдет-ғұрпы мен тарихына, өмір салтына үндеу, ұлттық тарихты, оның оқиғалар тізбегін, батырлар ерлігі мен қазақ даласының ұлы кеңістігіндегі ұрпақтың күнделікті өмір көріністері туралы аңыздарды білдіретін Қазақстанның қазіргі заманғы кескіндемесінің өзіндік ерекшелігі болды. Этникалық, ұлттық мәдени жады қасиетті саналған тұста қабылданған мәдениетімізді өзін-өзі танудың жаңа кезеңіне, өзін-өзі тануының философиялық, зияткерлік, саналы түсінуіне, жалпы адамзаттық мәдениет қазынасына рухани үлес қосады. Қазіргі сыншылар жаңа академизмді ескірген дәстүрге қайшы болып саналатын және заманауи техника жетістіктерімен өнердің органикалық синтезін құрметтейтін классикалық өнердің жаңғыруы ретінде түсіндіреді. Жаңа бағыттар мен стильде тұрақты теориялық негіз бар. XXI ғасырдың бейнелеу өнері Қазақстанның бейнелеу өнері эстетикасының, бейнелеу тілінің, отандық және шетелдік ғалымдар еңбегіндегі дәстүрлі және қазіргі заманғы өнердің өзара қарым-қатынасы мен сабақтастығын зерттейтін бейнелеу құралдарының мәселелерін зерттейді. XXI ғасырдағы Қазақстанның кескіндеме өнері өнердің басқа түрлерімен салыстырғанда қарқынды дамып келеді, соңғы жылдары жаңа көркемдік формалар мен жанрларды дамыта отырып, бейнелеу туындысының құрылымы мен тақырыптарындағы қазіргі заманғы әдістерді, ұлттық дәстүрлер мен тәсілдерді, ұлттық заманауи көркем тілді, белгілі бір мәдени, саяси, тарихи және технологиялық факторлар нәтижесінде пайда болған Қазақстанның кескіндеме өнерінің жаңа бағыттарын қалыптастыра отырып, жас және танымал кескіндемешілер шығармашылығы қазіргі заманғы кескіндеме және дәстүрлі классикалық өнер әдістерімен үйлесімді өмір сүреді. Дәстүрлі қазақ өнері мен дәстүрлі классикалық өнердің көптеген элементтері жаңа көркемдік бағыттарды қалыптастырады, бұл қазіргі заманғы өнердің дәстүрлі тәсілдері мен әдістерінің сабақтастығы сақталады әрі жаңа ырғақта дамытады. Қазақстан кескіндемесінің қазіргі заманғы бағыттары тақырып аясын кеңейтті, көркем тілді байытты және ұлттық құндылықтар мен руханилықты іздеуге ықпал етті, басқа ұлттардың өнер тілінен ерекшеленетін бірегей тілді қалыптастырып, ұлттық дүниетанымға негізделген үрдістерді ашты. Қазіргі замандағы кескіндемеде ұлттық тақырыптар, дәстүрлі салт-дәстүрлер, ұғымдар мен аңыздар жаңаша түсіндіріледі. Қазақстанның қазіргі заманғы кескіндеме еуропалық сабақтастықтан және дәстүрлі өнердің дамуымен, мемлекет тәуелсіздігі жылдарында алған өзіндік болмыс пен дамудың бұрын-соңды болмаған динамикасында, суретшілердің шығармашылық өзін-өзі көрсету еркіндігі, ұлттық дәстүр мен қазіргі заманғы әлемдік өнердің тәжірибесіне негізделген бағыттар мен ізденістердің алуан түрлі және кең векторлығымен ерекшеленеді. Кескіндеме мен концептуалды өнердегі ұлттық үрдістерді дамыту контекстіндегі Қазақстанның қазіргі заманғы өнерінің жанрлық, стилистикалық ұстанымдары мен түпнұсқалық авторлық ұмтылыстарының әртүрлілігі бейнелеу өнері мен концептуалды өнердегі ұлттық үрдістерді дамыту контексінде бейнелеу өнерінің жаңа сегменті ретінде жаңартатын ежелгі көшпенді дәстүрге ерекше назар аударады. Бұл көркемдік бағыт – бір уақытта көшпелі архаикамен шынайы үрдістердің байланысы, еуропалық модернизм және постмодернизм.

Түйін сөздер: өзекті өнер, кескіндеме, Батыс Европаның бейнелеу өнері, инсталяция, салыстырмалы өнер, болашақ, ұлттық үрдістер, концептуалды өнер, көшпелі дәстүрлер, еуропалық модернизм.

Б. Р. Карабалаева[1], С. Пельше[2], Н. Л. Сейтахметова[3]

[1]Казахская национальная Академия искусств им. Т. К. Жургенова, Алматы, Казахстан;
[2]Латвийский университет искусств, Рига, Латвия;
[3]Национальная академия наук Республика Казахстан, Алматы, Казахстан

МОДЕРНИЗАЦИОННЫЕ ПРОЦЕССЫ В СОВРЕМЕННОМ ИЗОБРАЗИТЕЛЬНОМ ИСКУССТВЕ

Аннотация. В годы независимости Республики Казахстан художники стали переосмысливать направления своего творчества, вливаясь в развивающиеся направления изобразительного искусства Казахстана: символический, концептуальный, реалистический. Искусство современного Казахстана можно охарактеризовать как творческий поиск, отказ от стереотипов, развитие новых стилей изображения, которые интерпретируют вопросы современной эпохи. Обращение к обычаям и истории казахского народа, жизненному укладу стало характерной особенностью современной живописи Казахстана, выражающей память национальной истории, цепь ее событий, легенды о подвигах героев и сцены повседневной жизни поколений на великих просторах казахской степи. Воспринимаемое почти сакральным причащение этнической, национальной культурной памяти выводит нашу культуру к новому витку самопознания, к философскому, интеллектуальному, осознанному пониманию своей самости, своего духовного вклада в сокровищницу общечеловеческой культуры. Современные критики трактуют новый академизм как возрождение классического искусства, выступающее противником устаревших традиций и почитающее органический синтез искусства с достижениями современной техники. Новые направления и стили имеют под собой устойчивую теоретическую основу. Изобразительное искусство XXI века исследует вопросы эстетики изобразительного искусства Казахстана, его изобразительного языка, его изобразительных средств, исследующих взаимодействие и преемственность традиционного и современного искусства в научных трудах отечественных и зарубежных ученых. Живопись Казахстана XXI века развивается интенсивно в сравнении с другими видами искусства, развивая в последние годы новые художественные формы и жанры, формируя эстетический язык высокого уровня, вбирающий в себя современные методы, национальные традиции и подходы, национальный современный художественный язык в структуре и в тематике изобразительного произведения, новые направления живописи Казахстана, которые возникли в результате определенных культурных, политических, исторических и технологических факторов. Творчество молодых и известных живописцев гармонично сосуществует с методами современной живописи и традиционного классического искусства. Многие элементы традиционного казахского искусства и традиционного классического искусства формируют новые художественные направления, что сохраняет преемственность традиционных подходов и методов современного искусства, развивая его в новом ритме. Современные направления живописи Казахстана расширили тематику, обогатили художественный язык и способствовали поиску национальных ценностей и духовности, формируя уникальный язык, отличный от языка искусства других национальностей, открыло тенденции, основанные на национальном миропонимании. В современной живописи по-новому трактуются национальные темы, традиционные обряды, понятия и мифы. Современная живопись Казахстана отличается от европейской преемственностью и развитием традиционного искусства в небывалой динамике самобытности и развития, обретенной в годы независимости государства, свобода творческого самовыражения художников, разнообразный и широкий вектор направлений и поисков, основанных на национальных традициях и опыте современного мирового искусства. Разнообразие жанровых, стилистических позиций и оригинальных авторских устремлений современного искусства Казахстана в контексте развития национальных тенденций в живописи и концептуальном искусстве особое внимание вызывают древние кочевые традиции, обновляющие живопись как новый сегмент визуальной культуры, выражающее философский и поэтический смысл через оригинальные пластические средства для выражения. Данное художественное направление вмещает в одно время связь реалистических тенденций с кочевой архаикой, европейский модернизм и постмодернизм.

Ключевые слова: актуальное искусство, живопись, изобразительное искусство Западной Европы, инсталяция, сравнительное искусство, будущее, национальные тенденции, концептуальное искусство, кочевые традиции, европейский модернизм.

Information about authors:

Karabalayeva B.R., Doctoral Student, 2-Year of Study, Kazakh National Academy of Art named after T.K. Zhurgenov, Almaty, Kazakhstan; balnur_karabalaeva@mail.ru; https://orcid.org/0000-0002-3061-8675

Stella Pelshe, Art critic of the Latvian University of arts, Riga, Latvia; stella.pelshe@bk.ru; https://orcid.org/0000-0003-0918-9818

Seitakhmetova N.L., corresponding member of the National Academy of Sciences of the Republic of Kazakhstan, Chief Researcher of the Institute of Philosophy, Politology and Religion of the National Academy of Sciences of the Republic of Kazakhstan, Doctor of Science in Philosophy, Almaty, Kazakhstan; nseytakhmetova@bk.ru; https://orcid.org/0000-0001-7583-5406

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А. М. Әділ[1], Н. Л. Сейтахметова[2]

[1]Т. Жургенов атындағы Қазақ ұлттық өнер академиясы, Алматы, Қазақстан;
[2]Ұлттық ғылым академиясы, Алматы, Қазақстан.
E-mail: alua.muslim@gmail.com, nseytakhmetova@bk.ru

ҚАЗІРГІ ҚАЗАҚСТАНДЫҚ СӘУЛЕТ ӨНЕРІНЕ ДИЗАЙН МЕН МОНУМЕНТАЛДЫ КЕСКІНДЕМЕНІҢ ӘСЕРІ

Аннотация. Тәуелсіз Қазақстан Республикасы өмірінің барлық саласында болған терең өзгерістер көркем мәдениеттің жалпы көрінісіндегі бейнелеу өнерінің рөлін ұғынумен байланысты бірқатар жаңа міндеттерді алға тартады. Ол осы жағдайда принципті жаңа мәртебеге ие болады, «мемлекет-өнер-қоғам» біртұтас жүйесі қалыптасады. Соның салдарынан қазіргі қоғамда болып жатқан процестерді бейнелейтін және көрсететін жаңа көркем шығармалар пайда болады. Тарих сын-қатерлеріне шығармашылық жауап тек орталықтарда, ірі қалаларда, Солтүстік және Оңтүстік астаналарда ғана емес, сондай-ақ өңірлерде құрылады, әр кезеңнің өзіндік ерекшелігі анықталады. Алдымен Орталық Азия елдерінің ежелгі ескерткіштеріндегі және этномә-дени негізгі нышандардағы монументалдық кескіндеме орны анықталады. Содан кейін біздің еліміздің ХХ ғасырдағы ұлттық нышандары Қазақстанның монументалист-суретшілерінің шығармаларын талдау арқылы ашылады. Осыған байланысты ұлттық мектеп этномәдени құндылықтарға қызығушылық танытады. Оның дамуында Ежелгі түркі мәдениетінің рөлі зерттеледі. Бұл мақалада көптеген әдебиеттерді қарастырудан Еуразия өркениетінің монументалды сәндік өнерге әсері анықталады. Бұл уақытта қолөнер қарқынды өсіп келеді және монументалды өнер де өз кезегіне жетеді. Монументалды өнердің дамуы кеңес кезеңінен бастап зерттеледі. Монументалды өнер дамуының алғашқы тарихи-мәдени басталуы анықталады. Ежелгі кезең де, кеңестік кезеңнен кейінгі кезең де, барлық уақытта да, Жаңа уақытта да монументалды-сәндік өнер сәулет құрылысымен байланысты. Бұл оның маңызды бөліктерінің бірі. Тарихымыздың әрбір кезеңіне көптеген этикалық және мағыналық ерекшеліктер тән, біздің шынайы мәдениетіміз туралы түсінік болу үшін шынайы ақпаратты зерттеу және пайдалану қажет. Біздің ата-бабаларымыздың дәстүрлі материалдық және рухани мәдениеті әр түрлі аспектілерде қызықты және мазмұнға барабар, нақты берілуге тиіс. Қазақтың дәстүрлі мәдениетін зерттеу ғана емес, насихаттау қажет. Бұл мақалада біз өзіміздің ұлттық бірегейлігімізді сақтауға деген ұмтылысымыздың ХХ-ХХІ ғасырлар тоғысындағы Қазақстанның монументалды өнеріне қалай әсер еткеніне талдау жасағымыз келеді. Қазақстанның заманауи монументалды-сәндік өнері әртүрлі түрлердің, жанрлар мен стильдердің бірігуімен сипатталады. Заманауи монументалистер ұлттық дүниетаным негізінде кәсіби шығармашылық палитрасын кеңейтеді. Ұлттық өнердің өнертанулық интерпретациясы Қазақстанның мәдениеті мен өнерін түрлендіретін және қоректендіретін константаларды түсінуге ықпал етуге бағытталған: бұл өмір энергиясын бейнелейтін түркі құдайының бейнелері, табиғи апаттар мен алғашқы элементтер (су, от, балшық, өмір ағашы), қазақ рулық белгілері (тамғалар). ХХ ғасырдың монументалдық өнеріндегі дәстүрлі ұлттық этномәдениеттің символикасы Қазақстанның көптеген монументалистерінің жұмыстарында айқын көрінеді. Өз шығармаларында олар ежелгі түркі әлемінің бейнелерін символика мен метафораның тілі арқы-лы жиі береді. Біз бұл мақалада дизайн өнері мен монументальды кескіндеме өнерінің қазіргі заманғы қазақстандық архитектурадағы өзара іс-қимылын ашып көрсетеміз.

Кілттік сөздер: бейнелеу өнері, көркем мәдениет, монументалды кескіндеме, этномәдени нышандар, ұлттық рәміздер, монументалды өнер, этномәдени құндылықтар, сәндік өнер, сәулет, ұлттық бірегейлік.

Тақырыптың өзектілігі. 1920 жылдары дизайн арнайы оқу орындарының ашылуымен жасалды. Ғимараттар заманауи сәулет стилінде салынған, мысалы, Астанада британдық сәулетші Норман Фостер жобалаған «Бейбітшілік және келісім сарайы», «Хан Шатыр» ойын-сауық орталығы. «Бейбітшілік және келісім сарайының» маңызды ерекшелігі алтын қатынас қағидатына сәйкес құрылған. Интерьерлері күрең-алтын түстес, заманауи құрылғылармен жабдықталған. «Бейбітшілік және келісім сарайы» түрлі мәдениеттер, дәстүрлер мен ұлттардың өкілдері бейбітшілік, береке мен келісімде өмір сүретін біздің еліміздің- Қазақстан Республикасының рухын бейнелейді.

Суретшінің жұмысы әр түрлі бағытта дамиды, екі негізгі бағыт. Біріншіден, сурет салу, модельдеу немесе белгілі бір нысандар мен қоршаған орта құбылыстарын жасауға ұмтылу. Екіншіден, арман мен қиялдан туындайтын негіздер, олар табиғатта жоқ.

Егер олардың пішіндерінің бірінде шеңбер болса, екіншісінде шаршы, тіктөртбұрыш болады; олар доп пен цилиндр, тіпті конус және қарапайым пішіндер болуы мүмкін. Мысалы, шеңбер айға, сфералық пішінге, конус-жабайы гүлдерге ұқсайды. «Композиция» сөзінің мағынасы құрастыру, қосу, байланыстыру, құру, құрылымдау дегенді білдіреді. Операцияның үш негізгі түрі бар: фронтальды, көлемді және терең-кеңістіктік. Бұл бөлім шартты болып табылады, өйткені біз әртүрлі композицияларды біріктірумен айналысамыз. Мысалы, фронтальды және үш өлшемді композициялар кеңістіктік композицияның бөлігі болып табылады. Бұл композиция жабық фронтальды бетінен қалыптасады және сонымен бірге кеңістіктік ортаның ажырамас бөлігі болып табылады.

Монументалды кескіндеме қазіргі орыс өнерінің тарихында ерекше орын алады. Ол маңызды идеологиялық функцияны, архитектураның стилистикалық жүйесін, интерьердегі кеңістіктік ойды орындайды, сонымен қатар бейнелеу өнері саласында көркем тілдің қалыптасуына ықпал етеді. Нәтижесінде дизайнның ішкі көріністері кеңістікті бірегей жеке типологиялық жүйеге негізделген тақырыптарды қамтитын сәулеттік құрылымның көркемдік құралдарымен безендіру жүйелеріне айналады. Осыған байланысты мемлекет монументалды және сәндік жобалардың тапсырыс берушісі болды. 1980 жылдардың екінші жартысынан бастап кейбір картиналар түбегейлі өзгерістерге ұшырады. Отандық өнер принципі қазіргі заманғы өнердің көркемдік процесстеріне белсенді қатысып, жаңа талаптарға жауап бере бастайды. Монументалды өнердегі жаңа жағдайларға сәйкес, сондай-ақ 1990 жылы басталған салыстырмалы кезеңнен кейін монументалды жобалардың саны жылдан жылға артып, объектілердің ауқымды шеңберін құрайды [1].

Тегіс композицияның ерекшелігі адамға байланысты екі бағытта болады, олар пішін элементтерін бір тегіс жазықтықта бөліп, қалыптастырады: тік, көлденең және көрнекті бейнелер, жұмсақ маталар, сәнді кілемдер, ғимараттардың қасбеттері, олар кішкентай пішінімен және көрсетілген элементтердің қасбетте орналасуымен ерекшеленеді. Осылайша, ол пластикалық табиғаты бойынша тегіс композицияға жақын. Бірақ оған қатысты олар тек құрылымды немесе рельефті жазықтықтардан ғана емес, сонымен қатар тереңдігі немесе жоспары бойынша бөлінген элементтерден де жасалады. Бұл элементтер алға қарай жылжиды, артқы фронтальды жазықтықтан бөлініп, оларды бір-бірінен белгілі бір қашықтықта орналастырады. Олар бедерлі емес, кеңістіктік формалар ретінде қарастырылады. Сәулеттік композиция фронтальды жазықтықтың келесі бетіне қатысты өлшемді нақты көрсетеді.

Зерттеу материалдары мен әдістері. Зерттеу әдістемесі материалистік немесе идеалистік монизмнен босатылған және барлық әлеуметтік құбылыстардың плюралистік, көп сызықты өзара тәуелділігіне негізделген диалектикалық әдіске негізделген. Сондай-ақ, біз Платон, Аристотель, Әбу Насыр Әл-Фараби және әлемдік философияның басқа да классиктерінің антропология және білім беру мәселелері бойынша негізгі идеяларын ескеретін әлемдік философиялық мұрадағы білімнің қалыптасуы мен дамуын зерттеуде диалектикалық өзара тәуелділік пен әдістердің әрекеттесу әдісін қолдандық: теориялық және эмпирикалық, тарихи және логикалық, индукция және шегеру. Сондай-ақ, батыс елдерінің гуманитарлық ғылымдарында бұрыннан сыналған және негізделген құрылымдық-функционалдық талдау әдісі қолданылды [2, 6 б.].

Композицияны құру кезінде маңызды элементтердің санын есте ұстаған жөн. Біріншіден, бұл пішін конфигурациясы болады. Басқаша айтқанда, ол геометриялық түрді элементтердің бірлескен орналасуымен әр түрлі салыстырудан өтіп, анық көре бастайды. Осыған сүйене отырып, салыстыру композицияның экспрессивті ерекшелігі болып табылады. Екіншіден, композицияның ырғақты құрылымы ең маңызды шартты түрде болады. Бұл жағдайда композиттік құрылғының бір-біріне сәйкестігі кеңістіктік жалпақ элементтерді қашықтықтан жылжыту арқылы жүзеге асырылады және бірнеше толқындық топтардың пайда болуына ықпал етеді. Олардың арасында қарапайым немесе күрделі композиция пайда болады. Үшіншіден, элементтерді графопластикалық модельдеудің ерекшелігі көрінеді. Бұл ең алдымен композицияның тұтастығын анықтайды. Алайда, кейде бұл жалғыз көріністің себебі болуы мүмкін. Композицияда пластикалық әртүрлілікке қол жеткізу қажеттілігі бар. Олардың артық болуына байланысты композиция бұзылып, өзгереді. Сондықтан композицияны құрудың басты ерекшелігі элементтердің өзара алмастырылуын анықтау болып табылады [3, 17 б.].

Ғылыми нәтижелері. Көлемдік композиция барлық жағынан қабылданатын жабық бетке ие. Ең бастысы, көлемді композиция әрқашан қоршаған ортамен өзара әрекеттесетінін ұмытпаңыз. Қоршаған орта жеке композицияның экспрессивтілігін төмендетуі мүмкін. Сәулет композицияларындағы даму тереңдікке сәйкес келеді. Композициялардың табиғаты әртүрлі элементтердің өздерінің пластикалық қасиеттеріне байланысты терең орналасуымен шектеледі, яғни олар сызықты, сонымен қатар жалпақ және үш өлшемді. Композиция әр жағынан қабылданады, бірақ соған қарамастан оны бір немесе екі жағынан қабылдауға тырысады. Көрермендер әдетте үш өлшемді формадан тыс болады. Кеңістіктік композиция көлемді композицияға қарағанда күрделі жоспарлау шешіміне ие. Ол кеңістіктің геометриялық пішіндеріндегі элементтердің кең спектрімен ерекшеленеді, жалпы негізгі типтерде ерекшеленеді; содан кейін текше, екінші цилиндр және пирамида; олар композицияның статикалық немесе динамикалық сипаттамаларын орналасуымен көрсетеді-кеңістіктегі әртүрлі пластикалық формалар күрт үйлеседі. Осындай ерекшеліктерді дұрыс шешкен кезде композицияны құрудың айтарлықтай экспрессивтілігіне қол жеткізуге болады. Алайда, олардың қасиеттері әртүрлі нысандарға сәйкес күрделі болуы мүмкін және үш өлшемді құрамдағы әртүрлі элементтердің едәуір мөлшерін реттей алады. Оның бұл қызметті жеңуіне кеңістіктік жоспарлауды басым ұйымдастыру және пластикалық элементтермен қатар аралас сипат әсер етті [4].

Композицияның материалдық элементтері артық анықталады, олардың арасында қалғаны да бар. Құрылыста композицияның бұл негізгі түрін барлық жерде қолдануға болады: көше бөліктері, аймақтық аймақтар, тұрғын үйлер. Оның айрықша қасиеті терең кеңістіктегі әртүрлі пластикалық формаларды әртүрлі қырлармен қосу арқылы анықталады. Ұзындық өлшемдері кеңістіктік тереңдіктің еніне қатысты анықталады. Ең маңызды композициялық ерекшелігі-терең көркемдік. Кеңістіктің масштабты сипаттамасына және оның шексіз және шектеулі таралуына байланысты мәліметтерді нақтылау іс жүзінде негізделген [5].

Ашықтық он сыртқы кеңістікке тән. Үш негізгі түрі бар: осьтік, радиалды және центрлік. Жоспарлау түрлерін кеңістіктік элементтердің орналасуын жоспарлаудың күрделі жүйесін қалыптастыру үшін біріктіруге болады. Терең кеңістіктік жоспарлауды ұйымдастырудың маңызды аспектісі оның композициялық орталығын қалыптастыру болып табылады. Бұл оның орталық кеңістіктік композицияның екінші сатысының элементтеріне қатысты негізгі ұстанымымен анықталады, онда жеке аймақтар бір-біріне еркін орналасады. Себебі, бұл құрылымдардың өзіндік ерекше, айқын пластикалық сипаты бар. Кеңістіктің тереңдігін анықтау үшін көбінесе оның бастапқы және соңғы шекараларын белгілеу жеткіліксіз. Кеңістікті шектейтін жазықтықтардың тік шығуы-олардың арасындағы аралықтары бар пиластер немесе қанаттар түріндегі аралық органдар, сондай-ақ олардың саны бойынша, олардың кеңістіктегі нақты есебі қамтамасыз етіледі. Оны сыртқы көлемге ұқсас қажетті графикалық және пластикалық модельдеуге ұшыратуға болады. Мұндай модельдеу текстураланған және рельефті өңдеу арқылы жүзеге асырылады. Әрине, олар құралдарды біріктіруді және күрделі кеңістіктік композицияны құруды қажет етеді. Сонымен қатар, осы заңдарды білу кәсіби дайындықты қамтамасыз етеді, онсыз кәсіби жұмыс істеу мүмкін емес [6, 64 б.].

Мұсылман әлемі әртүрлі ұлт өкілдері өмір сүрген, оқыған және философиялаған үлкен коммуникативті білім беру кеңістігі болғанын бәрі біледі.

Табиғи және жасанды жарықпен жарықтандырылған формалардың пластикалық қасиеттерін ашуда Жарық үлкен маңызға ие. Табиғи жарық жарықтық деңгейіне бөлінеді. Сондықтан оның пластикалық табиғатын анықтау үшін қосымша пластикалық құралдар қолданылады. Бұл фрагменттер, пішін қырлары, бұрыштар, контр-рельефті профильдер, «ойықтар», ою-өрнектің іздері және т.б. Бұл ерекшелікті жарықтандырылған аймақты дамыту кезінде де ескеру қажет. Ондағы рельефті терең және үлкен етіп жасау керек, оны графикадағыдай емес, бос жерлер мен қара дақтармен нақты қабылдау керек. Таралған жарық оның фонында көрінетін пішін схемасын жақсы анықтайды. Оның қалыптастыру қасиеттері ерекше. Мұндай жарықтандыру кезінде

көлденең пластик тігінен қарама-қарсы көрінеді; рельеф 3-7 см тереңдікте жақсы қабылданады; форманың біркелкі емес өтуімен салыстырғанда өткір сынықтар бар; тік рельефтің тереңдігі оны қабылдауға аз әсер етеді; үлкен пластикке қарама-қарсы; цилиндрлік пішін қараңғы жазықтықта емес, ашық түстердің фонында көрінеді. Негізінде, ол табиғи жарық сияқты қасиеттерге ие. Ерекшелігі-пластикалық композициялар жасаудағы ең кең көркемдік мүмкіндіктер мен формалардың әртүрлілігі. Екіншісі-мөлдір экрандар немесе көзілдіріктер арқылы өтеді, олар ашылмайды, бірақ әдетте аймақтың үстіне жұмсақ жарық жасайды. Үшіншісі фондық жазықтыққа бағытталған және жарықтан көлеңкеге біркелкі ауысумен сипатталды. Бұл жарықтың бір түрі-контурлық жарық, ол фондық бетте де көрінеді, бірақ оның экрандау схемасын нақты анықтайды. Жарықтың жасанды формасы кейде әртүрлі геометриялық пішіндерге ие. Оны бөлуге болады: нүктелік, сызықтық, жалпақ, үш өлшемді және кеңістіктік. Біріншісі-жеке қыздыру шамдарын жою. Екіншісі-флуоресцентті лампалар және газ жарығы, неон түтіктері. Үшіншісі-ұшақты толтыратын ашық шам. Төртінші-жабық жарықтың көлемі. Жеке жарық элементтері түріндегі кеңістіктік жарықтың формасы кеңістікке қосылған көздермен жүзеге асырылады [7, 11 б.].

Жасанды жарықтандыру табиғатта пластикалық болып табылады және оның «күндізгі» формасын анықтай алады: нақты екпелер ерекшеленуі мүмкін тегіс, көлемді және кеңістіктік. Ол бұл пішінді көрнекті түрде өзгерте алады, оған қатысты жаңа, кейде «теріс» пластикалық әсерлер жасайды.

Тұрғын үй интерьерін жобалаудың ерекше күрделілігі жобалық тапсырманы шығармашылық процесс ретінде қалыптастыру сатысында жатыр. Интерьер дизайнын ұйымдастырудың алғашқы заманауи тенденциялары функционалдылық стилінде кеңінен қолданылады. Функционализм- бұл стиль интерьерге тікелей қол жетімділік дамыды және көптеген жылдар бойы дизайнның барлық саласында үстемдік етті. Функционализмнің негізгі идеясы- бұл функция формадан асып түседі. «Пішін функциямен анықталады», - деп тұжырымдады Луис Салливан. Ал ұлы дизайнер Фрэнк Ллойд Райт былай деп жазды: «пішін мен функция бірдей». Француз дизайнері және сәулетшісі Ле Корбусье Еуропадағы функционализмнің негізін қалаушы болды. Корбусьердің айтуынша, формалар адамның қажеттіліктеріне байланысты өзгеруі керек [8, 710 б.].

Нұр-Сұлтан қаласында ол «Бейбітшілік және келісім сарайы» дизайнының функционализм тұжырымдамасына сәйкес келеді, оның нысаны адамның интерьер дизайнына қажеттіліктеріне байланысты өзгереді. Бұл архитектуралық құрылымның интерьері іс-шараның, концерттің, саяси диалогтардың, симпозиумдардың, конференциялардың және т.б. мақсатына байланысты түбегейлі өзгереді. Жұмыстың табиғи және демократиялық формалары мен принциптері, кез-келген әлеуметтік қабатқа бағдарланудың болмауы функционализмнің халықаралық стильге айналуына әкелді. Бүгінгі таңда «функционализм»термині біздің еліміздегі интерьер сипаттамаларында жиі кездеседі. Бұл дұрыс, өйткені функционализм элементтері көбінесе басқа стильдердің элементтерімен оңай және органикалық түрде үйлеседі және олар қарсы емес. Ел астанасының мәдени нысандары-заманауи талаптарға жауап беретін көпфункционалды ғимараттар. Қазіргі интерьер дизайнында конструктивизм барлық жерде кездеседі.

Бұл, әсіресе, Нұр-Сұлтан қаласының ғимараттарында: «Бейбітшілік және келісім сарайы» биік дуалмен үйлесім, Хан Шатыр, «Қазақстан» ОДК Тәуелсіздік Сарой, ішінара «Балет және Опера театры» классика мен конструктивизмді, ал әрбір бағыт заманауи дизайнда үйлесім тапқан [9, 132 б.]. «Қазақстан» орталық концерт залын Еуропаның бірінші қатарының сәулетшісі Монфреди Николетти жобалаған. Бұл залды жасау кезінде табиғи, таза материалдар пайдаланылды. Ғимарат ішінде де, сыртында да арнайы ағашпен қоршалған, сондықтан барлық акустикалық қасиеттер айқын көрінеді. Сонымен қатар, инновациялық материал тұзды жел мен температураның ауытқуынан қорғау үшін қолданылды. Қазіргі уақытта мұндай ерекше ғимарат ТМД елдерінің ешқайсысында жоқ және бұл ғимарат қазіргі Қазақстанның маңызды мәдени нысандарының бірі болып табылады [10, 91 б.].

Тәуелсіздік алған сәттен бастап Қазақстан мәдени ұйымдар қызметінің барлық салаларында, әсіресе ұлттық ою-өрнектерді безендіру, киіз үйдің элементтері: шаңырақ, кереге, уық және басқа да бөлшектер ретінде этникалық сәйкестендіруді қолдана бастады. Бұл құбылыс әсіресе қоғамдық ғимараттар мен мәдени нысандардың интерьер дизайнында айқын көрінеді.

Осы кезеңде агрессивті қалалық орта жағдайында әлеуметтік кеңістікті қалыптастыру проблемасы Қазақстан Республикасының қалалары үшін аса өзекті болып табылатынын атап өткен жөн. Қалалық ортада адамгершілік адамға қатысты қоғамдық кеңістікті құрудың барлық әдістерін қолдану қажет. Сонымен қатар, ірі қаланың қазіргі заманғы тұрғынына тән қызмет пен қарым-қатынастың жаңа форматына бағдарланған қоғамдық кеңістікті жаңарту қажет. Бұл қоғамдық кеңістіктерді жобалау жөніндегі қызметті айтарлықтай өзгертеді және азаматтардың өмір сүру сапасы проблемасын өзекті етеді. Заманауи интерьер дизайнында классицизм тәуелсіздік алғаннан кейін құрылған. Нұр-Сұлтан қаласының барлық мәдени ғимараттарында басым. Бұл дизайнерлердің шығармашылық жұмысында осы кезеңде дизайнда кеңінен қолданылатын сүйікті стильдердің бірі. Мұнда қатаң тепе-теңдік, қажетсіз әшекейлердің болмауы, тектілік пен нәзіктік классицизмнің жетістігі ретінде, интерьер мәдениетінің заманауи түрінде кеңінен қолданылады.

«Нұр-Сұлтан» мәдениет нысандарын талдамалы зерттеулер дизайнда классикалық стильмен қатар ХХ ғасырдың ортасынан бастап дизайн дәуірінің стилі: функционализм, поп-арт, хай-тек элементтері: Бейбітшілік және келісім сарайы, конструктивизм және т.б. кеңінен пайдаланылғанын көрсетті. [10, 93 б.].

Қалалық ортаны қалыптастыру-бұл көп сатылы құбылыс, онда сәулет өнері жалпы процесстегі өзара әрекеттесетін факторлардың бір бөлігі ғана. Сондықтан сәулет теориясында материалдық-кеңістіктік объектіні білдіретін белгіленген термин жоқ. Ол «қалалық ортаның фрагменті», «қалалық кеңістік», «сыртқы қалалық кеңістік», «қалалық ландшафт», «көше интерьері» және тіпті «қала құрылысы ансамблі» деп аталады. Қазіргі заманғы қоғамдық кеңістік құрылымының кешенді орналасуы сәулетшілер мен дизайнерлер үшін негізгі зерттеу және дизайн нысаны болып табылады.

Қорытынды. Қорытындылай келе, Қазақстанның заманауи монументалды-сәндік өнері әртүрлі түрлердің, жанрлар мен стильдердің бірігуімен сипатталады. Заманауи монументалистер ұлттық дүниетаным негізінде кәсіби шығармашылық палитрасын кеңейтеді. Ұлттық өнердің өнертанулық интерпретациясы Қазақстанның мәдениеті мен өнерін түрлендіретін және қоректендіретін константаларды түсінуге ықпал етуге бағытталған: бұл өмір энергиясын бейнелейтін түркі құдайының бейнелері, табиғи апаттар мен алғашқы элементтер (су, от, балшық, өмір ағашы), қазақ рулық белгілері (тамгалар).

А. М. Адил[1], Н. Л. Сейтахметова[2]

[1]Казахская национальная Академия искусств им. Т. Жургенова, Алматы, Казахстан;
[2]Национальная академия наук Республики Казахстан, Алматы, Казахстан

ВЛИЯНИЕ ДИЗАЙНА И МОНУМЕНТАЛЬНОЙ ЖИВОПИСИ НА СОВРЕМЕННУЮ КАЗАХСТАНСКУЮ АРХИТЕКТУРУ

Аннотация. Глубокие изменения, произошедшие во всех сферах жизни независимой Республики Казахстан, выдвигают ряд новых задач, связанных с осмыслением роли изобразительного искусства в общей панораме художественной культуры. Оно приобретает в этих условиях принципиально новый статус, формируется целостная система «Государство-искусство-общество». Как следствие – появляются новые художественные произведения, отражающие и выражающие происходящие в современном обществе процессы. Показателен факт, что творческий ответ на вызовы истории создается не только в центрах, крупных городах, северной и южной столицах, но и в регионах, определяется свойственная особенность каждого периода. Вначале определяется место монументальной живописи на древних памятниках и основных символах этнокультурности стран Центральной Азии. Затем национальная символика нашей страны в ХХ веке раскрывается путем анализа произведений художников-монументалистов Казахстана. В связи с этим национальная школа проявляет интерес к этнокультурным ценностям. В его развитии изучается роль древнетюркской культуры. В этой статье от рассмотрения многочисленной литературы в целом определяется влияние цивилизации Евразии на монументальное декоративное искусство. В это время ремесло стремительно растет, и монументальное искусство тоже достигает своей очереди. Развитие монументального искусства изучается, как правило, начиная с советского периода. Определяется первое историко-культурное начало развития монументального искусства. Как в древний период, так и в постсоветский период, во все времена, и в новое время монументально-декоративное искусство связано с архитектурным сооружением. Оно является одним из его важных частей. Каждому периоду истории присущи многие этические и смысловые особенности, чтобы иметь представление о нашей истинной культуре, необходимо изучать и использовать достоверную информацию. Традиционная материальная и духовная культура наших предков интересна в различных аспектах и должна быть адекватно, четко представлена массам. Необходимо не только изучать, но и пропагандировать казахскую традиционную культуру. В данной статье мы хотим проанализировать, как стремление сохранить свою национальную идентичность повлияло на монументальное искусство Казахстана на рубеже ХХ-ХХI веков. Современное монументально-декоративное искусство Казахстана характеризуется интеграцией различных видов, жанров и стилей. Современные художники-монументалисты расширяют палитру профессионального творчества на основе национального мировоззрения. Искусствоведческая интерпретация национального искусства призвана способствовать пониманию тех констант, которые питали и продолжают питать культуру и искусство Казахстана: это образы тюркской богини Умай, природные стихии и первоэлементы (вода, огонь, глина, древо жизни), казахские родовые

знаки (тамги), символизирующие энергию жизни. Символика традиционной национальной этнокультуры в монументальном искусстве ХХ века очевидно проявляется в работах большинства монументалистов Казахстана. В своих произведениях они часто передают образы древнетюркского мира через язык символики и метафоры. Мы в этой статье раскрываем взаимодействие искусств дизайна и монументальной живописи в современной казахстанской архитектуре.

Ключевые слова: изобразительное искусство, художественная культура, монументальная живопись, символы этнокультурности, национальная символика, монументальное искусство, этнокультурные ценности, декоративное искусство, архитектура, национальная идентичность.

A. M. Adil[1], N. L. Seitakhmetova[2]

[1]Kazakh National Academy of Arts, Almaty, Kazakhstan;
[2]National Academy of Sciences of the Republic of Kazakhstan, Almaty, Kazakhstan

INFLUENCE OF DESIGN AND MONUMENTAL PAINTING ON MODERN KAZAKH ARCHITECTURE

Abstract. Design is the tool, understands the person's image of the world, changed through real objects, space and language design. In this article it was established that the interior of the cultural objects of the capital of Kazakhstan is the basis not only in the real content of the decor, but also in the philosophical semantic environment and adaptation of an ethnic group, modern interior with the national component. The study of interior design as the semantic structure allows you to see the interior or other approaches to the design of the cultural objects of Nur-Sultan, as well as many representations that are manifested in the representation of the modern person, who strives for an objective world, design and management of the designer. Modern man and his objective world, especially the culture and cultural forms of Kazakhstan, were formed on the basis of the material and environmental culture of the Kazakh society and this cultural heritage is formed over the centuries.

Key words: fine art, art culture, monumental painting, symbols of ethno culture, national symbols, monumental art, ethno cultural values, decorative art, architecture, national identity.

Information about authors:

Adil A.M., Undergraduate student, 2-year of study, Kazakh National Academy of arts named after T. Zhurgenov, Almaty, Kazakhstan; alua.muslim@gmail.com; https://orcid.org/0000-0002-2683-2054

Seitakhmetova N.L., Corresponding Member of the National Academy of Sciences of the Republic of Kazakhstan, Chief Researcher of the Institute of Philosophy, Politology and Religion of the National Academy of Sciences of the Republic of Kazakhstan, Doctor of Science in Philosophy, Almaty, Kazakhstan; nseytakhmetova@bk.ru; https://orcid.org/0000-0001-7583-5406

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A. Zh. Kaztuganova[1], A. K. Omarova[1], D. F. Karomat[2]

[1]Institute of Literature and Art named for M. Auezov, Almaty, Kazakhstan;
[2]Institute of Art Sciences, Academy of Sciences of Uzbekistan, Tashkent, Uzbekistan.
E-mail: aklima_omarova@mail.ru, zhasaganbergen@mail.ru, dilkaramat@gmail.com

UNIQUE WORLD OF THE CREATOR

Abstract. The article describes some issues of formation of personal qualities and spheres of activities of N.Tlendiev, that have been determined through ethnicity hearing. The range of issues include the analysis of performing and composing activities, stage behavior, as well as innovative performance style, introduced by the famous kuishi into Kazakh music.

On the one hand, the formation of N. Tlendiev as a person was determined by the strength of ethnic ear, and, on the other, by the depth of professional knowledge. It was determined that in all his diverse creative activities, that is, performing, composing, conducting or organizing activity, the gift of ethnic ear and high professional competence played an important role. The rich images reflected in his musical compositions, a wide range of thematic lines, the variety of musical methods and instrumental techniques that have not been studied, will result in new research works in the future. In the future the vital activities of N. Tlendiev should be investigated from a scientific point of view, confirmed by documents and facts, and the particular monographic work should be devoted to them.

Key words: kuy, singer, composer, ethnic hearing, orchestra.

Introduction. N.Tlendiev said: “Is there anything in this life that means much more than nation!? Particularly, the people led us to such condition thanks to which such an orchestra was created. So, our future life depends only on people's desires” [1].

Only over time one begin to understand how true are our chosen paths. After all, only those values that are created with great love for the people are distinguished by their vitality and are forever preserved in the memory of the people.

The unlimited love of Nurgissa Tlendiev for his nation, first of all, is evidenced by the fact that his multi-genre compositions are performed and are relevant today. At the same time, we see that the «Otyrar Sazy» orchestra which was created by him, continues its activities and development. The warm feedbacks of his associates and colleagues also testify about his high feelings.

Methods. The creative range of Nurgissa Tlendiev (1925-1998) is very wide: from a popular song to a complex opera, from a dombra kuy to the instrumental-orchestral compositions. His creative message is clearly reflected not only in the studies of musicologists, but also in the creative work of the performers, research works of literary critics, as well as journalists working in documentary films and mass media. Of course, in view of the published works, defended theses, video clips, documentaries and their authors (it is necessary to take into account the high appreciation of the prominent figures), it can be seen that the facets of N. Tlendiev’s life and creativity are thoroughly revealed. This can be seen from the titles of the published books: “Kaharman - Nurgissa”, “Gasyr sazy terbetken”; from separate articles: D. Kunaev “Tua Bitken Daryn”, L. Ismayilova, A. Mukhambetova “The Mature Talent”, Zh. Karmenov “Menin Pirim - Nurgissa”, M. Alimbayev “Zharynsyn zhuldyzday Zhana Zhakkan”, K.Myrza Ali "Kubylys”, M. Karatayev “ Tolganystan tolganys”, R. Berdibayev “ Gasyrlar Sazy”, K. Nakyp “Anyzga Ainalgan Azamat”, etc. Because, we keep memory of Nurgissa's happy image in the last years of his life. It seems that he reached such condition without any difficulties. However, his life during the period of repression of the 1930s and 40s remains in the shadow, the harsh front years, when he barely survived from serious injuries, or post-war period during the second repressive wave. These “closed” years of life can be restored through the interviews of Nurgissa which were published in the press (in Kazakh and Russian languages), his brief statements about the history of musical compositions, memories of contemporaries and colleagues[1]. Since this issue does not apply to a limited range of scientific works, and requires further basic research, in this article we will only focus on some aspects related to the unique gift of N. Tlendiev - his ethnic ear.

Results. In this regard, the question arises: why Nurgissa's compositions are so popular that they became national, and, despite the time, continue to be in demand today? The answer to this question can be as follows: because N. Tlendiev combines a traditional steppe school[2] and a professional city school[3]. The thing is that, using them in his creativity, he was able to brilliantly, and with feelings demonstrate his skills, qualifications and love. Moreover, through the steppe school the power of ethnic ear was clearly expressed, and through the city school - the depth of professional knowledge. When thinking about the power of ethnic ear, we recall the words of I. Zemtsovsky on the problem of "ethnic ear": "*... the formation of the ear is not a one-way process: we develop our ear (and our entire environment, in one way or another, consciously and unconsciously, is involved into this development), but the ear itself develops and creates our personality*" [3, 6 p.].

Thus, I. Zemtsovsky believes that in the anthropology of human ear, listening (or auditory perception) and behavior, cognition and speech are integrated. In this regard, based on the scientist's opinion on the unity of the parties, we would like to bring them to the properties and functions of N. Tlendiev: through auditory perception, he managed to absorb traditional music and, as a performer, transmit the heritage of his ancestors to the audience; at any time and in any place (on the stage, at work, during leisure, in the family, etc.) he formed in himself the freedom of behavior which is inherent in sal and sere, whereby he made certain conclusions for self-expression, being able to achieve great success; leaving behind an inexhaustible musical treasury through knowledge, he won the hearts of the listeners, finding a common language with most people, created an ethnographic orchestra, participated in international competitions and promoted national art.

Although Tlendiev is often mentioned as a master of improvisation, his performing skills are gradually being forgotten. Nurgissa, as a kuyshi, a performer of folklore compositions, rigorously conveyed the sound of kuy to the listeners, with great responsibility he preserved their original identity and authorship. Of course, his highest professional competence contributed to this fact. He transmitted the following kuy to the contemporaries and future generations: the folk kuy "Aksak Kulan" (II version), Bayserke's kuy "Zhekpe zhek", his father Tlendi's kuy "Arman", Zhambyl's kuy "Oy, duni-ai", Katshybay's kuy "Balamishka", Temirbek's kuy "Jetim bala", "Sherniyaz" etc. Currently, half of these kuy are referred to as Nurgissa Tlendiyev's kuy. In particular, in concert programs and in the 35th disc of the 41 series of the CD "1000 Kazakh kuy" (2010), released by State order, kuy "Zhekpe-zhek", "Balamishka" are declared under the authorship of N. Tlendiev. In the collection of E. Tungyshuly "Atadan Mura" he is presented as a performer from whom these kuy were heard, and the preface to this book was written by N. Tlendiev himself [4]. Unfortunately, today, despite the fact that not so much time passed from the day of the death of the outstanding kuyshi, and there are still alive people who personally knew the musician, there are some regrettable circumstances. Such misunderstanding can be confusing for

[1] Kaharman - Nurgissa: essays, poems, poems-zhyr / Comp. S. Abdraimov. - Almaty: Sanat, 1999. - 352 p.; Gasyr sazyn terbetken: Memories about Nurgissa Tlendiev / Comp. S. Abdraimov, G. Shakarim, D. Tlendikelini, B. Issa. - Almaty: Bilim, 2007. - 280 p.; Tlendiev Nurgissa Atabaevich: recommended bibliographic index / National Library of the RK. Comp. D.A. Kistaubayeva, В.Д. Usenbayeva. Almaty, 2015. 217 p.

[2] Nurgissa's father, a famous kuyshi, who took part in instrumental competitions with Bayserke, the founder of the kuyshi traditions of Semirechye, his mother, Saliha, was an aunt of the famous Kenen Azerbayev, sung to the accordion accompaniment. Until the end of his life, Nurgissa kept his mother's musical instrument as the apple of his eye. From an early age, in addition to his father and mother, he met with the prominent representatives of traditional art, and adopted their experience. About how, in 1938, he received the dombra as a gift from the hands of Academician Akhmet Zhubanov, in the autumn of that year he met with akyn Zhambyl and a group of creative people, Nurgissa recalls: *"Zhaken is a relative to us, a close person. At a festive event in honor of Tlegen's newborn daughter, my father's brother, Tlendi, Zhambyl-ata visited our house with a group of akyns, including Kenen, Issa, Umbetali, Shashubay.*

At some point, the adults wanted to listen to the kuy in my performance. At first I was very embarrassed, but with the support of people - "do not be shy, show what you can do" - I decided to play the hurricane kuy "Uran" by Jaken, dedicated to the Bekbolat batyr's uprising. Everyone listened with great attention, at the end exclaiming "Ah, well done!", and asked to play again. I performed the kuy of Tattimbet, Kurmangazy, as well as the kuy of Zhambyl "Oh, dunie-ai" [2, 361 p.].

[3] In 1949-50, Nurgissa Tlendiev studied at the Alma-Ata State Conservatory, and in 1950-52, at the conducting faculty of the Moscow State Conservatory in the class of Professor N.P. Anosov.

the future generations and lead to false opinions about Nuraga. In our opinion, N. Tlendiev has enough kuy, both quantitatively and qualitatively, to be called a composer- kuyshi, so we think that we should not consider them as his own, original compositions.

In regard of the nature of his manner of behavior, self-expression, which are typical for the sal and sere, we imagine him as a conductor on the stage. We can say that he was a conductor not only of the orchestra and soloists, but also listeners, holding the whole audience in tension, "in the palm of his hand, or in his fist". P. Aravin, who was often the host of N. Tlendiev's concerts, recalls his image on the stage, which enabled the audience to participate in the creative process: "*... His behavior was sometimes extraordinary, not academic. He could stop conducting for some time at all, and only a strict, sometimes witty, and often invocative glance at a certain group of the orchestra, at a certain soloist spoke of his constant control over the situation ...*

His signature, brightly theatrical technique: in the middle of the composition, before the reprise, turn his back on the orchestra, as if giving the musicians complete freedom of performing art, and gracefully pass the hand back and forth to the orchestra and to the public to create an amazing effect of unity, complicity, and co-creation for everyone on the stage, and in the hall, both musicians and listeners. When he soloed his virtuoso improvisations on the dombra, he was able to escalate such tension of expectation that the orchestra's entry at the energetic wave of his hand seemed like an explosion of emotions, a breakthrough of a sense of joy, inspiration, and the audience enthusiastically responded with a flurry of applause" [5, 12 p.].

As a composer, Nurgisa Tlendiev made an invaluable contribution to the Kazakh musical culture. About four hundred songs which were born in his heart, were analyzed in the form of two research works - PhD theses[44]. His works, such as the ballet "Dostyk Zholy", the poem-ballet "Orteke", the opera "Altyn Taular" (co-authored by K. Kozhamiyarov), poems-kuy "Kairatty Otyrar Sazy", "Konildi Bikesh" overture, "Bostandyk Tany","Ordabasy","Zhenis Saltanaty","Makhambet", music for 19 movies ("Kyz Zhibek","Qily Kezen","Menin Atym - Kozha","Kulager" etc.), to more than 20 dramatic performances ("Karakoz", "Abay" by M. Auezov, "Zhamilya" by S. Aitmatov etc.), 17 animated films ("Karlygashtyn kuyrigi nege ayir?", "Aksak kulan", "Kyryk otirik" etc.), documentary films ("Akademik Satbayev", "Ybyrai Altynsarin" etc.), as well as for dombra kuy must surely result in new researches. Moreover, these compositions can serve as the basis not only for Master's theses, but also for PhD theses in the framework of the new State education system. So, in musical cognition, a separate development should be devoted to the richest sound fund of Nurgissa. Because, in his compositions, in a comparative analysis of the use of methods and techniques, the most important secrets of the interaction between the surrounding world and music are revealed, felt through ethnic auditory perception, for example, associated with the image of birds: imitation of the voice in songs ("Ak shagala", "Boztorgai", "Kustar ani", etc.) [6], in kuy and orchestral parts instrumental reproduction of the flying and voices of birds, or in the films ("Kyz Zhibek") and in cartoons ("Karlygashtyn kuyrigi nege ayir"), etc. So, in the first bars of the kuy "Ata tolgauy" one can hear the amble of Zhambyl's horse riding from afar, in "Makhambet" we see images of racing horses, in the movie "Bandyni kugan Hamit" or the cartoon "Aksak kulan" in the video dedicated to horses, the music brings deep artistic representations and images. In this regard, it becomes obvious that Nurgissa was able to hear barely audible, to see barely visible, thanks to his high ethnic ear[5]. To prove our point of view, we would like to mention another opinion of I. Zemtsovsky: "*To have ethnic ear means to have the ability to hear a lot, that is, to have a rich cultural auditory imagination. Ethnic ear makes music culturally significant for us - to the extent of our own culture, that is, our ability to penetrate into the culture (our own or someone else's) in general* "[3, 8 p.].

A series of works has been written about the "Otyrar Sazy" ethnographic orchestra, which was created and formed by Nurgissa Tlendiev, but we would like to focus on the innovations introduced into the orchestra through the gift of ethnic ear. He added a previously alien and a new style in the scale of timbre orchestral performance to the Kazakh musical worldview, expressed by national instruments, using

[4] Aituarova A. Folk traditions in the mass music of Kazakhstan: (Based on the creativity of N. Tlendiev). Abstract. Cand.thesis. Tashkent, 1993. 26 p .; Iskakova G.N. National Origins of Song Creativity of N. Tilendiev. Abstract. Cand.thesis. Almaty, 2010 .27 p.

[5] I. Zemtsovsky indicates several factors in the formation of human ear. On the basis of his theory, new facets are revealed that are associated with the auditory abilities of N. Tlendiev, which require a separate study. Auditory abilities of Nurgissa Tlendiev are the basis for future studies, such as the works "Glinka's Ear" by B. Asafiev, "Zataevich's Ear" by N. Tiftikidi, "Asafieva's Ear" by E. Nazaikinsky.

structural, dramatic, rhythmic, intonational features which are typical for dombra kuy. In other words, he combined the part of the orchestra, which obeys strict rules, with the part where the soloist freely demonstrates the traditions of improvisation of an individual performer. From this point of view, the influence of both the steppe and city schools on N. Tlendiev is obvious.

One of the innovative kuys is “Alkissa”, in which the analysys of the individual version, the innovations in the performing style can be noted.

The composition begins with a transition - from an open string to the constant sound “g-d^1”. Such an introduction can be called a “tuning” to kuy, as it occurs at the beginning between the main melody and other parts, as well as at the end. The main melodic line in the tradition of improvisations is developed by hitting the strings with the fingers at the bottom of the “d”. On the string “g”, the melody successively rises in a chain to the sound “g^1”, moves next to the sound “a^1” and returns back. In the downward direction of the melody, a combination of major and minor systems is observed. After this part, the permanent part, performed by the orchestra, is first performed in solo performance. Here the composer ends with a brief catchy melody. In this case, the significance of tertia increases: through tertial biconicals, progressive intonation in the tertiary range, tertiary leap, etc.

The second part, which is based on the traditions of improvisation, is distinguished by the sound of the bourdon “d” characteristic of ancient kuy, extracted from an open string. In this part, which demonstrates technical excellence, the duration is reduced compared to the previous one: the eighths in the first part here moved to the sixteenths. Thus, this part is distinguished by its fast pace, which assertively, reaching its climax, then goes into the orchestra. At the end of the kuy, the soloist and orchestra unite, sound harmoniously and end together.

The improvised parts of the shertpe style in the Alkissa" kuy do not repeat each other. That is, at each concert, its improvised parts always changed, updated and developed. Therefore, concert performances, which are now stored in the archives, must be recorded on musical notation in order to receive several versions of the same kuy. Thus, we will be able to transmit the improvisation art of the gifted kuyshi to the future generations, as well as prove the varied forms of the kuy.

Since N. Tlendiev often used the tradition of improvisation, performing the kuy “Alkissa”, recently it has become noticeable that young kuyshi, following his beginnings, demonstrate their improvisational abilities and even abuse them [7]. Some of them deviate from the frame of a specific structure, on which N. Tlendiev relied, adding own innovations. In particular, towards the end of the kuy there is an addition that develops from the string in the sound “d” and from the lower “d”. In principle, if Nurgissa wished to develop “d”, he could have added it himself, using his composer's abilities and performing skills. Probably today, when the author is not with us, one should not be the “co-author” of N.Tlendiev and add some parts into his composition. So, as mentioned above, N.Tlendiev was a bearer of both the steppe and city schools, was one of the professional composers of the written tradition, and no one can make changes to the compositions of professional composers of the written tradition. For example, abroad, performers bear the liability for changing not only the sound, but also the sound coloring.

Recently, similar situations can be observed in the process of instrumental contests[6], during which N. Tlendiev’s kuy undergo various changes. The reason for this is understandable, because, first, this is a creative process, and second, Nurgissa himself freely used improvisation. However, when using the author's composition during a contest, one still cannot deviate from the original composition of the composer. As B. Amanov notes, the contest types have their own requirements[7]. At present, instrumental contests are widespread, where modern kuyshi demonstrate their performing skills while performing the compositions of traditional kuyshi composers. In such cases, memory and technical excellence are taken into account, but the right to improvise and make changes in the author’s composition is prohibited, so kuyshi should be aware of exactly what competition they are participating in.

[6] Recently, the ancient tradition of instrumental competition is reviving, moreover, the introduction of an innovative structure is becoming popular. In particular, there is a traditional competition of two kuyshi, an instrumental competition of national representatives, in an innovative structure - kuyshi and orchestra, orchestra and orchestra, etc.

[7] B. Amanov identifies three types of instrumental competitions: 1. Instrumental competition in performing skills; 2. Instrumental competition - acquaintance with composer art; 3. An instrumental competition demonstrating the ability to memorize, as well as composer skills through mnemonics [7]. None of these types is given the right to improvise a composer's piece-kuy.

Conclusion. Summing up, we present the conclusions identified as a result of the analysis:

1. There are many publications and studies on the creativity and musical heritage of N. Tlendiev, which form an opinion, give the impression that the facets of the life and creativity of the famous kuyshi are revealed. However, it should be noted that some aspects of his life remained unexplored and creativity has not yet been fully studied. In the future the vital activities of N. Tlendiev should be investigated from a scientific point of view, confirmed by documents and facts, and the particular monographic work should be devoted to them.

2. On the one hand, the formation of N. Tlendiev as a person was determined by the strength of ethnic ear, and, on the other, by the depth of professional knowledge. It was determined that in all his diverse creative activities, that is, performing, composing, conducting or organizing activity, the gift of ethnic ear and high professional competence played an important role. The rich images reflected in his musical compositions, a wide range of thematic lines, the variety of musical methods and instrumental techniques that have not been studied, will result in new research works in the future.

3. Today, Nurgissa's contribution to Kazakh music is appropriate to associate with the greatness of Zhambyl. Nurgissa often met with the akyn, received blessings[8], listened to wisdom, conveyed his musical heritage to the listeners, dedicated the kuy “Ata tolgauy” to him, constantly mentioned his name at the concerts, regularly visited the Zhambyl Museum, and before his death, he performed The Koran reading ceremony at the poet’s burial place, and it is no coincidence that N. Tlendiev was buried next to this outstanding man. Thus, it becomes clear that the greatness of Zhambyl contributed to the development of Nurgissa Tlendiev, the formation of his performing skills, composer heritage, behavior and organizational activities, cognition, hearing and the ability to comprehend the power of the word. It is worth saying that the ethnic auditory abilities of Nurgissa and Zhambyl absorbed life-giving power from one source. These titans of Kazakh culture served people with great love, left the intimate heritage, made an invaluable contribution to national music.

А. Ж. Қазтуғанова[1], А. Қ. Омарова[1], Д. Ф. Каромат[2]

[1]М. О. Әуезов атындағы Әдебиет және өнер институты, Алматы, Қазақстан;
[2]Өзбекстан Республикасының Ғылым Академиясы Өнертану институты, Ташкент, Өзбекстан

ТҰЛҒАНЫҢ БІРЕГЕЙ ӘЛЕМІ

Аннотация. Нұрғиса Тілендиевтің (1925-1998) шығармашылық ауқымы өте кең: көпшілікке арналған әндерінен бастап, кәсіби тыңдармандарға бағытталған күрделі операларға дейін, ал аспаптық өнерде домбыра күйінен бастап, оркестрлік туындыға дейінгі ауқымдылықты қамтиды. Оның шығармашылығы мен қалдырған мұрасы тек музыкатанушылардың ғана емес, сондай-ақ, тәжірибелік ізденіс үстінде жүрген орындаушылардың, ғылыммен тұрақты түрде айналысқан әдебиетшілердің, деректі фильм немесе көпшілік үшін арнайы жазатын газет-журнал тілшілерінің назарына алынған. Әрине, шығарылған еңбектерге, қорғалған диссертацияларға, түсірілген бейнебаяндар мен деректі фильмдерге және олардың авторларына (бұл ретте ірі тұлғалар тарапынан биік бағаланғанын ескеру қажет) қарап, Нұрғиса Тілендиевтің өмірі мен шығармашылығының қыр-сыры ашылған сияқты болып көрінеді. Себебі барлығының көз алдында Нұрғисаның соңғы жылдардағы бақытты бейнесі қалған. Осыған қарап бұл бақытқа ол еш қиындықсыз жеткен сияқты болып көрінеді. Дегенмен, 1930-40 жылдардағы қуғын-сүргін заманында композитордың өмірінің қалай өткендігі, сұрапыл соғыс жылдарында майданға аттанған кезі мен ауыр жарақаттанып өлім аузынан қалай аман қалғаны немесе соғыстан кейінгі репрессияның екінші толқыны болған кездегі уақыттары жабулы қазандай жабулы күйінде тұр. Өмірінің көлеңкелі тұстарын көзі тірі кезінде баспасөз беттерінде жарияланған Нұрғисаның сұхбаттары (қазақ және орыс тілдерінде жарыққа шыққан), шығармаларының шығу тарихы туралы жазылған қысқа мақалалары, замандастары мен әріптестерінің естеліктері арқылы қалпына келтіруге болады. Бұл мәселе ғылыми мақаланың шектеулі ауқымына сыймағандықтан, келешекте іргелі еңбек ретіндегі ауқымды ізденістерді талап етеді. Мақалада Н.Тілендиевтің этникалық есту қабілетіне қатысты кейбір мәселелер қарастырылды.

[8] N. Tlendiev met with Zhambyl Zhabayev several times. For the first time in 1938, and the last time, visited the akyn with his mother Saliha to receive his blessing before going to the front. Tlendiev recalls how, at the first meeting, Zhambyl kissed Nurgissa on the forehead, blessing: “My light, keep your dombra. The Kazakh dombra contained both history permeated with joys and sorrows, and art. If you diligently and carefully master it, this dombra can tell a lot to the people”[1, 362 p.].

Нұрғиса шығармаларының көпшілікке танылуы, халықтық туындыға айналып, ғасырдан ғасырға көшіп, өзектілігін жоғалтпауының сыры неде деген сауал туады. Бұл сұраққа оның дәстүрлі дала мектебі мен кәсіби қала мектебін қатар алып жүргендігінен деп жауап беруге болады. Себебі, бұл екеуін өз шығармашылығында тікелей пайдалану арқылы ол шеберлігін, біліктілігін және сүйіспеншілігін көрсете алды. Бұл ретте оның дала мектебінен – этникалық есту қабілетінің беріктігі болса, қала мектебінен – кәсіби білімінің тереңдігі байқалады. Адамның есту қабілетінің антропологиясында тыңдау (немесе есту қабілеті) мен мінез-құлқының, танымы мен сөйлеген сөзінің біртұтас екендігін анықтай, Н.Тілендиевтің бойындағы қабілеттері мен қызметтері мазмұндалады. Ол – тыңдау арқылы дәстүрлі музыканы бойына сіңіре алды және орындаушы ретінде атадан қалған мұраны жеткізді; қай жерде және қай кезде болмасын (сахнада, қызметте, демалу барысында, отбасында және т.б.) өзін-өзі сал-серілерге тән еркін ұстап, мінез-құлқын тәрбиелей алды және сол мінезінің арқасында істеген істерінен нәтиже шығарып, биік жетістіктерге жете білді; терең танымы арқылы композитор ретінде сарқылмас музыкалық қазына қалдырып, тыңдармандардың жүрегінен орнын тапты, сөйлеген сөзі арқылы көпшілікпен тіл табысып, этнографиялық оркестр құрып, оны халықаралық деңгейдегі байқауларға қатыстырып, ұлттық мұраны насихаттады.

Мақалада келесі нәтижелер ұсынылды:

- Н.Тілендиевтің шығармашылығы мен музыкалық мұрасы туралы көптеген басылымдар мен зерттемелер жазылған. Олардың көлемі әйгілі күйшінің өмірі мен шығармашылығының қыр-сырлары тұтас ашылғандай пікір қалыптастырады. Алайда өмірінің кейбір көлеңкелі тұстары әлі күнге дейін толық зерттелмегені анық. Н.Тілендиевтің өмірі мен шығармашылығы келешекте ғылыми тұрғыдан игеріліп, құжаттық және деректемелік тараптардан дәлелденіп, жеке монографиялық еңбек ретінде жазылуы тиіс.
- Н.Тілендиевтің тұлға ретінде қалыптасуына бір жағынан этникалық есту қабілетінің беріктігі септігін тигізсе, екінші жағынан кәсіби білімінің тереңдігі негіз болған. Оның орындаушылық, композиторлық, дирижерлік немесе ұйымдастырушылық тарапынан алғандағы шығармашылығының қандай да бір бағыты – этникалық есту қабілеті мен кәсіби біліктілігі арқылы өнердің төріндегі берік тұғырға қонғандығы анықталды. Ал музыкалық шығармаларында суреттеген бейнелік танымының бай өрісі, тақырыптық желісінің кең шеңбері, қолданған музыкалық әдіс-тәсілдерінің алуан түрлі ерекшелігі және зерттеу нысанына алынбаған аспаптық күйлері мен күрделі туындылары келешекте жаңа ізденістерге жетелейді.
- Қазақтың музыкасына Нұрғисаның қосқан үлесі, Жамбылдың алыптығымен ассоциациялық түрде ойға оралады. Жамбылдың алыптығы Нұрғиса Тілендиевтің орындаушылық, композиторлық шығармашылығының қалыптасуы мен мінез-құлқының, ұйымдастырушылық қарымының, танымының, есту қабілетінің, тіпті сөз құдіретін ұғуының дамуына көп септігін тигізді. Нұрғиса мен Жамбылдың этникалық есту қабілеті бір арнадан нәр алып, еліне үлкен сүйіспеншілікпен қызмет атқарғанына, артына теңдесі жоқ мұра қалдырғанына, ұлттық музыкаға қосқан маңызды үлесіне қарап, алыптардың да қуаты – бірлікте екендігіне тағы бір көз жеткізгендейміз.

Түйін сөздер: күй, орындаушы, композитор, этникалық есту қабілет, суырыпсалма өнерпаз, оркестр.

А. Ж. Казтуганова[1], А. К. Омарова[1], Д. Ф. Каромат[2]

[1]Институт литературы и искусства им. М. О. Ауэзова, Алматы, Казахстан;
[2]Институт искусствознания АН РУз, Ташкент, Узбекистан

УНИКАЛЬНЫЙ МИР ТВОРЦА

Аннотация. Творческий диапазон Нургисы Тлендиева (1925-1998) очень широк: от популярной песни до сложной оперы, от домбрового кюя до инструментально-оркестрового произведения. Его творческое наследие находит яркое отражение не только в изысканиях музыковедов, но и в созидательном труде музыкантов-исполнителей, научных исследованиях литературоведов, а также журналистов, работающих в документальном кино и средствах массовой информации. Конечно же, учитывая изданные труды, защищенные диссертации, видео-клипы, документальные фильмы и позицию их авторов (при этом необходимо учитывать высокую оценку со стороны видных деятелей), может показаться, что грани жизни и творчества Н. Тлендиева досконально раскрыты. Потому как в общественной памяти остался гармоничный образ Нургисы последних лет его жизни. Создается впечатление, что к такому состоянию он пришел без особых трудностей. Однако «в тени» остается его жизнь периода репрессий 1930-40-х годов, в суровые фронтовые годы, когда он с трудом выжил от тяжелых ранений, или после войны в период второй репрессивной волны. Эти «закрытые» годы жизни можно восстановить разве что через интервью Нургисы, опубликованные на страницах печати (на казахском и русском языках), его краткие высказывания об истории возникновения произведений, воспоминания современников и коллег[2]. И так как этот вопрос не относится к особому кругу научных работ

и в дальнейшем требует фундаментальных исследований, в данной статье мы остановимся только на некоторых аспектах, связанных с уникальным даром Н. Тлендиева – его этническим слухом.

В этой связи возникает вопрос: почему же произведения Нургисы настолько популярны, что стали народными и, невзирая на время, продолжают оставаться востребованными и сегодня? На этот вопрос можно ответить так: потому что Н. Тлендиев «совмещает» традиционную степную школу[3] и профессиональную городскую школу[4]. Дело в том, что, используя их непосредственно в творчестве, он смог блистательно, с чувством продемонстрировать свое мастерство, квалификацию и любовь. При этом, если посредством степной школы ярко выражалась сила этнического слуха, то через городскую школу – глубина профессиональных знаний. В статье характеризуются свойства и функции Н. Тлендиева: через слуховое восприятие он сумел впитать в себя традиционную музыку и как исполнитель донести до слушателей наследие предков; в любое время и в любом месте (на сцене, на работе, во время отдыха, в семье и т.д.) формировал в себе свободу поведения, свойственную салам и серэ, посредством чего делал определенные выводы для самовыражения, сумев добиться больших успехов; оставив через познание неиссякаемую музыкальную сокровищницу, завоевывал сердца слушателей, находя с большинством людей общий язык, создал этнографический оркестр, участвовал в международных конкурсах и пропагандировал национальное искусство.

Подводя итоги, представляем выводы, полученные в результате анализа:

1. Существует множество публикаций и исследований по творчеству и музыкальному наследию Н. Тлендиева, которые формируют мнение, создают впечатление будто раскрыты грани жизни и творчества известного кюйши. Однако следует отметить, что некоторые стороны его жизни остались без внимания, а творчество полностью до сих пор не изучено. Жизнедеятельность Н.Тлендиева в будущем должна быть исследована с научной точки зрения, подтверждена документально и фактически, чему следует посвятить индивидуальный монографический труд.

2. Становление Н. Тлендиева как личности было обусловлено, с одной стороны, силой этнического слуха, с другой – глубиной профессиональных знаний. Выяснилось, что во всем многообразии его творчества, т.е. в исполнительской, композиторской, дирижерской или организаторской деятельности важную роль сыграли обладание этническим слухом и высокая профессиональная компетентность. А богатые образы, отражаемые в его музыкальных произведениях, широкий спектр тематических линий, разнообразие используемых музыкальных методов и инструментальных приемов, которые не были изучены, в будущем приведут к новым изысканиям.

3. Сегодня вклад Н. Тлендиева в казахскую музыку уместно ассоциативно связать с воздействием Жамбыла. Таким образом становится понятным, что величие Жамбыла способствовало становлению Нургисы Тлендиева, развитию его исполнительского мастерства, композиторского наследия, поведения и организаторской деятельности, познания, слуха и умения внимать силе слова. Стоит сказать, что этнические слуховые способности Нургисы и Жамбыла «впитывали» живительную влагу из одного источника. Эти титаны казахской культуры служили людям с большой любовью и, оставив сокровенное наследие, внесли неоценимый вклад в национальную музыку.

Ключевые слова: кюй, исполнитель, композитор, этнический слух, импровизатор, оркестр.

Information about authors:

Kaztuganova Ainur, Candidate of Art Sciences, Institute of Literature and Art named for M. Auezov, Almaty, Kazakhstan; zhasaganbergen@mail.ru; https://orcid.org/0000-0003-1248-2759

Omarova Aklima, Candidate of Art Sciences, Associate Professor, Institute of Literature and Art named for M. Auezov, Almaty, Kazakhstan; aklima_omarova@mail.ru; https://orcid.org/0000-0002-8681-2207

Karomat Dilorom, PhD, Institute of Art Sciences, Academy of Sciences of Uzbekistan, Tashkent, Uzbekistan**;** dilkaramat@gmail.com; https://orcid.org/0000-0002-9025-6194

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Д. Д. Уразымбетов, А. В. Цой

Казахская национальная академия искусств им. Т. К. Жургенова, Алматы, Казахстан

РОЛЬ ПЛАСТИЧЕСКИХ СИМВОЛОВ В ДРАМАТИЧЕСКОМ СПЕКТАКЛЕ (К ОПЫТУ СРАВНИТЕЛЬНОГО АНАЛИЗА)

Аннотация. В современной режиссуре драматического театра существует тенденция к переложению литературных или словесных идиом на язык сцены. В пространстве сцены обыденные, привычные в обиходе выражения воссоздаются в буквальном смысле, а считываются уже в переносном. Режиссеры драматических театров стремятся наделить ассоциативные характеристики тех или иных событий и ситуаций символическими значениями. Театр уже достаточно давно использует в своем арсенале художественных средств пластику и/или танец для символизации художественных образов. Визуально-акустические формы сценического действия дают возможность проследить процесс трансформации видимых объектов в сознании зрителя до их проекции в область подсознания. Символ, выраженный пластическим языком и сосредоточенный на выявлении внутренних эмоциональных процессов, которые обычно в драматическом спектакле резюмируются словом, можно назвать основной типологической характеристикой вплетения пластики и танца в полотно сценического действия. Авторами статьи предлагается попытка осмысления и сравнительного анализа работ «Отелло» литовского режиссера Э. Някрошуса и «Плаха» казахстанского режиссера Д. Жумабаевой, где через призму многоэпизодности, открытой игры и физического действия актеров выявляется роль пластических символов в формировании особой смысловой структуры спектакля.

Ключевые слова: символизм, пластические символы, драматический спектакль, казахстанское театральное искусство, Э. Някрошус, Д. Жумабаева.

Природа символов и их семиотических понятий всегда нуждалась в тщательных исследованиях и расшифровках. Если рассматривать символ с точки зрения религиозного, художественно-эстетического и этического сознания, то он является самым древним средством познания, освоения действительности, распространенным в системе человеческих отношений. Первоначально символом в месте появления, а именно в Древней Греции, обозначался какой-нибудь вещественный знак, тайный смысл которого знал лишь небольшой круг посвященных людей. Весь современный мир является совокупностью знаков и символов, которые служат некими манифестами смыслов и понятий, эмоций и абстракций для передачи информации невербальным путем. Известный культуролог Ю. М. Лотман рассматривает символ в системе культурообразования мира: «Символ никогда не принадлежит какому-либо одному синхронному срезу культуры – он всегда пронзает этот срез по вертикали, приходя из прошлого и уходя в будущее. Память символа всегда древнее, чем память его несимволического текстового окружения» [1, с. 192]. Задача символов – не только обналичивать себя путем изображения объектов, на которые указы-вают знаки, но и нести в себе добавочное значение, выражая общие понятия и идеи, которые служат толкованием определенного объекта. Немаловажной является и та среда, отвечающая за интерпретацию конкретного символа, в которой он представлен. Например, символ зайца в египетских иероглифах обозначал представление о бытии и символизировал простое существование. В Древней Греции лунная богиня Геката отождествлялась с зайцами. Евреи воспринимали зайца как «нечистое» животное. Таким образом, природа символа такова, что отличается многозначностью и динамикой перехода от смысла к смыслу.

Семиотические исследования, возникшие вокруг разделения двух понятий: знака и символа, их отличия и схожесть во многих аспектах обсуждалась в трудах Х.-Г. Гадамера, Н. В. Кулагиной, П. Рикера, М. К. Мамардашвили, А. М. Пятигорского и мн. других. Именно в исследованиях швейцарского лингвиста, основоположника Женевской лингвистической школы Ф. де Соссюра, который анализировал изменения знаков на лингвистическом материале, понятие символа исключается из рамок лингвистики. Символ, по его мнению, *не несет знаковых функций* и «характеризуется тем, что он всегда не до конца произволен; он не вполне пуст, в нем есть рудимент естественной связи между означающим и означаемым. Символ справедливости – весы нельзя заменить, чем попало, например, колесницей» [2, с. 101]. Его последователь – американский философ, основоположник прагматизма и семиотики, логик, математик Ч. С. Пирс подчеркивает важную роль символов, говоря о том, что символ не может указать на какую-либо конкретную вещь — он «денотирует» (обозначает) некоторый тип вещей и является подосновой нашего разума. «Символы дают нам средство мыслить о мыслях, причем так, как мы бы не смогли о них мыслить в отсутствие символов. Они позволяют нам создавать абстракции, без которых мы лишились бы великого двигателя развития науки» [3, с. 223]. Таким образом, чаще всего символы имеют интуитивное содержание мысли или философский замысел, в отличие от знака. Специфические характеристики символа от прочих знаков раскрыл в своей «Эстетике» Г. В. Ф. Гегель, говоря о содержании восприятия знака. Символ, в его понимании, представляет собой «непосредственно наличное или данное для созерцания внешнее существование, которое не берется таким, каким оно непосредственно существует ради самого себя, а должно пониматься в более широком и общественном смысле» [4, с. 14]. Когда, в случае знака собственное содержание восприятия и то содержание, знаком которого он является, не имеют ничего общего. В широком понимании символ есть образ, наделенный многозначностью, которая в совокупности с предметностью выступают в структуре символа как два полюса, существующие в борьбе и единстве противоположностей. Обретая символическое значение, образ становится размытым, смысловые перспективы начинают «просвечивают» сквозь него. Углубляясь в природу знака и символа в процессе «последовательного самоосвобождения человека», Э. Кассирер вовсе утверждает принадлежность их к двум «различным универсумам дискурсии» [5, с. 476], где знак «соотносится с соответствую-щей вещью одним-единственным, жестко закрепленным способом, а символ не только универсален, но и чрезвычайно изменчив» [5, с. 481]. Существуя в двух разных измерениях, символ и знак, однако, также наделены взаимопроникающими функциями, о чем говорил русский философ, антиковед и писатель А. Ф. Лосев. Его связь с символизмом как особым явлением в культуре начала XX века дало необходимую расшифровку *перехода знака в категорию символа*. По его мнению, символ является площадкой, где встречаются означающее и означаемое, которые не имеют ничего общего между собою, но в то же время они есть «сигнификация вещи, в которой отождествляется то, что не имеет ничего общего между собою, а именно — символизирующее и символизируемое. Так, идейная образность приобретает конкретность» [6, с. 50–51]. Иными словами, символ становится понятным через апелляцию к «образу, которая являет нашему взору не абстрактную сущность, а конкретную ее действительность» [7, с. 34]. Эту дифференцированность подтверждает Э. А. Тайсина в книге «Философские вопросы семиотики», которая занимаясь анализом различных признаков знака, приходит к мнению, что символ является *субъективным пониманием знака* и определяет его по следующим характеристикам:

- конвенциональность; имеет искусственное происхождение; имеет самостоятельную ценность формы.
- синкретичность содержания (сочетание «несопоставимых» образов).
- манифестирует идею, событие, состояние или действие (воплощая и материализуя) [8].

Рассматривая различия понятий знака и символа в культурологическом и философском аспекте, можно констатировать, что предмет интерпретации является сущностным отличием знака от символа.

Символизм в искусстве, возникший в 1870-80-х гг. во Франции и достигший своего расцвета в России, Норвегии, а также Америке, стал одним из самых продуктивных и свободных направлений искусства. Изначально утвердившись в литературе и постепенно проникая во все виды искусства, определился, как универсальный язык культуры конца XIX – начала XX веков для «совершенного единства внутреннего смысла и внешнего облика» [4, с. 13]. Такие синтетические виды искусства, как хореография и театр, приобрели свою направленность. Символисты сценического искусства, не признавая художественного смысла выражения натурализма в театре, настаивали на поисках скрытых истин и открытии человеку внутренних смыслов. Отражение двойственной картины мира, направленной на выявление высшей реальности, попытки сделать сверхреальность видимой — становятся главными постулатами символизма драматического спектакля. Таким образом, символ в искусстве по степени использования становится логично обоснованным, и может воплощать в реальность развлекательную, протестующую и развивающую функции, что в совокупности «всегда поддержит, предвосхитит, превознесет и приукрасит практически любую драматургию действия» [9, с. 187]. Символы в театре рисуют куда более насыщенные образы, рождающиеся в головах у зрителей, дают пищу для ума, нежели, когда этот же театр показывает все как в жизни — прямо и без стеснения. « «Если в течение спектакля для нас накапливается на разных уровнях смысл, значит, есть определенные носители, которые нам этот смысл передали» [10, с. 6].

Через призму возрождения жанра трагедии, известный франкоязычный драматург М. Метерлинк, обратился к символизму в своих работах. Его ранние пьесы такие, как «Принцесса Мален», «Непрошенная», «Смерть Тентажиля», а также сборник философских эссе «Сокровище Смиренных» (1896) были названы «золотым фондом» символизма. Он утверждает принцип «высшей психологии», говоря об отказе от людских страстей, убийства и эмоциональных порывов и настаивая на том, что «существует каждодневная трагедия, которая гораздо реальнее, и глубже, и больше подходит к нашему настоящему существованию, чем трагедия больших приключений» [5, с. 149]. Многие драматургические реформы М. Метерлинка стали ведущей тенденцией «новой драмы» и нашли свое отражение в пьесах А. П. Чехова. Устоявшиеся представления зрителей о театральном действии рухнули, когда в пьесах бельгийского драматурга все приобрело скрытый подтекст, каждый смысл был глубоко спрятан в действии, словах, жестах, молчании. Придавая большое значение молчанию в театре, как способу переосмысливания слова, французский драматург сравнивает последнее с золотом и серебром, которые погружаясь в чистую воду, являются олицетворением слов, приобретающих «смысл лишь благодаря молчанию, омывающему их» [12, с. 302].

Реорганизация действия, персонажа, времени и пространства, речевой составляющей пьесы требовали нового сценического языка. Именно поэтому в середине XIX века интерес к использованию пластики в спектаклях драматического театра становится модным сценическим решением. Однако частое использование пластического языка повлияло на то, что само понятие стало расплывчатым и утратило конкретное содержание. Лишь в начале XX века, в период становления режиссуры, как самостоятельной творческой профессии пристальное внимание вновь было направлено на пластическое существование актера в спектаклях. К этой проблеме обращались выдающиеся режиссеры и театральные деятели К.С. Станиславский, В.Э. Мейерхольд, С.М. Эйзенштейн, А. Я. Таиров, Е. Гротовский, создавая системы, уроки и тренажи для развития пластической выразительности актера. С такой точки зрения именно применение пластики, хореографии и танцевальных фрагментов помогло стать главным не только слову в драматических спектаклях, но и выразительному движению. В силу своей многозначной художественно-образной специфики хореографическое искусство изначально выступает общепонятным средством общения, которое обеспечивает передачу культурных кодов. Язык хореографического искусства представляет собой совокупность визуальных знаков, а если брать в учет их организацию посредством ритма и музыки, то «ритмопластических визуальных знаков, упорядоченных жестов и движений человеческого тела в пространственно-временном континууме, служащая для передачи эмоциональных состояний исполнителя» [13, с. 233]. Если рассматривать танцевальное искусство с позиции символического обогащения театрального действия, то в этом плане, культура выразительного движения способствовала расширению платформы невербальной передачи информации, которая, имея «наивысшую конструкцию вещи, может бесконечно разворачивать объект мысли», раскрывая новые смыслы [9, с. 189].

Современный театр рассматривает роль смысловых физических нагрузок, пластики и танца основополагающей в формировании языка символов. Символ, выраженный пластическим языком, обеспечивает двойное бытие действию в спектакле, которое существует одновременно на материальном визуальном уровне и на уровне сознания. В научном исследовании В. Н. Алесенковой «Символ как выразительное средство практики рубежа XX-XXI веков» анализируется роль символизации объектов в драматическом спектакле современного театрального искусства. По ее мнению, эволюция развития театрального символа способствовала формированию понятий условного символа и метасимвола в концепции спектакля. Вначале символ формируется режиссером для развернутого прототипа художественного образа, персонажа, затем символ обретает статус метасимвола, то есть образности всего спектакля. Поэтапное овладение искусством символизации включено в работу не только режиссера, но и режиссера по пластике, который посредством хореографического языка наделяет символ особой визуальной выразительностью. Смысловое физическое действие вне зависимости от произносимого текста исполняет роль проекции своего первоначального смысла из области представления в область символического образа, создавая второстепенное значение. Такое действие далее будет называться абстрактно-символическим, поскольку в восприятии его символического значения более всего задействовано абстрактное мышление [14, с. 71]. Такая модель мышления побуждает зрителя воспринимать образы в их символическом значении, ассоциируя их с естественными, характерными процессами, законами. Именно тогда символы приобретают статус условных символов, значительно украшая полотно драматического действия.

Вершинами режиссерского театра XX можно назвать деятельность таких режиссеров, как Вс. Мейерхольд, Г. Крэг, Ю. Любимов, Р. Стуруа, многие работы, которых стали настоящей вехой в истории театра. Одним из ярких явлений в этой плеяде режиссеров-современников, выступает литовский театральный деятель Э. Някрошус. Его спектакли вызывают особый интерес со стороны зрителей, театрального сообщества и исследователей своими метафорами, отображающими «пространство за словами» [15, с. 90] и «остроактуальными смыслами с обобщенными, вневременными» вопросами [16, с. 6]. Театровед О. Н. Мальцева в книге «Театр Эймунтаса Някрошуса (Поэтика)» утверждает сценический мир режиссера, как «малый слепок вселенной, микрокосм» [16, с. 35], глубоко изучая его работу с литературным материалом, направления преобразований этого материала и сценическое воплощение. Отдельное внимание автор книги уделяет ритмическим особенностям спектакля в «поэтике» театра Э. Някрошуса, где, наряду с актерской игрой, пластические метафоры и символы выступают в роли конструктивного и смыслообразующего средства. Ценным для исследователей является то, что О. Н. Мальцева смогла выделить принципы и методы литовского режиссера в работе над спектаклями. Авторами статьи для рассмотрения роли выразительных символов проанализирован третий шекспировский спектакль Э. Някрошуса «Отелло» (театр «Meno fortas», 2010), так как именно в нем пластический язык метафор достигает совершенства. Следуя Шекспиру, Э. Някрошюс отождествляет природную стихию со стихией человеческих чувств. Здесь символ моря как вольной бескрайней стихии, манящей и пугающей бездны, в которой «обреченная любовь, зарифмованная с водой – океаном, пучиной, стихией, которая выходит из берегов и в кульминации буквально выплескивается на сцену» отображает внутреннее состояние главных героев [15, с. 96]. Огонь, песок, вода и лоханки-корабли, которые превращались в гробы, служат говорящими символами-манифестами спектакля. Не менее красочны пластические аллегории актеров.

Характерной чертой литовского режиссера является автономность каждого эпизода, напоминающий «миниспектакль, который мог бы вызвать аплодисменты, не помешай они становлению сценического целого» [16, с. 188] и, обретая статус обобщенного образа, поражает своей зрелищностью и красотой. В совокупности такая самостоятельность сцен делает спектакль многоэпизодным, между которыми отсутствует причинно-следственная связь. Пожалуй, одним из самых выразительных сцен в «Отелло», «образом неразрывного сплетения любви и ревности, притяжения и отталкивания людей» становится финальный танец Отелло (В. Багдонас) и Дездемоны (И. Шпокайте) [16, с. 190]. Поразительно яростное кружение, решенное пластически, когда, казалось бы, убиенная Дездемона снова и снова бросается к мужу, словно ища у него защиты. Их сумасшедший вальс (тема из «Поэмы» З. Фибиха), который изводит своим навязчивым дребезжанием на слегка расстроенном фортепиано и уносит куда-то в космос, достигает своей кульминации, когда к нему подключается пронзительная труба. Все действие служит олицетворением начала любви, казавшейся тогда столь безоблачной (рисунок 1).

Рисунок 1 – «Отелло» (2010). Реж. Э. Някрошус, театр «Meno fortas»

Характерным для героев Э. Някрошуса выступает склонность предаваться открытой игре на сцене, которая является средством противостояния жизни, непринятию ее законов. Показательна сцена, в которой актеры перепрыгивают через валуны, словно дети, играющие в чехарду или в сцене с песком, где они пластически изображают ребят, возящихся в песочнице. Символичен эпизод прощания Дездемоны и Отелло, в котором движения с перемещением стульев представляет собой не то танец расставания, не то игру с перебежками. Двигаясь от одного стула к другому, Дездемона пытается быть то тут, то там – она мечется словно мотылек над лампой.

Большой интерес вызывают пластические аллегории актеров. Действия, выраженные с помощью актерского языка, мимики и пластики является предпочтением режиссера «раскрывать героев спектакля через конкретные физические действия» [16, с. 217]. Причём, такие пластические символы обычно лишены какого-нибудь подтекста, они применяются режиссером по их прямому назначению. Отелло, поплевав на руки, начинает обтирать Дездемону с ног до головы, Аллегорически эту физику можно интерпретировать по-разному: манеры мавра, прощание перед смертью, чувственная игра. Однако задумка режиссера заключалась в том, что Отелло, видя в Дездемоне порочную и грязную женщину во всех смыслах, «пытается смыть с нее хотя бы внешнюю грязь» [16, с. 219].

Выразительные физические действия, символичные в своей основе, транслируют в сознание зрителя информацию, которая накапливается в процессе просмотра спектакля и, уже после образуют цепь логичную и последовательную в осознании и расшифровке их применений. Спектакли Э. Някрошуса необходимо пересматривать по нескольку раз, чтобы полностью познать и раскодировать все символы и метафоры, спрятанные режиссером, ведь «у Някрошуса есть другой язык и для тела, неактуальный, несовременный, но точный. И на этом языке можно сказать что-то совсем другое» [17].

Обращение авторов к творчеству литовского режиссера неслучайно. Его спектакли, построенные «по принципу лабиринтов, где много тупиков» [16, с. 138] являются ярким направлением, школой, на которые ориентируются режиссеры XXI века в мировом театральном искусстве, в том числе и в казахстанском. Режиссер Д. Жумабаева в казахстанском театральном сообществе известна своими метафорическими спектаклями, в которых частое обращение к драматико-пластическим символам выделяют ее из списка остальных современников. Используя в качестве вдохновения и направления творчество таких выдающихся режиссеров, как В. Бутусов, Р. Туминас, Э. Някрошус, казахстанский режиссер создает свои уникальные работы, определяющие способ ее мироощущения. Многоэпизодность, эпизод как трюк, открытая игра и физические действия актеров, присущие работам литовского режиссера Э. Някрошуса, заимствуются в качестве основных направлений в театральном творчестве Д. Жумабаевой.

Действительно, если наблюдать одну из последних, на сегодняшний день, работу молодого режиссера: «Плаха» по одноименному роману Ч. Айтматова (2019, режиссер – Д. Жумабаева, режиссер по пластике – А. Цой, Костанай, Русский драматический театр), то можно отметить многообразие самостоятельных сцен и зрелищность спектакля, где каждый эпизод является, по сути, законченным номером, имея в определенной мере независимую конструкцию. Герой романа Авдий (С. Щербинин) возникает в самом начале спектакля, и сидя на авансцене перед маленьким макетом церкви, отчаянно молится о спасении души. Его мольбы и обращение к Богу усиливаются пением мужского церковного хора, погружая зрителя в атмосферу молитвенного ритуала. Вторя нарастающей силе молебен Авдия, яростным стремительным бегом и кувырками возникает один за другим актерская труппа, создавая ощущение беспокойного моря. Это яркое олицетворение нестабильного, шаткого внутреннего состояния Авдия. Сбитый с ног, герой определяет свой путь, хватаясь за аркан, протянутый из зрительного зала через всю сцену. Он, в мучительных перегибах корпуса, во вращениях, оттяжках и падениях, тащит за собой не то бремя, не то корабль, выступающий символом человеческой жизни, плывущей к неизбежной пристани – смерти в христианской религии, олицетворяя непреклонность, настойчивость и силу духа, падает на землю.

Рисунок 2 – «Плаха» (2019), реж. Д. Жумабаева,
реж. по пластике А. Цой.
Русский драматический театр
(Кустанай, Казахстан)

Сценография в спектакле является выражением дополнительного образа-метафоры: черный кабинет сцены; прочерченный по периметру досками и наполненный землей квадрат, обозначающий загон; аркан; скамейки, которые в процессе будут преобразовываться то в крест, то способствовать движению поезда, то безмолвно будут лежать перевернутыми. «Скамейка – это то место, которое объединяет людей в разговоре. Нужно присесть, чтобы поговорить, чтобы вскрыть человека в себе, чтобы просто задуматься» [18]. Пластика в спектакле решает одну из важнейших задач по выявлению внутренней жизни героев. Ее цель сделать незримым то, что происходит с действующим лицом внутри, например, что его по-настоящему тревожит или беспокоит, о чем его мысли. В таком случае, «тело становится инструментом раскрытия души» [19, с. 270]. Особо зрелищна танцевально-массовая сцена «Облава в Моюнкумской долине», в которой актеры под музыку В. Высоцкого «Волки» представляют охотников на сайгаков. Резкие повороты, выпады, сильные акцентированные прыжки в пол, игра с землей в загоне, агрессивные похлопывания по сапогам, «колющие» движения локтей, перемещение и бег среди них Акбары и Ташчайнара, в согласии с текстом, служили олицетворением смертельной битвы между людьми и волками, борющимися за свою свободу, жизнь и среду обитания.

Возвращаясь к применению сценических принципов Э. Някрошуса, таких, как эпизод, приобретающий черты трюка, становится очевидным зрелищность и эффектность сцены охоты волков на яков. Воцарившееся «изначальное равновесие: солнце в небе, пустынные горы, полная тишина, отсутствие людей в равной мере принадлежали как жвачным, так и хищникам», воплощаясь в молчании слова и застываниях в позах волков в повествовании, представлялись своеобразной подготовкой к стремительным, неожиданным прыжкам, смене поз и резким перемещениям в сценическом пространстве. Акбара (Ю. Кудряшова) в выразительной пластике тела выливает чашу с кровью на себя и Ташчайнара (Р. Бушинский), олицетворяя вмешательство человека в естество природы и повлекшие за собой череду трагических обстоятельств.

Конкретные физические действия актера в спектакле применяются режиссером и режиссером по пластике непосредственно и не имеют дополнительных скрытых смыслов, однако считываются как символы, отображающие внутренние состояния героев. Три разворачивающиеся судьбы в параллели (Акбара, Авдий и Бостон), согласно идее Ч. Айтматова, представлены в спектакле в равной степени существования, однако пластическая выразительность каждого вычленена «вывернутой болью наружу» [20]. Замедленные, тяжелые шаги Бостона (К. Айдосов) выдают его нелегкую судьбу «честного колхозника и лучшего чабана в аиле», который постоянными падениями вниз, олицетворяет человека, утратившего веру, невластного над обстоятельствами жизни. Конкретными физическими действиями наполнен эпизод вылова волков, в котором Бостон предстает перед зрителем в хореографически продуманном этюде с ружьем. Внешние действия (вскидывание, прокручивание, игра с ружьем в текстовом сопровождении) помогли выстроить собирательный образ Бостона в сознании зрителя, которые «проецируются на воображаемое понятие и воспринимаются как универсальный процесс, созданный символическими действиями» [14, с. 64]. Символом смерти Ташчайнара здесь выступает сбрасывание пальто с себя, которое он отдает неспешно в руки Акбаре. Пластический жест в абсолютной тишине, «исходящей от величия земли и неба», созданный режиссером в этой сцене, свидетельствует о редком ощущении и осмыслении ею связи смерти с психологическими побуждениями. Большим значением в спектакле наделен процесс рождения слова и актерской пластики. Сознательное, но осмысленное молчание проникает в структуру спектакля и носит ярко выраженный зловещий характер присутствия на земле неизвестных человеку высших сил», выполняет функции индикатора безжалостного и трагического исхода судьбы каждого. В тишине рождается слово и действие, как новая форма ожидания «как защита от молчания, от страха – смысл, который слепые придают разговору, обмену словами» [21, с. 52]. Такое молчание в диалогах часто выступает олицетворением жизни «вне партнера, тяготеющего к монологизации», когда каждый настолько поглощен своими мыслями, что не реагирует на слова и действия другого. Активные физические движения Бостона, прерываемые паузами и остановками в пластике, словно замиранием, герой приходит в сознание, его, как-бы выбрасывает в реальность, а затем, вновь истошный вой Акбары, терзающий душу, погружает в кошмарный сон наяву [22, с. 103].

Рисунок 3 – Акбара – Ю. Кудряшова

В мизансцене распятого Авдия, лежащего на земле, и Акбары, потерявшей в облаве на сайгаков выводок волчат отчетливо видится построение определенного состояния волчицы, выраженного пластическим языком. Авдий умирает физически, «неприкаянная» Акбара эмоционально: партерная хореографическая лексика олицетворяет ее каждодневный бег, страдания, тоску по любимым волчатам. Символичны выразительные движения рук Акбары в молитвенном ритуале к богине волков Бюри-ана, «сжавшейся, как пружина, вздыбив загривок и смотрящей перед собой дико горящими в полутьме, фосфоресцирующими глазами».

Главным символом спектакля, как и у автора романа, выступает судьба волчицы Акбары, как «несчастье, постигшее ее род – есть несчастье, постигшее природу в целом» и ее смерть, утверждающая смерть человека в человеке. Запоминающим становится каждое появление волков на сцене, обозначенное воем, нарушающим тишину и заставляющим умолкнуть слову на сцене. «Пришлые волки» – Акбара и Ташчайнар (Ю. Кудряшова и Р. Бушинский) в неустанном поиске выводка волчат, пластическими движениями приобретали черты очеловеченных животных, наделенных благородством, нравственной силой, какой лишены люди, им противопоставленные. Их выразительные физические действия («Охота», «Охота 2», «Роды Акбары», «Первая встреча Авдия с волками») чередовались резкими, неожиданными выпадами с медленными, гипнотическими застываниями в позах. В перемещениях по партеру, которые отличались звериной легкостью и быстротой, наряду со стремительными прыжками, мягкими, неслышными переходами в пол и поддержками читалась, с одной стороны, нечеловеческая сила духа, а с другой, беззащитность и бессилие перед человеком.

Как и литовский режиссер, Д. Жумабаева часто применяет на сцене способ открытой игры, особенно в моменты сильного эмоционального подъёма. В таком прочтении конфликта, с одной стороны, видится масштабность проблемы, с другой, ощущается легкость отношения к этому состоянию. Как отличный психолог, режиссер прибегает к такому методу неспроста. Это, своего рода, защитная реакция человека, столкнувшего с проблемами внешнего мира, и как результат – он закрывается и начинает вести себя, как ребенок. В сцене первой встречи Авдия с волками, актеры начинают перебегать по скамейкам, используя свистульки, перекидываются вещь мешками между собой, словно играя.

В сцене «Параллелей женщин» как отголосок к похожести судеб трех женских начал, невластных над своей участью, героиня Инга Федоровна (А. Зинкова) описывает похищение волчат Базарбаем. Подбегая сзади к сидящей на скамейке волчице, она начинает игру с головой Акбары, словно с куклой, оттягивая назад, наклоняя, путая волосы, закрывая рот рукой. Перебежки по скамейкам, перемещения их в пространстве загона, перекаты на локтях, дуэтное контактное хореографическое существование, совместно с драматическим текстом прерывается легендой о Матери – Оленихе, зазвучавшей из уст Гулюмкан под звуки домбры. Сцена параллели трех женщин завораживает своей графичностью движений: они медленно бредут по скамейкам, каждая в своем направлении.

Гимном в финале звучит песня В. Высоцкого, под которую Акбара, закручивая детскую игрушку – волчок на авансцене, начинает свой последний танец смерти. Все пластические движения символизируют ее боль и отчаяние. Через множественные вращения, падения и прыжки, она сбрасывает пальто с себя, обнажая душу. Терзаясь в агонии, грязная от земли и мокрая от крови и пота, Акбара своей смертью ставит многоточие в ответе на вопрос о поисках человека внутри себя. Режиссером Д. Жумабаевой, как и автором романа, выдвигается смерть каждой отдельной личности, как поиски Бога и восхождение на плаху. Она не утверждается, а проверяется на жизненность в сегодняшнем мире, на реальную социальную действенность. Гибель главных героев напрасна и служит символом того, что никакая жертва не сможет искупить все человеческие грехи или вернуть кого-то на путь истинный. Многообразие символов, вплетенных в сложную драматургическую ткань спектакля, является связующим материалом всего сценического действия, действуя на подсознание зрителя и трансформируя его восприятие действительности.

«Отелло» Э. Някрошуса и современная интерпретация Д. Жумабаевой «Плаха» – это две абсолютно разные постановки. Однако в них можно отметить схожесть режиссерских приемов. Одним из таких приемов выступает завершенность и/или самостоятельность каждой отдельной сцены, несвязанных между собой логически, но, вкупе создающие многоэпизодность постановки. Принцип открытой игровой формы, используемой в работах упоминаемых режиссеров, дает возможность зрителю увидеть материал в неожиданном ракурсе, «вывести из состояния покоя и безразличия, раскалывая зрительный зал на два, а то и на три лагеря», вовлечь в ситуацию осмысленной деятельности, в которой мотивом служит не результат, а сам игровой процесс [23, с. 491]. Конкретные физические действия актера, направленные на прямое их применение, без какого-то дополнительного подтекста или умысла, дают возможность актеру в спектаклях жить этими чувствами, как своими собственными, без нужды в искусственном дополнении. Применение их оправданно, когда «дело *состоит* не в самих физических действиях, как таковых, а в той правде и вере, которые эти действия помогают нам вызывать и чувствовать в себе» [24, с. 278].

Язык пластических символов проанализированных спектаклей каждого режиссера имеет свои особенности и способ выражения. Общим для всех остается активное обращение к принципам организации спектакля и пластической символизации художественных образов. Обращение к подсознанию зрителя через пластические символы, выполняющие огромную роль в создании спектакля, способствует порождению сложных ассоциаций, взывает к чувствам смотрящего. Именно многообразие пластических символов в спектакле могут в совокупности своей давать смысловую надстройку над центральной проблемой, существовать обособленно, и в то же время служить одному условному символу — сверхсимволу, как сверхидее. Если же наделить этот сверхсимвол метафизическим смыслом, заставляя зрителя по-философски мыслить над проблемой, он выходит за рамки интерпретации текста и становится наиболее важным и значимым звеном в формировании символического образа спектакля. Новый подход к изучению театрального символа и открывающего смысловые уровни метафорической природы знака становится немыслим без пластического раскрытия образа. Тем более, что такие символы помогают режиссеру раскрыть концепцию своего спектакля, поэтому «действенная основа театрального символа – это принципиально важный результат исследования, показывающий достижение современной режиссуры» [14, с. 76].

Символическая форма художественных действий и образов должна быть настолько универсальной, чтобы способствовать диалогу между режиссером и зрителем. Как показала история развития современного театрального мирового искусства именно через символы режиссер и актер «говорят языком многих культур, часто даже не осознавая этого» [9, с. 192]. Поэтому невозможно отрицать то, что появление и использование пластики для символизации театрального языка, как нового средства художественной выразительности в театральном искусстве, прочно вписалось в художественную практику XX века и приносит весьма ощутимые плоды в современном драматическом пространстве.

Д. Д. Уразымбетов, А. В. Цой

Т. Қ. Жүргенов атындағы Қазақ ұлттық өнер академиясы, Алматы, Қазақстан

ДРАМАЛЫҚ СПЕКТАКЛЬДЕРДЕГІ ПЛАСТИКАЛЫҚ СИМВОЛДАРДЫҢ РӨЛІ (САЛЫСТЫРМАЛЫ ТАЛДАУ ТӘЖІРИБЕСІНЕ НЕГІЗДЕЛГЕН)

Аннотация. Қазіргі драма театр режиссурасында әдеби немесе ауызша идиомаларды сахна тіліне аудару үрдісі байқалады. Драмалық театр режиссерлері драмалық материалдар негізінде белгілі бір оқиғаға, жағдайға және символдық киімге ассоциативті сипаттама беруге тырысады. Қазіргі театр ежелден көркем образдарды бейнелеу үшін көркемдік құралдардың – пластикалық және бидің арсеналында қолданылып келеді.

Сахналық өнер символистері ішкі мән-мағыналарды жеткізуде және оның сыртқы көрінісін барынша айқын көрсетуде ізденістерге барды. Осы орайда драмалық өнердің кейіпкердің іс-әрекеті мен уақытты және кеңістікті, пьесаның сөйлеу құралын қайта құруға негіз болатын жаңа сахналық тілді қалыптастыруға ұмтылуы заңды болып саналады. Режиссерлердің актердің пластикалық табиғатына көңіл аударуы драмалық спектакль құрылымындағы көркемдік мәнерліліктің жарқын құралдарының бірі ретінде және визуалды белгілердің жиынтығы болып саналатын хореографиялық өнер тілінің көпмағыналы көркемдік-бейнелі ерекшелігінің табиғатымен нығая түспек. Осыған байланысты режиссерлер спектакльдегі ойын-сауықты арттыруға, сюжеттерді жарқын және есте қаларлық етуге тырысады. Сахналық іс-әрекеттің визуалды және акустикалық формалары көрермен санасында көрінетін заттардың есте қалу аймағына проекцияға ауысу процесін бақылауға мүмкіндік береді. Қысқа, би-пластикалық сәттер сахналық атмосфераны байытады. Символ пластикалық тілде бейнеленген және бағытталған. Пластикалық тілде бейнеленген және әдетте

драмалық қойылымда жинақталған ішкі эмоционалдық процестерді анықтауға бағытталған символды сахналық өнердің бір матасына пластика мен би енгізудің негізгі типологиялық сипаттамасы деп атауға болады. Заманауи театр символдар тілін қалыптастырудағы негізгі мағыналық физикалық жүктемелердің, пластика мен би рөлін қарастырады.

Мақала авторлары литвалық режиссер Э.Някрошустың «Отелло» мен қазақстандық режиссер Д.Жұмабаеваның «Жанпида» спектакльдерін мағынасын ашуда салыстырмалы талдауға талпыныс жасайды, мұнда көпэпизодты призма арқылы актерлердің ашық ойыны мен физикалық әрекеттерінің нәтижесінде пластикалық символдардың спектакльдің мағыналық құрылымын қалыптастырудағы ерекше рөліне тоқталады. Әрбір талданған спектакльдердегі режиссерлердің өз ойларын жеткізуде мәнерлі символдардың тілі өзіндік ерекшеліктер мен тәсілдерге ие. Спектакльді ұйымдастыру және көркемдік бейнелерді пластикалық символизациялау қағидаттарына белсенді қарау барлығына ортақ болып қала береді. Әрбір жеке сахнаның аяқталуы мен дербес жиынтығы спектакльді көпэпизодтыққа айналдырады, онда мұндай дербес актілер арасында себеп-салдарлық байланыс жоқ.

Көрерменді аталған режиссерлердің жұмыстарында пайдаланылатын ашық ойын жағдайына тарту көрерменге материалды күтпеген ракурстан қарауға, болған жағдайдың нәтижесін емес, ондағы мағыналы іс-әрекетке құрылған ойын процесін тамашалауға мүмкіндік береді. Актерлердің қандай да бір қосымша астарсыз немесе жанама ойсыз нақты әрекетке құрылған ойыны актерге спектакльдерде өзінің жеке сезімдерімен өмір сүріп, ешбір жасанды толықтырусыз өмір сүруге мүмкіндік береді. Бұл ретте Литва және қазақстандық театр қайраткерлерінің режиссерлік тәсілдерінің ұқсастығын байқауға болады.

Актерлік ойынмен қатар, пластикалық көріністегі метафорлар мен символдар драмалық төсем контекстінде конструктивтік және мағыналы құрал рөлінде болады. Спектакльді тудыруда үлкен рөл атқаратын пластикалық символдар арқылы көрерменнің санасы мен сезіміне әсер етіп, күрделі ассоциациялардың пайда болуына ықпал етеді.

Түйін сөздер: символизм, пластикалық нышандар, драмалық спектакль, қазақстандық театр өнері, Э. Някрошус, Д. Жұмабаева.

D. D. Urazymbetov, **A. V. Tsoy**

T. K. Zhurgenov Kazakh National Academy of Arts, Almaty, Kazakhstan

THE ROLE OF PLASTIC SYMBOLS IN A DRAMATIC PERFORMANCE (TO THE EXPERIENCE OF COMPARATIVE ANALYSIS)

Absract. In modern drama theater directing, there is a tendency to translate literary or verbal idioms into the language of the stage. In the space of the scene, every day, familiar expressions are recreated in the literal sense, and are read in the figurative sense. Drama theater directors strive to give symbolic meanings to the associative characteristics of certain events and situations. The theater has long used plastic and/or dance in its arsenal of artistic means to symbolize artistic images.

Symbolists of stage art affirm the search for inner meanings in expression and attempts to make super reality visible. The desire of dramatic art to form a new stage language, which is based on the reorganization of the action, character, time and space, and the speech component of the play, becomes natural. The appeal of directors to the plastic nature of the actor, as one of the bright means of artistic expression in the structure of a dramatic performance, is supported by the nature of the multi-valued artistic and figurative specificity of the choreographic art's language, which is a set of visual signs. Such visual and acoustic forms of stage action make it possible to trace the process of transformation of visible objects in the mind of the viewer before their projection into the subconscious. A symbol expressed in plastic language and focused on identifying internal emotional processes that are usually summarized in a dramatic performance by a word can be called the main typological characteristic of the interweaving of plastic and dance in the canvas of stage action. The modern theater considers the role of semantic physical activity, plastics and dance fundamental in the formation of the language of symbols.

The authors offer an attempt to comprehend and compare the works of "Othello" by the Lithuanian director E. Nyakroshus and "Block" by the Kazakh director D. Zhumabayeva, where the role of plastic symbols in the formation of a special semantic performance's structure is revealed through the prism of multi-episode, open play and physical actors action. The expressive symbol's language of the analyzed performances of each director has its own characteristics and way of expression. The active appeal to the principles of performance organization and plastic symbolization of artistic images remains common for all. The completeness and autonomy of each individual scene together make the multi-episode performance, where there is no causal relationship between such independent acts.

Involving the viewer in the situation of an open game used in the works of the mentioned directors allows the viewer to see the material in an unexpected angle, to engage in a situation of meaningful activity, in which the motive is not the result, but the gameplay itself. Specific physical actions of actors aimed at their direct application, without any additional subtext or intent, allow the actor to live these feelings in performances as their own, without any artificial addition. This all shows the similarity of directing techniques of Lithuanian and Kazakh theater figures.

Along with acting, metaphors and symbols in plastic embodiment act as a constructive and semantic means in the context of the dramatic canvas. Appealing to the viewer's subconscious through plastic symbols, which play a huge role in creating the performance, contributes to the generation of complex associations, it appeals to the feelings of the viewer.

Key words: Symbolism, plastic symbols, dramatic performance, Kazakh theater art, E. Nyakroshus, D. Zhumabayeva.

Information about authors:

Damir D. Urazymbetov, PhD in Art History, Head of Scientific Editorial Department, Senior teacher at Department of Choreography Direction, T. K. Zhurgenov Kazakh National Academy of Arts, Almaty, Kazakhstan; lenida@mail.ru; https://orcid.org/0000-0001-8471-1405

Tsoy Anna Vadimovna, master of art sciences, 1st year PhD student T. K. Zhurgenov Kazakh National Academy of Arts, Department of «Direction choreography», Almaty, Kazakhstan; fannyannya@mail.ru; https://orcid.org/0000-0002-4151-4441

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Ұ. Д. Жүзбаева, Б. Ш. Батырхан

Әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан.
E-mail: uldanai1994@mail.ru, bolatkazakh@gmail.com

ӘБУЛ-ФИДАНЫҢ «ТАҚУИМ ӘЛ-БҰЛДАН» ЕҢБЕГІНДЕГІ ХОРЕЗМ ӨЛКЕСІНІҢ ТАРИХИ ГЕОГРАФИЯСЫ

Аннотация. Мақаланың мақсаты − Хорезмнің тарихи географиясын зерттеу, сонымен қатар қоғам мен табиғаттың аймақтағы және ішінара іргелес аумақтардағы ықпалдастығын жан-жақты талдау. Мақалада Әбул-Фиданың «Тақуим әл-Бұлдан» шығармасында айтылған орта ғасырлардағы Хорезм аймағының тарихи және географиялық деректері қарастырылады. Деректер жазба дереккөздерден белгілі. Сонымен қатар, мақала археологиялық зерттеулердің материалдары мен Әбул-Фида дәуіріндегі басқа ғалымдардың еңбектерінен алынған мәліметтерге негізделген. Хорезм аймағы қалалары мен елдімекендерінің географиясы мен әлеуметтік сипаттамаларын кешенді зерттеу Орта Азияда отырықшы және көшпелі дәстүрлер тоғысында пайда болған жоғарғы өркениет пен оның қалалық мәдениетінің қазіргі мемлекеттердің қалыптасуына ықпалы туралы мәліметтерді растайды. Автор ортағасырлық зерттеушілердің жазба дереккөздеріне сілтеме жасай отырып, қалалардың сәулетін, географиялық координаттарын, табиғаты мен климатын, өнер мен қолөнерді, ғылым мен білімді, халықтың ерекшеліктерін және т.б. сипаттайды. Зерттеуде Хорезмнің құрамына кірген мына негізгі қалалар қарастырылды: Куркандж, Джурджания, Кәс, Замахшар, Һазарасб, Дарған, Фарабр және басқалар. Сондай-ақ мақалада ортағасырлардағы Хорезмдегі су ресурстарын пайдалану әдістері және ирригациялық жүйенің дамуы секілді мәселелер талданған.

Түйін сөздер: Хорезм, география, орта ғасыр, қала.

Кіріспе. Табиғи-географиялық фактордың аймақтардың немесе жекелеген мемлекеттердің тарихи дамуына әсер ету мәселелеріне деген қызығушылықтың артуына байланысты ортағасырлардағы Еуразияның әртүрлі аймақтарының тарихын зерттеудің маңыздылығы артуда. Шығыста, атап айтқанда, Орталық Азияда адамдар табиғи жағдайларға тәуелді болды, бұл зерттеушілерді белгілі бір аймақтың тарихи-географиялық ерекшеліктеріне ерекше назар аударуға итермеледі.

Хорезм – Батыс Орта Азиядағы ежелгі мемлекет. Хорезм өркениеті шамамен б.з.д. ІІ мыңжылдықтың ортасында пайда болды. Ол ежелгі Египет пен Вавилонның пайда болғаннан кейін қалыптасты, бірақ табиғи жағдайлары өте ұқсас еді. Ұлы Әмудария өзенінің қайнаркөзі Памирдегі таулы мұздықтардан бастау алып, дәл бүгінгідей Қызылқұм шөлінің төменгі шетінде құнарлы оазис қалыптастыру үшін мыңдаған шақырымға ағып жатты (Маткаримов, 2016). Оның негізгі территориясы өте құнарлы оазис болды, қазіргі кезде бір бөлігі Өзбекстанға, бір бөлігі Түркіменстанға және Қазақстанға тиесілі. Қола дәуірінен бастап-ақ бұл аумақты адамзаттың жоғары мәдениетінің бесігі еткен суармалы егіншілік кеңінен дамыды.

Өзен-суы мол, Арал теңізінің маңында балығы мен жабайы аң-құсы көп, мал жайылымдары кең болғандықтан Хорезм жері бірегей мәдениеттің бесігіне айналды, оның артында ғаламат ескерткіштер қалды, дәлірек айтқанда, жоғалған қалалар мен алып бекіністер мұрасы.

Орта Азияның тарихын зерттеген кеңес ғалымы Сергей Толстов өзінің «Ежелгі Хорезм. Тарихи және археологиялық зерттеулер тәжірибесі» атты еңбегінде Хорезмнің тарихын үш кезеңге бөліп қарастырды: алғашқы Хорезм (келтеминар мәдениеті, тазабағяб мәдениеті, амирабад мәдениеті), антикалық Хорезм (тұрғын қабырғалары бар бекіністі қоныстардың мәдениеті, қаңлы мәдениеті, кушан мәдениеті, кушан-афригид мәдениеті), ортағасырлық Хорезм (афригид мәдениеті, афригид-саманидтер мәдениеті, хорезмшах мәдениеті, хорезм-жошылар мәдениеті) (Толстов, 1948). Ұсынылып отырған мақалада Әбул-Фиданың «Тақуим әл-бұлдан» (Abu al-Fida, 1956) еңбегінің желісі бойынша ортағасырлық Хорезм қарастырылмақ.

Әдістеме. Автор Хорезм аймағындағы қалалардың географиясын, құрамы мен құрылысын, түрлі әлеуметтік бағыттар бойынша ерекшеліктерін сипаттау үшін тарихи-сипаттамалық әдістерді қолданады. Сонымен қатар Әбул-Фиданың «Тақуим әл-бұлдан» еңбегіндегі Хорезм өлкесінің тарихи географиясын зерттеу барысында мақалада елдімекендерді салыстыру үшін тарихи компаративистика әдісі, қалаларды жіктеп суреттеу үшін типологиялық және жүйелік әдіс, әртүрлі уақыт аралығындағы аймақтың ахуалын талдау үшін тарихи кезеңдеу әдісі, тарихи процесті қазіргі күйден оқиғалар мен құбылыстарды өткенге қайта құру жолын зерделеу үшін ретроспективті әдіс қолданылды.

Негізгі бөлім. Әбул-Фида екі ауқымды жинақтың – 1329 жылға дейінгі дүниежүзілік тарихтың және «Елдерді ретке келтіру» («Тақуим әл-бұлдан») атты географиялық еңбектің авторы ретінде белгілі, ол Жерді және сол уақытқа дейінгі барлық елдер мен халықтарды сипаттайды. Әбул-Фиданың діни және әдеби тақырыптарға жазған жазбалары жоғалған болып саналады.

Әбул-Фида шығармасы әртүрлі сипаттағы екі бөліктен тұрады. Бірінші бөлігі – Жер, экватор, жер беті, жердің көлемі мен жеті климат, бес ұлы теңіз туралы жалпы ақпаратты қамтитын кең кіріспе. Одан кейін теңіз, көл, өзен, таулардың сипаттамасы берілген, еңбектің жоспары көрсетілген.

Еңбектің екінші бөлігінің көлемі үлкен, 28 бөлімнен тұрады. Олар әл-иклим әл-хакикийиге, яғни «нағыз климатқа» астрономиялық ұғым ретінде қарама-қарсы «климат» - әл-иклим сигурфийу («жай климат») деп аталатын географиялық аймақтарды сипаттауға арналған. Жер аймақтары Әбул-Фида кітабында келесі ретпен сипатталған: Арабия, Египет, Магреб, Судан, Андалусия, Жерорта теңізі мен Атлант мұхитындағы аралдар, солтүстік жерлер (Шығыс Европаның сипаттамасын қамтитын франктер мен түркілер жерлері), Сирия, әл-Жазира (Месопотамия), Ирак, Хузистан, Фарс, Кирман, Сижистан, Синд (Пенджаб), Үндістан, Қытай, Шығыс теңіз аралдары, Рум (Кіші Азия), Армения (Арран және Әзірбайжанмен), Парсы Ирак, Дейлем (және Гилан), Табаристан (Мазандаранмен), Хорасан, Забулистан (және Гур), Тохаристан, Хорезм, Мәуереннахр.

28 бөлімнің әрқайсысы екіге бөлінеді: сипаттамалық және кестелік. Сипаттамада белгілі бір аймақтың шекаралары, саяси құрылымы, халықтың этникалық құрамы, әдет-ғұрыптары мен наным-сенімдері, бас қалалар туралы мәліметтер бар; бағдар боларлық мәліметтер де берілген. Сонымен қатар, Әбул-Фида әртүрлі аймақтардың қалалары туралы ақпаратты әл-Хорезми мен әл-Баттани кестелеріне ұқсас кесте түрінде жинақтады. Әбул-Фиданың өзі кестелік жүйесін XI ғасырдың аяғы мен XII ғасырдың басындағы араб дәрігерінен алғандығын айтады, Яхия ибн Жазли өзінің «Тәнді ретке келтіру» («Тақуим әл-абдан») атты астрономиялық кестелерді үлгі ретінде қабылдап, кесте түрінде түрлі ауру туралы мәліметтерді жүйелеген болатын.

Шығыс Европа елдері мен халықтары «франктер, түріктер елін және басқаларды қамтитын жердің солтүстік бөлігі туралы оқиға» деп аталатын бөлімде суреттелген. Сонымен бірге, қарастырылып отырған аймақ туралы ауқымды деректер қамтылған туынды туралы жалпы географиялық кіріспеде Шығыс Европаны шайып жатқан теңіздер және оның аумағы арқылы ағып жатқан өзендер туралы мәтіндерден тұрады.

Хорезм – аумақтық жердің (ауданның) аты және бұл Хорасан мен Мәуереннахрдан бөлек орналасқан аймақ, жан-жағы кең алқабтармен қоршалған. Ол батыста түрік елдерімен, оңтүстігінде Мәуереннахр елдерімен, солтүстігінде түрік елдерінің қалған бөлігімен шектесіп жатыр. Бұл аймақ Әмударияның оңтүстігінде орналасқан, арнайы құрылыс (бөгет) жоқ болғандықтан аталған өзен Хорезмдік көлге барып құяды. Хорезмнің орталығы Әмударияның сол жағында орналасқан. Ең үлкен қаласы «Куркундж» болып саналады. Ол Әмударияның оңтүстік бөлігінде орналасып, араб тілінде «Джурджания» деп айтылған. Ибн Хауқал бұл қала жайында: «Хорезм мемлекеті – ең суық мемлекеттердің бірі» деп айтқан (Muhammad Ibn Hawqal, 2014). Оның пікірінше, Әмудария өзені Хорезм жағынан қататындықтан, негізгі қаласы «Хорезмдік» деп аталады. Сол себепті өзеннің жағасы танымал болған, оның арғы жағына адамдар қала тұрғызған. Әл-Муһаллаби былай деп келтіреді: «Әмударияның солтүстік бөлігінде қала болды. Хорезм елдімекендері Хорезмдік өзеннің оңтүстік шығысында орналасып, Хорезмнен Амулге дейін шамамен 12 деңгей, ал Хорезмнен Хорезмдік өзенге дейін 6 деңгейде орналасқан».

«Үлкен Куркандж». «Әл-Мүштәрик» авторы былай деп жазады: «Куркандж» − Хорезмнің екі қаласының аты (Yaqut, 2010). Біріншісі, «Үлкен Кургандж» ең негізгі қаласы Әмударияның жағасында орналасқан, екіншісі, «Кіші Куркандж» қала «үлкеніне» жақын орналасқан, себебі арақашықтық 10 шақырымдай ғана жерді құрады. Йәқиннің айтуынша ұзынға созылған базар орталықтары бар 10 елдімекені болған. Шетелдіктер қаланы «Куркандж» деп атаса, арабтар

«Джурджания» деп атаған және әр қаланың жеке өзіне тән аты болған. «Канонда» айтылғандай бұл қала Әмударияның батыс бөлігінде орналасқан.

«Джурджания». «Әл-Мүштәрик» кітабында айтылғандай кіші Куркандж қаласы үлкен Курканджға жақын орналасқан. Арабтар Әмударияның батысында орналасқан бұл қаланы «Джурджания» деп атаған.

«Кәс». «Әл-Ғазизий» кітабында былай деп жазылған: «Түрік жерлерінің заманауи ауылдарымен Кәстің арақашықтығы 50 фарсах». Фарсах – ұзындықтың көне өлшем бірлігі, шамамен бір күндік жаяу жүретін жол. Ибн Саидтың (Крачковский, 1957) жазуынша, Хорасан елінің ішіндегі әйгілі қалаларға − Кәс, Куркана, Һазарасб қалалары жатады.

«Замахшар». «Әл-Любаб» (Al-Maydani, 2017) авторы былай деп жазады: Замахшар – Хорезм ауылдарының ішіндегі ең үлкен ауыл болып саналады, халқының арасында белгілі оқымысты Әбу әл-Қасым Махмұд әз-Замахшари есімді тұлға болды. Автордың айтуынша, оның белгілі туындыларымен қатар, арнайы әдебиет жинағы да бар.

«Һазарасб». «Әл-Любаб» кітабында: «Һазарасб парсы тілінде Һазарасф деп аталған». «Әл-Ғазизий» авторы былай жазады: «Бұл қала Әмударияның батысында орналасқан, Һазарасб қаласымен Кәсқаласының арақашықтығы – алты фарсах».

«Дарған». Бұл – Хорезімнің шеткі бөлігінде орналасқан қала. «Әл-Ғазизий» кітабына сүйінсек, Һазарасб қаласымен арасы 24 фарсахқа тең. Дарған – Хоросанның ең бірінші салынған қалаларының бірі.

«Фарабр». «Әл-Любаб» кітабынан келесідей жолдарды оқуға болады: «Фарабр –бұл Әмударияның шетіндегі Бухарамен шектесіп жатқан қала». «Канон» атты кітапта былай деп келтіріледі: «Фарабр – Мәуереннахрдан басталып, Хорасаннан аяқталатын қалаға жатады». Ибн Хауқалдың жазуынша, қаланың Әмударияға қатысты тұрғылықты ауыл-аймықтары бар. Фарабр – Хорезм аймағына жақын орналасқандықтан, оның құрамына кірген елдімекендердің бірі.

Хорезмнің халқына келетін болсақ, ІІІ ғасырдан бастап ғұндар мекендеді. Кейбір зерттеушілер ғұн тілін түркі тіліне жатқызды (Тенишев, 1997). VІ ғасырдан бастап Хорезмнің негізгі түркітілдес этностары түркілер болды, өйткені Хорезм Түрік қағанатына тәуелді еді. VІІ ғасырдан бастап Хорезм түркі мемлекеті Хазар қағанатымен тығыз байланысты болды және халықтың көші-қоны процестері жүрді. Хазар Хаканының әскері қатарында көптеген хорезмдіктер болды. Х ғасырың парсы географтары Хорезм қаласы Баратегин туралы айтады. Атауынан байқалғандай, қаланы түркілер мекендеген немесе оның негізін қалаған. Истахри оны Хорезмнің 13 қаласының қатарына жатқызады, ал әл-Макдиси оны Хорезмнің 32 қаласына қосады.

Көрнекті ғалым және этнограф Бируни өз еңбектерінде Хорезмдегі түркі тұрғындары қолданған түркі айлары мен түркі дәрілік шөптерінің атын келтіреді. Бируни (Абу Рейхан Бируни, 1957) өзінің Хорезмде шамамен 1000 жылы жазылған «Өткен ұрпақтың ескерткіштері» атты еңбегінде Хорезмнің түркі тұрғындары қолданған жануарлар цикліне сәйкес жылдардың түркілік атауларын береді. Бұл шығармада түркі тілінде ай аттарын да береді. Хорезмді исламдандыру және түркілендіру әдеби, ғылыми және діни шығармаларды жасауда, сонымен қатар араб және парсы туындыларын түркі тіліне аударуда көрініс тапты. Ыстамбұлдың Сүлеймения кітапханасында Құранның түркі тіліне аудармасы сақталған, ол Хорезмде жасалған және 1363 жылдың қаңтар-ақпан айларында жазылған деп мерзімі белгіленген. Ежелгі Хорезм территориясы түрікмен этносының қалыптасу орталықтарының бірі еді. Х ғасырда түрікмендер (оғыздар) Хорезмде жетекші этникалық рөл атқара бастайды және кейінгі бірнеше ғасырларда мемлекеттің негізі түркі этносына айналады (Дурдыев, 1993). Бұл деректерден көріп отырғанымыздай, Әбул-Фиданың «Тақуим әл-бұлдан» еңбегіндегі Хорезм өлкесінде түркі-мұсылман халықтары өмір сүрген.

Белгілі бір тарихи кезеңдерде Орталық Азияның көптеген ірі және кіші орталықтары мәдени, экономикалық, саяси және әлеуметтік дамуда белгілі бір рөл атқарды, олар аймақ халықтарының ортақ тарихына ықпал етті. Олардың бірі ең солтүстігінде орналасқан Хорезм болды, Орта Азия мен Ұлы Дала арасында, яғни екі әлемнің тоғысында – көшпелі және отырықшы мәдениеттің арасында орналасты. Сол себепті де Хорезм екі өркениетке де тән тарихи оқиғалардың куәсі болды.

Судың көптігі, құнарлы жер, қоңыржай климат ежелгі дәуірден бастап көп адамдарды жинады, олар құнарлы жерді игеріп, оны ежелгі мәдениеттің орталығы болған керемет оазиске айналдырды. Оазисте қала мәдениеті, қолөнері және сауда қатынастары өркендеді.

Хорезм Мәуереннахр экономикасында маңызды рөл атқарды, сол арқылы Ұлы Жібек жолының солтүстік тармақтарының бірі транзиттік сауда жолы өтті. Ал хорезмдік сәулет мұрасын тұтастай алғанда Орта Азия тарихындағы орны сақталған ерекше сәулет ескерткіштерімен танымал, сонымен қатар Хорезм сәулетшілерінің Орта Азияның құрылысына және бейнелеу өнеріне қосқан үлесі орасан, кейінірек бұл дәстүрлер сақталып, құрылыс өнерінің дамуына көмектесті.

Археологиялық қазба жұмыстары хорезмдіктер тек сауда және ауылшаруашылығымен ғана емес, ғылыммен де айналысқандығын растайды. Хорезмдіктер астрономия мен математиканы кеңінен игерді. Олар бұрыш өлшеу қондырғыларын ойлап тауып, оларды ғылыми зерттеулерінде қолданды. Астрономиялық және көптеген жаратылыстану ғылымдары ежелгі Хорезмде дамыды.

Хорезмдегі өмір сүру орындары салыстырмалы түрде тар территорияларда (ені бірнеше км) шоғырланды, ирригациялық құрылыстар сол заман үшін жоғары деңгейде, ерекше өнермен жасалды. Ол кезде Амударияның төменгі ағысындағы суландырудың жалпы көлемі 1,3 млн. га құрады, бұл Хорезм облысының қазіргі суармалы жерінен 4 есе көп еді. Тұрғындар өмірі, әл-ауқаты суландырудың және суландыру құрылыстарының дамуына байланысты болды. Олардың жұмысын қамтамасыз ету жүздеген мың адамдардың үлкен күш-жігерін қажет етті. Ирригация – қауымдастық – мемлекет – ежелгі Хорезмнің қалыптасқан экономикалық механизмінің басты негізі болды, онда қауымдастық негізгі рөл атқарды. Оның сақталуына бүкіл қоғам мүдделі болды – билік басшылары, шаруалар және қауымдастық мүшелері.

Ауылшаруашылығы дәнді дақылдар – тары, арпа, бидай өсіруге бағытталды. Көгалдандыру, бақша шаруашылығы, жүзім шаруашылығы кеңінен дамыды. Жүзім үлкен «мамандандырылған» шаруашылықтарда өсірілді және жиналған өнімнің көп бөлігі шарап өндіруге пайдаланылды. Ірі қара мал басы көбейген кезде мал өсіру маңызды рөл атқарды.

Металлургия қолөнер өндірісінде маңызды рөл атқарды, мұнда темір құю және өңдеу, ұсақ бұйымдар өндірісі болды. Қыш шығару өндірісі де дамыды, ал кейбір елдімекендерде қышшылардың жеке орындары айқын көрінеді. Керамикалық (қыш) ыдыс-аяқтардан басқа терракота (күйдірілген саз) мүсіншелері де шығарылды. Далалық шекарада керамика өндірісінің бірқатар ірі орталықтары орналасты, бұл көшпенділер үшін мақсатты жұмыс атқаруға мүмкіндік берді. Әртүрлі зерттеулер сүйек кесетін шеберханалардың болғандығын көрсетеді, онда күрделі садақтар, түйреуіштер мен инелер үшін сүйек және мүйізді тесіктер жасалды. Мақта және жүн маталарын тоқымалары кең етек жайды. Шыны ыдыс-аяқтар да дамыды, бірақ ол, ең алдымен, белдік, моншақ пен сақиналарға әшекей шығарумен шектелді.

Хорезмде мыс монеталары айналымда болды, бұл қоғамдағы тауар-ақша қатынастарының дамуын көрсетеді. Парфия мен irandық мыс монетасының номиналы үлгі ретінде алынды. Сонымен қатар Хорезм монеталары күмістен де соғылған, олар Грек-Бактрия билеушісі Евкратидтердің тетрадрамаларын қайталаған. Монеталардың пайда болуы солтүстік бағыты Хорезм арқылы өтетін Ұлы Жібек жолындағы сауда қатынастарының жандануымен байланысты болды.

Хорезм – Орталық Азияның ежелгі тарихи және мәдени аймақтарының бірі. Арабтардың жаулап алған дәуірінің қайнар көзінде Хорезм – мың қорғанның мекені деп айтылған. Шын мәнінде, бүгінгі таңда Хорезм облысының аумағында археологтар көптеген ежелгі қоныстарды, бір кездері қуатты болған бекіністер мен патша сарайларын тапты. Олардың ішіндегі ең әйгілісі – Топырақ-Қала, Жанбас-Қала, Қой-Қырылған-Қала, Қызыл-Қала және Аяз-Қала (бұл жердегі «қала» сөзі бекініс деген мағынаны білдіреді). Бүгінгі күннің өзінде қирап қалған бекініс қалдықтардың ұлан-ғайырлығы мен ауқымы ұлылығымен және мықтылығымен таң қалдырады. Мыңдаған бекіністер сусыз далаға жайылған және алып пұттар сияқты ежелгі Хорезм құпияларын сақтап жатыр.

Хорезмнің мәдени өмірінің жандануы, оның әлемдік маңызы бар ғылыми орталықтардың біріне айналуы және осы жерде көрнекті ғалымдардың, өз заманының жоғары зиялыларының пайда болуы көбінесе аймақтың тарихи-мәдени дамуының өткен ғасырдағы жағдайына байланысты болды. IX ғасырдың аяғынан бастап Хорезм әлемге көрнекті ғалым-саңлақтарды бере бастады. 783 жылы өз заманының ірі ғалымдарының бірі Мұхаммед әл-Хорезми дүниеге келді (845 жылы қайтыс болды). IX ғасырдың басында әл-Хорезми халифаттың шығыс аймағының билеушісі Мамунның сарайындағы ғалымдардың бірі болды, ол біраз уақыттан кейін халифа болып Бағдатқа көшіп, әл-Хорезмиді сонда шақырды. Ол орта ғасырдағы ең үлкен ғылыми орталықты – Мамун академиясы ретінде танымал болған Даналық үйін басқаруға шақырылады.

Демек, Хорезм IX-X ғасырларда өмірдің барлық салаларында – ғылымның, мәдениеттің және өнердің өркендеуіне куә болды. Хорезм Орталық Азия мемлекеттерінің Шығыс Европа, Төменгі Еділ аймағы және Хорасан елдерімен транзиттік саудасында маңызды рөл атқарды. Сондай-ақ, Хорезмнің осы аймақтармен жеке сауда айналымы болды. Сауданың дамуымен экономика қалпына келді, қалалар мен қолөнер дамыды. Әл-Мақдиси X ғасырдағы Хорезм қалалары туралы былай дейді: «Хорезм – құнарлы қала, азық-түлігі мол ...», Кит туралы: «Хорезмнің бас қаласы ... үлкен байлыққа ие ...» (Al-Muqaddasi, 2000).

Әбу Райхан әл-Беруни (973-1048) − Хорезмнің ұлы ғалымы. XI ғасырда оның есімі математика және астрономия саласындағы ғылыми жұмыстарының ерекше жетістіктеріне байланысты Еуропада белгілі болды. 1004 жылы әл-Беруни Гурганж қаласындағы Хорезмшах Мамунның сарайында 1017 жылға дейін жұмыс істеді, яғни Хорезмдегі өнер мен ғылымның даму шағында. Ол Бағдат академиясына ұқсас Хорезмдік Мамун академиясының ұйымдастырылуына қатысты. Академияны басқарған әл-Берунимен қатар құрамына Ибн Ирак, Ибн Сина, Әбу Сал Мажихий, Әбул Қайыр Хамар, Әбу Мансұр әс-Салибий және басқа да көрнекті ғалымдар, ақындар мен ойшылдар кірді.

IX-XIV ғасырларда Хорезм мәдениеті мен өнерінде түбегейлі өзгерістер болды − ислами жаңа идеологияның әсерінен қалалардың келбеті мен құрылымы өзгерді, жаңа діни және әкімшілік ғимараттар салынды: мешіттер, медреселер, кесенелер, керуен-сарайлар. IX-X ғасырлардан бастап сәулет өнері мен қолөнер бірінші орынға шықты. Ол кездегі ескерткіштер сақталмағанымен, тарихшылар сол кездегі Хорезмнің астанасы − Китада, базарлар орналасқан бекініс дуалдарының артында үлкен мешіт салынғандығын, оның жанында Хорезмшах Мамунға сарай тұрғызылғандығын айтады. Сол уақыттағы Үргеніште дәл сол билеуші салған тағы бір сарайдың қақпаларының әсемдігі туралы әл-Мақдиси былай деп жазады: «Хаджадж қақпаларында әл-Мамун салған сарай бар. Сарайдың қақпалары бар, бүкіл Хорасанда олардан асқан сұлулық жоқ». Бұдан қақпаның оюланған декоры туралы айтып отырғанын көруге болады, өйткені тарихшылардың айтуынша, сол кездегі құрылымдардың интерьерлерін жобалау кезінде ағаштан жасалған бағаналар кең қолданылған. Мәліметтерге сәйкес, Ишанқала жұма мешітінің бағана залында орналасқан ең көне бағандар Хиуаға X ғасырда Кият мешітінен Амудария суы басқан кезде алынған. Сонымен бірге бейнелеу өнерінің монументалды түрлері жоғалады, алдыңғы ғибадаттармен және діни наным-сенімдермен байланысты оссуарийлер, қабырға кескіндемесі, мүсін қасиетті (сакралды) дағдыдан шығады.

Өнердің мазмұны мен тақырыбы өзгереді: бейнелі суреттер жоғалып кетеді, олардың орнына өсімдік-геометриялық сипаттағы ою-өрнек стилі келеді. Хорезмдегі көптеген көркем қолөнер туындыларын рәсімдеуде әйнектелген керамика кең таралады, ою-өрнек басты орынға шығады. Жылтыратылған плиткалар, қаңылтыр және ағаштан жасалған оюлар жаңа сәулет құрылыстарының дизайнына енеді. XI-XII ғасырлардағы күйдірілген кірпішті құрылыс материалы ретінде пайдалану және Хорезм архитектурасының декорациясындағы ағаштан жасалған теракоталар мен жылтыратылған плиткалар, ағаштан жасалған оюлар Хорезм сәулетінің жаңа эстетикасының негізін қалады. Хорезм мәдениеті мен өнерінің өзіндік даму кезеңі, негізінен ислам дінінің таралуына байланысты басталады.

Қала құрылысы мен сәулет өнерінің жандануының басталғанын сол кезеңдегі Үргеніштің ерекше ескерткіштері дәлелдейді. Бұлар – Фахраддин-Рази кесенесі (XII ғасырдың 2-жартысы), Текеш кесенесі (XII ғасырдың аяғы - XIII ғасырдың басы), Кутлуг-Тимур мұнарасы (1321-1333 жж.), Наджмеддин Кубраның кесенесі бар ханака (XIV ғасырдың басы), сопылар әулетінің кесенесі (Турабекханым, 1360 ж.). Сол қатарда Хиуадағы Саид Аллауддин кесенесінің және XIV ғасырда пайда болған Кияттағы Саид Аббас кесенесінің керемет ескерткіштерін атауға болады.

Қорытынды. Хорезм – аймағы көне дәуірден бері алуан түрлі тарихи оқиғалардың тоғысында қалыптасқан өркениет. Ол жалпы Орта Азия мемлекеттерінің орнығуында орасан зор рөл атқарды. Ортағасырлық Хорезмде туындаған қалалық мәдениет осы аумақтағы қазіргі дәстүрлерге әсер еткені айғақ.

Әбул-Фиданың «Тақуим әл-бұлдан» еңбегі Хорезмнің тарихи физикалық географиясын, экономикалық және әлеуметтік географиясын құрастыру үшін маңызды ғылыми мұра болып саналады. Әбул-Фида дәуіріндегі Хорезм ауылшаруашылығы дамыған, қолөнер өндірісі және саудасы дамыған бай, әрі мәдени аймақ болды. Хорезм өлкесінің қалалары ағын судың маңында құрылды. Себебі олар шаруашылық пен тіршілік үшін маңызды еді. Қалалардың сыртына биік дуалдардан бекіністер орнатылды. Көрші елдермен сауда қарым-қатынастары дамыды.

Не себепті Хорезмнің тарихи географиясын зерттеу маңызды және өзекті болып саналады? Адамдардың материалдық және рухани мәдениеті табиғатпен тікелей байланысты, оның бойында түрлі елдер мен континенттердің табиғи ерекшеліктері көрініс табады. Өткен заманның географиясын зерттеудің кез келген түрі тарихи географияны зерттеудің пәні болып саналады, яғни бұны ландшафтарды немесе халықтардың мәдениетін зерттеу дегенге келеді. Заманауи адамды елдердің табиғаты, халықтардың мәдениеті мен экономикасы, әртүрлі табиғи жағдайдағы олардың қызмет ерекшеліктері туралы географиялық білімсіз елестету қиын, бұл білім тарихи сабақтастықты қажет етеді. Ежелгі уақытта география «жерді суреттеу» деп түсінілген. Заманауи географиялық өлкетану зерттеулерінде басқа салалардан алынған географиялық білімдер жиынтығы қолданылады, оның ішінде гуманитарлық ғылымдар: тарих, тіл білімі, әлеуметтану және т.б. бар. Әртүрлі халықтардың даму тарихын, мәдениетін, дінін, әдет-ғұрыптары мен дәстүрін білу қазіргі адамға әлемде болып жатқан көптеген әлеуметтік процестерді түсінуге көмектеседі.

Әртүрлі аймақтық географиялық ақпарат түрлі аумақтың табиғи ерекшеліктерін, олардың ресурстық әлеуетін, экономиканың және халықтың жағдайын салыстыруға, бағалауға мүмкіндік береді. Шалғай елдер, тарихи көне өлкелер туралы, олардың даму ерекшеліктері туралы білім еліміздің табиғатын, экономикалық даму ерекшеліктерін түсінуге және оның ресурстарын тиімді пайдалануға көмектеседі. Қазіргі уақытта аймақтық географиялық табиғатты білу қажеттілігі күрт өсуде. Адамзаттың барлық мәселелері (қоршаған ортаның ластануы, тамақ және энергияға байланысты сұрақтар) барлық елдерге немесе олардың көпшілігіне тікелей қатысты. Әлемдік экономикалық байланыстар, сауда және туризм кеңеюде. Мұның бәрі арнайы аймақтық, тарихи-географиялық білімді қажет етеді.

У. Д. Жузбаева, Б. Ш. Батырхан

Казахский национальный университет им. аль-Фараби, Алматы, Казахстан

ИСТОРИЧЕСКАЯ ГЕОГРАФИЯ ХОРЕЗМСКОГО РЕГИОНА В ТРУДЕ АБУЛЬ-ФИДЫ «ТАКВИМ АЛЬ-БУЛЬДАН»

Аннотация. Целью статьи является изучение исторической географии Хорезма, а также комплексное исследование взаимодействия общества и природы в регионе и отчасти примыкающих к нему территориях. В статье анализируются исторические и географические данные Хорезмского региона в труде Абуль-Фиды «Таквим аль-Бульдан» в период средневековья, которые известны по письменным источникам. В основу статьи также положены материалы археологических исследований и информации трудов других ученых эпохи Абуль-Фиды. Комплексное исследование географии и социальных особенностей городов Хорезмского региона подтверждает сведения о высокой цивилизации, которая возникла на территории Центральной Азии на стыке оседлой и кочевнической традиций, ее городская культура повлияла на становление современных государств. Автор, ссылаясь на письменные источники исследователей средневековья, описывает архитектуру городов, географические координаты, природу и климат, искусство и ремёсла, науку и образование, особенности населения и т.д. В исследовании были рассмотрены основные города Хорезма, такие как Куркандж, Джурджания, Кас, Замахшар, Хазаросб, Дарьан, Фарабр и др. В статье также проанализированы такие вопросы, как методы использования водных ресурсов и развитие ирригационной системы в средневековьем Хорезме.

Хорезм – территория, которая с древних времен формировалась на перекрестке различных исторических событий. Он сыграл огромную роль в становлении государства Центральной Азии в целом. Понятно, что городская культура средневекового Хорезма повлияла на современные традиции региона.

Труд Абул-Фиды «Таким ал-Бульдан» является важным научным наследием для формирования исторической физической географии, экономической и социальной географии Хорезма. Во времена Абул-Фиды Хорезм был богатым и культурным регионом с развитым сельским хозяйством, ремеслами и торговлей. Города Хорезмской области образовались у рек, потому что они были важны для экономики и жизни. За пределами городов укрепления строились из высоких стен. Развились торговые отношения с соседними странами.

Хорезм играл важную роль в экономике Мауреннахра, через которую проходила одна из северных ветвей Великого Шелкового пути. Наследие хорезмской архитектуры в целом известно своими уникальными архитектурными памятниками в истории Средней Азии, а также большим вкладом хорезмских зодчих в строительство и изобразительное искусство Средней Азии, которые впоследствии сохранили и внесли свой вклад в развитие архитектуры.

Археологические раскопки подтверждают, что хорезмийцы занимались не только торговлей и земледелием, но и наукой. Хорезмийцы овладели астрономией и математикой. Они изобрели приборы для измерения углов и использовали их в научных исследованиях. В Древнем Хорезме развивались астрономия и многие естественные науки.

Ключевые слова: Хорезм, география, средневековье, город.

U. D. Zhuzbayeva, B. Sh. Batyrkhan

Al-Farabi Kazakh National University, Almaty, Kazakhstan

HISTORICAL GEOGRAPHY OF THE KHOREZM REGION IN THE WORK OF ABU AL-FIDA "TAQWIM AL-BULDAN"

Abstract. The aim of the article is the historical geography of Khorezm, as well as a comprehensive study of the interaction of society and nature in the region and, in part, the adjacent territories.The article analyzes the historical and geographical data of the Khorezm region in the work of Abu al-Fida "Taqwim al-Buldan" during the Middle Ages, which are known from written sources.The article is also based on the materials of archaeological research and information from the works of other scientists of the Abu al-Fida era.A comprehensive study of the geography and social characteristics of the cities of the Khorezm region confirms information about a high civilization that arose in Central Asia at the junction of sedentary and nomadic traditions, its urban culture influenced the formation of modern states.The author, referring to the written sources of medieval researchers, describes the architecture of cities, geographical coordinates, nature and climate, arts and crafts, science and education, peculiarities of the population, etc. The study examined the main cities of Khorezm, such as: Kurkandzh, Dzhurdzhaniya, Kas, Zamakhshar, Khazarosb, Dar'an, Farabr and others.The article also analyzes such issues as the methods of using water resources and the development of the irrigation system in the Middle Ages Khorezm.

Khorezm, whose territory since ancient times was formed at the crossroads of various historical events. He played a huge role in the formation of the Central Asian state as a whole. It is clear that the urban culture of medieval Khorezm influenced the modern traditions of the region.

The work of Abul-Fida "Takim al-Buldan" is an important scientific heritage for the formation of the historical physical geography, economic and social geography of Khorezm. At the time of Abul-Fida, Khorezm was a rich and cultural region with developed agriculture, crafts and trade. The cities of the Khorezm region were formed along the rivers. Because they were important to the economy and life. Outside the cities, fortifications were built from high walls. Trade relations with neighboring countries have developed.

Khorezm played an important role in the economy of Maurennahr, through which one of the northern branches of the Great Silk Road passed. The heritage of Khorezm architecture as a whole is known for its unique architectural monuments in the history of Central Asia, as well as for the great contribution of Khorezm architects to the construction and fine arts of Central Asia, which subsequently preserved and contributed to the development of architecture.

Archaeological excavations confirm that the Khorezmians were engaged not only in trade and agriculture, but also in science. The Khorezmians mastered astronomy and mathematics. They invented angle measuring devices and used them in scientific research. Astronomy and many natural sciences developed in Ancient Khorezm.

Key words: Khorezm, geography, middle ages, city.

Information about authors:

Zhuzbayeva U.D., PhD student of Al-Farabi Kazakh National University, Almaty, Kazakhstan; uldanai1994@mail.ru; https://orcid.org/0000-0003-4077-2016

Batyrkhan B., Institute of Oritntal Stadies named after R.B. Suleymenov, Almaty, Kazakhstan; bolatkazakh@gmail.com**;** https://orcid.org/0000-0003-2942-925X

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Т. Б. Мамиров[1], С. Р. Куандык[2]

[1]Филиал Института археологии им. А. Х. Маргулана КН МОН РК, Нур-Султан, Казахстан;
[2]Институт археологии им. А. Х. Маргулана КН МОН РК, Алматы, Казахстан.
E-mail: tmamirov@mail.ru, s.r.kuandyk@mail.ru

КРАТКИЕ РЕЗУЛЬТАТЫ РАБОТ НА СТОЯНКЕ ВАВИЛИНО 1 В 2020 ГОДУ

Аннотация. В статье приводятся краткие сведения о результатах полевых работ 2020 года на стратифицированной стоянке каменного века Вавилино 1 в Западном Казахстане. Памятники каменного века с сохранившимся культурным слоем – большая редкость для территории Казахстана, и в частности для исследуемого региона. На стоянке был заложен небольшой раскоп площадью 12 кв. м., получено более четырехсот каменных артефактов, фрагментов керамики и костных останков животных. Несмотря на аварийность памятника и разрушенность большей части культурного слоя антропогенным воздействием, исследование стоянки имеет большое значение для понимания культурных процессов в эпохе неолита-энеолита в Волго-Уральском междуречье. На стоянке была получена впервые радиоуглеродная дата, свидетельствующая о ранненеолитическом возрасте объекта. Существует необходимость в продолжении исследовании памятника и его окрестностей.

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Ключевые слова: Западный Казахстан, Волго-Уральское междуречье, голоцен, каменный век, неолит, культурный слой, горизонт, артефакты, кремнистая порода, кварцитовидный песчаник, керамика, костные останки.

В 2020 году были продолжены археологические исследования на стоянке Вавилино 1 на правобережье реки Деркул в Западном Казахстане. Значимость стоянки, несмотря на краткие сведения о памятнике, отражены в археологической литературе [1-4]. Работы 2018 и 2019 годов показали разрушение верхнего культурного слоя стоянки в результате антропогенного воздействия, раскоп 2020 года был расширен еще на 12 кв. м в восточном направлении [5].

Первый горизонт мощностью до 25 (30) см из светло-серого сухого среднего суглинка был насыщен элювием и опокой (кремнистая глина), в слое обнаружены артефакты из кварцитовидного песчаника желтовато-серых оттенков, кремнистого сырья темно-серого и светло-серого оттенков, единично фрагментарные костные остатки и керамика.

Основной процент артефактов в первом горизонте представлен из кварцитовидного песчаника – 173 экз. (94%). Орудийный набор (39 экз. – 22,4% из кварцитовидного песчаника первого горизонта) представлен следующими изделиями: скребки на отщепах и пластинах (9 экз.), преимущественно концевых типов (7 экз.). Представительны фрагменты пластин со вторичной обработкой по краям (14 экз.), или 34% орудий. Выделяются в наборе угловой резец на пластине, провертки на пластине и отщепах (3 экз.). Единичны долотце, переоформленное из обломка нуклеуса, выемчатые орудия на пластинах и техническом сколе (3 экз.), массивное скребло из гальки, орудие с шипом, сколы с ретушью и обломки орудий (5 экз.).

Артефакты из кремнистой породы малочисленны – 11 экз. (6%), из них орудий 5 экз., все концевые скребки, на одном, размерами 14,3х16,0х3,9 мм левый край подправлен обратной ретушью. Остальные артефакты представлены техническим сколом, целым вторичным отщепом, проксимальными фрагментами пластины и отщепа, нуклевидным обломком и осколком.

В слое обнаружено 7 фрагментов керамики размерами до 3 см, сохранившаяся толщина у некоторых фрагментов, варьируется в следующих значениях – 6,2 мм, 8,6 мм, 9,1 мм и 9,8 мм.

Второй горизонт, мощностью от 25(30) см до 60(70) см, включает 238 артефактов, из кварцитовидного песчаника 211 экз. (88,6%) и 27 экз. (11,4%) из кремнистых пород. На глубине 25(30) – 40 см в темно-буром среднем суглинке был выявлен 131 артефакт, из них из кварцитовидного песчаника – 113 экз. (86,2%).

Орудийный набор (24 экз. – 21,2% из кварцитовидных песчаников слоя) представлен следующими изделиями: два концевых скребка на пластине, один концевой скребок на отщепе и один боковой скребок на отщепе; фрагменты пластин с ретушью (4 экз.); два режущих орудия, первый нож с естественным обушком, второй с зубчатым лезвием; одно скребло на отщепе; остальные целые отщепы и их фрагменты со вторичной обработкой. К технике первичного расщепления относится двусторонний нуклеус для снятия коротких сколов.

Артефакты из кремнистой породы – 18 экз. (13,8%), из них орудий 5 экз., концевой скребок на пластине, концевой скребок на пластинчатом отщепе, округлый скребок на отщепе, проксимальный фрагмент пластины и вторичный отщеп с ретушью по краям.

В слое обнаружено 19 фрагментов керамики, на одном сохранились следы орнамента. Также выявлены сильно фрагментированные кости плохой сохранности.

На глубине 40-50 см в среднем суглинке, переходящем от темно-бурого к серому, количество артефактов уменьшается, всего 91 экз., происходит они в основном с южного квадрата (67 экз., или 73,6% от общего количества артефактов в слое). Артефакты из кварцитовидного песчаника 82 экз. (90,1%), представлены следующими категориями. К орудиям (12 экз. – 14,6% из кварцитовидных песчаников слоя) отнесены: угловой резец, сверло на фрагменте пластине, три фрагмента пластин со вторичной обработкой, скребло и рубящее орудие на отщепах, отщепы и их фрагменты со вторичной обработкой (5 экз.).

Артефакты из кремнистой породы малочисленны – 9 экз. (9,9%), из них орудий 5 экз.– долотце, концевой скребок, два фрагмента пластин с ретушью и обломок орудия. Остальные артефакты представлены обломком нуклеуса, пластинчатым сколом, микроотщепом и осколком.

В слое обнаружено 7 мелких фрагментов керамики, размерами до 3 см, сохранившаяся толщина на одном фрагменте – 8,96 мм, а также сильно фрагментированные кости плохой сохранности.

На глубине 50-60 см в сером среднем суглинке выявлено всего 12 артефактов, и все из кварцитовидного песчаника, распределены по квадратам неравномерно, на северном два, в центральном четыре и на южном шесть артефактов. В коллекции проксимальный фрагмент пластины, размерами 18,5х12,2х3,7 мм, с лицевой микроретушью на левом крае и обратной микроретушью на правом. Остальные изделия представлены отходами производства: четыре медиальных фрагмента пластин без вторичной обработки, целые вторичные отщепы без вторичной обработки – 4 экз., фрагменты сколов – 3 экз. В слое обнаружены мелкие фрагменты кальцинированных костей.

На южном квадрате культурный слой понижается до глубины 70 см. Обнаружено 4 артефакта из кварцитовидного песчаника, представленных дистальным фрагментом пластины, вторичным отщепом, чешуйкой и осколком. Также в слое единичны мелкие фрагменты костных остатков и мелкий фрагмент створчатой ракушки.

Стратиграфия раскопа показала, что наиболее разрушенными являются участки в восточном и южном направлении. Однако на южном направлении, несмотря на разрушенный верхний слой, мощность культурного слоя возрастает до 70 см, что представляет интерес для увеличения площади раскопа южном, а также менее затронутом хозяйственной деятельностью западной частью памятника.

Полученный каменный материал немногочисленный, типологически можно выделить концевые скребки на пластинах и пластинчатых сколах, фрагменты пластин с ретушью по краям, единично резцы, перфораторы и др. Перед началом полевого сезона была получена радиоуглеродная дата 7483±23 BP (Hela- 4507) (cal 6355-6335 BC) по фрагменту кости с Вавилино 1 на глубине 40-50 см. Дата является очень ранней в контексте ранненеолитических памятников Нижнего Поволжья и Северного Прикаспия [6-12]. Для ранненеолитических памятников Северного Прикаспия (Байбек) были получены достоверные даты по органике из керамики, кости и углю, которые укладываются в хронологический интервал 6021-5624 BC [6, с. 154], в эти же рамки укладываются даты по стоянке Каиршак III [7, с. 58].

Для раннего неолита Степного Поволжья выделяют несколько памятников, в первую очередь это опорная Варфоломеевская стоянка, Алгай и Орошаемое 1. Для нижнего уровня стоянки Алгай первоначально были получены даты от 5800 лет до 5400 лет BC [8, с. 61], в последующем получены даты по гуминовым кислотам в 6271-6008 BC [9, с. 386]. На стоянке Орошаемое 1 к раннему неолиту относятся даты по углю с нижних слоев памятника 6227-6015 и 6072-5674 BC [9, с. 386; 10, с. 200]. На Варфоломеевской стоянке по органике из керамики с 3-го слоя и слоя 2Б получены радиоуглеродные даты, имеющие калиброванный возраст древнее (от 7050 лет BC) либо того же времени с Вавилино 1 [11, с. 68-70]. Полученные радиоуглеродные даты поставили вопрос о выделении раннего неолита степного Поволжья и соответствующей орловской культуре [12, с. 218]. Новые междисциплинарные исследования памятников эпохи неолита и энеолита в Нижнем Поволжье позволили авторам соотнести орловскую культуру неолита начиная с 6200 г. до н.э. [9, с. 386]. Работы на Вавилино 1 только начаты: получен небольшой каменный и керамический инвентарь, который имеет схожие черты с неолитическими памятниками Степного Поволжья (Алгай, Орошаемое 1), полученная дата включает данный памятник в круг ранненеолитических памятников Степного Поволжья, однако необходимы проведение дополнительных датировок и получение более массового материала, которое может позволить решить в некоторой степени вопросы происхождения и культурных особенностей раннего неолита в Волго-Уральском междуречье.

Т. Б. Мамиров[1], С. Р. Куандык[2]

[1]Ә.Х. Марғұлан атындағы археология институтының Нұр-Сұлтан қаласындағы филиалы, Қазақстан;
[2]Ә.Х. Марғұлан атындағы археология институты, Алматы, Қазақстан

2020 ЖЫЛҒЫ ВАВИЛИНО 1 ТҰРАҒЫНДА ЖҮРГІЗІЛГЕН ЖҰМЫСТАРДЫҢ ҚЫСҚАША НӘТИЖЕЛЕРІ

Аннотация. Мақалада Батыс Қазақстандағы тас ғасырдың Вавилино 1 стратификациялық тұрағында 2020 жылы жүргізілген далалық жұмыстардың нәтижелері жөнінде қысқаша мәліметтер келтірілген. Мәдени қабаты сақталған тас ғасырдың ескерткіштері Қазақстан территориясы, соның ішінде зерттеліп отырған аймақта сирек жағдай болып саналады. Тұрақта ауданы 12 ш. м. болатын шағын қазу жұмыстары жүргізілді, төрт жүзден астам тас жәдігерлері, керамика бөлшектері және жануарлардың сүйек қалдықтары алынды. Ескерткіштің апатты жағдайда тұрғанына және антропогендік ықпал барысында мәдени қабаттың көп бөлігінің бұзылғанына қарамастан тұрақты зерттеу Еділ-Орал қос өзеніндегі неолит-энеолит дәуіріндегі мәдени үрдістерді түсінуде ірі мәнге ие. Тұрақта алғашқы рет радиокөміртек уақыты алынды, бұл нысанның ертенеолиттік екендігін көрсетеді. Ескерткішті және оның маңын зерттеуді жалғастыру жұмыстары аса қажет деп есептеледі.

Мақала ҚР БжҒМ ҒК қаржылай қолдауымен дайындалды (ЖТН AP05134087 «Солтүстік-Шығыс Каспий маңындағы тас дәуірі» жобасы)

Түйін сөздер: Батыс Қазақстан, Еділ-Жайық қос өзені, голоцен, тас ғасыры, неолит, мәдени қабат, горизонт, жәдігерлер, кремнийлі жыныс, кварцит тәрізді құмдақ, керамика, сүйек қалдықтары.

T. B. Mamiror[1], S. R. Kuandyk[2]

[1]Branch of the A. Kh. Margulan Institute of Archeology, Nur-Sultan, Kazakhstan;
[2]A. Kh. Margulan Institute of Archeology, Almaty, Kazakhstan

BRIEF RESULTS OF WORKS ON THE SITE VAVILINO 1 IN 2020

Abstract. The article provides brief information about the results of the field works in 2020 at the stratified Stone Age site in Western Kazakhstan - Vavilino 1. The sites of the Stone Age, with a preserved cultural layer, are very rare for the territory of Kazakhstan, and in particular for the studied region. The works of 2018 and 2019 showed the destruction of the upper cultural layer of the site as a result of anthropogenic impact, the excavation in 2020 was expanded by another 12 sq. m eastward, were obtained more than four hundred stone artifacts, fragments of ceramics and animal bones.

The first horizon up to 25 (30) cm thick was saturated with eluvium and gaize; artifacts of yellowish-gray quartzitic sandstone, siliceous raw materials of dark gray and light gray shades, single fragmentary bone remains and ceramics were found in the layer.

The main percentage of artifacts in the first horizon is represented from quartzite sandstone - 173 specimens. (94%). The tool kit (39 pieces) is represented by the following items: scrapers on flakes and blades (9 pieces), mainly of end types (7 pieces). Fragments of blades with secondary processing along the edges are representative (14 pieces), or 34% of tools. Highlighted in a set are an burin on straight retouched truncation, reamers on a plates and flakes (3 pieces). A single chisel reshaped from a fragment of a core, notched tools on blades and a technical chip (3 pieces), a massive pebble side-scraper, a tool with a spike, chips with retouch, and fragments of tools (5 pieces).

Artifacts from siliceous rocks are few in number - 11 specimens (6%), of which 5 tools, all of them end-scrapers. On one, measuring 14.3x16.0x3.9 mm, the left edge was retouched with back retouch.

The second horizon, 25 (30) cm to 60 (70) cm thick, includes 238 artifacts, 211 specimens from quartzite sandstone (88.6%) and 27 specimens (11.4%) from siliceous rocks.

The technique of primary reduction from quartzite sandstone is represented by a double-sided core for removing short spalls, technical spalls, and ribbed plates.

The tool kit (37 pieces) is represented by the following items: two end-scrapers on a plate, one end-scraper on a flake, and one side scraper on a flake; fragments of plates with retouch (8 pieces); an angular cutter, a drill on a fragment of a plate, two cutting tools, the first knife with a natural backing, the second with a serrated blade; scrapers on a flake (2 pieces); a chopping tool, the rest are whole flakes and their fragments with secondary processing.

From siliceous rock, 10 tools, three end-scrapers, a round scraper on a flake, a chisel, fragments of plates and flakes with secondary processing along the edges were found.

Despite the accident rate of the site and the destruction of most of the cultural layer by anthropogenic impact, the study of the site is of great importance for understanding the cultural processes in the Neolithic-Eneolithic era in the Volga-Ural interfluve.

The stratigraphy of the excavation showed that the areas in the east and south are the most destroyed. However, in the southern direction, despite the destroyed upper layer, the thickness of the cultural layer increases to 70 cm, which is of interest for increasing the excavation area in the southern, as well as the western part of the site, which is less affected by economic activity.

At the site, a bone fragment was used to obtain the first radiocarbon date 7483 ± 23 BP (Hela-4507) (cal 6355-6335 BC), which indicates the early Neolithic age of the object. Work on Vavilino 1 has just begun, a small stone and ceramic inventory has been obtained, which has similar features to the Neolithic monuments of the Steppe Volga region (Algai, Irrigated 1), the date obtained includes this monument in the circle of the Early Neolithic monuments of the Steppe Volga region, however, additional dating is required and obtaining more massive material, which can solve to some extent the issues of the origin and cultural features of the Early Neolithic in the Volga-Ural interfluve.

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Key words: Western Kazakhstan; Volga-Ural interfluve; Holocene; stone Age; Neolithic; cultural layer; horizon; artifacts; siliceous rock; quartzite sandstone; ceramics; bone remains.

Information about the authors:

Mamirov T.B., candidate of historical sciences, Director of the branch of the A.Kh.Margulan institute of archaeology, Nur-Sultan, Kazakhstan; tmamirov@mail.ru; https://orcid.org/0000-0003-2975-0115

Kuandyk S.R., specialist of archeology of A.Kh. Margulan Institute of Archeology, Master of Archeology, Almaty, Kazakhstan; s.r.kuandyk@mail.ru; https://orcid.org/0000-0002-1336-4976

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Кожахметов Султанбек Мырзахметович

(К 85-летию)

15 сентября 2020 года исполняется 85 лет со дня рождения крупного ученого-металлурга, академика Национальной академии наук, главного научного сотрудника Института металлургии и обогащения, доктора технических наук, профессора, лауреата Государственной премии СССР Султанбека Мырзахметовича Кожахметова.

В 1958 году после окончания Московского института цветных металлов и золота им. М.И. Калинина по ходатайству Президента АН КазССР, академика К.И. Сатпаева он был направлен на работу в Институт металлургии и обогащения АН Казахской ССР, где прошел все ступени научной деятельности от старшего лаборанта до директора института, академика-секретаря Отделения наук о Земле и вице-президента Академии наук Казахской ССР.

Он принимает активное участие в работах Национальной инженерной академии (НИА) и Национальной академии естественных наук (КазНАЕН) Республики Казахстан, являясь действительным членом-академиком этих академий.

Академик С.М. Кожахметов – известный ученый в области теории и новых технологий получения тяжелых цветных металлов и сопутствующих им элементов. При его непосредственном участии и научном руководстве создано научное направление «физико-химические основы и разработка высокоэффективных и новых автогенных процессов в металлургии меди». На основе фундаментальных исследований в области теории высокотемпературных металлургических процессов им развиты новые представления о термодинамике, кинетике и механизме окислительно-восстановительных процессов сульфидно-оксидных систем, содержащих тяжелые цветные и редкие металлы, и взаимодействии штейно-шлаковых расплавов автогенных процессов с газовой фазой.

В течение последнего десятилетия под руководством С.М. Кожахметова совместно с ближайшими сотрудниками разрабатывается физико-химические основы и технология пирометаллургического вскрытия упорного сырья золота и окисленных никелевых руд.

Широко внедрены на медеплавильных заводах Республики Казахстан разработанные под руководством С.М. Кожахметова совместно с учеными России и Казахстана принципиально новые автогенные процессы – кивцэтный способ плавки медно-цинковых концентратов (Иртышский медеплавильный завод) и процесс плавки медных концентратов в жидкой ванне, процесс Ванюкова (Балхашский медеплавильный завод). В промышленном масштабе процесс Ванюкова освоен в России и Узбекистане учеными МИСиС (Норильский, Среднеуральский и Алмалыкский медеплавильные заводы).

С.М. Кожахметов является автором более 600 научных работ и изобретений, в том числе 10 патентов зарубежных стран (США, Канада, Япония, Австралия, Франция и др.).

Его учениками защищены 17 кандидатских и 5 докторских диссертаций.

С.М. Кожахметов награжден орденами «Дружбы народов», «Құрмет», медалями и почетными грамотами Верховного Совета Казахской ССР и Республики Казахстан, является лауреатом Международного Общества минералов, металлов и материалов (США) и Международного академического рейтинга популярности «Золотая Фортуна» (г. Киев). Он избирался депутатом Верховного Совета Казахской ССР 11-го созыва и являлся председателем Комитета по рациональному использованию природных ресурсов и охране окружающей среды Верховного Совета КазССР.

Президиум Национальной академии наук РК поздравляет Султанбека Мырзахметовича с юбилеем, желает ему крепкого здоровья, благополучия и дальнейших творческих успехов!

ДАРЫНДЫ ҒАЛЫМ

(Мерейтой – 85 жас)

Қазақстанның экономика ғылымында өз биігі, өрісі, бөлек кеңістігі бар ҚР ҰҒА академигі Ораз Баймұратов сияқты біртуар қазақ азаматының өмір белестеріне, ғылымдағы өнегелі жолына зер салған жанның дарынды ғалым болмысын ашатын тегінен дарыған, өскен ортасы қалыптастырған өзіндік қасиеттерін аңғармауы мүмкін емес.

Ораз Баймұратовтың өзгелерден ерекшеленіп тұратын бірнеше қасиетін атауға болады. Әуелі, оның өзгеше үлгі қасиеті – өзі таңдап-талғаған ғылым жолына деген сенімділігі. Осы жолда талмай, таудай талаппен, ғылыми ізденіспен студенттік өмірден академиктік дәрежеге дейін жетті.

Орта мектепті ойдағыдай бітіргесін білімге деген құштарлық албырт жасты байтақ Мәскеудің түсті металдар және алтын институтына алып келді. Жоғары білімді жас маман осы институтты 1957 жылы ойдағыдай тәмамдағасын, туған еліне оралғаннан кейін, оның қажыры мен қайратының арқасында өрлеу баспалдақтары биіктей береді.

Академик Ораз Баймұратовтың келешектегі бар ғылыми өмірі еліміздің аяулы азаматы Қаныш Сәтбаев құрған ғылым ордасы – Ғылым академиясының қабырғасында өтеді. Әуелі кіші ғылыми қызметкер, аспирант, ғалым-хатшы, бөлім меңгерушісі болды.

Ораз Баймұратұлы 1962-1964 жылдары ол Мәскеудің болат және балқыту институтының «Экономика» кафедрасында өндірістік экономика саласының білгір мамандарының бірі профессор С.Я. Рачковскийдің басшылығымен аспирантурада оқиды. Оны 1964 жылы «Металлургия заводтарын қайта құру және ұлғайтудың экономикалық тиімділігі» деген тақырыпта кандидаттық диссертация қорғап шығады.

Кандидаттық диссертацияны ойдағыдай қорғағаннан кейін, ҚазКСР ҒА Экономика институтында қызмет істей жүріп, өзінің талапты ғалым екенін көрсете білді. Қысқа мерзім ішінде дайындап, 1971 жылы «Өнеркәсіп өндірісіне капиталдық салымдардың экономикалық тиімділігі» атты тақырыпта докторлық диссертациясын табысты қорғап, Қазақстан бойынша ең жас экономика ғылымдарының докторы дәрежесіне ие болады да, 1975 жылы экономика бойынша профессор атағын алады.

Академик О. Баймұратов ірі ғалым-экономист ретінде отандық экономика ғылымының дамуына үлкен үлес қосуы 1980 жылы республика Ғылым академиясының өндіргіш күштерді зерттеудің Кеңесіне (ӨКЗК – СОПС) ауысуынан басталады.

Академик О.Баймұратов «тоқырау» кезеңінде ірі теоретик ретінде экономикалық құбылыс-тардың терең мәніне жете білді. Ол әлемдік әдебиетте басымдылық түсінігін алғашқы болып жан-жақты саяси-экономикалық жағынан зерттеп, оның өндіргіш күштер мен экономикалық заңдар жүйесіндегі орнын көрсетті.

Ғалымның әлеуметтік экономика және гармония туралы еңбектері экономикалық ғылымның дамуында маңызды әрі өзекті саналады.

Академиктің пайымдауынша, Гармония барша парасаттылық пен игілікті – махаббат пен рахымнан бастап, әділеттілік пен бірқалыптылыққа дейін қарастырады. Расында Гармония әлемді сақтайды. Бұл жерде елдердің алға дамуының аса маңызды шарты – саналы түрде Гармонияға қарай ұмтылу екенін атап өту керек.

Ол – бірнеше лауазымы жоғары ғылыми, қоғамдық кеңестердің белсенді мүшесі.

1990-1995 жылдары Қазақ КСР Жоғарғы Кеңесінің және ҚР-ның XII және XIII шақырылымдарының депутаты, қаржы, бюджет және банк жөніндегі Комитеттің Төрағасы, ҚР Жоғары кеңесінің Үйлестіру Кеңесінің, КСРО Жоғары Кеңесінің Төрағасының орынбасары, ТМД елдері Парла-ментаралық Ассамблея комиссиясының мүшесі болды.

Әрине, академик ел мүддесін алдыңғы қатарға қойды. Оны дәлелдейтін мысалдар жеткілікті сияқты. Тіпті, Кеңес Одағы кезінде, 1990 жылы ол баспасөз бетінде Қазақстанның егемендігі, өзіндік валютасы болуы керек деген идеяларын жария еткен болатын.

Ғылыми және қоғамдық қызметте сіңірген айтулы еңбегі және экономика ғылымын дамытудағы үлкен үлесі үшін О. Баймұратов көптеген орден, медальдармен, Қазақстан Республикасының Құрмет грамоталарымен марапатталды.

Бүгінде Ораз Баймұратов өзінің творчестволық өсу жолын одан әрі табысты жалғастыруда. Академик ағамыз біздерді жастық энергиясымен рухтандырады, идеялары мен творчестволық жоспарлары көп, біз одан әлі де көп жыл бойы даналықты, ойлана білуді үйренеміз, әлі де ол талантты жас ғалымдарды және экономистерді тәрбиелейді деп ойлаймыз.

О. Баймұратов аға туралы айтар болсақ, ой көп, бірақ бір мақалада бәрін айтып жеткізу қиын, бәріне тарих куә, алда ол кісі туралы көптеген жақсы мақала жазылатынына күмәніміз жоқ.

Құрметті Ораз Баймұратұлы! 85-жылдық мерейтойыңызда Сізге ұзақ ғұмыр, зор денсаулық, табыс тілейміз. Еліңізге адал қызмет етіп, отбасы бақытының нұрына бөлене беріңіз деп ыстық сезімімізді білдіреміз.

***Раушанбек Әбсаттаров**, ҚР ҰҒА корреспондент-мүшесі,*
философия ғылымдарының докторы, профессор

У ИСТОКОВ КАЗАХСТАНСКОЙ ПОЛИТОЛОГИИ

(К 80-летию со дня рождения)

Абсаттаров Раушанбек Бурамбаевич – известный ученый-политолог не только в Казахстане, но и за рубежом, член-корреспондент НАН РК, доктор философских наук, профессор. Окончил философский факультет Киевского гос. университета им. Т.Г. Шевченко (1967 г.), там же окончил аспирантуру (1970 г.) и докторантуру (1982 г.).

Трудовую деятельность начал в 1958 г. водителем в совхозе им. Ленина (Турмаганбет ауылы) Кармакшинского района Кызыл-Ординской области, затем служил в рядах Советской Армии (1959-1962 гг.), где был командиром отделения, зам. командира взвода, командиром взвода. С 1971 по 1996 годы Абсаттаров Р.Б., работал старшим преподавателем, доцентом философско-экономического факультета КазГУ им. аль-Фараби, партийным работником, зав. кафедрой политической социологии и философии Казахстанского института менеджмента, экономики и прогнозирования при Президенте РК, консультантом Аппарата Президента Республики Казахстан. А с 1997 по 2018 годы – заведующий кафедрой политологии и социологии (позже - кафедра политологии и социально-философских дисциплин) КазНПУ им. Абая, работая с 2000 по 2002 гг. параллельно деканом исторического факультета того же университета. В настоящее время работает почетным зав. кафедрой политологии и социально-философских дисциплин, профессором-консультантом КазНПУ им. Абая.

Профессор Абсаттаров Р.Б. внес огромный вклад в развитие политической науки, является одним из осноположников политической науки суверенной и независимой Республики Казахстан, основателем научной школы этнополитологии Казахстана. Он опубликовал 40 монографий, книг, учебных пособий, брошюр и около 600 научных и учебно-методических статей. Из них более 60 – за рубежом. В его трудах получены важные научные результаты, имеющие как фундаментальное, так и прикладное значение для политологии. С его именем связано становление и развитие в республике таких новых направлений, как культура межнационального общения и ее воспитание, этнополитологическая общность, национальное и общеказахстанское самосознание, согласие, общеказахстанская консолидации, национальные противоречия и пути их решения, этнические и интеграционные процессы, единство и различие стиля мышления народов, сравнительная политология, политическая социализация. Профессор Абсаттаров Р.Б. как известный, авторитетный ученый-этнополитолог в 2015 г. был избран вице-президентом Всемирной ассоциации глобальных исследований Global диаспор (г. Кванжу, Южная Корея).

Профессор Абсаттаров Р.Б. является одним из новаторов развития важных направлений политологической науки. Его новаторские, оригинальные и фундаментальные монографии: Научно-технический прогресс и межнациональные отношения. Алма-Ата: Казахстан, 1977; Развитие национальных отношений. Алматы: Казахстан, 1982; Национальные процессы: особенности и проблемы. Алматы: Ғылым, 1995; Воспитание культуры межнационального общения студентов: теория и практика. Алматы: Гылым, 1999 (в соавторстве Т.С. Садыковым); Политология и ее проблемы. Алматы: Тоганай, 2007; Культура межэтнического общения: казахстанский опыт. Алматы: Ұлағат. 2015 (в соавторстве) и другие, а также учебники и учебных пособий «Тесты по политологии: вопросы и ответы». Алматы: Гылым, 2015, на русс, и каз. яз.; «Политическая социализация казахстанцев. Алматы, 2012 (в соавторстве)» «Основы политологии. В двух томах». Алматы: Қарасай, 2011, 2012, 2018 – 1 том 30,2 п.л.; 2 том 30 п.л. и другие. Его научные труды и учебные пособия получили высокую оценку среди научной общественности как в Казахстане, так и за рубежом. Он подготовил к публикации в издательстве «Ұлағат» монографию «Размышления о политологических и социологических проблемах общества», 35 п.л. совместно с немецким профессором И.А. Рау.

Профессор Абсаттаров Р.Б. обладает научной, социально-политической смелостью и новаторским характером в решении актуальных и сложных проблем общественно-политической науки. В нем гармонично сочетаются качества пытливого, неудержимого ученого-теоретика и практика, страстного сторонника прогрессивного и нового, способного научно-теоретически осмыслить сравнительный материал и создать свою концепцию по проблемам этнополитологии и общественно-политических отношений.

Он выполнял и выполняет университетские, республиканские и международные грантовые исследования.

Под непосредственным и активным участием профессора Абсаттарова Р.Б. были открыты на кафедре политологии и социально-философских дисциплин КазНПУ имени Абая новые специальности-бакалавриата: «Политология», «Социология», «Культурология», «Религиоведение», «Философия» и магистратуры, Phd докторантуры: «Политология», «Социология».

Профессор Абсаттаров Р.Б. выступал с докладами и сообщениями на 60 республиканских и международных конференциях и симпозиумах. Он читал лекции и выступал с докладами в университетах и научных центрах Германии, Франции, Великобритании, Южной Кореи, Турции, Египта, России, Белоруссии, Кыргызстана и других странах. Он – почетный профессор Академии государственного управления при Президенте Кыргызской Республики.

Профессор Абсаттаров Р.Б. постоянно объединял и объединяет вокруг себя активную, пытливую и талантливую молодежь, будь-то сотрудники кафедры, аспиранты и докторанты, студенты или магистранты. Он подготовил и воспитал 20 кандидатов, 5 докторов наук, 6 PhD докторов и более 40 магистрантов. С 1990 года по 2010 годы был членом Ученого Совета по защите кандидатской и докторской диссертации по политических наукам. Он был первым избранным в члены-кореспонденты НАН РК по политической науке.

Профессор Абсаттаров Р.Б. является главным редактором научного журанала «Вестник КазНПУ. Серия политические и социологические науки». Он – член редколлегии ряда казахстанских и зарубежных научных журналов. Профессор Абсаттаров Р.Б. награжден медалью «Ерен еңбегі үшін» и другими медалями. Дважды - нагрудным знаком «За заслуги в развитии науки Республики Казахстан», обладатель государственного гранта «Лучший предподаватель вуза». Р.Б. Абсаттаров за высокие достижения в научной и общественно-политической работе награжден Почетными грамотами Казахстана и Украины.

Профессор Абсаттаров Р.Б. – трудолюбивый, дисциплинированный, ответственный, исполнительный, порядочный, честный человек и хороший семьянин.

Вся жизнь члена-корреспондента НАН РК, профессора Абсаттарова Р.Б. посвящена суверенному Казахстану, политической, социологической, философской науке и политологическому образованию. Он является выдающимся ученым, мудрым наставником, великолепным собеседником, замечательным человеком.

Поздравляем Раушанбека Бурамбаевича с предстоящим юбилеем – 80-летием со дня рождения, желаем ему всего самого наилучшего.

А. К. Кошанов, *академик НАН РК,*
лауреат Государственной премии РК им. аль-Фараби

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