ISSN 2518-1483 (Online),
ISSN 2224-5227 (Print)

2019 • 1

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫНЫҢ

БАЯНДАМАЛАРЫ

ДОКЛАДЫ

НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН

REPORTS

OF THE NATIONAL ACADEMY OF SCIENCES
OF THE REPUBLIC OF KAZAKHSTAN

PUBLISHED SINCE 1944

ALMATY, NAS RK

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫНЫҢ
БАЯНДАМАЛАРЫ **2019 • 1**

«Қазақстан Республикасы Ұлттық ғылым академиясының баяндамалары»
ISSN 2518-1483 (Online),
ISSN 2224-5227 (Print)

Меншіктенуші: «Қазақстан Республикасының Ұлттық ғылым академиясы» Республикалық қоғамдық бірлестігі (Алматы қ.)
Қазақстан республикасының Мәдениет пен ақпарат министрлігінің Ақпарат және мұрағат комитетінде 01.06.2006 ж. берілген **№5540-Ж** мерзімдік басылым тіркеуіне қойылу туралы куәлік

Мерзімділігі: жылына 6 рет.
Тиражы: 500 дана.

Редакцияның мекенжайы: 050010, Алматы қ., Шевченко көш., 28, 219 бөл., 220, тел.: 272-13-19, 272-13-18,
http://reports-science.kz/index.php/en/archive

Типографияның мекенжайы: «Аруна» ЖК, Алматы қ., Муратбаева көш., 75.

ДОКЛАДЫ **2019• 1**
НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН

Доклады Национальной академии наук Республики Казахстан»
ISSN 2518-1483 (Online),
ISSN 2224-5227 (Print)

Собственник: Республиканское общественное объединение «Национальная академия наук Республики Казахстан» (г. Алматы)
Свидетельство о постановке на учет периодического печатного издания в Комитете информации и архивов Министерства культуры и информации Республики Казахстан **№5540-Ж**, выданное 01.06.2006 г.

Периодичность: 6 раз в год.
Тираж: 500 экземпляров

Адрес редакции: 050010, г.Алматы, ул.Шевченко, 28, ком.218-220, тел. 272-13-19, 272-13-18
http://reports-science.kz/index.php/en/archive

Адрес типографии: ИП «Аруна», г.Алматы, ул.Муратбаева, 75

REPORTS **2019 • 1**
OF NATIONAL ACADEMY OF SCIENCES OF THE
REPUBLIC OF KAZAKHSTAN

Reports of the National Academy of Sciences of the Republic of Kazakhstan.
ISSN 2224-5227
ISSN 2518-1483 (Online),
ISSN 2224-5227 (Print)

Owner: RPA "National Academy of Sciences of the Republic of Kazakhstan" (Almaty)
The certificate of registration of a periodic printed publication in the Committee of Information and Archives of the Ministry of Culture and Information of the Republic of Kazakhstan N 5540-Ж, issued 01.06.2006

Periodicity: 6 times a year
Circulation: 500 copies

Editorial address: 28, Shevchenko str., of.219-220, Almaty, 050010, tel. 272-13-19, 272-13-18,
http://reports-science.kz/index.php/en/archive

Address of printing house: ST "Aruna", 75, Muratbayev str, Almaty

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.1**
Volume 1, Number 323 (2019), 5 – 10

UDC 57.042
IRSTI 87.15.21

N.A. Ibragimova[1], M.B. Lyu[1], D. Snow[2], A.N. Sabitov[1]

[1] JSC «Scientific Center for Anti-infectious Drugs», Almaty, Kazakhstan;
[2] Water Sciences Laboratory University of Nebraska, Nebraska, USA
nailya.73@mail.ru, mlyu@mail.ru, dsnow1@unl.edu, aitugans@mail.ru

ON THE QUESTION OF THE NECESSITY OF NORMATING BIO-TRANSFORMED SUBSTANCES MEDICINAL PREPARATIONS IN OBJECTS OF THE ENVIRONMENT (SHORT MESSAGE)

Abstract. After entering the body, medications are subjected to a cascade of interrelated biochemical reactions, which result in not only is the pharmacological effect achieved, but also the formation of the biotransformation products. Theses chemicals ultimately wind up in waste water, where they are also exposed a whole complex of abiotic and biotic processes. As a result, chemical compounds with new properties can be formed, able to change physiological, biochemical, genetic and other parameters living organisms and to enter the food chain into the human body. Therefore, it can be argued about the urgent problem on the necessity of predicting and understanding biotransformed products of medicinal products in environmental objects, and including wastewater, which will determine the impact of the risks health risks, expand (supplement) the standards of environmental pollution and define a strategy for finding and developing new drugs.

Key words: drugs, biotransformation, rationing, waste water, water resources.

Pharmaceutical preparations are used in medicine all over the world and are defined as substances used for the prevention, diagnosis, treatment of the disease, include more than 4000 kinds of chemicals with different physico-chemical, biological properties and different biochemical effects. Once introduced into the body, they can be metabolized or remain unchanged. As a result, a mixture of pharmaceutical preparations and their metabolites enters the waste water, and depending on the polarity, water solubility and stability, some of these compounds may not be completely removed or transformed during the purification process [1]. The products of drug transformation can be preserved in environmental objects, which affect the processes of circulation of substances and energy in natural ecosystems and may even affect human health [2].

The main source of products of biotransformation of medicinal products to environmental objects are man and animals [3]. Also, medicinal products can flow through the sewage system, passing through a sewage treatment plant and then entering open water sources or with household waste to a landfill [4]. Medicinal products may not be used by patients due to discontinuation due to side effects, recovery of the patient or the achievement of their shelf life. [5]. Thus, for example, paracetamol with a concentration of 117 μg/l, ciprofloxacin 269 ng/l, and even cocaine 57 ng/l were determined in the landfill leachate [6].

Seven antibiotics and one antibiotic-metabolite with a detection rate of 3.1 to 62.5% were found in the delta of the Snake River (Idaho, USA). At the same time, five of the detected 21 antibiotics are both veterinary and used for human treatment [7].

In European countries, analgesics and anti-inflammatory drugs such as acetylsalicylic acid and non-steroidal anti-inflammatory drugs (for example, ibuprofen) are in great demand, followed by antibiotics

[8]. A significant amount of medicinal substances is not easily biodegradable in the purification system and likely to occur in unchanged form or in the form of metabolites enters surface and groundwater. It is this source of pharmaceutical pollution of the environment that practically cannot be controlled and regulated by existing standards [9]. In 2011, WHO published a report on "Drugs in drinking water" on the contamination of water with pharmaceutical products, which is becoming a serious global environmental problem. Traces of medicines are found in various aquatic systems [10].

In European countries has effectively established a policy return to the pharmacy unused medications, which are then sent for destruction by high-temperature combustion [11]. The conducted sociological researches have shown, that the highest proportion among European countries belongs to Sweden, where about 43 % of respondents return unused medicines to the pharmacy. In the UK, there are 22 high-temperature furnaces for incineration of waste products of pharmaceutical enterprises, which leads to economic costs of delivery, and delivering vehicles must comply with safety principles [12].

It is known that medicinal preparations cannot be removed in the process of wastewater treatment, their components are found in water and bottom sediments. After using dissolved air and ozone oxidation, pharmaceutical wastewater meets the water quality standards for wastewater. For example, when ozone is used, ibuprofen is removed from the waste water to 95 %, while the removal rate of bezafibrate is in the ranges 50-90 % [13].

Pharmaceuticals can pollute the soil mainly through the use of sewage sludge as fertilizer or irrigation of crops with treated wastewater [14]. In addition, the deposited pharmaceutical compounds may be leached from the soil into the surface waters after the rains [15].

After administration entering the body, pharmaceutical preparations are generally absorbed and metabolized. This process is influenced by the chemical-physical characteristics of drugs: molecular size, the degree of ionization and the relative solubility of lipids. After absorption, the drug enters the bloodstream, and after performing its action, the drug can be metabolized to a more hydrophilic substance for isolation. If the drug remains lipophilic, it will again be reabsorbed and remain in the body for a longer period. Metabolism of pharmaceutical preparations can be accompanied by the formation of polar metabolites with a lower activity, which are easily excreted from the body in the form of biologically active or toxic metabolites [16].

All the chemicals undergo transformation with the metabolizing enzymes mainly of the intestine and liver. As is known, in mammals the clearance of xenobiotics includes several phases, and in the first two phases these substances undergo structural modifications. In the first phase, the chemical is activated through the introduction of a polar (reactive) functional group. For example, in the first phase, the key enzyme is cytochrome P450 (CYP), which oxidizes the substrate, thereby increasing the cytotoxicity of the chemical. The second phase is accompanied by an increase in molecular weight, a decrease in reactivity and an increase in transportability. And, finally, the third phase contributes to the elimination of this chemical from the cell into the intercellular environment. The enzymes catalyzing these reactions are highly specific and capable of generating various metabolic products. Therefore, after administration and absorption, pharmaceutical preparations can be withdrawn from the body without changes, in the form of conjugates, in the form of basic metabolites or mixtures thereof. Data show that tetracyclines, penicillins, fluoroquinolones (excluding propranolol) and betaxolol are released unchanged, while analgesics and anti-inflammatory drugs are intensely metabolized, although the percentage of excretion for most metabolites is unknown [17].

The most important environmental problem in Kazakhstan is the scarcity of water resources, so the use of treated wastewater can be considered as an important alternative [18]. Because wastewater is continuous introduced into the environment of Kazakhstan, these pharmaceutical chemicals are especially important to monitor and understand. The main objectives of the wastewater treatment process is the elimination of coarse solid particles, the reduction of readily assimilable organic wastewater fractions, e.g., nitrogen and phosphorus, removal of slowly biodegradable organic substances and pathogenic microorganisms by active silt [19]. It is now known that microbial communities are key components of the organic substance in the biogeochemical cycling maintaining the balance of natural ecosystems [20]. The microbiological consortium is provided with influence a variety of abiotic and biotic factors, which directly affects the quality of wastewater. For example, a decrease in bacteria also can be due to spontaneous cell death [21].

Water after mechanical cleaning goes for biological treatment in an aerotank - a structure with constantly circulating in the aeration tank waste water, in the entire thickness of which in active silt, aerobic microorganisms develop. For a normal process biochemical oxidation in aerotanks it is necessary to continuously supply air, which is achieved by means of pneumatic, mechanical or pneumomechanical aeration. Methods of biological purification are based on the ability of microorganisms use organic compounds, contained in sewage, as a nutrient substrate: the more active silt and substrate, the faster the process of biochemical oxidation Active sludge has a 100-year history of use as a biological treatment of domestic and industrial wastewater [22].

Problems of ecological safety at wastewater treatment is associated with primary sediment and excess silt. As a result of cleaning, so-called "sewage sludge" or "solids of biological origin" which are an insoluble precipitate, obtained during purification or in subsequent sludge stabilization procedures [23]. On average, per ton of sewage sludge bout 80 kg of nitrogen, 200 kg of phosphate (P_2O_5), and 10 kg of potassium (K_2O) [24]. Thus, almost all chemical and microbiological pollution are concentrated in raw sludge – primary sludge and activated sludge - secondary sludge. The primary and secondary precipitates may be thickened up to 5 % by volume of dry matter on sludge compactors, to obtain a biosludge, which is transported further on the irrigation fields, as a rule, not far from the drives. Over time biosludge dried in natural conditions, however, there is transmission pollutants into the soil, groundwater, also into the air by transferring aerosols and microorganisms, and their products of vital activity. Such a method of recycling biosludge may be hazardous from an ecological and hygienic point of view.

Stabilized sewage sludge intended for agricultural land use needs to be subject to strict quality assessment for high metal content (cadmium, arsenic, copper, lead, mercury and zinc), persistent organic pollutants (aldrin chlorine compounds, dieldrin, heptachlor, DDT, lindane and others) and pathogenic microorganisms (bacteria, viruses, protozoa and helminths) to exclude their transmission through food chains [25].

Sewage sludge usually contains a large number of pathogenic bacteria of the genus *Salmonella spp*., *Listeria spp*., *Escherichia coli*, *Campylobacter spp*., *Clostridium spp*. and *Yersinia spp*., most of which are zoonotic [26-28].

The storage lake "Sorbulak" has more than 40-year history of operation and is one of the world's largest lakes-sedimentation tanks for sewage. The wastewater of the cities of Almaty, Talgar and Kaskelen that have passed mechanical and biological purification is dumped into the lake. The main task assigned to the Sorbulak basin is deep, long-term regulation of the sewage level and provision of natural self-purification of water with subsequent use for irrigation. Five tons of water every second comes in to "Sorbulak" provided that the total volume of the drive is 900 million cubic meters with the optimum mark of a normal retaining level of 620.5-622 meters. Therefore, to unload the Sorbulak, a channel was put into operation in the Ili River (right-bank Sorbulak Canal) and a reservoir with a capacity of up to 50 million cubic meters of water [29].

A significant number of drugs enters the environment through sewage systems. A significant number of medicinal substances is poorly biodegradable in the system of treatment facilities and in unchanged form or in the form of metabolites enters the surface and groundwater. It is this source of pharmaceutical environmental pollution that is practically not amenable to control and regulation by existing methods [30].

It is known that under the influence of abiotic and biotic factors, all substances entering the environment objects are subject to transformation, not exception - drug compounds often, from less harmful compounds by transformation more toxic substances are formed, which can be cumulated in objects of living nature and through the food chain to enter the human body, providing genotoxic, embryotoxic, teratogenic, mutagenic, carcinogenic and other actions. Transformation of medicinal substances in natural ecosystems practically has not been studied and their effect on various organisms is largely unknown.

Most drugs are eventually transported to the hydrosphere, where they undergo various transformations: phototransformation (both direct and indirect reactions through UV radiation); physical and chemical changes, degradation and mineralization; evaporation (mainly, some anesthetics, aromas); absorption by plants; animal accumulation [31]. Sources of fresh drinking water contribute to strategic resources. Main open water sources of the Republic of Kazakhstan have the status of cross-border

facilities, therefore the state of water quality and including the residual finding of medicines in it is of great importance in ensuring the environmental safety of the country. In 2011, the WHO published a report "Drugs in drinking water" as the review of a large number of studies [32]. Water pollution of pharmaceutical products becomes a serious environmental problem worldwide. Traces of drugs found in different aqueous systems. However, at the present time residual products of pharmacological preparations are not included in the list of mandatory for the assessment of water quality [33].

The countries of Central Asia are characterized by rapidly developing pharmaceutical market with certain rules and culture of drug consumption. However, the problem of disposing of pharmaceuticals and the practice of discharging them into wastewater is of particular relevance.

The expected compounds likely to occur in regional wastewater effluent depend on use. Pavin M., Nurgozhin T. (2003), and others, using the standard methodology (WHO), the number and groups of drugs prescribed by doctors in the Primary Health Care Clinic in the Fergana region of Uzbekistan. It was found that the largest proportion of prescription drugs are antibiotics (57%): *Benzathine benzylpenicillin, Ampicillin, Sulphamethoxazole (Trimethoprim), Clodantoin, Streptomycin, Clindamycin, Nitrofurantoin.* Among non-steroidal anti-inflammatory drugs (NSAIDs) the most commonly prescribed *Acetylsalicylic acid*, *Indomethacin*, *Ibuprofen, Diclofenac*. The average number of prescribed drugs is 2.9 per person, which is higher than the national average of 2.2 drug [34].

At present, the main criterion for monitoring environmental pollution is the determination of excess MPC, but it will be advisable to introduce the degree of transformation of pollutants, including metabolites of drugs, in environmental objects. Rationing of environmental risks allow the development of a methodology reduction in environmental protection receipts residual products of pharmacological preparations and integrate it into the Program of development of Almaty city, in which one of the seven directions is ecology. Creation of a modern system management and recycling is interlinked with the main provisions concept on the transition of the Republic of Kazakhstan to a "green" economy and sustainable development. Perfection of the mechanism control the environment through the formation of a new model of management through environmentally oriented methods management provides solution of socio-ecological and economic problems.

Diclofenac is a derivative of phenylacetic acid, belonging to the class of nonsteroidal antiinflammatory drugs (NSAIDs), possessing anti-inflammatory, antipyretic, analgesic, antiplatelet and uricosuric action. As is known, the pharmacological activity of NSAIDs is associated with inhibition of the cyclooxygenase enzyme (COX, prostaglandin PGH2 synthase) catalyzing the conversion of arachidonic acid to prostaglandin PGH2. The pharmacokinetic characteristics of diclofenac: oral bioavailability 54 ± 2 %, time to reach maximum concentration (tmax) 2.5 hours, maximum concentration (Cmax) 0.42-2.0 μg/ml and volume distribution equal to 12 liters. The drug binds to plasma proteins by almost 99.7 %. Diclofenac is metabolized by oxidation and glucoronidation. And only about 1 % is excreted unchanged in the urine [35].

Metronidazole belongs to the group of nitroimidazoles, it shows efficacy against anaerobes, and in general in the treatment of bacterial infections and infections caused by protozoa, such as amoebiasis and including, caused by *Clostridium*. Metronidazole is included in the list of essential medicines of WHO as a basic medicinal product [36].

Cephalosporins have high therapeutic activity and widely used in medicine and veterinary medicine, however, their transformation is not known in the environment. The time of degradation of four cephalosporins (cefradins, cefuroxime, ceftriaxone and cefepime) in surface waters and only four cephalosporins were amorphously degraded with half-lives of 2.7-18.7 days [37].

Conclusions. Based on the above review of the literature it can be argued, that more attention of researchers of various specialties should be focused on the increasing supply of medicines and biotransformation products to the environment, including open water sources. Lake Sorbulak is also experiencing an increasing pressure on the receipt of medicines, since in the process of wastewater treatment medicinal preparations not removed and subjected to the process of transformation due to environmental factors and the activity of living organisms. As is known, water from this reservoir is used for fodder and crop irrigation and the components of biotransformation of drugs can come by the food chain into the human body. Ultimately the occurrence and environmental impact of these compounds must be understood for the sustainable protection of Kazakhstan water resources.

This brief report was prepared within the framework of grant financing of the CS MES RK of the project AP05132269 “Assessing the potential risk of drug transformation to the formation of microorganism resistance in the environmental objects of urbanized territories” for 2018-2020.

Н.А. Ибрагимова[1], М.Б. Лю[1], D. Snow[2], А.Н. Сабитов[1]

[1] АҚ « Инфекцияға қарсы препараттардың ғылыми орталығы», Алматы, Қазақстан;
[2] Су ғылымдары зертханасы Небраска университеті, Небраска, АҚШ

ҚОРШАҒАН ОРТА ОБЪЕКТІЛЕРІНДЕГІ ДӘРІЛІК ПРЕПАРАТТАР СУБСТАНЦИЯЛАРЫНЫҢ БИОТРАНСФОРМАЦИЯЛАНУЫН ЖҮЙЕЛЕУДІҢ ҚАЖЕТТІЛІГІНЕ ҚАТЫСТЫ МӘСЕЛЕЛЕР

Аннотация. Организмге енгеннен кейін дәрілер бірқанша биохимиялық әсерлерге ұшырай отырып, формакологиялық нәтижеге жетумен бірге биотрансформациялық өнімдер де қалыптастырады. Десек, осы биотрансформациялық субстанциялар түптің түбінде қалдық суларға қосылып, сол жерде тағы бірқанша абиотикалық және биотикалық кешенді үрдістерге ұшырайды. Нәтижесінде жаңа тұрпаттағы химиялық қосындылар пайда болып олар адам организміне физиологиялық, биохимиялық, генетикалық және өзге де жағдайларда әсер етуі кәдік. Сондықтанда қоршаған орта объектілеріндегі дәрілік препараттар субстанцияларының қалдық суларда биотрансформациялануының адам денсаулығына әсерін алдын ала болжаудың маңызы зор. Бұл сондайақ, қоршаған орта ластануының бүгінгі стандартан кеңейтіп, жаңа дәрі-дәрмек ойластыру стратегиясын жасақтауға негіз болмақ.

Түйін сөздер: дәрілік препараттар, биотрансформация, нормалау, су қорлары, су ресурстары.

Н.А. Ибрагимова[1], М.Б. Лю[1], D. Snow[2], А.Н. Сабитов[1]

[1] АО «Научный центр противоинфекционных препаратов, Алматы, Казахстан;
[2] Лаборатория водных наук Университет Небраски, Небраска, США

К ВОПРОСУ О НЕОБХОДИМОСТИ НОРМИРОВАНИЯ БИОТРАНСФОРМИРОВАННЫХ СУБСТАНЦИЙ ЛЕКАРСТВЕННЫХ ПРЕПАРАТОВ В ОБЪЕКТАХ ОКРУЖАЮЩЕЙ СРЕДЫ (КРАТКОЕ СООБЩЕНИЕ)

Аннотация. После поступления в организм лекарства подвергаются целому ряду взаимосвязанных биохимических реакций, которые приводят не только к достижению фармакологического эффекта, но также к образованию продуктов биотрансформации. Эти биотрансормированные субстанции в конечном итоге обнаруживаются в сточных водах, где они также подвергаются целому комплексу абиотических и биотических процессов. В результате могут образовываться химические соединения с новыми свойствами, способными изменять физиологические, биохимические, генетические и другие параметры живых организмов и проникать по пищевой цепочке в организм человека. Поэтому можно утверждать об актуальной проблеме о необходимости прогнозирования и понимания биотрансформированных продуктов лекарственных средств в объектах окружающей среды и в том числе сточных водах, что позволит определить влияние рисков на здоровье, расширять (дополнять) стандарты загрязнения окружающей среды и разработать стратегию поиска и разработку новых лекарств.

Ключевые слова: лекарственные препараты, биотранформация, нормирование, сточная вода, водные ресурсы.

Information about authors:

Ibragimova N.A. - Leading Researcher of Pharmacology and Toxicology Laboratory;

JSC «Scientific Center for Anti-infectious Drugs», cand. biology. scien.; nailya.73@mail.ru; https://orcid.org/0000-0002-1618-900X;

Lyu M.B. – Deputy Head of the Laboratory of Pharmacology and Toxicology, JSC «Scientific Center for Anti-infectious Drugs», mlyu@mail.ru; https://orcid.org/0000-0002-7865-0017;

Dr. Snow Daniel D. – Water Sciences Laboratory University of Nebraska, Laboratory Director, Ph.D., 1840 N. 37th St | Lincoln, NE 68583-0844; dsnow1@unl.edu | p:1 402.472.7539 | f: 1 402.472.9599| c: 1 402.304.3748; ttps://orcid.org/0000-0003-0885-0504;

Sabitov A.N. – Managing test base management JSC «Scientific Center for Anti-infectious Drugs», cand. chemical scien.; aitugans@mail.ru; ttps://orcid.org/0000-0003-3677-8685.

REFERENCES

[1] Daughton C, Ternes T. (**1999**) Pharmaceuticals and personal care products in the environment: agents of subtle change?, Environ Health Perspect, 107:907-938. DOI: 10.2307/3434573 (in Eng).

[2] Musson S, Townsend T et al. (**2007**) A continuous collection system pharmaceutical wastes: a pilot for household project, J Air Waste Manag, 57(7):828-835. DOI: 10.3155/1047-3289.57.7.828 (in Eng).

[3] Ort C, Lawrence M, Reungoat J et al. (**2009**) Determining the fraction of pharmaceutical residues in wastewater originating from a hospital, Water Res, 44(2):605-615. DOI: 10.1016/j.watres.2009.08.002 (in Eng)

[4] Vellinga A, Cormican S, Driscoll J et al. (**2014**) Public practice regarding disposal of unused medicines in Ireland, Sci Total Environ, 478:98-102. DOI: 10.1016/j.scitotenv.2014.01.085 (in Eng).

[5] Boxall A, Sinclair C, Fenner K et al. (**2004**) When synthetic chemicals degrade in the environment, Environ Sci Technol, 38(19):368A-375A (in Eng).

[6] Musson S, Townsend T. (**2009**) Pharmaceutical compound content of municipal solid waste, J Hazard Mater, 162:730-735. DOI: 10.1016/j.jhazmat.2008.05.089 (in Eng).

[7] Dungan R, Snow D, Bjorneberg D. (**2017**) Occurrence of Antibiotics in an Agricultural Watershed in South-Central Idaho, J Environ Qual. DOI: 10.2134/jeq2017.06.0229 (in Eng).

[8] Stackelberg P, Furlong E, Meyer M et al. (**2004**) Persistence of pharmaceutical compounds and other organic wastewater contaminants in a conventional drinking-water-treatment plant, Sci Total Environ, 329:99-113. DOI: 10.1016/j.scitotenv.2004.03.015 (in Eng).

[9] P Deo Randhir, U Halden Rolf (**2013**) Pharmaceuticals in the Built and Natural Water Environment of the United States, Water, 5 (3):1346-1365. DOI.org/10.3390/w5031346 (in Eng).

[10] Pharmaceuticals in drinking-water/ WHO/ HSE/WSH/11.05/ World Health Organization (**2011**) USEPA. Summary of the Clean Water Act. Available online: https://www.epa.gov/lawsregulations/summary-clean-water-act (in Eng).

[11] Seehusen D, Edwards J. (**2006**) Patient practices and beliefs concerning disposal of medications, J Am Board Fam Med, 19(6):542-547. DOI: 10.3122/jabfm.19.6.542 (in Eng).

[12] Tong A, Peake B, Braund R. (**2011**) Disposal practices for unused medications around the world, Inviron Int, 37(1):292-298. DOI: 10.1016/j.envint.2010.10.002 (in Eng).

[13] Choi M, Choi D, Lee J et al. (**2012**) Removal of pharmaceutical residue in municipal wastewater by DAF (dissolved air flotation)-MBR (membrane bioreactor) and ozone oxidation, Water Sci Technol, 12:2546-2555. DOI: 10.2166/wst.2012.429 (in Eng).

[14] Ternes T, Joss A, Siegrist H. (**2004**) Scrutinizing pharmaceuticals and personal care products in wastewater treatment, Environ Sci Technol, 38:393A-398A. (in Eng).

[15] Pedersen J, Soliman M et al. (**2005**) Human pharmaceuticals, hormones and personal care product ingredients in runoff from agricultural fields irrigated with treated wastewater, J Agric Food Chem, 53:1625-1632. DOI:10.1021/jf049228m (in Eng).

[16] Galbraith A, Bullock S, Manias S et al. (**2004**) Pharmacokinetics: absorption and distribution, In: Fundamentals of Pharmacology: A Text for Nurses and Health Professionals, 4th Ed. Pearson Education Limited, Essex, England. P. 109-114.

[17] Guengerich F. (**2001**) Common and Uncommon Cytochrome P450 Reactions Related to Metabolism and Chemical Toxicity, Chem Res Toxicol, 14(6):611-650. DOI: 10.1021/tx0002583 (in Eng).

[18] Концепция по переходу Республики Казахстан к «зеленой» экономике. http://www.led-ca.net/assets/files/Concept_Rus-GreenEcon-Kaz.pdf

[19] Muela A, Orruño M, Alonso M et al. (**2011**) Microbiological parameters as an additional tool to improve wastewater treatment plant monitoring, Ecol Indic, 11:431-437. DOI.org/10.1016/j.ecolind.2010.06.014 (in Eng).

[20] Kent A, Yannarell A, Rusak J et al. (**2007**) Synchrony in aquatic microbial community dynamics, ISME, J1:38-47. DOI: 10.1038/ismej.2007.6 (in Eng).

[21] Wanjugi P, Harwood V. (**2013**) The influence of predation and competition on the survival of commensal and pathogenic fecal bacteria in aquatic habitats, Environ Microbiol, 15:517-526. DOI: 10.1111/j.1462-2920.2012.02877.x(in Eng).

[22] Sheik AR, Muller EL, Wilmes P. (**2014**) A hundred years of activated sludge: time for a rethink, Front Microbiol., 5: 47. DOI: 10.3389/fmicb.2014.00047 (in Eng).

[23] Arcak S, A. Karaca E et al. (**2000**) A study on potential agricultural use of sewage sludge of Ankara wastewater treatment plant, In Proceedings of the International Symposium on Desertification, Konya, Turkey. P. 345-349.

[24] Eberle WM, Whitney DA and Powell GM. (**1994**) Sewage sludge use on agricultural land. Cooperative Extension Service, Kansas State University, Manhattan.

[25] Saleem M, Al-Malack M et al. (**2001**) Seasonal variations in the microbial population density present in biological sludge, Environ Technol. 22:255-259. DOI: 10.1080/09593332208618285 (in Eng).

[26] Straub T, Pepper I, Gerba C. (**1993**) Hazards from pathogenic microorganisms in land-disposed sewage sludge, Rev Environ Contam Toxicol, 132:55-91. (in Eng).

[27] Strauch D. (**1998**) Pathogenic microorganisms in sludge Anaerobic digestion and disinfection methods to make sludge usable as a fertilizer, Eur Water Manage, 1:12-26. DOI: 10.1111/j.1462-2920.2012.02877.x (in Eng).

[28] Rao V, Metcalf T, Melnick J. (**1986**) Human viruses in sediments, sludges, and soils, Bull World Health Organ, 64:1-13. DOI: 10.1111/j.1462-2920.2012.02877.x (in Eng).

[29] http://www.centrasia.ru/newsA.php?st=1418960640.

[30] Randhir P. Deo, U. Halden Rolf (**2013**) Pharmaceuticals in the Built and Natural Water Environment of the United States, Water, 5 (3):1346-1365. DOI: 10.3390/w5031346.

[31] Duca G. (**2009**) Pharmaceuticals and Personal Care Products in the Environment Chapter in NATO Security through Science Series, Environmental Security March. DOI: 10.1007/978-90-481-2903-4_3.

[32] Pharmaceuticals in drinking-water/ WHO/ HSE/WSH/11.05/ World Health Organization 2011.

[33] USEPA. Summary of the Clean Water Act. Available online: https://www.epa.gov/lawsregulations/summary-clean-water-act.

[34] Pavin M, Nurgozhin T, Hafner G, Yusufy F and Laing R. (**2003**) Prescribing practices of rural primary health care physicians in Uzbekistan, Tropical Medicine and International Health, 8:182-190. DOI: https://doi.org/10.1046/j.1365-3156.2003.00992.x (in Eng).

[35] Smith FG, Wade AW, Lewis ML, Qi W. (**2012**) Cyclooxygenase (COX) inhibitors and the newborn kidney, Pharmaceuticals (Basel), 5:1160-1176. DOI: 10.3390/ph5111160 (in Eng).

[36] Freeman CD, Klutman NE, Lamp KC. Metronidazole. (**1997**) A therapeutic review and update, Drugs, 54(5):679-708. DOI: 10.2165/00003495-199754050-00003 (in Eng).

[37]Jiang M, Wang L, Ji R. (**2010**) Biotic and abiotic degradation of four cephalosporin antibiotics in a lake surface water and sediment, Chemosphere, 80(11):1399-1405. DOI: 10.1016/j.chemosphere.2010.05.048.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.2**
Volume 1, Number 323 (2019), 11 – 17

B.R. Rakishev

K.I. Satpayev Kazakh National Research Technical University, Almaty, Kazakhstan
e-mail:b.rakishev@mail.ru

MINING AND METALLURGICAL COMPLEX IN INDUSTRIAL AND POSTINDUSTRIAL DEVELOPMENT OF SOCIETY

Abstract. Development of the human society is directly related to the use of natural materials. Depending on the processing degree of the used material from mineral raw materials as the tools of labor, theStone, Bronze andIron Ages are distinguished. Subsequently, in the period of industrial development of society, articles made of high-quality metals and alloys were used as means of production, and in the period of post-industrial development, items made of high-tech metals and alloys were used. By the name of these materials, new stages in the development of civilization are called the “age” of high-quality metals and alloys and the “age” of high-tech metals and alloys, respectively. The main characteristics of the stages of the human society development are given.

Keywords: Stone, Bronze andIron Ages,“age” of high-quality metals and alloys, “age” of high-tech metals and alloys.

Major stages of society development

The thinkers of past eras had being determined the level of human society development by the type of material, laying in the basis of the means of production. In this connection, still in the antic world the idea of three ages arose: Stone Age, Bronze Age and Iron Age [1].

The Stone Age is the cultural and historical period in the mankind development, when the basic tools of labor and weapon were made mainly of stone; wood and bone were also used. There was still no metal treatment.

The Stone Age coincides with most of the era of the primitive communal system and covers the time, beginning with the allocation of a man from the animal state (about 1 million 800 thousand years ago) and ending with the era of the spreading of the first metals (about 8 thousand years ago in the ancient East and about 6-7 thousand years ago in the Europe). The Stone Age is divided into ancient (Paleolithic) and new (Neolithic) stone ages [2].

The Bronze Age is a historical and cultural period characterized by the spreading at the advanced cultural centers of metallurgy of bronze and turning it into a leading material for the production of tools of labor and weapons. Approximate chronological framework of the Bronze Age: the end of the 4th and the beginning of the 1st millennium BC. The tribes inhabiting both Asia and Western Europe developed within the framework of the primitive society [3].

The Iron Age is an epoch in the primitive and early class history of mankind, characterized by the spread of metallurgy of iron and making tools of production from it. The period of the initial distribution of the iron industry was experienced by all countries at different times. Usually only the cultures of primitive tribes that inhabited outside the territories of ancient slave-owning civilizations that originated in the era of the Neolithic and Bronze are referred to the Iron Age [1].

The Iron Age in comparison with the previous archaeological epochs (the Stone and Bronze Ages) is very short. Its chronological boundaries: from 9th-7th centuries BC, when many primitive tribes of Europe

and Asia had developed their own metallurgy of iron, and before the time of the emergence of the class society and the state at these tribes [1].

The technical revolution, caused by the widespread use of iron and steel, greatly expanded power of man over nature. By the beginning of our era, all the main types of handicraft and agricultural hand tools, used in the Middle Ages and in new times, were made of iron and its derivatives. Development of the productive forces associated with the spread of iron, led to the transformation of the whole social life.

Further development of civilization is associated with the mass use of a whole number of high-quality metals for the creation of means of production-machines for various purposes. The process of formation of the large-scale machine production in all sectors of the economy, especially in industry, created the conditions for the production of a large range of previously unknown industrial products, the transformation of an agrarian or agrarian-industrial country into an industrial-agrarian or industrial one [4-6]. On the basis of heavy industry (mining, metallurgy, machine-tool construction, machine building), all branches of the economy developed, including construction, energy, agrarian, light, foodindustries, etc.

This stage of the civilization development, which coincides with the wide use of various high-quality metals and their derivatives can be called the Age of High-Quality Metals and Alloys by analogy with the above periods of human society development (by the name of the base material used) [6]. It characterizes the period of industrialization, which begins in the middle of the XVIII century and lasts until the middle of the XX century. On the basis of complex mechanization, pipelining and automation of production processes in the leading industries, the mass production of various products was mastered [6]. The main characteristics of the stages of society development, compiled by us with taking into account the data [4-9], are given in Table 1.

Within the framework of the Age of High-Quality Metals and Alloys, new industrial revolutions unfolded. The first industrial revolution occurred when the mankind learned to use the energy of steam and water to mechanize production[4-9]. At the end of the XVIII and the beginning of the XIX century, the water and steam engines, internal combustion engines were widely applied in the advanced countries of the world, the rail, sea, and motor transport developed [4-6]. Compared with the previous periods of society development, the shape of civilization has changed radically.

The use of electrical energy with the appropriate technical support led to the second technological breakthrough, the second industrial revolution. In the second half of XIX and at the beginning of the XX century, due to the widespread use of high-quality metals and alloys, conveyor production was mastered, mass production was adjusted. Aviation, telephone, telegraph communication were developing. Life has become more comfortable and high quality.

From the middle of the XX century, a modern scientific and technological revolution began, which had a strong influence on the further course of industrial development. The conditions appeared for the transition to the use of high technology and the corresponding technical means. Usually to the high technologies the most knowledge-intensive industries are referred. These are electronics, robotics, aircraft construction, rocket engineering, space engineering, software, nanotechnologies, nuclear, solar and hydrogen energy, biotechnology, genetic engineering and environmentally friendly technologies in all sectors of the economy[10,11]. They have unrecognizably changed the culture and structure of production, repeatedly raising the productivity of labor. These technologies are based on the use of various alloys of ferrous, nonferrous, noble, rare, rare-earth metals (REM).

In accordance with [1-3] the considered stage in the civilization development by type of the applied base material can be called an Age of High-Tech Metals and Alloys [6]. The beginning of this Age coincides with the middle of the XX century, when humanity mastered atomic energy; the space engineering and cybernetics were developing. In the leading industries and management, computers and information technologies were widely applied, which have become the symbol of the scientific and technological revolution. They changed fundamentally the position and role of the man in the process of production management.

Within the framework of this Age a third industrial revolution took place. Integrated mechanization and automation of production processes, intensive use of digital, information technologies in the

management of these processes were being introduced. The role of fundamental science in transforming the production base has sharply increased; the newest high-tech industries have been formed. Science has become a real productive force.

Table 1- Main characteristics of the stages of the society development

Stage name	Stage duration	Production
Stone Age	Start: 1 million 800 thousand years ago End: 8-6 thousand years ago	Weapon, tools of labor, stone products
Bronze Age	Start: the end of the 4th and beginning of the 1st millennium BC End: 11-10 centuries BC	Weapon, toolsoflabor, bronzeproducts, extended agriculture
Iron Age	Start: 9-7 centuries BC End: 1-4 centuries of our era	Weapon, ironproducts, toolsoflabor from iron and steel, improvement of irrigation facilities
Age of High-Quality Metals and Alloys	Start: middle of the 18th century End: middle of the 20th century	Energyofsteamandwater Large-scale machine production based on high-quality metals and alloys (I Industrial Revolution) Electric Energy Conveyor production based on high-quality metals and alloys (II Industrial Revolution)
Age of High-Tech Metals and Alloys	Start:middle of the 20th century Action: present time	High technologies (electronics, robotics, space technology, nuclear power, information technologies, nanotechnology, etc.), based on high-tech metals and alloys (III Industrial Revolution). Integration of advanced technologies, fusion of physical, digital, biological fields, artificial intelligence, big data processing, based on high-tech metals and alloys (IV Industrial Revolution or Industry 4.0)

As a result of self-development, self-improvement, at the beginning of the XXI century the third industrial revolution smoothly passed into the fourth industrial revolution, which provides the deeper quantitative and qualitative changes in the sphere of science and production. The Fourth Industrial Revolution, or Industry 4.0, is characterized by integration of the advanced technologies and fusion of the physical, digital and biological spheres. In addition, almost every physical object involved in the production process is equipped with a lot of sensors, which will generate a huge flow of information every second. Processing and analyzing large amounts of data (Big Data) is becoming one of the main elements ensuring the operation of Industry 4.0 [7,9,10].

The place mining and metallurgy in development of civilizations

As seen, mankind in its development had experienced a Stone, Bronze and Iron Ages, is experiencingthe Age of High-Quality Metals and Alloys, and has entered the Age of High-Tech Metals and Alloys. At the same time, according to the historically established tradition, the brand of the society was determined by the type of material obtained from mineral raw materials, which underwent various degrees of processing and formed the basis of means of production.These materials are stone, bronze, iron, high-quality metals (various grades of steel, aluminum, copper, etc.) and their alloys (a large variety), high-tech metals (various for various industries) and their alloys (a large variety). The mining and metallurgical complex served as the material and technical basis for the development of civilization. No

branch of the economy, no production technology could and can do without the use of products of the mining and metallurgical industry(MMC). This is an axiom.

Thus, MMC is a natural material and technical basis of scientific and technological progress and of the society development as a whole, and scientific and technical progress, in turn, is a driver of innovation in all sectors of the economy, including the mining and metallurgical industry. All high-tech, high technologies in one way or another use the components consisting of the high-tech metals and alloys, made from various combinations of many traditional metals and rare, rare-earth elements. Materials with rare earth elements have excellent properties, the importance of which is recognized throughout the world [8-14]. All innovative solutions in the field of space and rocket engineering, nuclear and hydrogen energy, nanotechnologies, medicine, biotechnologies, communications, etc. are based on the use of high-tech alloys with the desired characteristics. In the world of innovative and high technologies, the following expensive REMs are widely used: indium, scandium, platinum, rhenium, palladium, osmium, lutetium, zirconium, selenium, tellurium, cobalt, cadmium, etc. [10-15].

Most of them are contained in ores of ferrous, non-ferrous, noble metals, in uranium, in coal, in oil and others. Removing them from basic raw materials to meet the needs of new technologies for high-tech metals and alloys even more actualizes the problem of complex and full use of minerals. The effective solution of this dual problem becomes the main priority of the mining and metallurgical industry. We consider its solution on the example of mining and metallurgical enterprises in Kazakhstan.

Kazakhstan in the global production of rare and rare earth metals

In the present territory of Kazakhstan, in the Bronze Age copper was smelted, in the Iron Age iron metallurgy was originated, and gold and silver were produced [1-3]. As the President of the Republic of Kazakhstan, Nazarbayev N.A., notes, «even in deep ancient times, on the lands of Kazakhstan, the centers of mining and ore production and smelting of bronze, copper, iron, silver and goldappeared, and the manufacture of sheet metal arose. Our ancestors constantly developed the production of new, more durable metals, which opened them up the possibility to accelerate the technological process» [16].

The mining and metallurgical industry had developed rapidly during the Soviet era. The largest enterprises of the ferrous metallurgy “Sokolovsky-Sarbay mining production association”, JSC "Kazchrome", "Karaganda Metallurgical Plant", flagships of the non-ferrous metallurgy –Dzhezkazgan and Balkhash mining and metallurgical plants, Ust-Kamenogorsk lead-zinc and titanium-magnesiumplants, Zyryanovsk and Leninogorskmining and metallurgical plants, Achisaipolymetallicplant, Chimkent lead plant, Pavlodar aluminum plant provided the country with the necessary volume and required nomenclature of the ferrous, non-ferrous, noble and rare metals. The production and output of the high-quality metals and alloys were mastered. Thus, the material and technical base for the creation of large-scale machine and conveyor production was prepared, which determines the contribution of Kazakhstan to the scientific and technological progress in the XX century.

In the middle of the XX century, as a result of the strong influence of the fundamental science on the production of various new products, innovative industries began to form. They were based on the use of high-tech metals and alloys with the necessary physical-chemical and physical-technical properties. Depending on the specific requirements, these structural materials were obtained from a given combination of traditional and rare and rare-earth metals. As a rule, the latter throughout the world are extracted from the composition of the core mineral raw materials. In this matter, Kazakhstan is no exception.

The main feature of Kazakhstan's mineral deposits is their multicomponent nature. For example, the deposits of non-ferrous metals contain up to 20 of the most important noble and rare metals (gold, silver, bismuth, platinum, palladium, cobalt, selenium, tellurium, cadmium, rhenium, indium, osmium, tallium, etc.). The Republic has successfully mastered the technologies of extracting many of them from copper, lead, zinc and other concentrates, as well as from as well as uranium ore, coal and oil[17]. However, these technologies require the fundamental improvement.

Currently, our republic is the largest producer of rhenium (second place), beryllium (second place), titanium sponge (second place), tantalum, niobium, osmium, gallium, technical thallium, arsenic (third place), uranium (first place), vanadium (fifth place), bismuth (sixth place), gold, silver (eighth place).

In spite of the achieved success, at the majority of the middle mining and metallurgical enterprises in Kazakhstan, the precious useful components (platinum, gold, palladium, rhenium, osmium, thallium, and others), accompanying profile metals, are often not extracted from the raw materials and go to the waste of the processing and metallurgical production. At those enterprises where they are produced, their extraction coefficient from ore raw materials is very low (about 0.4) [17]. Such a paradox is connected with the fact that byapprovingthe reserves of deposits, the associated useful components are often not evaluated and are not put on the balance. There are no requirements for the subsoil users to extract the useful components found in the ores during the deposit exploitation.

At the same time, the advanced experience of the large enterprises of the MMC of Kazakhstan [17,18] shows that due to the development and implementation of innovative technologies and technical means, the current level of extraction of precious and rare metals can be raised by 2-2.5 times, and for profile metals - by 1.5 times. In the adduced conditions [17], the total revenues from realization of the concomitant noble and rare metals exceed incomes from the core metals (copper, molybdenum) by 9.33 times. The current amount of income from sales of Kazakhstan MMC productionwith the integrated use of ores may be providedby their volume at least 8.0-10.0 times less than at present. In other words, the existing resource potential of mineral deposits can be raised by an order of magnitude.

For large-scale implementation of measures to increase the complexability of the use of mineral raw materials at the legislative, state level, it is necessary to resolve the issue of the need to extract all the related, especially high-value, useful components from ore raw materials, the demand for which increases many times due to the needs of the high technologies. This will ensure the production of rare and rare-earth metals in the quantities sufficient for Kazakhstan to be able to occupy a worthy place in the global market for rare-earth metals, a fundamental component of high technology.

Conclusions

1. The thinkers of past eras had being determined the level of human society development by the type of material, laying in the basis of the means of production. In this connection, still in the antic world the idea of three ages arose: Stone Age, Bronze Age and Iron Age.

2. Further development of civilization is associated with the mass use of a number of high-quality metals for the creation of means of production-machines for various purposes. By analogy with the above systematization of the human society development, it can be called an Age of High-Quality Metals and Alloys.

3. From the middle of the XX century the conditions appeared for the transition to the use of high technology and the corresponding technical means. These technologies are based on the use of various alloys of nonferrous, noble, rare, rare-earth metals. This stage in the civilization development can be called an Age of High-Tech Metals and Alloys.

4. The mining and metallurgical complex, producing high-quality and high-tech metals, is a natural material and technical basis of scientific and technological progress and of the society development as a whole. In turn, scientific and technical progress is a driver of innovation in all sectors of the economy, including the mining and metallurgical industry.

5.Traditional mineral deposits together with the technogeneones are the main sources of industrial production of noble, rare and rare earth metals.

6.Technical facilities and technologies, adapted to the natural and technological properties of mineral raw, provide a high level of extraction of core, noble, rare and rare-earth metals.These results represent the contribution of the MMC to the further development of scientific and technological progress.

Б.Р.Рақышев

К.И.Сәтбаев атындағы Қазақ ұлттық техникалық зерттеу университеті, Алматы, Қазақстан

ҚОҒАМНЫҢ ИНДУСТРИАЛЫҚ ЖӘНЕ ПОСТИНДУСТРИАЛЫҚ ДАМУ КЕЗІНДЕГІ ТАУ-КЕН КЕШЕНІ

Аннотация. Қоғамның дамуы табиғи заттарды пайдаланумен тікелей байланысты. Шикі заттарды өңдеп қолданудың деңгейіне байланысты атам заманнан тас,қола, темір ғасыры деген ұғым қалыптасқан. Бертін келе қоғамның индустриялық даму кезінде негізгі жабдықтар шығаруда жоғарғы сапалы металлдармен қорытпаларды, ал постиндустриялық даму кезінде жоғарғы технологияға сай металлдармен қорытпаларды пайдаланған. Осыған орай бұрыннан қалыптасқан ұғымдарға сай осы жаңа кезеңдер жоғарғы сапалы металлдармен қорытпалардың «ғасыры», жоғары технологиялық металлдармен қорытпалардың «ғасыры»деп атау ұсынылған.

Жоғары сапалы және жоғарғы технолгиялық металлдармен қорытпаларды өндіретін тау-кен кешені ғылыми-техникалық прогресстің, одан әр қоғамды өркендетуінің табиғи негізі. Ал ғылыми техниалық прогресс өндірістің әр саласы, оның ішінде тау-кен саласының дамуының себепкері. Асыл және сирек кездесетін металлдардың негізгі көзі – көп тараған пайдалы қазбалар мен қайтадан құралған қосындылардың орны. Адам қоғамының негізігі кезеңдерінің қасиеттері келтірілген.

Түйін сөздер. Тас, қола, темір ғасырлары, жоғарғы сапалы металлдармен қорытпалардың «ғасыры», жоғары технологиялық металлдармен қорытпалардың «ғасыры».

Б.Р. Ракишев

Казахский национальный исследовательский технический университет имени К.И.Сатпаева, Алматы, Казахстан

ГОРНО-МЕТАЛЛУРГИЧЕСКИЙ КОМПЛЕКС В ИНДУСТРИАЛЬНОМ И ПОСТИНДУСТРИАЛЬНОМ РАЗВИТИИ ОБЩЕСТВА

Аннотация. Развитие человеческого общества непосрдественно связано с использованием природных материалов. В зависимости от степени обработки используемого материала из минерального сырья в качестве орудия труда различают каменный, бронзовый, железный века. В дальнейшем в период индустриального развития общества в качестве средств производства использовались предметы, изготовленные из высококачественных металлов и сплавов, а в период постиндустриального развития-предметы, изготовленные из высокотехнологичных металлов и сплавов.По наименованию этих материалов новые этапы развития цивилизации названы соответственно«веком» высококачественных металлов и сплавов и «веком» высокотехнологических металлов и сплавов.

Горно-металлургический комплекс, производящий высококачественные и высокотехнологичные металлы и сплавы, составляет естественную материально-техническую базу научно-технического прогресса и развития обществ в целом. В свою очередь научно-технический прогресс является драйвером инноваций во всех отраслях экономики, включая ГМК.Традиционные месторождения полезных ископаемых совместно с техногенными являются основными источниками промышленного производства благородных, редких и редкоземельных металлов. Приведены основные характеристики этапов развития человеческого общества.

Ключевые слова: каменный, бронзовый, железный века, «век» высококачественных металлов и сплавов, «век» высокотехнологических металлов и сплавов.

Informationaboutauthors :

Rakishev Bayan - doctor of Technical Sciences, academician of the National Academy of Sciences of Kazakhstan, professor of the department of the Kazakh National Research University named after K.I.Satpayev, b.rakishev@mail.ru. https://orcid.org/0000-0001-5445-070X

REFERENCES

[1] Great Soviet Encyclopedia. T.9, M.: «Soviet Encyclopedia», **1971**, pp. 142-144.

[2] Great Soviet Encyclopedia. T.11, M.: «Soviet Encyclopedia», **1973**, pp. 261-263.

[3] Great Soviet Encyclopedia. T.4, M.: «Soviet Encyclopedia», **1971**, pp. 51-53.

[4] Palamarchuk O.T. Science and technological revolutions. // Economica. Pravo.Vestnik KSEI. **2013**. №4(60). pp.81-88 (in Russian).

[5] Rao J.S.Industrial Revolution. In: History of Rotating Machinery Dynamics. History of Mechanism and Machine Science, vol. 20. Springer, Dordrecht, **2011**. pp. 31-34.

[6] Rakishev B.R.Mining industry is the foundation of scientific and technical progress. // 25th World Mining Congress. Astana, **2018**. pp.161-169.

[7] IndustrialInternetofThings. https://iotas.ru/files/.../wg/Индустриальный_промышленный_ИнтернетВещей.pdf.

[8] ShvedianiA.E., GorovoiA.A.The Fourth Industrial Revolution as the basis for the transition to the sixth technical structure // In the collection: Actual problems of economics and management, Proceedings of the II International Scientific Practical Conference. 2017. - pp.55-59(in Russian).

[9] Clark G.Industrial Revolution. In: Macmillan Publishers Ltd (eds) The New Palgrave Dictionary of Economics. Palgrave Macmillan, London, **2018**, pp. 67-70.

[10] Kablov E.N., Ospenshova O.G., Vershkov A.V. Rare metals and rare-earth elements are the materials of the modern and high technologies of the future. M., Trudy VIAM, №2, **2013** (in Russian).

[11] SidorovV.V., TimofeevaO.B., KalitsevV.A., GoryunovA.V. Effect of microelementation of rare-earth metals on the properties and structural-phase transformations in the VKNA-25-VI intermetallic alloy // Aviation materials and technologies. **2012.** №4. pp. 3-8(in Russian).

[12] S.C. Santos, O.Rodrigues Jr, L.L. Campos EPR response of yttrium micro rods activated by europium. // Journal of Alloys and Compounds, Volume 764, 5 October 2018, pp. 136-141.

[13] Samuel Leleu, Bertrand Rives, Jerome Bour, Nicolas Causse, NadinePebere. On the stability of the oxides film formed on a magnesium alloy containing rare-earth elements, ElectrochimicaActa, Volume 290, 10 November 2018, pp. 586-594.

[14] Peng Wang, Wen Li, Sami Kara.Dynamic life cycle quantification of metallic elements and their circularity, efficiency, and leakages // Journal of Cleaner Production, Volume 174, 10 February 2018, pp. 1492-1502.

[15] TanushreeDutta, Ki-Hyun Kim, MinoriUchimiya, Eilhann E. Kwon, Byong-Hun Jeon, Akash Deep, Seong-Taek Yun.Global demand for rare earth resources and strategies for green mining, Environmental Research, Volume 150, October **2016**. pp. 182-190.

[16] NazarbayevN.A. Seven facets of the Great Steppe.KazakhstanskayaPravda, №223, November 21, **2018** (in Russian).

[17] Rakishev B.R. Diversification of the mining and metallurgical complex in Kazakhstan. // 24thworld mining congress proceedings, Rio de Janeiro, Brazil, **2016**. pp.126-134.

[18] Rakishev B.R. Technological resources for improving the quality and completeness of use of the mineral raw materials. // Series of geology and technical sciences,№2, **2017**. pp. 116-125.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.3**
Volume 1, Number 323 (2019), 18 – 28

UDC 636.085

M.B. Kalmagambetov[1], A.M. Ombayev[2], A.I. Ashanin[1], Zh.Zh. Adaibayev[1], A.A. Tlepov[3]

[1]Kazakh Scientific Research Institute of Animal Breeding and Fodder Production, Almaty, Republic of Kazakhstan;
[2] Kazakh National Agrarian University, Almaty, Republic of Kazakhstan;
[3]Taraz State University named after M.Kh. Dulati, Taraz, Republic of Kazakhstan

THE IMPACT OF ADDRESS COMPOUND CONCENTRATED FEEDSTUFF ON THE DAIRY PRODUCTIVITY OF COWS AND THE QUALITY OF MILK

Abstract. As a result of the undertaken research, the chemical composition of feed in the basic farm of the Karimov SP was studied, the detailed rations were developed and the deficiency of biologically active substances was determined in them.

The most promising way to eliminate the deficit of minerals and vitamins in feeding animals is to enrich the rations with various feed additives. Of particular topicality is the use of biologically active substances in biogeochemical provinces, which are deficient in a number of macro- and microelements in soils and feeds.

Taking into account the needs and content of nutrients, macro- and microelements, as well as vitamins in the diet, their deficiency was determined, which amounted to 54.0% in sugar; 32.6% in phosphorus; 22.6% in copper; 81.1% in cobalt ; 53.1 in zinc; 73.6% in iodine; 38.5% in manganese and 81.4% in vitamin D (IU). Based on the deficit of macro-and micronutrients, as well as vitamins, a recipe for a compound concentrated feedstuff for cows with a productivity of 20-24 kg of milk per day was developed. Along with this, the chemical composition of the compound concentrated feedstuff was determined. The results of experimental studies showed that the eatability of the feed mixture in the control group was 89.46%, and in the experimental group - 93.66%, which is higher by 4.2%, and the dairy productivity of the cows in the experimental group increased by 6.98%, and in terms of 4% milk, this indicator increased by 9.98%, the cost of milk decreased by 4.9%.

Keywords: fodder base, chemical composition of feed, rations, nutrient deficiency, feed supplement, compound concentrated feed, dairy productivity.

Introduction. The feeding of highly productive animals is built on unconditional satisfaction of the physiological needs of the body for energy, nutrition, mineral, and biologically active substances. In working with highly productive animals, ration optimization is a priority. Any imbalance leads to serious metabolic disorders, reduced viability, animal productivity and quality of the obtained products [1,3]. In recent years, the negative correlation between high productivity, health and reproductive ability of animals has been increasingly noted. Scientists all over the world constantly study metabolic diseases of highly productive animals: with protein, carbohydrate, lipid, vitamin, and mineral, interrelated with each other directly or indirectly. According to the majority, among the causes of this pathology, as well as a decrease in animal productivity, the unbalanced feeding comes first. [2,4].

The development of new ways to improve the efficiency of use of feed nutrients in order to achieve full-fledged feeding of animals and to obtain high-quality animal products is particularly relevant today. To achieve this goal, complex biological products and additives that improve the taste and nutritional properties of feed are widely used, which ensures the achievement of the main feeding effect - increasing the availability and digestibility of nutrients entering the body with a diet, increasing animal productivity [5, 8, 9, 10, 11]. Many of them are needed to regulate feed intake [15]. Today, individual components of diets, which recently seemed exotic or ballast, are increasingly being sold. [6, 12, 17].

In this regard, the study of the biological role of microbiogenic metals in all the most important metabolic reactions showed that the activity largely depends on the chelation properties. The formation of chelate compounds underlies the manifestation of reactive molecules, the conversion of biosubstrates into structurally organized specific systems, the formation of immunity, and other immunodynamic and biodynamic processes in the body. [7,13, 14].

D. Fremaut [14] indicates the distinctive properties of organic forms of microelements: a form that is protected from chemical reactions in the digestive tract; a form, ready for absorption, with a high rate of penetration through cell membranes; chelates are stable in an acidic environment; they can be absorbed in a manner similar to amino acids. High economic requirements for the profitability of production in market conditions force livestock producers to use more advanced technologies that ensure the maximum level of animal productivity, efficient use of fodder materials and lower feed costs for production. One of the tasks in the implementation of intensive resource-saving technologies in dairy farming is to create such feeding conditions in which energy and nutrient consumption are in accordance with certain standards. Under this condition, a level of productivity close to the genetic potential is achieved, health is preserved and high efficiency of production and breeding use of animals is ensured.

Modern development of animal husbandry is impossible without the use of scientific achievements [15,16]. One of the conditions for obtaining cheap high-quality products is the use in feeding animals of rations, balanced by a large number of nutrient, mineral and biologically active substances. A significant role in this is given to balancing additives, mineral and vitamin mixtures (AVMA, BMD, VMC). According to foreign and domestic practices, the use of biologically active substances in the feeding of farm animals and poultry has always proved to be profitable, that is, investing finance to purchase balancing additives, mineral and vitamin mixtures for feeding animals has always given a profit. In this regard, in the practice of feeding animals, the volume of various feed additives and especially compound feed, mineral and vitamin mixtures significantly expands every year. Thus, the intensification of livestock has led to the accelerated development of the industry of microbiological and chemical synthesis for the production of feed vitamins, amino acids, macro- and microelements, enzymes, antibiotics, carbamide and ammonium salts, tranquilizers, hormones, antioxidants and some other organic and inorganic biocatalysts [17,18].

The compositions of biologically active substances and compound feedstuffs are developed on the basis of modern scientific research on the animal's body needs for energy, protein, amino acids, vitamins, macro- and microelements, enzymes and other nutrients, taking into account the type, level of productivity, sex, and age of animals.

The extensive studies on the effectiveness of the use of various feed preparations, biologically active substances in animal husbandry were conducted [19]. At the same time, there are very few similar works in Kazakhstan, especially in dairy cattle breeding, which determines the relevance of this work.

Compensation of deficiency of minerals and vitamins in forage is an important direction in solving the problem of animals nutrition. In recent years, the lack of macro- and micronutrients and vitamins, as a rule, is replenished using inorganic salts. However, it does not take into account the antagonistic and synergistic relationships between individual mineral elements and the presence of adsorbing agents of feed origin. Salts of macro- and microelements in inorganic form are relatively difficult to digest in the gastrointestinal tract of animals, and increasing the dose to raise the level of assimilation can lead to toxicosis.

According to L.I. Shishov [20], of interest are chelated trace elements in the premixes of the Alltek company. They correspond to the natural complexes of mineral elements in forage crops and grain, have high bioavailability and bioactivity. The experiments of M.G. Volynkin [21] found that enrichment of the ration with the feed additive “Sanimix” in the amount of 1% of the daily diet of concentrated feeds allows to get 510 kg more milk than without using it. Analysis of economic efficiency showed that the introduction of feedings into the diet of lactating cows had a positive impact on the dairy productivity of animals. For the first 100 days of lactation, from cows of the experimental group, the 4% fat milk was received by 13.43% more than from animals in the control group.

M.G. Malikova, I.N. Akhmetova [22] in their studies found that balancing diets of young cattle for the missing nutrients by injecting feedings of protein-mineral-vitamin supplements (AVMA, BMD) and providing them with the necessary nutrients had a positive effect on the growth of forestomach microflora

and ruminal digestion processes, while creating conditions for better digestibility and assimilation of nutrients of the diet, which contributed to a more intensive growth and development of animals ensured a high economic impact.

In their studies, L. Toporova, S. Serebrennikova, V. Galashov et al. [23] investigated the effectiveness of organomineral supplements on various types of animals and birds.

The highest live weight of one head - 1494.6 g - was established in the IV experimental group, the chickens of which received 0.15% vitabelmin as part of the compound feedstuff. In the control group, the average live weight of a broiler is 1377.9 g.

The live weight of animals at the end of fattening in the group receiving vitabelmin with the ration exceeded the control by 7.41 kg, or 2.69%.

A similar experiment was conducted on lactating cows. As a result of individual accounting of productivity indicators for each animal, it was found that after 30 days of feeding the supplement, the average daily milk yield of natural milk from cows in the experimental group was 8.3% higher than the control, and on the 90th day, the difference was 13.8%. On average, for the experimental period, 11.7% more milk was obtained from the cows of the experimental group than in the control group.

Thus, a review of the literature has shown that intensive research is being conducted in the development of doses of mineral additives and various supplements, and this is especially true for Russia. At the same time, most of the works are aimed at testing chelated microelements, conventional microelements, and microadditives, and also tests of already developed additives of a new generation are being conducted. Many studies are aimed at the development of protein-mineral-vitamin background, including not all the limiting factors of nutrition, but only some of them.

In Kazakhstan, practically no one deals with this problem in the regional aspect. Therefore, studies aimed at the investigation of affordable and cost-effective for commercialized feeding of various dressings, mineral supplements, and AVMA, which would possibly fill all the limiting factors is the current direction of research.

The aim of the research. Improving the biological full-value of diets and productivity of dairy cattle.

Methods of the research. The studies were conducted in the basic farm of Karimov SP of the Almaty region and the testing center to determine the chemical composition of feed and the quality of agricultural products of KazSRIAH&FP LLP.

Before the start of the experiment, the fodder base was studied, samples of feed were selected and their chemical composition was investigated.

For the experiment, two experimental groups of cows, 8 animals each with a yield of 5-6 thousand kg of milk per year for the previous lactation, were formed on the principle of pairs-analogues [24] (table 1).

Animals were kept in typical premises, without a leash. Caring for them was the same. Milking was conducted three times a day. The difference in feeding was that the animals of the experimental group received optimized rations with the inclusion of the feed additive, and the control group received an economic ration.

After studying the chemical composition of the feed and the formation of the experimental groups, taking into account the dairy productivity of the animals, detailed rations for the experimental group were developed and a nutrient deficiency was established, which served as the basis for the development of a recipe for compound concentrated feed. In the development of diets there were used the norms of feeding farm animals, developed by the All-Russian State Research Institute of Livestock [25].

In the course of the experiment, every ten days the quantity of given fodder was taken into account, once a month the animals' productivity, the palatability of feeds were recorded, and the milk fat content was determined.

At the beginning of the experiment, the chemical composition of the milk of experimental animals was studied on an InFraXact instrument manufactured by FOSS (Denmark).

Table 1 - Scheme of experience

Group	Number, heads	Feeding conditions
Control	8	BD – Basic diet
Experimental	8	BD + supplementary feed (compound feed - concentrate)

The obtained main digital material was processed by the method of variation statistics, using a computer program [26, 27].

Research results. In the course of the research work, the availability of feed in the farm was studied. The fodder base was represented by hay with alfalfa and mountain, corn silage, crushed barley, wheat, extruded soybeans and feed additives in the form of compound concentrated feedstuff, which compensated for the nutrient deficiency in the diet.

Samples were taken from the available feeds and their chemical composition was studied, which is presented in Table 2. The visual assessment of the feeds and the results of their chemical composition showed that the available feeds are of good quality, with the exception of corn silage. It had low quality in mind of harvesting corn during the period of full ripeness of grain.

Before the start of scientific and business experience, two groups of animals were formed - the control and the experimental ones. During the equalization period, both groups of animals received the same rations, which, according to the experimental design, were later intended for the control group.

Table 2 - Results of chemical analysis of feeds in Karimov SP in terms of natural moisture

Sample name	TM, %	DM, %	In natural appearance, %										feed unit per 1 kg	DP, g	ME, MJ	EFU
			protein	fat	fibre	NES	sugar	amylum	ash	Ca	P	carotin				
Alfalfa hay	18.54	81.46	15.3	6.5	34.0	20.4	-	31.5	5.26	0.98	0.24	27.2	0.49	99.7	7.9	0.79
Mountain hay	11.36	88.64	15.0	4.1	29.4	32.7	-	8.2	7.38	0.61	0.27	22.2	0.55	76.7	7.4	0.74
Corn silage	64.02	35.98	3.3	1.4	12.9	17.2	2.79	5.0	1.17	0.83	0.19	10.1	0.23	18.4	3.3	0.33
Wheat grain	8.04	91.96	11.9	1.5	3.6	72.9	-	54.5	2.01	0.66	0.33	-	1.22	102.7	12.2	1.22
Barley grain	7.49	92.51	10.0	1.9	5.0	73.0	-	51.4	2.51	0.20	0.31	-	1.20	56.2	11.3	1.13
Compound feed granulated	10.72	89.28	17.0	3.4	9.3	54.7	-	50.5	4.97	0.76	1.63	-	1.12	140.9	11.0	1.10
Extruded soy	8.14	91.86	34.7	17.6	5.4	28.1	-	31.9	6.15	0.36	0.64	-	1.48	305.3	13.5	1.35

After the termination of the equalizing and transitional periods, taking into account the dairy productivity of the cows, the actual chemical composition of the feed and the optimized structure of the diet, detailed feeding rations for lactating cows were developed using a computer program. Average daily rations in the reference period of the experiment are shown in Table 3.

From the data of table 3 it follows that the bulky feed in the structure of the diet in the control group of the total demand for EFU was 65%, and concentrates - 38%. At the same time, the share of hay was 25%, silage - 40, barley - 15, feed wheat - 15 and soy - 8%. In the experimental group, it was respectively 65.1; 39.0; 25; 40.1; 5; 13.4; 7 and compound concentrated feed -13.0%.

Taking into account the needs and content of nutrients, macro-and micronutrients, as well as vitamins in the diet, their deficiency was determined, which amounted to 54.0% for sugar; 32.6% for phosphorus; 22.6% for copper; 81.1% for cobalt; 53.1% for zinc; 73.6% for iodine; 38.5% for manganese and 81.4% - vitamin D (IU).

Table 3 - Average daily rations of experimental cows during the reference period of the experiment (on average per 1 head)

Feed, kg	Group			
	Control		Experimental	
	norm	feed amount, kg	norm	feed amount, kg
Alfalfa hay	-	4.1	-	4.22
Mountain hay	-	2.81	-	2.74
Corn silage	-	32.83	-	32.88
barley	-	2.48	-	0.83
feed wheat	-	2.74	-	2.44
Soy extr.	-	1.0	-	0.86
Compound concentrated feedstuff	-	-	-	2.19
Total	-	45.94	-	46.16
The diet contains				
EFU	19.7	20.3	19.7	20.4
ME, MJ	197.0	202.6	197.0	203.7
DM, kg	21.4	21.6	21.4	21.8
CP, g	2750.0	2663.9	2750.0	2826.6
DP, g	1820.0	1824.8	1820.0	1980.7
SP, g	1763.0	1649.0	1763.0	1775.8
USP, g	987.0	893.0	987.0	929.1
CF, kg	5000.0	5056.8	5000.0	5151.0
Amylum, g	2390.0	3934.4	2390.0	3535.1
Sugar, g	1600.0	731.2	1600.0	739.9
Crude fat, g	565.0	808.3	565.0	820.6
Ca, g	123.0	168.1	123.0	181.8
Sodium chloride	115.0	109.2	123.0	123.0
Phosphorus, g	87.0	58.6	87.0	85.6
Magnesium, g	35.0	48.9	35.0	48.8
Potassium, g	133.0	263.6	133.0	269.6
Cu, mg	155.0	119.9	155.0	1149.8
Cobalt, mg	12.3	2.3	12.3	12.9
Zink, mg	1040.0	487.7	1040.0	1586.7
Manganese, g	1040.0	639.6	1040.0	1040.6
Iodine, mg	14.2	3.7	14.2	12.9
Vitamin D, IU	16700.0	3104.1	16700.0	16604.6
Vitamin E, mg	665.0	2206.3	665.0	2320.7
Carotin, mg	745.0	879.0	745.0	921.6

Based on the deficit of macro and microelements, as well as vitamins, a recipe for compound concentrated feed for cows with a productivity of 20-24 kg of milk per day was developed (Table 4).

Along with this, the chemical composition of the feed was determined (Table 5).

In the course of scientific and business experience, control feeding was carried out monthly, as well as control milking, and the feeding rations of cows were corrected depending on the productivity of the animals of the experimental groups.

The diets of experimental animals had no differences in the range of feed materials.

The difference was only in the fact that the animals of the experimental group received a supplementary feed in the form of compound feed, which compensated for the deficiency of biologically active elements. This, in turn, influenced the palatability of the feed, and therefore the consumption of nutrients and biologically active substances.

It should be noted that the feed was given in the form of a feed mixture, so the palatability of the feed was quite high. In our experience, the palatability of the feed mixture in the control group was 89.46%, and in the experimental group - 93.66%, which is 4.2% higher. The lower palatability of the feed mixture in the control group is associated with a deficiency of certain nutrients. It is known that with a lack of biologically active substances in the diet, loss of appetite is observed, oxidative processes are slowed down, metabolism in animals is disturbed, etc.

Table 4 - Feedstuff recipe for lactating cows with a productivity of 6.0-6.5 thousand kg of milk per lactation

Name of feed	Unit of measure	content
corn	%	25
barley	%	22
feed wheat	%	13
wheat middling	%	17
cattle cake or soybean meal	%	14
oats	%	6
sodium chloride	%	1
Bulk moulding compound	%	2

Table 5 - Chemical composition of the compound concentrated feedstuff for cows with the productivity of 6.0-6.5 thousand kg of milk per lactation

Indicators	Unit of measure	content
EFU		1.17
ME	MJ	11.64
DM	g	892.8
CP	g	170.0
SP	g	110
USP	g	60
DP	g	140.0
Crude fat	g	34.0
Crude fiber	g	63.0
Amylum	g	316.0
Sugar	g	10.0
Calcium	g	2.0
Phosphorus	g	16.0
Magnesium	g	2.0
Potassium	g	11
Sulfur	g	6.0
Ferrum	mg	50.0
Cooper	mg	16.0
Zink	mg	280.0
Manganese	mg	235.0
Cobalt	mg	5.0
Iodine	mg	4.0
Carotine	mg	0.9
Vitamin D	IU	6000.0
Vitamin E	mg	10.3

On average, cows of the control group received 45.94 kg of feed mixture per day, and the cows of the experimental group - 46.16 kg. At the same time, the feed mixture included alfalfa hay, grass hay, corn silage, barley, wheat, soybean, and compound concentrated feed.

By the composition of feed, the rations of the experimental groups did not differ from each other. The structure of the rations was also almost identical. So the share of alfalfa hay in the control group was 15%, grass hay - 13.0, corn silage 28.5, concentrates 43.5%, and in the experimental one - 16.6; 14.7; 26.7 and 42.0%.

In the experimental group, the consumption of all nutrients was higher than in the control group, which is associated with higher palatability of feed and animal productivity. In the control group, 1 kg of dry matter accounted for 123 g of protein, and in the experimental group, - 130 g, or higher, respectively, by 5.7%, which almost corresponded to the norm.

In both diets, there is a significant shortage of sugar, since at present there is almost nothing to fill it with. In this regard, it was given a little more amylum, because in the organism, part of it turns into sugar.

Introduction to the diet of the experimental group of the compound concentrated feedstuff allowed to balance the diet in accordance with the norms on trace elements and vitamins. Thus, the diet of the experimental group fully satisfied the animals' need for basic nutrients and biologically active substances, which positively affected the dairy productivity of cows and the quality of milk (Table 6).

Table 6 - Dairy productivity of cows for the experimental period

Indicator	Group	
	Control	Experimental
Milk yield for the experiment period, kg:		
natural fatness	923.22±8.13	987.62±8.47
4% fatness	826.29±7.81	908.61±8.21
Average daily milk yield, kg:		
natural fatness	20.07±0.39	21.47±0.57
4% fatness	17.97±0.38	19.76±0.47
Fat mass fraction,%	3.58±0.04	3.68±0.05
Protein mass fraction, %	3.21±0.13	3.28±0.17
Total, kg: milk fat	33.08±1.74	36.35±1.14
milk protein	29.64±3.56	32.41±2.07

From the data of table 6 it can be seen that from the cows of the experimental group, for the period of the experiment, it was obtained more natural fat milk compared to the control group by 1.40 kg or 6.98%, and in terms of 4% milk this indicator increased and amounted to 1.79 kg or 9.98%. The fat content in the milk of cows from the experimental group was 0.10% higher than in the control group. This, in turn, affected the yield of milk fat. So, 36.35 kg of milk fat was received from cows of the experimental group, and from the analogues - 33.08 kg or more by 9.8% (3.27 kg), and milk protein - by 9.35% or 2, 77 kg respectively.

Along with dairy productivity, the chemical composition of the milk of experimental animals underwent certain changes under the influence of detailed rations and compound feed (Table 7).

The data of Table 7 allow to state the positive dynamics of protein and fat content in the experimental group of cows. In terms of fat content, the milk of animals from the experimental group exceeded the control by 0.10 absolute percent, protein by 0.01%, casein by 0.06 abs.%, lactose by 0.01 abs.%. On the content of somatic cells, there are practically no differences between the experimental groups. Milk of both groups can be attributed to the highest grade.

As for urea, it should be noted that with a normal protein content in milk (3.2%), the desired urea content should be 15-30 mg/%. The content of urea in milk below 15 mg/% indicates a deficiency of protein in the rumen. This limits the activity of rumen microorganisms, which reduces feed intake and, consequently, dairy productivity. In our experience, although these indicators in both groups were within the normal range, however, in the control group it is close to the lower limit, indicating a lower protein content in the rumen.

The ratio of fat and protein in milk also characterizes the functional state of the digestive system. Normally, this ratio should be 1.15-1.40 conventional units. In the milk of the control and experimental groups, this indicator is normal.

Table 7 - The chemical composition of milk of dairy cows

Indicator	Unit of measure	Group	
		Control	Control
Fat	%	3.58±0.04	3.68±0.05
Protein	%	3.21±0.13	3.28±0.17
Somatic cells	thous./cm^3	84.5±18.1	88.02±17.4
Casein	%	2.56±0.11	2.62±0.16
Lactose	%	4.68±0.4	4.69±0.11
Urea	mg %	15.36±1.42	18.24±1.28

Summary and evaluation of the research results. The basis of feeding highly productive animals consists of unconditional satisfaction of the physiological needs of the body for energy, nutrition, mineral, and biologically active substances. In working with highly productive animals, ration optimization is a priority. Any imbalance leads to serious metabolic disorders, reduced viability, animal productivity, and product quality.

Among the factors that determine the usefulness of feeding dairy cows, the conditions of mineral and vitamin nutrition are essential.

The most promising way to eliminate the deficiency of minerals and vitamins in feeding animals is to enrich the rations with feed additives.

Of particular relevance is the use of biologically active substances in biogeochemical provinces that are deficient in a number of trace elements in soils and feeds.

The development of address recipes for compound feed concentrates for each soil-climatic zone makes it possible to fully obtain high animal productivity and increase the profitability of animal husbandry. In this regard, during the scientific and business experience, the chemical composition of the feed of the farm was studied, detailed rations were developed, the deficiency of biologically active substances was established, and a recipe for compound feed concentrate was developed on its basis.

Feeding lactating cows with compound feed in the composition of the diet made it possible to increase the palatability of the feed mixture in the experimental group by 4.2% compared with its analogues.

The best palatability of feed, optimization of nutrients in the diet of the experimental group had a positive impact on the dairy productivity of animals. So, from the cows of the experimental group for the experience period, the milk of natural fat content was obtained in comparison with the control group by 1.40 kg or 6.98%, and in terms of 4% fat milk this indicator increased and amounted to 1.79 kg or 9.98%. The fat mass fraction in the milk of cows from the experimental group was 0.10% higher than in the control group. This, in turn, affected the yield of milk fat. So, 33.08 kg of milk fat was obtained from cows in the control group, and from the analogues - 36.35 kg or more by 9.8% (3.27 kg). Analysis of the milk chemical composition allows us to state the positive dynamics of protein and fat content in the experimental group of cows. In terms of fat content, the milk of animals from the experimental group exceeded the control by 0.10 absolute percent, protein by 0.01%, casein by 0.06 absolute %, lactose by 0.01 absolute %. By the content of somatic cells, there are practically no differences between the experimental groups. Milk of both groups can be attributed to the highest grade.

As for urea, it should be noted that with a normal protein content in milk (3.2%), the desired urea content should be 15-30 mg/%. In our experiment, although these indicators in both groups were within the normal range, however, in the control group it is close to the lower limit, indicating a lower content of available protein in the rumen.

The ratio of fat and protein in milk also characterizes the functional state of the digestive system. Normally, this ratio should be 1.15-1.40 conventional units. In the milk of the control and experimental groups, this indicator was within the normal range. However, in the control group, this indicator was almost at the bottom.

Thus, the use of detailed rations and address feeds allowed to improve metabolic processes in the body, increase the dairy productivity of cows in the experimental group by 6.98%, and in terms of 4% fat milk by 9.98% and reduce the cost of milk by 4.9%.

The experience shows a high production efficiency and the use of addressed feed concentrates in the preparation of optimized detailed rations. Giving the feed available in the farm in the form of balanced

rations is the basis for further improving the productivity of animals, reducing feed consumption per unit of production and its cost. In the course of scientific and business experience, detailed rations and the recipe for compound concentrated feed were developed taking into account the deficiency of biologically active substances in the diet. Based on this recipe was produced feed for dairy cows. The results of experimental studies have shown that the palatability of the feed mixture in the control group was 89.46%, and in the experimental group - 93.66%, which is higher by 4.2%.

ӘОЖ 636.085

М.Б. Калмагамбетов[1], Ә.М. Омбаев[2], А.И. Ашанин[1], , Ж.Ж. Адайбаев[1], А. Тлепов[3]

[1]«Қазақ мал шаруашылығы және азық өндірісі ғылыми-зерттеу институты» жауапкершілігі шектеулі серіктестігі;
[2] Қазақ ұлттық аграрлық университеті , Алматы қаласы, Қазақстан Республикасы;
[3]Тараз ұлттық университеті М.Х.Дулати атындағы, Тараз қаласы, Қазақстан Республикасы

СҮТ ӨНІМДІЛІГІНЕ ЖӘНЕ САПАСЫНА АРНАЙЫ РЕЦЕПТІМЕН ДАЙЫНДАЛҒАН ҚҰРАМАЖЕМ-КОНЦЕНТРАТТЫҢ ӘСЕРІ

Аннотация. Тәжірибе жүргізу барысында «Каримов» ЖК базалық шаруашылығында азықтардың химиялық құрамы зерттелді, азықтағы биологиялық белсенді заттардың тапшылығы анықталып, соның негізінде тетіктелген азықтандыру рационы құрастырылды. Малдарды азықтандыруда рациондағы минералдық заттар мен дәрумендердің жетіспеушілігін болдырмаудың ең тиімді әдісі құрама жеммен қанықтыру болып саналады.

Топырақ және азық құрамында бірқатар микроэлементтер жетіспейтін биогеохимиялық аймақтарда биологиялық белсенді заттарды пайдаланудың өзектілігі артуда.

Малдың рациондағы қоректік заттардың мөлшері мен мұқтаждығын есепке ала отырып, макро- и микроэлементтердің, витаминдердің, басқа да қоректік заттардың тапшылығы анықталды, яғни қант 54,0%; фосфор – 32,6; мыс – 22,6; кобальт – 81,1; мырыш – 53,1; йод – 73,6; марганец- 38,5 и витамин Д (МЕ) – 81,4% құрады. Макро- и микроэлементтердің, витаминдердің, басқа да қоректік заттардың жетіспеушілігі негізінде тәулігіне өнімділігі 20-24 кг сүт беретін сауын сиырларға арналған комбикорм-концентрат рецепті дайындалды. Сонымен бірге комбикорм-концентраттың химиялық құрамы анықталды. Зерттеу жұмыстарының нәтижесі көрсеткендей, бақылау тобындағы азық қоспаларының желінуі 89,46%, ал тәжірибелік топта 93,66%, яғни 4,2% жоғары болды. Мұның барлығы өз кезегінде тәжірибе тобындағы сиырлардың сүт өнімділігін 6,98%, 4% -дық сүтке шаққанда 9,98% арттырып, сүттің өзіндік құнын 4,9% төмендетті.

Түйін сөздер: Азықтық қор, азықтардың химиялық құрамы, рациондар, қоректік заттардың тапшылығы, азықтық қоспа, құрама жем-концентрат, сүт өнімділігі.

УДК 636.085

М.Б. Калмагамбетов[1], А.М. Омбаев[2], А.И. Ашанин[1], , Ж.Ж. Адайбаев[1], А. Тлепов[3]

[1]Товарищество с ограниченной ответственностью «Казахский научно – исследовательский институт животноводства и кормопроизводства», г. Алматы, Республика Казахстан;
[2]Казахский национальный аграрный университет, г. Алматы, Республика Казахстан;
[3]Таразский государственный университет имени М.Х. Дулати, г. Тараз, Республика Казахстан

ВЛИЯНИЕ АДРЕСНЫХ КОМБИКОРМОВ-КОНЦЕНТРАТОВ НА МОЛОЧНУЮ ПРОДУКТИВНОСТЬ КОРОВ И КАЧЕСТВО МОЛОКА

Аннотация. В результате проведенных исследований изучен химический состав кормов в базовом хозяйстве ИП «Каримов», разработаны детализированные рационы и определен в них дефицит биологически активных веществ.

Наиболее перспективным способом ликвидации дефицита минеральных веществ и витаминов в кормлении животных является обогащение рационов различными кормовыми добавками. Особую актуальность

приобретает использование биологически активных веществ в биогеохимических провинциях, дефицитных по ряду макро – и микроэлементов в почвах и кормах.

С учетом потребности и содержания питательных веществ, макро- и микроэлементов, а также витаминов в рационе был определен их дефицит, который составил по сахару 54,0%; фосфору – 32,6; меди – 22,6; кобальту – 81,1; цинку – 53,1; йоду – 73,6; марганцу- 38,5 и витамину Д (МЕ) – 81,4%. На основании дефицита макро- и микроэлементов, а также витаминов был разработан рецепт комбикорма-концентрата для коров с продуктивностью 20-24 кг молока в сутки. Наряду с этим был определен химический состав комбикорма-концентрата. Результаты экспериментальных исследований показали, что поедаемость кормосмеси в контрольной группе составила 89,46%, а в опытной – 93,66%, что выше на 4,2%, а молочная продуктивность коров в опытной группе увеличилась на 6,98%, а при пересчете на 4%-ное молоко этот показатель увеличился на 9,98%, себестоимость молока уменьшилась на 4,9%.

Ключевые слова: Кормовая база, химический состав кормов, рационы, дефицит питательных веществ, кормовая подкормка, комбикорм-концентрат, молочная продуктивность.

Information about authors:

Kalmagambetov Murat Baytugelovich, candidate of agricultural sciences, leading researcher of the integrated department of dairy cattle- breeding of the Kazakh Research Institute of Livestock and Forage Production, Almaty, Republic of Kazakhstan, e-mail - mbaitugel@mail.ru, ORCID ID 0000-0003-0675-1369 ;

Ombaev Abdirahman Moldanazaruly, doctor of agricultural sciences, Head of the Department of Livestock Production Technology of the Kazakh National Agrarian University, Almaty, Republic of Kazakhstan, e-mail: abdi_rahman@mail.ru, ORCID ID 0000-0002-1347-6249;

Ashanin Alexander Ilyich doctor of agricultural sciences, scientific consultant of the Integrated Division of Dairy Cattle-Breeding of the Kazakh Research Institute of Livestock and Feed Production, Almaty, Republic of Kazakhstan, e-mail: ashaninalexi@mail.ru, ORCID ID 0000-0002-5555-5500;

Adaybaev Zhanmukhamed Zharasovich, candidate of agricultural sciences, leading researcher of the integrated department of dairy cattle-breeding of the Kazakh Research Institute of Livestock and Forage Production, Almaty, Republic of Kazakhstan, e-mail: arlan-2006@mail.ru, ORCID ID 0000-0003-4838 -9222;

Tlepov Anarbek Amreevich, candidate of Agricultural Sciences, Associate Professor of the Department of Biotogi, M.Kh. Dulati Taraz State University, Taraz, Kazakhstan. E - mail: tlepov_anarbek@mail.ru, ORCID ID 0000-0003-2947-3840.

REFERENCES

[1] Kalnitsky B.D. Mineral substances in animal feeding. - Moscow: Agropromizdat, **1985**. 205 p. (in Russ.).

[2] Toporova L.V., Arkhipov A.V., Toporova I..B., Andreev V.V. Balanced feeding of highly productive animals - the basis for the prevention and treatment of substance disorders // Organization of feed production and balanced feeding of cattle in farms of the Moscow region on the actual nutritional value of feed: Proceedings of the scientific and production seminar, Dubrovitsy, VIZh. **2010**. p. 51-62. (in Russ.).

[3] Kryukov B.C., Zinoviev S.V. Managing the feeding of cows during the transition period is a way to preserve a highly productive herd.: http://www.agrobalt.

[4] Arkhipov A.V., Toporova L.V. High-quality feed-the basis of success in dairy cattle breeding // Bulletin of the Bryansk SHA - Bryansk, **2010**. № 3. P.3-23. (in Russ.).

[5] Baimukanov D.A., Semenov V.G., Mudarisov R.M., Kulmakova N.I., Nikitin D.A. Realization of meat qualities of bulls of black and motley breed by complex biological preparations // J. Agrarian Science. Moscow, **2017**. No. 11-12. P. 44 -46. (in Russ.).

[6] Semenov V.G., Baimukanov D.A., Kosyaev N.I., Mudarisov R.M., Morozova N.I., Musayev F.A., Nikitin D.A., Kalmagambetov M.B. Growth, development and meat qualities of bull-calves against the background of applications with biological preparations of the prevention series // Bulletin of national academy of sciences of the Republic of Kazakhstan. – Almaty. – Volime 2, Number 372 (**2018**). Pp. 22 -34.

[7] Semenov V.G., Baimukanov D.A., Tyurin V.G., Kulmakova N.I., Nikitin D.A., Iskhan K.Zh., Kalmagambetov M.B., Aubakirov Kh.A. Activation of nonspecific protection of the organism with new immunotropic preparations in the implementation of the potential productivity of pigs // Bulletin of national academy of sciences of the Republic of Kazakhstan. – Almaty. – Volime 3, Number 373 (**2018**). Pp. 64 – 79.

[8] Semenov V.G., Baimukanov D.A., Tyurin V.G., Kosyaev N.I., Mudarisov R.M., Nikitin D.A.,. Iskhan K Zh., Kalmagambetov M.B., Tlepov A.A. Nonspecific protection of the organism of cows-mothers and calves in realization of reproductive and productive qualities // Reports of the national academy of sciences of the Republic of Kazakhstan – Almaty. Volime 3, Number 319 (**2018**). Pp. 26 -38. https://doi.org/10.32014/2018.2518-1483 ISSN 2518-1483 (Online), ISSN 2224-5227 (Print)

[9] Balakirev H.A., Semenov V.G., Baimukanov D.A., Mudarisov P.M., Khakimov I.N., Kulmakova H.I., Kalmagambetov M. B., Aubakirov Kh.A., Tlepov A.A. Body condition scoring of young beef cattle of different genotypes and its relation with live weight and productivity // Bulletin of national academy of sciences of the Republic of Kazakhstan. Almaty. Volime 4, Number 374 (**2018**). Pp. 29 – 37.

[10] Toporova I. Modified forms of microelements for feeding animals and poultry // Poultry Farm. Moscow, **2006**. № 11. P. 14-15. (in Russ.).

[11] Bedenko A. Organic trace elements in modern animal husbandry // Feed. Moscow, **2008**. № 6. p. 87-88. (in Russ.).

[12] Ten E.V., Konev A.N. Feeding the chelate complex from manganese, copper and iodine compounds // Stimulation of the increase in live weight of young cattle: Bulletin of the Ulyanovsk State. agricultural academy. Ulyanovsk, **2001**. № 4. p. 125-126. (in Russ.).

[13] Paton N., Cantor A.H., Pescatore A.J., Ford M.J., Smith, C.A. D Effect of dietary selenium source and level of inclusion on selenium content of incubated eggs // Poultry Science 79 (Suppl. 1). **2000**. P. 40.

[14] Fremaut D. Trace mineral proteinates in modern pig production. In: Nutrition Biotechnology in the free and food industries. Alltech 19th Ann / Symp., Nottingham Univ. Press, **2003**. P. 171-178. (in Russ.).

[15] Toporova L.V. Mechanisms of regulation of feed intake // Animal Husbandry of Russia. Moscow, **2007**. №8. p. 11-12.

[16] Toporova L.V. The influence of mineral substances on the development of bird embryos L.V. Toporova, I.V. Toporova // Feeding of farm animals and fodder production. Moscow, **2007**. № 6. p. 50-55. (in Russ.).

[17] Fisinin V., Surai P. Natural minerals in feeding animals and poultry // Animal Husbandry of Russia, Moscow, **2008**. № 8. p. 66-68. (in Russ.).

[18] Semenova M.I., Golovkina E.M. Use of chelates of microelements with amino acids in dairy cattle breeding. [Electronic resource]. Access mode: http://www.arovu./page/item/id.3688/

[19] Frolov A., Filipova O., Furletov S. Biological microelements in premix for calves // Dairy and Beef Cattle Breeding. - Moscow, **2010**. №1. p. 18-20. (in Russ.).

[20] Shishova L.I. Use of chelated microelements in premixes for lactating cows // Feed production. Moscow, **2013**. №6. p.43-44. (in Russ.).

[21] Volynkina M.G. The use of premix "SANIMIX" in feeding cows // Feeding farm animals and fodder production. - Moscow, **2011**. №7. p.8-11. (in Russ.).

[22] Malikova M.G., Akhmetova I.N. Influence of feeding protein concentrate on the processes of cicatricial digestion of scaffold young cattle // Feeding farm animals and fodder production. Moscow, **2011**. №8. p.15-19. (in Russ.).

[23] Toropova L., Serebrennikova S., Galashov V. et al. Efficiency of organomineral additives in feeding animals // Glavny zootekhnik. Moscow. **2012**. №1. p.16-26. (in Russ.).

[24] Ovsyanikov A.I. Fundamentals of experienced business in animal husbandry. Moscow, **1976**. p. 369. (in Russ.).

[25] Norms and rations of feeding farm animals. Reference manual. 3rd edition, revised and enlarged / Ed. A.P. Kalashnikov, V.I. Fisinin, V.V. Shcheglov et al. Moscow, **2003**. 456 p. (in Russ.).

[26] Lakin G.F. Biometrics. Fourth edition, revised and enlarged. Moscow: "Higher School", **1990**. p. 37-53. (in Russ.).

[27] Baimukanov D.A., Tarchokov T.T., Alentayev A.S., Yuldashbayev Yu.A., Doshanov D.A. Fundamentals of Genetics and Biometrics (compiled by Baimukanov D.A., Tarchokov T.T., Alentayev A.S., Yuldashbayev Yu.A., Doshanov D.A.). / Study Guide (ISBN 978-601-310-078-4). - Almaty: Evero, **2016**, 128 p. (in Russ.).

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.4**
Volume 1, Number 323 (2019), 29 – 39

UDC 635.22; 577.21

K.K.Zhapar[1], M.K.Shamekova[1], K.Z.Zhambakin[1]

[1]RSE Institute of Plant Biology and Biotechnology, Almaty, Kazakhstan
e-mail:zhapar.zk@gmail.com,shamekov@gmail.com,zhambakin@gmail.com

GENE ENGINEERING FOR PRODUCTION COLD-TOLERANT SWEET POTATO (*IPOMOEA BATATAS)*

Abstract: Sweet potato is produced in more than 100 countries as food security product and. More than 105 million tons are produced annually. Despite the fact that sweet potato are tropical plant, cultivation prospects in temperate zones is optimistic. The main limiting factor in the distribution of sweet potato in Kazakhstan is the cold factor.

Traditional breeding methods have limitations for success production of cold tolerant agricultural plants. Genetic engineering is the most effective approach for increasing plant tolerance to biotic and abiotic factors, method allows gene transfer and directionally regulate the gene expression. The article discusses the use of various genes and transcription factors for producing cold tolerant sweet potato cultivars.

Key words: Sweet potato, agrobacterium-mediated transformation, cold factor, cold tolerance.

Sweet potato is an important crop that is grown in more than 100 countries, annually produced over 105 million tons, while developing countries account for 95% of total production (FAO). Sweet potato is considered as a food security cultivar and the staple food in the rural economy of many countries [1, 2, 3, 4]. The total area under cultivation is more than 8,600,000 hectares, of which more than 74% is produced in Asia and 21% in Africa. China is the largest sweet potato producer in the world, 67% of world production and consumes 40% of the total production [5]. The importance of sweet potato as a food crop is rapidly growing in some parts of the world: Southeast Asia, sub-Saharan Africa, South America.

In the Message of the President of the Republic of Kazakhstan - Leader of the Nation Nursultan Nazarbayev to the People of Kazakhstan "Strategy" Kazakhstan-2050 "- a new political course of the established state," the threat of global food security has identified among the ten global challenges of the XXI century for the Republic of Kazakhstan and sweet potato can be the answer to challeneges [6].

Tubers of sweet potato are juicy, with delicate pulp and thin skin. Sprouts develop from hidden buds. Tubers of different varieties can vary greatly in shape - round, oval, elliptical; the color of the pulp is white, yellow, orange, cream, purple; to taste - from fresh to very sweet; in texture - from soft and juicy to dry and hard; the color of the peel - almost all the colors of the rainbow. Most cultivated varieties are more or less sweet, due to the sucrose, glucose and fructose content. Milky sap protrudes on a tuber cut (or on a stem cut) [7].

The composition of tubers may vary depending on the specific cultivar and growing conditions. Orange pulp sweet potato are an important source of β-carotene, provitamin A, 125g of fresh sweet potato tubers, from most varieties with orange pulp, contain enough β-carotene to provide the preschooler with daily requirement. Sweet potato is also a valuable source of B_6, B_2, C, E vitamins and contains sufficient amounts of copper, manganese, iron and zinc. Nutritionists in the United States are exploring the potential prevention of cancer with the properties of violet flesh sweet potato [8]. Anthocyanins that form purple pigmentation in tubers (also in berries and vegetables for example blueberries and red cabbage) are powerful antioxidants and have good bioavailability, which means that they are easily absorbed from the gastrointestinal tract into the bloodstream [9]. In addition, sweet potato has the status of a dietary product, is used as a vitamin and fortifying agent [10]. Despite the name "sweet", sweet potato can be used in diabetic nutrition, helps stabilize blood sugar levels and reduce insulin resistance. The level of

carbohydrates, potassium and sodium in sweet potato is noticeably higher than spinach [11], and its calorie level is 1.2-1.5 times higher than potato.

Sweet potato is successfully applied in agriculture as a cheap source of cattle feed. Green mass can be used in the compost, which, unlike potato, is not affected by fungal diseases. Recent studies show that animals that eat high-protein sweet potato vines produce less methane in comparison with other feeds, potentially helping to reduce harmful emissions.

Despite the fact that sweet potato is tropical plant, the prospect of cultivation in temperate zones is quite high. It is known that tropical plants such as potato, tomato, corn, soybeans, barley, rice, etc. successfully cultivated in countries with a temperate climate [12]. In the future, due to the achievements of breeding and biotechnology, it will be possible to eliminate the main limiting factors heat-loving plants propagation in the northern regions as well as, increasing the sustainability and productivity of already cultivated tropical plant species, and opportunities will only increase.

Kazakhstan is in dire need of dietary foods. One of the sources of which may be sweet potato, industrial production of sweet potato depends on the development of new forms and varieties adapted to the growing conditions in Kazakhstan. At the Institute of Plant Biology and Biotechnology, establish work on the cultivation of sweet potato (*Ipomoea batatas* L.) in the conditions of southeast Kazakhstan.

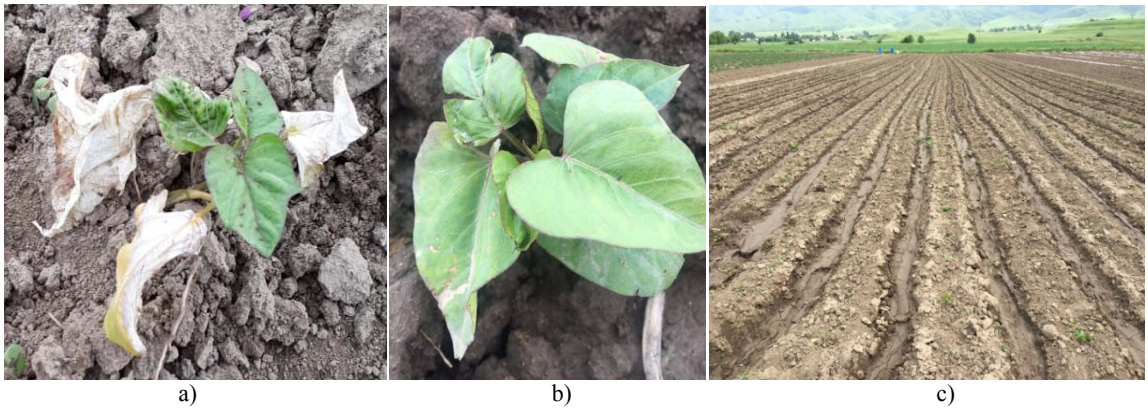
As a result, 20 genotypes characterized received from the Korean Institute of Biology and Biotechnology was analyzed. Further, was formed collection, as the starting material for cultivation suitability studies and harvest sweet potato in the conditions of southeast Kazakhstan. Promising lines were identified for further large-scale planting in the Almaty region [13].

In 2018, a large-scale planting of sweet potato was conducted on the IPBB test field in the Almaty region (43°10'41.1"N 76°19'53.5"E). Ten promising lines of sweet potato surved as a planting material. Primary data were collected indicating the possibility of large-scale cultivation of sweet potato in Kazakhstan. From one sweet potato bush was collected maximum 1.45 kg, average 0.4 kg.

Three lines of sweet potato showed good results, comparable to traditional producers of sweet potato. The growing period of sweet potato is 90-120 days.

It was determined that the main problem during the cultivation of sweet potato in the field was the abiotic cold stress factor. In the year of cultivation in the South-East of Kazakhstan in June, the temperature occasionally dropped to 7℃ at night, which affected on plants (Fig. 1). In some genotypes, the leaves died off, while at the same time most of the genotypes were able to preserve the living state of the meristem zones, which allowed the plants to survive.

Using appropriate technology, it is possible to adjust the limiting abiotic factors such as drought, soil salinity, pH, etc. without big expenses. However, to increase resistance to cold, it is more efficient to create resistant varieties and forms of plants.



a) b) c)

Figure 1 - a) Leaf necrosis after cold shock. b) Sweet potato recovery. c) Field view

Among abiotic stresses, it is known that cold stress is one of the main environmental factor that limit agricultural production, causing damage before and after harvesting, which leads to huge financial losses in agriculture every year [14]. Cold stress also has a huge impact on the survival and geographical distribution of plants [15].

Standard breeding methods demonstrate limited success in developing cold-resistant agricultural plants, since for most cold-sensitive plants there is a need for interspecific or even intergeneric hybridization. Genetic engineering is the most effective approach to increase plant tolerance to biotic and abiotic factors, which will not only transfer target genes from one organism to another, but also directionally regulate the expression of plant own genes, combining various transcriptional promoters and translational enhancers [16, 17, 18].

Currently, the problem of improving the cold tolerance of plants is solved by various genetic engineering methods, the most effective should be recognized the production of transgenic plants, constitutively expressing a number of proteins related to cold adaptation of plants.

Among these proteins, should be mentioned a number of transcription factors (CBF1/DREB1A, ThpI, MYBS3, ZAT12, HOS10, abi3, etc.) [19]. The introduction of foreign genes into plants through genetic transformation is a very promising addition to traditional breeding. The use of agrobacterial transformation remains the most successful among various gene transfer strategies, since it does not require sophisticated equipment; and this method has a greater potential for obtaining the expected result than the alternative bioballistic transformation method and new CRISPR/Cas9 technology [20, 21, 22].

For agrobacterial transformation, commonly used competent cells of the strain Agrobacterium tumefaciens. Constructs with the desired genes are introduced into a tube with competent agrobacterial cells. Heat shock is conducted and incubated in a nutrient medium. This is followed by selection with specific antibiotics. Next, perform PCR for the initial check for the presence of a gene, promoter and plasmid. To increase the percentage of transformation using embryonic calli. After generation plantlets from transformed calli, the presence of the insert and the further targeted use of the transgenic plant are evaluated.

There are numerous data on the successful application of agrobacterial transformation and the production of transgenic plants tolerant to cold, for example potato, [23], rice [24, 25], sweet potato [26]. As well as a lot of data with arabidopsis [27, 28, 29, 30].

To generate cold tolerant plant, it is important to understand the mechanisms of acclimatization and the plant stress response.

The first thing that happens after cold stress in plant cells is an increase in cytosolic Ca^{2+} as an important secondary messenger. It is assumed that cytosolic Ca^{2+} is an important component of signal transmission and the development of cold acclimatization [31, 32, 33, 34, 35]. As well, other non-biotic and abiotic stresses increase cytosolic calcium to transmit the message. Adequate plant response to stresses by changes in gene expression is very important [36].

When plants are stressed by cold, some dysfunctions appear at the cellular level, such as membrane degradation, ROS formation, protein denaturation and toxic product accumulation, etc. [37, 38]. Plants furthermore try to respond to this stress by altering gene expression, modifying the membrane composition, synthesis of cold shock proteins and antioxidant enzymes, which are thought to play a role in protecting cells from freezing damage. In particular, when plants are gradually exposed to cold stress, these changes at the cellular level can cause resistance to cold stress, a process known as “cold acclimatization” [39, 40, 41].

A modification of the membrane composition occurs when plants are exposed to cold stress, plant trying to change the plasma membrane lipid composition and chloroplast envelopes. It is assumed that these changes play a role in acquiring frost resistance during cold acclimatization: they can prevent membrane damage caused by freezing by stabilizing the two-layer lamellar configuration [41, 42, 43].

Synthesis of compatible solutions or osmoprotectors. Carbohydrates, amino acids (proline, glycine, alanine and serine) and polyamines are considered compatible solutions. Compatible solutions of low molecular weight molecules that are produced in large quantities under various stress factors such as salinity, drought, cold, etc. So that the plant can withstand stressful conditions. In the case of cold stress, during the freezing period, with the initial formation of ice in the apoplastic space, the water potential decreases, which leads to the release of water from the cell into the extracellular compartment, causing intracellular dehydration [41]. To prevent cell dehydration, compatible solutes, such as carbohydrates, accumulate in the cell to reduce the difference in water potential between the apoplastic space and within the cell. Dehydrins may play a role in resistance to cold, possibly by preventing membrane destabilization that occurs during osmotic contraction associated with cold [41].

Cold shock proteins (CSP). While a significant amount of research has been done to characterize cold shock proteins in bacteria and animals, little is known about their functions in plants.

The main goal of heat shock proteins is to help the cell overcome changes in stress during cold. When the temperature decreases, the fluidity in the cell membrane decreases, which affects the active transport and secretion of the protein. In addition, the efficiency of transcription and translation is reduced due to the stabilization of the secondary structures of DNA and RNA, protein folding is inefficient, and the ribosomes must be adapted to cold before they can function properly [44].

The first functionally characterized plant CSD (cold shock domain) protein was wheat CSP (WCSP1). WCSP1 contains an area rich in glycine interspersed with three C-terminal zinc fingers CCHC. WCSP1 mRNA is activated in response to cold, the corresponding protein accumulates in the coronal tissue during prolonged acclimatization to cold. WCSP1 transcript levels are not modulated by other environmental stresses, such as salinity, drought, and high temperatures or abscisic acid treatment, suggesting that WCSP1 is specific to cold stress. WCSP1 binds to DNA and RNA and melts double-stranded nucleic acids *in vitro* and *in vivo* [445, 46, 47].

Rice has two CSD proteins [OsCSP1 (Os02g0121100) and OsCSP2 (Os08g0129200)]. The expression of OsCSPs slightly increased in the tissues of the shoots and roots during short-term low-temperature processing. However, OsCSP protein levels were not increased in the apical for 10 days of low-temperature treatment [48]. This data is very different from the observed expression characteristics for WCSP1.

Four CSD proteins (AtCSP1-AtCSP4) have been identified in *Arabidopsis thaliana*. The AtCSP3 knockout mutant (At2g17870) (atcsp3-2) was more susceptible to freezing than the wild type, both under non-acclimatization and acclimatization under cold conditions. Overexpression of *AtCSP3* provides enhanced resistance to freezing in *Arabidopsis thaliana* without obvious developmental defects. *AtCSP3* does not affect the expression of CBF and COR genes, but it regulates the expression of genes associated with stress, whose roles in resistance to freezing are unknown [49].

Dehydrins. One of the reactions of plants to cold stress is the accumulation of hydrophilic proteins, which, by hypothesis, form an amphipathic α-helix. Many of the genes encoding these proteins were first characterized as sensitive to cold, drought, and abscisic acid (ABA). Therefore, many of them were called cold-regulated COR (cold-responsive), LTI (low temperature-induced), RAB (responsive to abscisic acid), KIN (cold-induced), or ERD (early responsive to dehydration). These include dehydrins, which define group II proteins with excess late embryogenesis (LEA). Dehydrins may play a role in resistance to freezing, possibly by preventing membrane destabilization that occurs during osmotic contraction associated with freezing [50].

Dehydrins belonging to the LEA proteins of group II are considered as stress proteins involved in the formation of plant defense reactions to dehydration. They can also be considered hydrophilins [51].

Although the role of dehydrins has not been fully defined, various studies have demonstrated their role in tolerance to cold stress. Hara et al. [52] In particular, co-segregation of the dehydrin gene with cooling resistance in cowpea was found [53], and transgenic tobacco with dehydrin overexpression showed greater resistance to frost than wild-type plants without cold acclimatization [54]. Thus, the production of dehydrin, as expected, is one of the important strategies for plants to obtain resistance to cold stress.

ROS. There are many reports that demonstrate the production of ROS in conditions of cold stress. To remove reactive oxygen species under normal and stress conditions, plants use a variety of antioxidants, such as ascorbic acid, glutathione, and enzymes absorbing ROS, such as superoxide dismutase (SOD), ascorbate peroxidase (APX), catalase (CAT), glutathione peroxidase (GPX) and peroxiredoxin (PrxR), thereby protecting potential cell damage and tissue dysfunction [55, 56].

Superoxide dismutase can catalyze the conversion of superoxide radicals to H_2O_2 and O_2. CAT, PrxR and APX can eliminate hydrogen peroxide, which has a damaging effect on many enzymes [57, 58].

Transcription factors. Among several cold signaling pathways, CBF / DREB1-dependent cold signaling pathway is best characterized and is a key regulatory pathway [59]. In Arabidopsis, three CBF / DREB1 are involved in regulating the expression of the COR gene and resistance to cold [60, 61]. The path of CBF / DREB1 (mainly CBF3 / DREB1A) is controlled by a MYC ICE1 type transcription factor (CBF1 expression inducer) [62].

ICE1 can bind to the MYC cis-recognition elements (CANNTG) in the CBF3/DREB1A promoter and induce the expression of CBF3/DREB1A and its regulon during cold acclimatization (Figure 1) [62]. Approximately 40% of the COR genes and 46% of the cold-regulated transcription factor genes are regulated by ICE1, suggesting that ICE1 functions as the main regulator controlling CBF3/DREB1A and many other COR genes (Figure 2) [63].

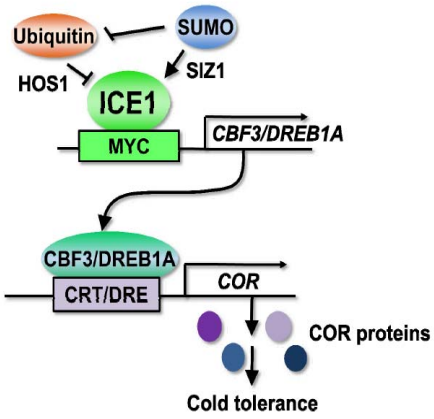


Figure 2 - Cold Signal Path, which includes ICE1 and CBF3 / DREB1A. ICE1 is a type-MYC transcription factor and binds to cis-elements in the CBF3/DREB1A promoter to induce its expression. CBF3/DREB1A is a transcription factor of type AP2 for regulating the expression of COR (genes regulated by cold) and resistance to cold. Ubiquitilation ICE1 is mediated by HOS1, ubiquitin-E3-ligase for proteasome-dependent degradation. SIZ1, the SUMO E3 ligase, mediates the sumoylation (SUMO conjugation) of ICE1, probably leading to the blocking of ubiquitination and stabilization of ICE1
(by Maruyama K. et.al. 2004)

CBF/DREB1 can bind to the cis-elements of CRT/DRE, A/GCCGAC, in the promoter of the COR genes to regulate the expression of the gene of the COR [64] and belong to the (APF) group of ERF / AP2 transcription factors. [65]. A genomic analysis showed that the CBF/DREB1 genes are organized in tandem (CBF1/DREB1B-CBF3/DREB1A-CBF2/DREB1C) on chromosome IV of Arabidopsis, CBF1/DREB1B and CBF3/DREB1A are induced simultaneously and earlier than CBF2/DREB1C after cold working [66].

Transcriptome analysis in transgenic plants with overexpression of CBF/DREB1 shows that approximately 12% of the COR genes in *Arabidopsis thaliana* are controlled by CBF/DREB1, but no significant target specificity is observed among the three CBF factors [67, 68]. Some transcription factors, such as ERF/AP2, RAP2.1 and RAP2.6 and C2H2-type zinc finger, STZ/ZAT10, are attributed to CBF regulon [69, 70].

CBF1/DREB1B and CBF3/DREB1A have different functions than CBF2/DREB1C. Although CBF1/DREB1B and CBF3/DREB1A control the same group of genes, they are consistently necessary for the induction of all CBF/DREB1 regulon and the completion of cold acclimatization [59,71].

Transcription factors involved in cold stress. When plants are exposed to low temperatures, they react to cold stress by changing gene expression. These genes encode proteins that are involved in cold resistance. What genes can be used in transformation in order to produce cold-resistant sweet potatoes? Using the database, gene expression after low temperature stress can be divided into 3 promising genes.

1) CBF3. As noted above, the CBF transcription factor and its genes are among the most important elements involved in responding to cold. CBF genes have a key role in the Pinot et al. experiment. Overexpression of *AtCBF1* and *AtCBF3* increased freezing tolerance whereas AtCBF2 overexpression failed to increase freezing tolerance [72].

Further evidence of successful suppression of the expression of CBF1 and CBF3, which led to a 60% decrease in tolerance to freezing during cooling [73]. Conversely, constitutive overexpression of CBF1 or CBF3 in Arabidopsis plants causes increased tolerance to freezing. The fact that overexpression of CBF leads to constitutive resistance to freezing has been noted in *Thlaspi arvense*, *Oryza sativa*, *Lolium perenne, Brassica napus* and *Ipomoea batatas* [74, 75].

Cook D. et al. demonstrate that the metabolome of *Arabidopsis* is extensively reconfigured in response to low temperature, and that the CBF cold response pathway has a prominent role in this process. Of these 325 metabolites, 256 (79%) increased in nonacclimated Ws-2 plants in response to overexpression of CBF3. [76].

2) BZR1. Hui et al. investigated the function of brassinasteride signaling components under low temperature stress [77]. Brassinasteroid-signaling kinases BZR1 (brassinazole-resistant 1) plays a positive role in regulating the response of plants to low-temperature stress. BZR1 upregulates the expression of CBF genes by directly binding to their promoters *in vitro* and *in vivo*. Moreover, some genes and pathways independent of the CBF pathway are regulated by BZR1. These data indicate that BZR1 positively regulates plant resistance to freezing through CBF-dependent and CBF-independent pathways (Figure 3).

Insensitive brassinosteroid 2 (BIN2) is a GSK3-like kinase in BR signaling [78]. In the absence of BR, active BIN2 constitutively phosphorylates two homologous transcription factors, brassinazole-resistant 1 (BZR1) and BRI1-EMS suppressor 1 (BES1), to promote their degradation. In the presence of BRs, BIN2 is dephosphorylated by BSU1 and cleaved by 26S proteasome, which subsequently releases inhibition of BZR1 and BES1 by BIN2 [79, 80, 81]. Dephosphorylated BZR1 and BES1 accumulate in the nucleus and bind to their target genes, triggering a BR response [80, 81, 82, 83]. BZR1 and BES1 are two well-characterized major helix-loop-helix transcription factors in the BR signal pathway, which have 88% sequence identity at the amino acid level. Both BZR1 and BES1 bind BRRE (CGTGT/CG) and E-box (CANNTG) through a conservative N-terminal DNA-binding domain and target a number of common genes for regulating BR-related responses [84, 85].

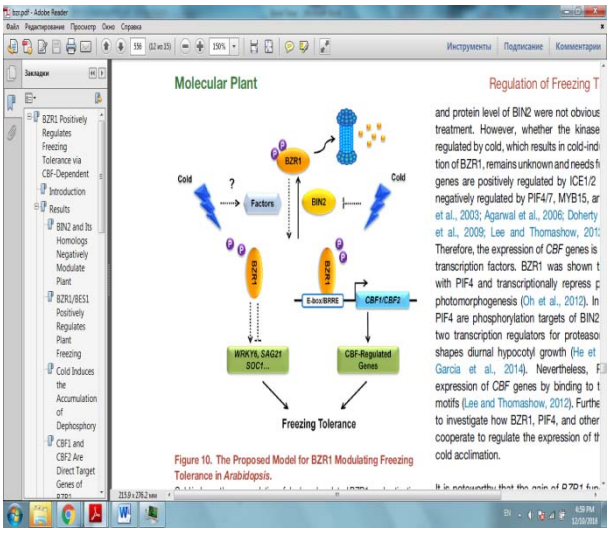


Figure 3 - The proposed model for modulating BZR1 cold resistance.
(by Hui et al. 2017)

The cold induces the accumulation of dephosphorylated BZR1, and the activation of BZR1 induces the expression of CBF1 / 2 and CBF-independent genes by binding their promoters to E-box / BRRE conservative motifs, while BIN2 negatively regulates the response of plants to cold stress by inhibiting cold-induced dephosphorylated protein BZR1. BZR1 also directly regulates some COR-genes, including WRKY6, SAG21 and SOC1, which are not dependent on CBF, to modulate plant resistance to freezing.

3) WRKY31. WRKY transcription factors are one of the largest families of transcriptional regulators in plants and form an integral part of the signaling pathways that regulate many plant processes. New data show that WRKY proteins often act as repressors, as well as activators, of important plant processes. In addition, it becomes clear that a single transcription factor WRKY may be involved in the regulation of several seemingly disparate processes.

The signaling and regulation mechanisms of transcription are distributed by determining the functions of the WRKY protein through interaction with a diverse set of protein partners, including MAP kinases,

MAP kinase kinases, 14-3-3 proteins, calmodulin, histone deacetylases, resistant proteins and other transcription WRKY factors [86] .

Some early studies of WRKY showed that the isolated WRKY gene from the xerophytic evergreen shrub C3, creosote bush, is an activator of abscisic acid signaling (ABA) [87]. ABA serves as a link in the reactions of plants to abiotic stresses, including low-temperature, therefore, it is called the "stress hormone". In the study of aleuron cells, it was shown that *OsWRKY24* and *OsWRKY45* act as repressors of the ABA inducible promoter, and *OsWRKY72* and *OsWRKY77* are activators of the same promoter [88]. ABA is also involved in responding to low temperature stress, the level of ABA increases in many plants in response to low temperature [89], including *Arabidopsis* [90], and many reacting to cold genes respond to ABA [91].

For example, in rice induced by heat shock protein HSP101 with overexpression of *OsWRKY11*, resistance to high temperatures and drought was increased [92]. Similarly, overexpression of *OsWRKY45* led to increased salt and drought tolerance, in addition to increased resistance to various diseases [93]. In *Arabidopsis thaliana*, overexpression of *AtWRKY25* or *AtWRKY33* increases salt tolerance [94].

These examples illustrate that WRKY transcription factors are part of the signaling processes associated with plant response to various abiotic and biotic stress conditions.

The selected genes WRKY31 and BZR1 also showed significant changes in expression, before and after 12 hours of low-temperature stress. In particular, cold 12h / NT 0h Log2 (fold change) WRKY31 - 4.49 and BZR1 - 1.45, which indicate their role at low temperatures.

The collected data indicate the promising use of agrobacterial transformation to develope sweet potato resistant to the abiotic cold factor. Cultivation of sweet potato on an industrial scale is possible in Kazakhstan. What is necessary is to develop an agricultural technology that allows obtain a high yield and high quality of the agricultural product in order to improve the food and agricultural security of the country. Ultimately, Sweet Potatoes, as a valuable dietary product, can replenish the main list of products available to the population of the country. With the genes given in the article, work is underway, in particular, the design with stress by the inducible promoter SWPA2 of sweet potato was developed and regenerates were obtained from embryonic calluses of sweet potato. This design and genes can be applied in other plants.

Studying and understanding the processes of plant response to the cold factor has a fundamental and applied character; by affecting certain processes in a plant, tolerance and productivity of a plant can be increased.

Қ.Қ. Жапар[1], М.Х. Шамекова[1], К.Ж. Жамбакин[1]

[1] РМК «Өсімдіктер биологиясы және биотехнологиясы институты», Алматы, Қазақстан

СУЫҚҚА ТӨЗІМДІ ТӘТТІ КАРТОПТЫ (*IPOMOEA BATATAS)* ӨНДІРУДЕГІ ГЕНЕТИКАЛЫҚ ИНЖЕНЕРИЯ

Аннотация. Тәтті картоп 100-ден астам елде өндіріледі, сонымен қатар азық-түлік қауіпсіздігін қамтамасыз етеді. Жыл сайын 105 млн. тоннадан астам тәтті картоп өндіріледі. Тәтті картоп тропикалық өсімдіктер болғанына қарамастан, қоңыржай аймақтарында өсіп жетілдірудің болашағы бар. Қазақстанда тәтті картопты тежейтін негізгі фактор, ол суық факторы болып табылады.

Суыққа төзімді ауылшаруашылық өсімдіктерін шығаруда сұрыптаудың негізгі әдістері шектеулі табыс көрсетеді. Гендік инженерия - биотикалық және абиотикалық факторларға өсімдіктердің төзімділігін арттыруда ең тиімді тәсіл, бұл әдіс гендік трансфер, сондай-ақ өсімдіктің меншікті гендерінің өрнегін реттеуге бағытталған. Мақалада тәтті картоптың суыққа төзімді сорттарын алу үшін әртүрлі гендерді және транскрипция факторларын пайдалану туралы баяндалады.

Түйін сөздер: Тәтті картоп, агробактериальді трансформация, суық фактоы, суыққа төзімділік.

К.К. Жапар[1], М.Х. Шамекова[1], К.Ж. Жамбакин[1]

[1]РГП «Институт Биологии и Биотехнологии Растений» КН МОН РК, Алматы, Казахстан;

ГЕННАЯ ИНЖЕНЕРИЯ ДЛЯ ПОЛУЧЕНИЯ ХОЛОДОУСТОЙЧИВОГО СЛАДКОГО КАРТОФЕЛЯ (*IPOMOEA BATATAS)*

Аннотация: Сладкий картофель производится более чем в 100 странах и является продуктом продовольственной безопасности. Ежегодно производится более 105 млн. тонн сладкого картофеля. Несмотря на то, что сладкий картофель является тропическим растением, перспектива его выращивания в умеренных зонах оптимистичны. Основным лимитирующим фактором распространения сладкого картофеля в Казахстане это фактор холода.

Стандартные методы селекции демонстрируют ограниченную успешность при получении холодоустойчивых сельскохозяйственных растений. Генная инженерия представляет собой наиболее эффективный подход для увеличения толерантности растений к биотическим и абиотическим факторам, которые позволяют переносить гены, а также направленно регулировать экспрессию собственных генов растений. В статье обсуждаются использования различных генов и транскрипционных факторов для получения холодоустойчивых сортов сладкого картофеля.

Ключевые слова: Сладкий картофель, агробактериальная трансформация, фактор холода, холодоустойчивость.

Information about authors:
Zhambakin K.Zh., IPBB, General Director, Doctor of Biological Science, Academician, e-mail: zhambakin@gmail.com;
Shamekova M.Kh. IPBB, Deputy Gen. Director, PhD, Ass. Prof., e-mail: shamekov@gmail.com;
Zhapar K.K. IPBB, Researcher, PhD student at the KazNAU, e-mail: zhapar.zk@gmail.com

REFERENCES

[1] Sunette L., Mieke F., Patrick A., Abenet B. (**2015**), Biofortification of sweetpotato for food and nutrition security in South Africa, Food Research International, 76,4:962–970.

[2] Robert W., Felisberto S., Leandro P., Bosco B., Abril S., Asep S., Martin B., Harry N., William E. (**2013**), Sweet potato can contribute to both nutritional and food security in Timor-Leste, Field Crops Research, 146:38-43.

[3] Yamakawa, O., **(1998),** Development of new cultivation and utilization system for sweet potato toward the 21st century. In: Proceedings of International Workshop on Sweet Potato Production System Toward the 21st Century, Kyushu National Agricultural Experiment Station, Miyazaki, Japan. P. 273-283.

[4] Zhang L.M., Wang Q.M., Liu Q.C., Wang Q.C. (**2009**), Sweetpotato in China. In: Loebenstein G, Thottappilly G, editors. The Sweetpotato: Springer Netherlands. P.325-358.

[5] http://www.fao.org/faostat/ru/#data/QC.

[6] Omarova A., Malgaraeva Zh., Murzaliyeva A. (**2018**) Ensuring food security in the context of the development of integration processes, REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN, 6 (322):179–187, ISSN 2224-5227, https://doi.org/10.32014/2018.2518-1483.50.

[7] Woolfe J.A. (**1992**), Sweet potato: an untapped food resource – Cambridge University Press. P.643. ISBN: 9780521050531.

[8] Kim H.J., Park W.S., Bae J.Y., Kang S.Y., Yang M.H., Lee S., Lee H.S., Kwak S.S., Ahn M.J. **(2015**) Variations in the carotenoid and anthocyanin contents of Korean cultural varieties and home-processed sweet potatoes, Journal of Food Composition and Analysis, 41:188-193.

[9] http://sweetpotatoknowledge.org/sweetpotato-introduction/Facts.

[10] Hill W.A., Bonsi C.K. and Loretan P.A. (**1992**), Sweet potato research: Current status and future needs, Sweetpotato Technology for the 21st Century. Alabama: Tuskegee, Tuskegee, University, P.607.

[11] Sun H., Mu T., Xi L., Zhang M., Chen J. (**2014**), Sweet potato (*Ipomoea batatas* L.) leaves as nutritional and functional foods, Food Chemistry, 156:380–389.

[12] Boyer, J.S. (**1982**), Plant productivity and environment, Science, 218:443–448.

[13] Cozdanie rabochej kollekcii sladkogo kartofelja (ipomoéa batátas) dlja introdukcii v kazahstan. A. K. Zatybekov, M. H. Shamekova, K. Zh. Zhambakin. News of the national academy of sciences of the republic of kazakhstan series of biological and medical. (**2015**). 65 (312): 69 – 76 (In Russian).

[14] Einset, J., Winge, P., Bones, A. (**2007**), ROS signaling pathways in chilling stress. Plant Signal. Behav, 2:365–367.

[15] Jan, N., Andrabi, K.I., (**2009**), Cold resistance in plants: a mystery unresolved, Electron. J. Biotechnol, 12:14–15.

[16] Sanghera G.S., Wani S.H., Hussain W., Singh N.B. (**2011**), Engineering cold stress tolerance in crop plants// Current Genomics, 12:30-43.

[17] Choi H.J., Chandrasekhar T., Lee H.Y., Kim K.M. (**2007**), Production of herbicide-resistant transgenic sweet potato plants through Agrobacterium tumefaciens method, Plant Cell Tiss. Organ Cult, 91:235-242. DOI 10.1007/s11240-007-9289.

[18] Song G.Q., Honda H., and Yamaguchi K.I. (**2004**), Efficient Agrobacterium tumefaciensmediated transformation of sweet potato (Ipomoea batatas (l.) Lam.) from stem explants using a two-step kanamycin–hygromycin selection method, In Vitro Cell. Dev. Biol.-Plant, 40:359-365. DOI: 10.1079/IVP2004539.

[19] Kolodyazhnaya Y.S., Kutsokon N.K., Levenko B.A., Syutikova O.S., Rakhmetov D.B., Kochetov A.V. (**2009**), Transgenic plants tolerant to abiotic stresses, №2:72-93.

[20] Maria I.C.S. Gama, Rui P. Leite J.R., Antonio R. Cordeiro & Daniel J. Cantliffe Cenargen / Embrapa C.I. (**1996**), Transgenic sweet potato plants obtained by Agrobacterium tumefaciens -mediated transformation, Plunt Cell, Tissue and Organ Culture. 46:237-244.

[21] Sihachakr D., Haicour R., Cavalcante Alves J.M., Umboh I., Nzoghe D., Servaes A. & Ducreux G. (**1997**), Plant regeneration in sweet potato (Ipomoea batatas L., Convolvulaceae), Euphytica, 96: 143-152.

[22] Kershanskaya O.I. (**2018**), New breakthrough CRISPR/cas9 biotechnology of genome editing for creation of elite crops in Kazakhstan, REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN, 5(321):24–40, ISSN 2224-5227 https://doi.org/10.32014/2018. 2518-1483.4.

[23] Pino M.T., Skinner J.S., Park E.J., Jeknić Z., Hayes P.M., Thomashow M.F., Chen T.H. (**2007**), Use of a stress inducible promoter to drive ectopic AtCBF expression improves potato freezing tolerance while minimizing negative effects on tuber yield, Plant Biotechnol J., 5(5):676.

[24] Dubouzet JG[1], Sakuma Y, Ito Y, Kasuga M, Dubouzet EG, Miura S, Seki M, Shinozaki K, Yamaguchi-Shinozaki K. (**2003**), OsDREB genes in rice, Oryza sativa L., encode transcription activators that function in drought-, high-salt- and cold-responsive gene expression, Plant J. 33(4):751-63.

[25] Saijo Y., Hata S., Kyozuka J., Shimamoto K., Izui K. (**2001**) Over-expression of a single Ca^{2+}-dependent protein kinase confers both cold and salt/drought tolerance on rice plants. The Plant Journal, 23:319-327.

[26] Jin R., Kim B.H., Ji C.Y., Kim H.S., Li H.M., Ma D.F., Kwak S.S. (**2017**), Overexpressing IbCBF3 increases low temperature and drought stress tolerance in transgenic sweetpotato, Plant Physiology and Biochemistry, 118:45-54.

[27] Jaglo-Ottosen K., Gilmour S., Zarka D., Schabenberger O., Thomashow M. (**1998**), *Arabidopsis* CBF1 Overexpression Induces COR Genes and Enhances Freezing Tolerance, Science, 280:104-106.

[28] Zhu J., Shi H., Lee B., Damsz B., Cheng S., Stirm V., Zhu J., Hasegawa P., and Bressan R. (**2004**) An *Arabidopsis* homeodomain transcription factor gene, HOS9, mediates cold tolerance through a CBF-independent pathway, PNAS, 101(26):9873-9878, https://doi.org/10.1073/pnas.0403166101.

[29] Kasuga M., Liu Q., Miura S., Yamaguchi-Shinozaki K., Shinozaki K. (**1999**) Improving plant drought, salt, and freezing tolerance by gene transfer of a single stress-inducible transcription factor, Nature Biotechnology, 17:287–291.

[30] Kanga H., Kima J., Kimb B., Jeong H., Choi S., Kima E., Lee H., Lim P. (**2011**) Overexpression of FTL1/DDF1, an AP2 transcription factor, enhances tolerance to cold, drought, and heat stresses in *Arabidopsis thaliana*. Plant Science, 180(4):634–641. doi:10.1016/j.plantsci.2011.01.002.

[31] Solanke, A.U., Sharma, A.K., (**2008**). Signal transduction during cold stress in plants. Physiol. Mol. Biol. Plants, 14:69–79.

[32] Sanders, D., Pelloux, J., Brownlee, C., Harper, J.F., (**2002**). Calcium at the crossroads of signaling, Plant Cell, 14:401–417.

[33] Dodd A.N., Jakobsen M.K., Baker A.J., Telzerow A., Hou S.W., Laplaze L., Barrot L., Poethig R.S., Haseloff J., Webb A.A.R. (**2006**). Time of day modulates low-temperature Ca^{2+} signals in Arabidopsis, Plant J, 48:962–973.

[34] Klimecka M., Muszynska G. (**2007**). Structure and functions of plant calcium-dependent protein kinases, Acta Biochim Pol, 54:219–233.

[35] Heidarvand L., Amiri, R.M., (**2010**). What happens in plant molecular responses to cold stress? Acta Physiol. Plant. 32 (3):419–431.

[36] Bowers M.C. (**1994**). Environmental effects of cold on plants. In: Wilkinson, R.E. (Ed.), Plant-Environment Interactions. Marcel Dekker, New York, P. 391–411.

[37] Yuanyuan M., Yali Z., Jiang L., Hongbo S. (**2009**). Roles of plant soluble sugars and their responses to plant cold stress, Afr. J. Biotechnol. 8(10): 2004–2010.

[38] Levitt J. (**1980**). Responses of Plants to Environmental Stresses. Chilling, Freezing and High Temperatures Stresses. Academic Press, New York. 1:426.

[39] Thomashow M.F. (**1999**). Plant cold acclimation: freezing tolerance genes and regulatory mechanisms, Ann. Rev. Plant Physiol. Plant Mol. Biol, 50:571–599.

[40] Shabala S. (Ed.), (**2017**). Plant Stress Physiology, CABI, Boston, MA, P.376.

[41] Uemura M., Steponkus P.L. (**1997**). Effect of cold acclimation on the lipid composition of the inner and outer membrane of the chloroplast envelope isolated from rye leaves, Plant Physiol, 114:1493–1500.

[42] Ruelland E., Vaultier M.N., Zachowski A., Hurry V. (**2009**). Cold signalling and cold acclimation in plants. Adv. Bot. Res, 49:35–150.

[43] Phadtare S., and Severinov K. (**2010**). RNA remodeling and gene regulation by cold shock proteins. RNABiol, 7:788–795. Doi:10.4161/rna.7.6.13482

[44] Karlson D., Nakaminami K., Toyomasu T., and Imai R. (**2002**). A cold-regulated nucleic acid-binding protein of winter wheats hares a domain with bacterial cold shock proteins. J. Biol.Chem., 277:35248–35256.

[45] Nakaminami K., Karlson D.T., and Imai R. **(2006**). Functionalcon- servation of cold shock domains in bacteria and higher plants. Proc.Natl.Acad.Sci. U.S.A. 103:10122–10127.

[46] Nakaminami K., Sasaki K., Kajita S., Takeda H., Karlson D., Ohgi K., and Imai R. **(2005)**. Heat stable ssDNA/RNA-binding activity of a wheat colds hock domain protein. FEBS Lett. 579: 4887–4891.

[47] Chaikam, V.,andKarlson,D. **(2008**). Functional characterization of two colds hock domain proteins from Oryza sativa. Plant Cell Environ. 31:995–1006.

[48] Kim M.H.,nSasaki K., Imai R. **(2009**). Cold shock domain protein 3 regulates freezing tolerance in *thaliana*. J. Biol.Chem. 284:23454–23460.

[49] Shabala S. (Ed.,) **(2017)**. Plant Stress Physiology. CABI, Boston, MA, p. 376.

[50] Liu Y., Song Q., Li D., Yang X., Li D. (**2017**). Multifunctional roles of plant dehydrins in response to environmental stresses. Front. Plant Sci. 8, 1018.

[51] Hara M., Terashima S., Kuboi T. (**2001**). Characterization and cryoprotective activity of cold-responsive dehydrin from Citrus unshiu. J. Plant Physiol. 158 (10): 1333–1339.

[52] Ismail A.M., Hall A.E., Close T.J. (**1999**). Allelic variation of a dehydrin gene cosegregates with chilling tolerance during seedling emergence. Proc. Natl. Acad. Sci. USA 96: 13566–13570

[53] Kaye C., Neven L., Hofig A., Li Q.B., Haskell D., Guy C. (**1998**). Characterization of a gene for spinach CAP160 and expression of two spinach cold-acclimation proteins in tobacco. Plant Physiol 116: 1367–1377

[54] Mittler R., Vanderauwera S., Gollery M., Van-Breusegem F. (**2004**). Reactive oxygen gene network of plants. Trends Plant Sci. 9:490–498.

[55] Maleki M., Ghorbanpour M., Kariman K., (**2017**). Physiological and antioxidative responses of medicinal plants exposed to heavy metals stress. Plant Gene 11:247–254.

[56] Heldt H.W.H., (**2005**). Plant Biochemistry, Hans-Walter Heldt in Cooperation with Fional Heldt. Elsevier Academic Press.

[57] Steinberg C.E., (**2012**). Stress Ecology: Environmental Stress as Ecological Driving Force and Key Player in Evolution. Springer Science & Business Media, Dordrecht P.480.

[58] Chinnusamy, V.; Zhu, J.; Zhu, J.K. Cold stress regulation of gene expression in plants. Trends Plant Sci. (**2007)**. 12, 444–451.

[59] Gilmour S.J., Fowler S.G., Thomashow M.F. (**2004**). transcriptional activators CBF1, CBF2, and CBF3 have matching functional activities. Plant Mol. Biol., 54:767–781.

[60] Gilmour S.J., Sebolt A.M., Salazar M.P., Everard J.D., Thomashow M.F. (**2000).** Overexpression of the CBF3 transcriptional activator mimics multiple biochemical changes associated with cold acclimation. Plant Physiol., 124, 1854–1865.

[61] Chinnusamy V., Ohta M., Kanrar S., Lee, B.H., Hong X., Agarwal M., Zhu J.K. (**2003**). ICE1: A regulator of cold-induced transcriptome and freezing tolerance in . Genes Dev., 17:1043–1054.

[62] Lee B.H.; Henderson D.A.; Zhu J.K. **(2005).** The cold-responsive transcriptome and its regulation by ICE1. Plant Cell, 17: 3155–3175.

[63] Maruyama K., Sakuma Y., Kasuga M., Ito, Y., Seki M., Goda, H., Shimada Y., Yoshida S., Shinozaki K., Yamaguchi-Shinozaki K. **(2004).** Identification of cold-inducible downstream genes of the DREB1A/CBF3 transcriptional factor using two microarray systems. Plant J., 38:982–993.

[64] Mizoi J., Shinozaki K., Yamaguchi-Shinozaki K. **(2012).** AP2/ERF family transcription factors in plant abiotic stress responses. Biochim. Biophys. Acta, 1819: 86–96.

[65] Medina J., Bargues M., Terol J., Perez-Alonso M., Salinas J. **(1999).** The CBF gene family is composed of three genes encoding AP2 domain-containing proteins whose expression is regulated by low temperature but not by abscisic acid or dehydration. Plant Physiol., 119: 463–470.

[66] Medina J., Catalá R., Salinas J. (**2011).** The CBFs: Three transcription factors to cold acclimate. Plant Sci., 180:3–11.

[67] Matsui A., Ishida J., Morosawa T., Okamoto M., Kim J.M., Kurihara Y., Kawashima M., Tanaka M., To T.K., Nakaminami K. et al. **(2010).** tiling array analysis to identify the stress-responsive genes. Methods Mol. Biol., 639:141–155.

[68] Zeller G., Henz S.R., Widmer C.K., Sachsenberg T., Ratsch G., Weigel D., Laubinger S. **(2009).** Stress-induced changes in the thaliana transcriptome analyzed using whole-genome tiling arrays. Plant J., 58:1068–1082.

[69] Fowler, S., Thomashow, M.F. **(2002).** transcriptome profiling indicates that multiple regulatory pathways are activated during cold acclimation in addition to the CBF cold response pathway. Plant Cell, 14:1675–1690.

[70] Vogel, J.T.; Zarka, D.G.; van Buskirk, H.A.; Fowler, S.G.; Thomashow, M.F. **(2005).** Roles of the CBF2 and ZAT12 transcription factors in configuring the low temperature transcriptome of . Plant J., 41:195–211.

[71] Novillo, F., Medina, J., Salinas, J. **(2007).** CBF1 and CBF3 have a different function than CBF2 in cold acclimation and define different gene classes in the CBF regulon. Proc. Natl. Acad. Sci. USA, 104:21002–21007.

[72] Pino M.T., Skinner J.S., Park E.J., Jekni Z., Hayes P.M., Thomashow M.F. and Chen T.H. (**2007**). Use of a stress inducible promoter to drive ectopic AtCBF expression improves potato freezing tolerance while minimizing negative effects on tuber yield. Plant Biotechnology Journal, P.591–604 doi: 10.1111/j.1467-7652.2007.00269.x.

[73] Novillo F., Medina J., Salinas J. (**2007**). CBF1 and CBF3 have a different function than CBF2 in cold acclimation and define different gene classes in the CBF regulon. Proceedings of the National Academy of Sciences USA, 104:21002–21007.

[74] Ruelland E., Vaultier M., Zachowski A., Hurry V. (**2009**) Cold signalling and cold acclimation in plants, Advances in Botanical Research, 49:35–150.

[75] Medina J., Catala R., Salinas J. **(2011)**. The CBFs: three transcription factors to cold acclimate, Plant Science 180: 3–11.

[76] Cook D., Fowler S., Fiehn O., Thomashow M. (**2004**). A prominent role for the CBF cold response pathway in configuring the low-temperature metabolome of . PNAS, 101(42):15243–15248.

[77] Li H., Ye K., Shi Y., Cheng J., Zhang X., and Yang S. (**2017**). BZR1 Positively Regulates Freezing Tolerance via CBF-Dependent and CBF-Independent Pathways in , Molecular Plant, 10:545–559. http://dx.doi.org/10.1016/j.molp.2017.01.004

[78] Kim T.W., Wang Z.Y. (**2010).** Brassinosteroid signal transduction from receptor kinases to transcription factors. Annu. Rev. Plant Biol., 61:681–704.

[79] He J.X., Gendron J.M., Yang Y., Li, J., Wang Z.Y. (**2002**). The GSK3-like kinase BIN2 phosphorylates and destabilizes BZR1, a positive regulator of the brassinosteroid signaling pathway in . Proc. Natl. Acad. Sci. USA. 99:10185–10190.

[80] Wang Z.Y., Nakano T., Gendron J., He J., Chen M., Vafeados D., Yang Y., Fujioka S., Yoshida S., Asami T., et al. (**2002**). Nuclearlocalized BZR1 mediates brassinosteroid-induced growth and feedback suppression of brassinosteroid biosynthesis, Dev. Cell., 2:505–513.

[81] Yin Y., Wang Z.Y., Mora-Garcia S., Li, J., Yoshida S., Asami T., Chory J. (**2002**). BES1 accumulates in the nucleus in response to brassinosteroids to regulate gene expression and promote stem elongation, Cell, 109:181–191.

[82] Sun Y., Fan X.Y., Cao D.M., Tang W., He K., Zhu J.Y., He J.X., Bai M.Y., Zhu S., Oh, E., et al. (**2010**). Integration of brassinosteroid signal transduction with the transcription network for plant growth regulation in . Dev. Cell. 19:765–777.

[83] Yu X., Li L., Zola J., Aluru M., Ye H., Foudree A., Guo H., Anderson S., Aluru S., Liu P., et al. (**2011).** A brassinosteroid transcriptional network revealed by genome-wide identification of BESI target genes in thaliana. Plant J., 65:634–646.

[84] He J.X., Gendron J.M., Sun Y., Gampala S.S., Gendron N., Sun C.Q., Wang Z.Y. (**2005**). BZR1 is a transcriptional repressor with dual roles in brassinosteroid homeostasis and growth responses, Science, 307:1634–1638.

[85] Yin Y., Vafeados D., Tao Y., Yoshida S., Asami T., Chory J. (**2005**). A new class of transcription factors mediates brassinosteroidregulated gene expression in , Cell, 120:249–259.

[86] Rushton J., Somssich E., Ringler P., Qingxi J.S. (**2010**). WRKY transcription factors. Trends in Plant Science, 15:247-258.

[87] Zou X., Seemann J.R., Neuman D., Shen Q.J. **(2004**). A WRKY gene from creosote bush encodes an activator of the abscisic acid signaling pathway. J. Biol. Chem., 279:55770–55779.

[88] Xie Z., Ruas P., Shen Q.J. (**2005**). Regulatory networks of the phytohormone abscisic acid, Vitam. Horm., 72:235–269.

[89] Chen T.H.H. and Gusta, L.V. (**1983**). Abscisic acid induced freezing resistance in cultured plant cells. Plant Physiol., **73:**71–75.

[90] Lang V., Mantyla E.,Welin B., Sundberg B. and Palva E.T. **(1994).** Alterations in water status, endogenous abscisic acid content, and expression ofrab18 gene during the development of freezing tolerance in thaliana. Plant Mol. Biol., 104:1341–1349.

[91] Thomashow, M.F. (**1994**). thaliana as a model for studying mechanisms of plant cold tolerance. In (Meyerowitz, E. and Somerville, C., eds). Cold Spring Harbor: Cold Spring Harbor Laboratory Press, P. 807–834. DOI: 10.1101/087969428.27.807.

[92] Wu X., Shiroto Y., Ito Y., Toriyama K. (**2009**). Enhanced heat and drought tolerance in transgenic rice seedlings overexpressing OsWRKY11 under the control of HSP101 promoter. Plant Cell Rep., 28:21–30.

[93] Qiu Y.P., Yu D.Q. (**2009**). Over-expression of the stress-induced OsWRKY45 enhances disease resistance and drought tolerance in , Environ. Exp. Bot., 65:35–47.

[94] Jiang Y., Deyholos M. (**2009**). Functional characterization of NaCl-inducible WRKY25 and WRKY33 transcription factors in abiotic stresses. Plant Mol. Biol., 69:91–105.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.5**
Volume 1, Number 323 (2019), 40 – 46

UDC 628.336.6

Botagoz M. Kaldybayeva[1], Alisher E. Khussanov[1], Arlan Zh. Abilmagzhanov[2], Stanislav Boldyryev[3]

[1]M.Auezov South Kazakhstan State University, Shymkent, Kazakhstan;
[2]Institute ofFuel, Catalysis and Electrochemistry. D.Sokolskogo, Kazakhstan;
[3]Centre for Sustainable Development of Energy, Water and Environment Systems, Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb,Zagreb, Croatia.
khusanov_1975@inbox.ru, kaldybaeva.b@mail.ru,arlandez_81@mail.ru, Stanislav.Boldyryev@fsb.hr

EXPERIMENTAL JUSTIFICATION OF THE ABSORBER SELECTION FOR THE PROCESS OF SIMULTANEOUS CHEMISORPTION OF HYDROGEN SULPHIDE AND CARBON DIOXIDE

Abstract. In this article, the objects of research are combined membrane-absorption processes with a chemical reaction and chemisorption plants for the purification of multicomponent gas mixtures. The subject of the research were the processes of removal of H2S and CO2 from multicomponent gases.

The results of studying the features of simultaneous absorption of H2S and CO2 by an aqueous solution of NaOH are carried out. With the subsequent analysis and selection of the main parameters of the extraction process of H2S.

With the simultaneous absorption of H2S and CO2, it is established that the chemical capacity of the absorption solution decreases with respect to H2S. The rate and concentration constants for the absorption of H2S and CO2

Key words: chemisorption, chemisorb, absorber, multicomponent gas, mass transfer, microburnage process, alkali, liquid, gas.

Introduction

Existing processes of the removal of H_2S from multicomponent gases for a variety of process, technic-economic indicators cannot be recommended for the purification of a relatively small amount of gas in the composition of the gases being cleaned. The task of removing H_2S from the composition of multicomponent gases is often complicated due to the CO_2 in the composition. In this case, one of the most appropriate methods is removing H_2S with a chemical absorber due to the reaction in the liquid phase.

For the absorption of H_2S in industry traditionally aqueous solutions of carbonates (Na_2CO_3, K_2CO_3), ethanol amines, ammonia, oxysulfo-arsenic sodium (or ammonium), etc. are used [1-3]. The carbonate method is used to purify gases containing carbon dioxide, which is necessary to ensure the reversibility of the process during the regeneration of the absorbent. This process has a limitation on the partial pressure of CO_2 in the source gas, which determines the residual content of H_2S in the purified gas [4].

Methods

The most active absorber of the acidic components of gases is an aqueous solution of alkali. NaOH in an aqueous solution irreversibly interacts with hydrogen sulfide by known reactions:

$$H_2S + NaOH \rightarrow NaHS + H_2O \quad (1)$$

$$H_2S + 2NaOH \rightarrow Na_2S + 2H_2O \quad (2)$$

The presence of CO2 in the gas composition, it is absorbed by the alkaline solution by the reactions:

$$CO_2 + NaOH \rightarrow NaHCO_3 \quad (3)$$

$$CO_2 + 2NaOH \rightarrow Na_2CO_3 + H_2O \quad (4)$$

Absorption of H_2S and CO_2 from gas with NaOH solution is related to chemisorption. The study of absorption, followed by a chemical reaction in the liquid phase, has been the goal of numerous studies. The most important of them are the works of Chisinau [5, 6] and Dankverts [7, 8]. In this paper, an attempt was made to combine the description of the processes of adsorption and absorption from a single point of view [9]. The difficulty of studying the processes of gas absorption by solutions of absorbents is related to the fact of a chemical reaction in the absorption process has a significant effect on both the equilibrium between the phases and the kinetics of absorption. In this case, the absorption rate is determined not only by the rate of mass transfer, but also by the kinetic laws of the reaction. This study aimed studying the joint absorption of H_2S and CO_2 by aqueous-alkaline solutions are relevant.

When a reaction occurs between the dissolved gaseous component and the absorber in the liquid phase, part of the component goes into a bound state and the concentration of the free component in the liquid decreases. Such decrease leads to an increase of the concentration gradient and an acceleration of the absorption in the phase. This acceleration is greater, the higher the rate of chemical reaction [6]. The mass transfer equation for the absorption of H_2S and CO_2 by the solution of NaOH can be written as:

$$W_A = K_p F\left[p - m_{pc}(C - \delta)\right], \quad (5)$$

where W_A – the amount of the absorbed substance, kmol/s; K_p – the mass transfer coefficient; F – phase contact surface, m^2; p - partial pressure, Pa; C – concentration of unbound component, kmol/m^3; δ – coefficient for increasing the driving force in the liquid phase of equilibrium, m^3Pa/kmol.

Results

The chemisorption analysis is carried out by considering the diffusion equations for the absorbed component A (H_2S and CO_2) and the active part of the absorber B (NaOH) together with the kinetic equation of reaction (6):

$$\frac{L}{G} = \frac{n_{H_2S}\left(C_{H_2S_0} - C_{H_2S_1}\right) + n_{CO_2}\left(C_{CO_{2_0}} - C_{CO_{2_2}}\right)}{C_{OH_1} - C_{OH_0}} \quad (6)$$

The study of the kinetics of the absorption of CO_2 and H_2S with a NaOH solution was considered in detail in [10–15]. However, the results of individual studies differ widely among themselves and many of them can only be used to qualitatively characterize the process.

The main objective of this study is an identification of the features of simultaneous absorption of H_2S and CO_2 with NaOH solution, followed by analysis of the data studied and selection of the main parameters of the process for deep extraction of H_2S.

The experiments were carried out on an experimental unit in which model gas mixtures were passed through a chemisorber with measurement of the volume of the leaked gas and simultaneous determination of the composition of the absorption solution in the ceramic sorbent with a ceramic membrane according to MVI "Methodology for measuring the concentrations of sulfide and mercaptide sulfur in alkaline solutions" (Certificate - metrological center No. 1106-02 dated 12.25.01.) and chromatographic analysis of the gas phase [16, 17] at the exit from the unit. The balance of the products of the absorption of H_2S and CO_2, analytically established in the study of the alkaline solution at the end of each experimental cycle, correlated with the amount and composition of the gas passed through the chemisorber. All model mixtures were prepared in an accredited laboratory "Testing Regional Laboratory of Engineering Profile" Constructional and Biochemical Materials "(IRLIP" KBM ") at SKSU them. M. Auezov.

The experiments of the absorption study of aqueous alkaline solutions of H2S from the gas phase were carried out with use of model mixtures of different composition. 10% of the mass was used as the absorption solution. An aqueous solution of NaOH, for the preparation of which sodium hydroxide was used according to GOST 4328 of the “analytically clean” and distilled water. The content of NaOH in the

absorption solution was determined by the method of volumetric titration with 1 N hydrochloric acid solution using thymolphthalein and methyl orange.

The main parameters of the unit: absorption mode – bubbling; gas flow rate of 90-120 l/h; temperature 25 °C; pressure 0.1 MPa. A 10% aqueous solution of NaOH was loaded into a chemisorber equipped with a Schott filter to ensure a uniform gas supply. At the outlet of the chemisorber, a Drexel flask was filled with an indicator 10% aqueous solution of cadmium chloride to capture H_2S "leakage", after which a model gas mixture (N_2 + H_2S + CO_2) was fed from a cylinder through a reducer and a rotameter. The gas flow rate corresponding to the bubbling mode without the entrainment of liquid was set using the fine adjustment valve and controlled according to the readings of the rotameter. The amount of gas passed was determined by a gas flowmeter. Periodic analysis of the absorption solution was carried out on the content of sodium sulphides and caustic soda, and the gas mixture on the content of H_2S and CO_2 after chemisorption.

To control the content of H_2S and CO_2 in the gas after chemisorption, a chromatographic analysis method with a mass spectrometric detector (MSD) was used on a ShimadzuGSMS-2010 chromatograph.

At the initial stage of the study, experiments were carried out on the chemisorption of H_2S from a model mixture of gases of composition No. 1 (% mass.): N_2-97.15; H_2S - 2.85 and gas consumption 120 l/h.

It has been established that the reaction of absorption of H_2S by an alkaline solution proceeds intensively up to the complete consumption of the active alkali. The sharp decrease in the degree of absorption, characterized by a break in the curve and an increase in the concentration of H_2S in the gas at the outlet of the chemisorber, is associated with a decrease in the driving force of the process in the liquid phase. One of the factors affecting the decrease in the chemisorption capacity of the absorption solution can be a change in its viscosity, which, in turn, leads to an additional diffusion resistance to the transfer of the absorbed component to the active component (NaOH) of the absorber [18].

When studying the absorption of H_2S from the gas mixture of composition No. 2 (wt.%): N_2 - 94.05; H_2S - 3.05; CO_2 - 2.9 (Figures 2, 3) it was found that in parallel with reactions (1, 2) slower reactions of (3, 4) NaOH solution with CO_2 take place.

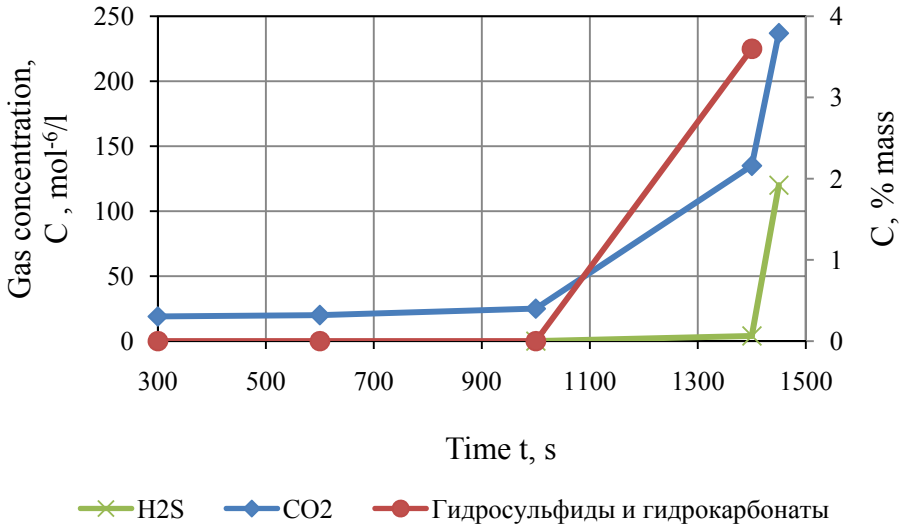


Fig. 1 - Changes in the concentrations of H_2S (1) and CO_2 (2) in the model gas mixture No. 2 and the sum of hydrosulfides and hydrocarbonates (3) in the absorption solution in time

The most important result of the experiments was the establishment of a joint effect of two acid gas impurities on the results of liquid-phase chemisorption absorption, as well as the possibility of absorption of H_2S in the absence of free alkali in solution. With simultaneous absorption of H_2S and CO_2, the chemical capacity of the absorption solution in relation to hydrogen sulfide decreases, which is associated with the occurrence of reactions (3, 4).

Assuming the absorption of H_2S in the initial period occurs by an instantaneous reaction of zero order and then the rate of concentration increase in the purified gas (the reciprocal of the component's chemisorption constant) is calculated by the formula [19]:

$$k_{H_2S} = \frac{1}{t}(C^0_{H_2S} - C_{H_2S}), \quad (7)$$

and the concentration of H_2S of the purified gas is determined by the following equation [18]:

$$C_{H_2S} = C^0_{H_2S} - k_{H_2S} \cdot t \quad (8)$$

The calculation of the rate constant and concentration at the absorption of CO2 is done similarly. Analyzing the change of H_2S and CO_2 concentrations in the purified gas over time (Fig. 1), we can distinguish three characteristic areas, which are reflected in the change of the composition of the absorption solution.

At region I, there is a complete absorption of H_2S, more selective with respect to CO_2 chemisorption, with a decrease in the concentration of active alkali and an increase in sulfide sulfur and sodium carbonate in solution. Hydrosols in the absorption solution in this area were not found. Section II is characterized by a slight decrease in the degree of absorption of hydrogen sulfide, while the CO_2 content increases more significantly, at the same time acid salts — NaHS and $NaHCO_3$ — are found in the absorption solution. It is characteristic that at the end of section II there is no active alkali in the solution, while the absorption of H_2S continues and the "leakage", that is, a sharp rise in the concentration of H_2S in the purified gas does not occur. This fact is explained by the chemical binding of H_2S with sodium carbonate, formed by reaction (4) in the time interval of the corresponding section I. Based on theoretical assumptions, its interaction with H_2S occurs as follows:

$$H_2S + Na_2CO_3 \rightarrow NaHS + NaHCO_3 \quad (9)$$

Further, increase in the content of hydrosols in the solution in section III, there is a significant inhibition of the absorption of acidic components, and the concentration of H_2S and CO_2 at the exit of the hemisorber increases sharply at almost the same rate, there is a leakage of H_2S.

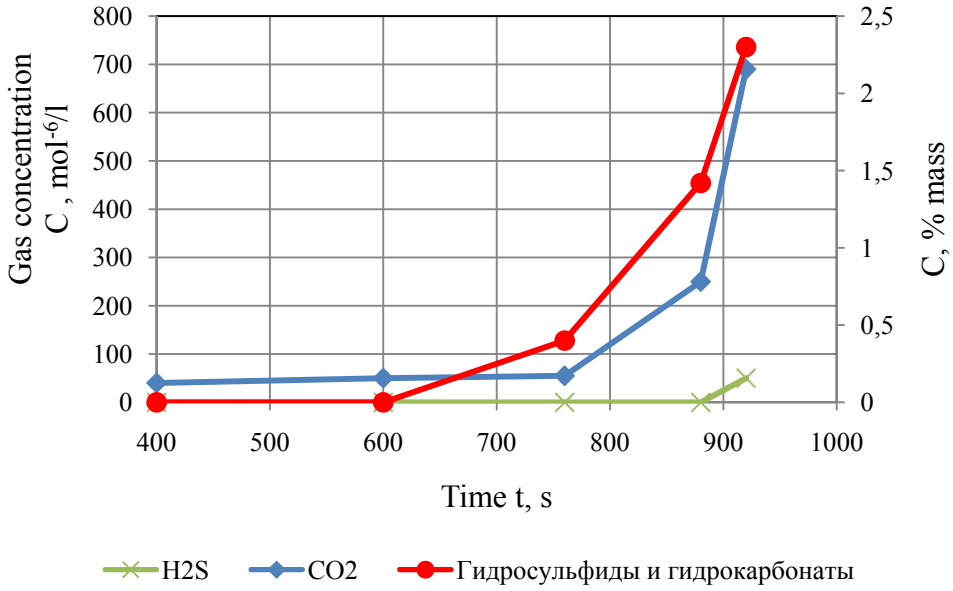


Fig. 2 - Concentration change of H_2S and CO_2 of the model gas mixture No. 3 and the sum of hydrosulfides and hydrocarbonates in the absorption solution with time

At the last stage of the current study (an experiment 3), the kinetics of the absorption of CO_2 and H_2S was studied on a model mixture with a modified ratio of the absorbed components of composition No. 3 (wt. %): N_2 - 91.25; H_2S - 2.8; CO_2 - 5.95. From the data in Fig. 2 it can be seen that with an increase of the CO_2 content from 2.9 to 5.95%, the chemical capacity of a 10% NaOH solution, relative to H_2S, is proportionally reduced. At the same time, all the above designated areas that characterize the change in the

patterns of absorption of H_2S and CO_2 are preserved. As follows from the calculations of k_{H_2S} and k_{CO_2}, which characterize the appearance of acid gases at the outlet of the absorber, the rate of hydrogen sulfide ratio with an aqueous solution of NaOH is substantially higher than the absorption rate.

An increase of the concentration of CO_2 in the source gas does not have a significant effect on the rate of absorption of H_2S, but at the same time the rate of ingestion of CO_2 increases due to an increase in the concentration of CO_2 at the interface. This is determined by the determining factor for the transfer of CO_2 to the active component of the absorber. The chemical capacity of the absorption solution, as in previous experiments, is maintained up to the complete production of the active component NaOH.

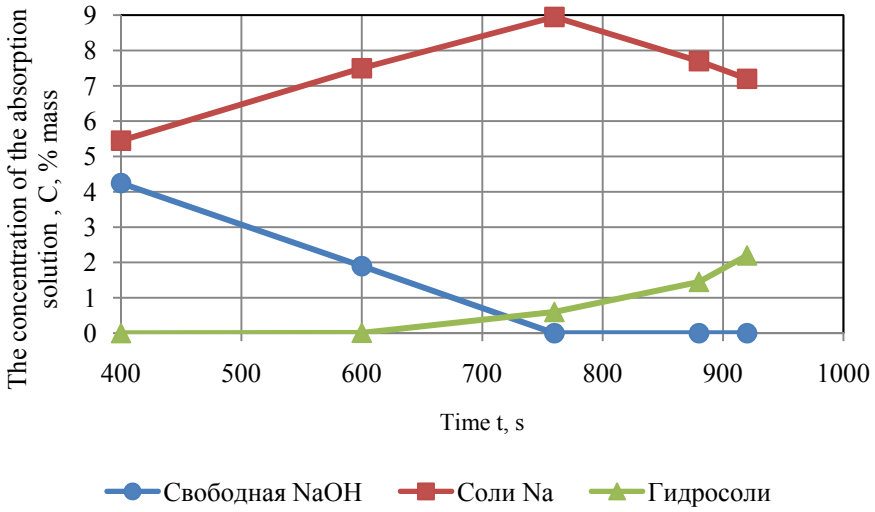


Fig. 3 - Change in the composition of the absorption solution with time (mixture No. 3)

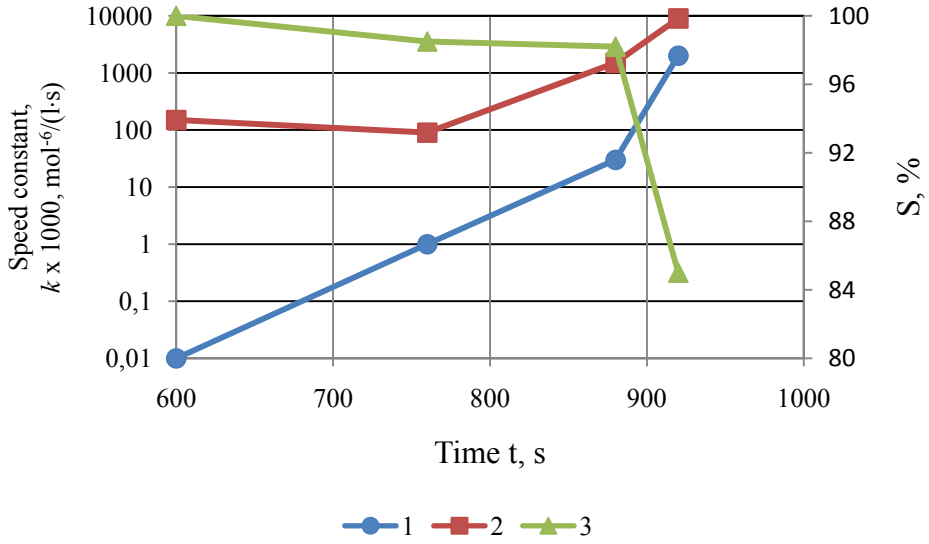


Fig. 4 - The rate constants for the appearance of H_2S and CO_2
at the outlet of the absorption solution (experiment 3); 1 –k_{H_2S}, 2 - k_{CO_2}, 3 - S

When considering the patterns of joint absorption of H_2S and CO_2 with a water-alkaline solution, an attempt was made to interpret the results obtained from the point of view of the selectivity of the chemisorption process.

The physical meaning of the selectivity process of chemisorption S is a ratio of changes in the concentrations of unbound components over time during inhibition of the absorption reactions due to changes in the composition of the water-alkaline phase, which can be described as follows:

$$S = \left(1 - \frac{k_{H_2S}}{k_{CO_2}}\right) \cdot 100\% \quad (10)$$

Selectivity is based on a significant difference in the rate of interaction of CO_2 and H_2S with an alkaline solution.

InFig. 4 (experiment 3) shown that the selectivity of H_2S decreases by the absorption, but at different rates in the different sections as described earlier.

Table 1- Constants of the velocity concentration of acid gases at the outlet of the absorber and their relationship.

Time, s	Experiment 2			Time, s	Experiment 3		
	k_{H_2S}	k_{CO_2}	k_{H_2S}/k_{CO_2}		k_{H_2S}	k_{CO_2}	k_{H_2S}/k_{CO_2}
	mol^{-6}/(ls)				mol^{-6}/(l s)		
600				400			
1000	$3{,}53 \cdot 10^{-6}$	0,0168	$2{,}1 \cdot 10^{-4}$	600	$1{,}009 \cdot 10^{-5}$	0,111	$9{,}067 \cdot 10^{-5}$
1400	$8{,}41 \cdot 10^{-3}$	0,277	0,0304	760	$1{,}099 \cdot 10^{-3}$	0,0815	0,0135
1440	2,873	2,404	1,194	880	0,0283	1,415	0,0198
				920	1,576	10,63	0,148

In experiment 3, the concentration of CO_2 in the model mixture is approximately two times higher than the concentration of hydrogen sulfide. At the initial stage of absorption (section I), a decrease in the amount of NaOH and an accumulation of sodium salts occurs (Fig. 2, 3). The concentration gradient and the selectivity of H_2S absorption are maximal. Region II is characterized by the formation of acid salts, their proportion approaches the maximum value (Fig. 3), while the selectivity of chemisorption decreases only slightly, which is associated with the secondary reaction of H_2S with the absorption product of CO2, which is a sodium carbonate.

Region III reflects a sharp increase of the hydrosulfide and bicarbonate formation due to the consumption of sodium carbonate by the reaction (9). During this period, the selectivity of H_2S absorption decreases sharply, and the concentration of H_2S in the gas to be purified reaches the “slip” value.

Discussion

The experiments showed the complex staged nature of the joint absorption of CO_2 and H_2S from model gas mixtures with a water-alkaline solution and made it possible to determine the boundary conditions of the chemisorption process and selectivity with respect to the key component, which is H_2S.

As a result of the chemical absorption of CO_2 and H_2S by an aqueous-alkaline solution, a solution containing sodium sulfides and carbonates is formed. In order to partially regenerate alkali and neutralize toxic sulfide and sodium hydrosulfide, this solution can be catalytic liquid-phase oxidized with atmospheric oxygen according to the next reactions [15]:

$$pH > 11: 4Na_3S + 7O_2 \overset{Kt}{\rightarrow} 2Na_2SO_3 + 2Na_2SO_4 \quad (11)$$

$$pH \quad 7{,}3 - 8{,}0: 2NaHS + 2O_2 \overset{Kt}{\rightarrow} Na_2S_2O_3 + H_2O \quad (12)$$

$$2NaHS + 2O_2 \overset{Kt}{\rightarrow} 2S^0 + 2NaOH \quad (13)$$

Conclusion

In the result of this study of the kinetics of absorption of CO_2 and H_2S with a 10% aqueous solution of NaOH, it was found that the absorption solution has a high chemical capacity and selectivity for H_2S, which persists until complete binding of the active component NaOH with H_2S, allows you to use this method for the purification of multicomponent gases, which, in addition to H_2S, includes CO_2.

Б.М.Калдыбаева[1], А.Е.Хусанов[1], А.З. Абильмагжанов[2], С.А.Болдырев[3]

[1]М.Әуезов атындағыОңтүстікҚазақстанмемлекеттікуниверситеті, .Шымкент қ., Қазақстан;
[2]Д.Сокольский атындағы отын, катализ және электрохимия институты, Алматы қ., Қазақстан;
[3]Машина жасау және теңіз архитектурасы факультетінің Энергетика, су және қоршаған орта жүйелерінің орнықты дамуы орталығы, Загребский университеті, Хорватия

КҮКІРТ СУТЕГІ МЕН КӨМІРҚЫШҚЫЛ ГАЗЫН БІРМЕЗГІЛДЕ ХЕМОСОРБЦИЯЛАУ ПРОЦЕСІ ҮШІН СІҢІРГІШТІ ТАҢДАУДАҒЫ ТӘЖІРИБЕЛІК НЕГІЗДЕМЕ

Аннотация: Бұл мақалада зерттеу объектілері болып химиялық реакциясымен үлестірілген мембрандық абсорбциялық процестер мен копкомпанентті газ қоспаларын тазалауға арналған хемосорбциялық жабдықтар табылады. Зерттеу тақырыбы көпкомпанентті газдардан H_2SмененCO_2 айыру процесі болды.

NaOH су ерітіндісімен H_2S және CO_2 бірмезгілде сіңіру ерекшеліктерін зерттеудің нәтижелері келтірілді. H_2S бөліп алу процесінің негізгі параметрлерін сараптау мен наңдауға негіздемелер келтірілді. Бір мезгілде H_2S және CO_2 сіңірулуімен бірге сіңіру ерітіндісімен химиялық сыйымдылық H_2S қатынасты төмендейді. H_2S және CO_2 сіңірудегі жылдамдық константасы мен концентрация анықталды.

Түйін сөздер: хемосорбция, хемосорбер, сіңіргіш, көпкомпонентті газ, массаалмасу, микробарботаждық процесс, сілтілік, сұйық, газ.

Б.М.Калдыбаева[1], А.Е.Хусанов[1], А.З. Абильмагжанов[2], С.А.Болдырев[3]

[1]Южно-Казахстанский государственный университет им. М.Ауезова,г.Шымкент, Казахстан;
[2]Институт топлива, катализа и электрохимии им. Д.Сокольского, Казахстан;
[3]Центр устойчивого развития систем энергетики, водных ресурсов и окружающей среды, факультет машиностроения и морской архитектуры, Загребский университет, Хорватия

ЭКСПЕРИМЕНТАЛЬНОЕ ОБОСНОВАНИЕ ПОДБОРА ПОГЛОТИТЕЛЯ ДЛЯ ПРОЦЕССА ОДНОВРЕМЕННОЙ ХЕМОСОРБЦИИ СЕРОВОДОРОДА И УГЛЕКИСЛОГО ГАЗА

Аннотация: В этой статье объектами исследования являются совмещенные мембранно-абсорбционные процессы с химической реакцией и хемосорбционные установки для очистки многокомпонентных газовых смесей. Предметом исследований явились процессы удаления из многокомпанентных газов H_2S и CO_2.

Проведены результаты исследования особенностей одновременного поглощения H_2S и CO_2 водным раствором NaOH. С последующим анализом и подборам основных параметров процесса извлечения H_2S.

При одновременной абсорбции H_2S и CO_2установлено, что химическая емкость поглотительного раствора по отношению к H_2S снижается. Рассчитаны константы скорости и концентрации при поглощении H_2S и CO_2

Ключевые слова: хемосорбция, хемосорбер, поглотитель, многокомпонентный газ, массообмен, микро-барботажный процесс, щелочь, жидкость, газ.

REFERENCES

[1] Cole A., Fred S., Riesenfeld L. Gas purification. M.: GNTILiGTL, **1968**. 398 p. (in Russ).

[2] Kempbell DM Cleaning and processing of natural gases. M .: Nedra, **1977**. 349p.. (inRuss).

[3] BasaryginYu.M., Budnikov VF, Zakharov AA, YasyanYu.P., Zhirnova AP, Karepov AA, MyasitsinYu.G. // Oil refining and petrochemistry. **2004**. №12. P.48-49.(inRuss).

[4] Technology of processing natural gas and gas condensate: a reference book in 2 hours. -M: LLC "Nedra-Business Center", **2002**. Part 1. 517 p.(in Russ).

[5] Kishinevsky M.H. // ZhPKh. **1955**. V. 28, No. 9. 927p.(inRuss).

[6] Kishinevsky M.H. // ZhPKh. **1955**. V. 30, No. 2. 182 p. (in Russ).

[7] DanckwertsP.V., ShamM. M. // Chem.Eng. 1966. Vd. 44. P. 244-280. (inEng).

[8] DanckwertsP.V. Gas-liquidreactions. NewYork:McGraw-HillBookCo, **1970**. 276 p(in Eng).

[9] Zuev AV, Tvardovsky AV // Izv. universities. Chem and chemical.technology. **2009**. V. 52, vol. 11. P. 52-55. (in Russ).

[10] Van Krevelen D.W., Hoftijzer P.J. Kinetics of gas-liquids reactions. Part I. General theory // Rec. Trav. Chim. **1948**.Vol. 67. P. 563–565. (inEng).

[11] Van Krevelen D.W. Chem. Eng. Progr. **1948**. Vd. 44, №7. 529p. (inEng).

[12] Hitchcook L.B. //Ing. Eng. Chem. **1934**. Vd.26, №11. 1158p. (inEng).

[13] Pozin M.E. // ZhFH. **1947**. V. 20, No. 4. C. 345-353(in Eng).

[14 Roper G.H., Hatch T.E., Pigford R.L. // Ing. Eng. Chem. Fundament. **1962**. № 1/2. 144p.(inEng).

[15] Faddeenkova GA, Kundo N.N. // ZhPKh. **2003**. V.6, No. 12. S. 1995-1999. (in Russ).

[16] GOST 23781-87 Gases combustible natural. Chromotographic method for determining the component composition.(in Russ).

[17] GOST 14920-79 The gas is dry. Method for determining the component composition.(in Russ).

[18] Kaldybaeva B.M., Dmitriev E.A., Khussanov A.E., Sabyrkhanov D., Abilmagzhanov A.Z. Interphase transfer modeling with simultaneous chemisorption of hydrogen sulfide and carbon dioxide in a chemisorption apparatus // News of the National Academy of Sciences of the Republic of Kazakhstan. Series of Geology and Technical Sciences. Almaty, **2016**. №6. Pp. 219-225.(in Russ). https://doi.org/10.32014/2018.2518-170X. (in Russ).

[19] KopylovA.Yu., Nasretdinov RG, Vildanov AF, MazgarovA.Moslovtnoe uptake of hydrogen sulphide and carbon dioxide with a water-alkaline solution // Chemistry and chemical technology. **2010**. V. 53. P.92-96.(in Russ).

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.6**
Volume 1, Number 323 (2019), 47 – 51

JEL349.3

Z.K.Ayupova[1], D.U. Kussainov[2], Winston Nagan[3]

[1]Kazakh national agrarian university, Almaty, Kazakhstan;
[2]Kazakh national pedagogical university named after Abai, Almaty, Kazakhstan;
[3] University of Michigan,USA
zaure567@yandex.ru; daur958@mail.ru

ON THE STATE MECHANISMS OF ENSURING SOCIAL POLICY IN THE REPUBLIC OF KAZAKHSTAN

Abstract. Thestate independence of the Republic of Kazakhstan means the problem of "building of strong law-abiding state with the socially oriented market economy". The questions of social politics especially actual in the connection with the development of sovereign Kazakhstan, requiring the necessity of realization of new social politics in the conditions of political modernisation of the society. In all spheres of activity the value of the social politics increases from year to year. The state assumes social functions not simply from some good intentions, butthe result of public requirement in the extended social reproduction of population, changes of role of man in economy, production and realization of dependence of public progress. In these terms essence and maintenance of social politics change, the spheres of its action quite broad. The decision of social problems depends not only on the presence of sufficient financial resources, but also exactness of select strategy of realization of public policy. In this connection again the searches of new approaches are strict in the realization of effective social politics in the conditions of globalization of national economy.

Keywords:legislation, modernization, reforms, integration, innovations, civil society, market relations, social system, intellectual resources, international standards.

Social policy is regarded as the activity of the government and other political and social institutions aimed at progressive development of social sphere, increasing quality of life, raising living standards and providing social welfare. The priority goal of any social policy is comprehensive satisfaction of vital needs of all people. It is also directed to the social aid for the handicaps and other socially disadvantaged people as well as providing medical and educational services. Social policy implemented in Kazakhstan is based on a number of principles of a social welfare state: individual economic freedom, regulating capacities of the market economy through the mechanisms of competition, demand and supply, social justice and spirit of community, social inclusion. The universal human values are the crucial in contemporary development of the mankind. The government shall give the priority to the issues of social protection and enhance popular well-being.

The study of the social sphere as a complex of infrastructure branches, providing a favorable human activity, all-round development of the individual, the extended form of human and labor resources of society, determined by the importance of the subsystem for a modern economy and the need to rethink the changes that it has undergone. Therefore, at the present stage of the transformation of the economy of Kazakhstan, one of the most relevant problems is the condition and development of the social infrastructure, the development of which has been problematic because of the limited and, in some cases, an acute shortage of sources of development. It's a really urgent problem especially because the experience of developed countries shows that the progress of those states depends on the ability of their economies to adjust to the changes, which depend on the state and non-material forms of wealth, as well as areas that provide human development.

An efficient social policy is aimed at implementation of practical measures to satisfy social needs of individuals and social groups. The 2020 Employment Program has been adopted this year. Improvement in the system of targeted aid and inclusion of the unemployed and the poor into economic is one of the priorities of the Program. The Program stipulated professional training and subsequent employment and social assistance; encouraging private entrepreneurship via establishing and expansion of individual private businesses; controlled migration from the depressing regions to the centers of the most rapid economic growth.

Social infrastructure is characterized by features of settlement, production and labor, the economic mechanism, its formation and operation, and other properties as a social and territorial subsystem of society.Social infrastructure by the type of settlements is divided into urban and rural infrastructure. The distinctive features of the rural social infrastructure are the following ones: the structure of objects; links of objects providing daily and periodic demand services (mixed trading shops, cafeterias, kindergartens, public schools, clubs and places of consumer services). The urban infrastructure is characterized by the presence of urban enterprises and institutions episodic demand, cultural and medical centers, transport companies, universities, banking, insurance, legal, notarial institutions, etc.

Social infrastructure is characterized by an insufficient availability of rural population with basic non-productive assets and servicing enterprises (institutions), the worst quality composition of material, technical and human resources, high proportion of facilities located in the old and dilapidated buildings, the low level of technical equipment, the level of general education and professional training of the social sphere, which affects the quality of public services, including services on a fee basis. Also, social infrastructure in rural areas demands more time to obtain services in comparison with the urban one.

Sustainable development of the social infrastructure depends on the study of the economic laws of social development, social processes and the specific conditions of living of the population. The main role in the use of these laws belongs to a coherent system of principles, methods, forms and means of social infrastructure as the specific tools of scientific and practical knowledge and action. The social infrastructure from a scientific point of view can be seen in two ways: a) the theoretical and methodological, fundamental way, which studies the methodology, considers the laws, principles and categorical apparatus, and b) social and practical, managerial application of theoretical and empirical knowledge to the solution of practical social problems.

Improvement of the efficiency of the social infrastructure development in rural areas requires a reform of their organizational, administrative and economic mechanisms, since the old system was designed for public funding and provision of control over the allocation of public fund. Strict and detailed centralization of various aspects of economic activity of the organizations of social infrastructure, shortage of many raw materials, equipment and components, dictate of the supplier under the consumer, lack of real possibilities of modernization and development of own production do not ensure the independence of the organizations to use marketing tools.

Social protection system is a key element of national governance. They embody the social values of any society. The social protection system has three main objectives: to guarantee all members of society access to basic goods and services, to promote active social and economic security, and to develop individual and social potential for poverty reduction and sustainable development of society.

The characteristics of the social infrastructure are the territorial differences in the level of social investment, particularly natural and mechanical movement of the population, placing the potential of social infrastructure, inadequate resettlement, dispersed of objects, poor road communications, rise of the construction and operating costs, capital intensity and the costs of infrastructure operation according to the number of the population, and greater employment in the service sector compared with areas of compact residence (at the same level of service). The transition to a market economy has led to a fundamental change in social policy of the country, the commercialization of the agrarian sector, exacerbated conflicts and reduced the quality and standard of living. Market of social goods and services got uncivilized nature, leading to social inequality of the most vulnerable social groups. Therefore, the reform of the social infrastructure requires a comprehensive approach, providing for the development of multiculturalism not only in production, but also in the social sphere.

Social protection is an investment in the social and economic development of societies and individuals. As such, it not only helps people cope with risks and reduces inequalities, but also allows

them to develop the full potential for personal growth and meaningful contribution to their societies throughout their lives. Strengthening social protection system is supported by the joint efforts of United Nations agencies at various levels and through joint efforts with relevant international, regional, subregional and national institutions and social partners.

The equality purpose is related to the satisfaction purpose because the meeting of needs and alleviation of suffering is emphasized, however, the priority is that needs are met and suffering alleviated equally between the disputants, rather than to their individual satisfaction. The equality purpose encourages reference to some external standard of fairness in process or outcome to ensure that equality is promoted and inequality is addressed. The imposition of such external standards can encourage more of a rights-based than an interest-based focus. This potential is likely to be magnified in the court-connected context, where the determination of rights by a court forms a powerful background to the process. Legal standards apply equally to all disputants.

Kazakhstan adopted the Social Protection Floors Recommendation, 2012 (No. 202) at the 101-st session of the International Labor Conference in Geneva (Switzerland). The Government of the country is taking measures to strengthen the social protection system, and significant progress has been made in the implementation of social policy. For example, the pension system reform has been carried out, the three-tier system of social security of persons with disabilities successfully functions, and comprehensive measures for the medical, social and professional rehabilitation of people in difficult life situations have been developed at the state level.

The transformation purpose has both an individualist and collectivist focus. Attention is placed on a particular relationship for the ultimate purpose of promoting peace in the broader community.

Transformation is focused on the relationship between the disputants rather than focusing on either their interests or their rights. Two fundamental concepts of the transformation purpose are “empowerment” and “recognition”. Empowerment is the development within individuals of a sense of their own value, strength and capacity to make decisions and to handle their own problems. Recognition is the acknowledgement; understanding or empathy for the situation and views of the other disputant [1].

Decentralized system of social protection for poor families has been in place in Kazakhstan since 2000. In 2002, Kazakhstan launched the targeted social assistance scheme, which entitled all families to receive a living wage that could be established by each region. The importance of providing the targeted social assistance to support vulnerable groups of people is emphasized in the adopted strategic documents “Kazakhstan- 2030” and “Kazakhstan- 2050”.

During examined the problems and peculiarities of social infrastructure, further development of social infrastructure needs to take the following measures: inclusion of social sphere into market relations in order to achieve socioeconomic balance between urban and rural areas; priority of state support for social services[2].

The revealed problems and trends point at the poor functioning of social infrastructure and demonstrate the need for immediate action, having an integrated program approach and aimed at intensifying the development of a network of social infrastructure, improve the quality and standard of living, poverty reduction, targeted use of labor resources, the creation and preservation of jobs, incentives for social workers.Commercial social structures face the lack of adequate legal framework, organizational difficulties, the lack of measures of small businesses support, the imperfection of the tax system, instability and uncertainty, the lack of interest of private capital in the production of social services, because often benefits from their creation can be received by third parties without incurring any costs of production.

During the years of independence, a multitier social security system has been created in the country, corresponding to the market principles of the economy. At the moment, Kazakhstan has a multicomponent pension system, where the responsibility for pension provision is divided among the state, the employer and the employee, through which citizens receive a pension: basic, solidarity and funded[3].

Basic level of social protection, the employed population is covered by the compulsory social insurance. In case of disability risks and on the occasion of loss of the breadwinner, the State Social Insurance Fund of the Republic of Kazakhstan pays social benefits, the amount of which depends on the amount of wages received by the social risk worker and on the duration of participation in the compulsory social insurance system[4].

For convenience, we may cross-culturally maintain that such outcomes may be accurately described as affection units in the sense that whatever the precise form these units are specialized however skilled they are to the giving and receiving of positive sentiment and affection. The affection process therefore is a process in which claiming, deciding about the nature and quality of human intimacy uses the methods of communication, of appropriate signs and symbols, of affect, positive sentiment, love including romantic love[5, P.260]. In addition to the communication of the appropriate signs and symbols of affection, the behavior of the parties is sustained by expectations of collaboration so that practical conduct and behaviors enhance the reciprocal flow of positive sentiment. Thus, the affection process is a pattern both of communication and of collaboration transmitting and exchanging the symbols and ideals of love, loyalty, positive sentiment, patriotism and ultimately the love of man and God as well as the actual operational behaviors, which sustain the ideals[6, P.17].

An example for the social protection system funding is that such resources should be available on a sustainable basis. Discussion of the problems of social protection funding is sometimes formed in terms of increasing the “fiscal space”. “Fiscal space” is room in a government's budget that allows it to provide resources for a desired purpose without jeopardizing the sustainability of its financial position or the stability of the economy”[7, P.48].

Above we indicated that positive sentiment or affection is one of the outcomes of social organization and we call this an affection process. There is another side to this. We also spoke of social processes reproducing negative sentiment. In short, society frequently generates complex processes, which reproduce personality types suited to claiming and demanding the values of a negative utopia. Thus, history demonstrates the ubiquity of social institutions, which symbolize human indignity on a colossal scale[8, P.13]. Social consequences of many large infrastructure projects or the rescue of banking systems are generally limited but require significant public resources. Budget items with high running costs but small social consequences should also be revised. For example, reduce military spending to fund the necessary social investment.

In the conclusion, we emphasize that thenational potential for funding social protection and other goals of sustainable development in the Republic of Kazakhstan. All options, including potential risks and compromises associated with each opportunity, should be carefully explored and considered in the framework of social dialogue to promote the socioeconomic development of the country with jobs and social protection of the population of the Republic of Kazakhstan.

УДК349.3

З.К. Аюпова, Д.Ө. Құсайынов, Наган Уинстон

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ ӘЛЕУМЕТТІК САЯСАТТЫ ЖҮЗЕГЕ АСЫРУДЫ МЕМЛЕКЕТТІК МЕХАНИЗМДЕРІ

Аннотация. Мемлекеттік тәуелсіздік алу мен қатар біздің отанымыз Қазақстан Республикасы өзінің алдына әлеуметтік бағытталғаннарықтық экономика құрып мықты егемен мемлекет жасауды мақсат етіп қойды. Егемендікті дамыту барысында әлеуметтік саясат өте өзекті сипатқа ие болып мүлдем басқа сипаттағы қоғамды саяси модернизациялау талаптарын алға тартты. Мемлекеттік өмірдің әр саласында жыл сайын әлеуметтік саясаттың маңызы артты. Мемлекет өзіне жаңа әлеуметтік талаптар алып, қоғам сұраныстарына жауап беретін іс-әрекеттер жасауға кірісті. Экономикадағы адамның орыны өзгерді, адам ресурстарының маңызы артып, қоғамдық прогресстегі ұлт потенциалының мүмкіндіктері өзгерді. Экономиканың өсу жағдайында, оны тұрақтандыру барысында әлеуметтік мәселелердің ушығуы төмендеді,осы мүмкіндіктер мемлекетке ұзақ мерзімді даму жоспарларын қабылдау мүмкіндігін туғызды. Осы жағдайларда әлеуметтік саясаттың мәні мен маңызы өзгерді, оның ауқымы кеңейді. Әлеуметтік мәселелерді шешу тек қана қаржы байлығына тәуелді емес сонымен қатар, мемлекеттің осы бағыттағы стратегиялық саясаты болуы да қажет етті. Сондықтан да жоғарыда айтылған алғы шарттар тиімді әлеуметтік саясат жүргізуді іске асыру үшін жаһандану үрдістерінде еске алуды талап етеді.

Түйін сөздері: заңнамалар, модернизациялау, реформалар, интеграция, инновациялар, азаматтық қоғам, нарықтық қатынастар, әлеуметтік жүйе, интеллектуалды ресурстар, халықаралық стандарттар.

УДК349.3

З.К.Аюпова[1], Д.У. Кусаинов[2], Уинстон Наган[3]

[1]КазНАУ, кафедра права, г. Алматы, Республика Казахстан;
[2]КазНПУим.Абая, общеуниверситетская кафедра политологии
и социально-философских дисциплин, г. Алматы, Республика Казахстан;
[3]Университет Мичиган, США

О ГОСУДАРСТВЕННЫХ МЕХАНИЗМАХ ОБЕСПЕЧЕНИЯ СОЦИАЛЬНОЙ ПОЛИТИКИ В РЕСПУБЛИКЕ КАЗАХСТАН

Аннотация. Обретение государственной независимости поставило перед Казахстаном задачу «строительства сильного суверенного государства с социально ориентированной рыночной экономикой». Вопросы социальной политики особенно актуализируются в связи с развитием суверенного Казахстана, требующего необходимости осуществления новой социальной политики в условиях политической модернизации общества. Во всех сферах деятельности с каждым годом усиливается значение социальной политики. Государство принимает на себя социальные функции не просто из каких-либо благих намерений, а в результате общественной потребности в расширенном социальном воспроизводстве населения, изменения роли человека в экономике, производстве и осознании зависимости общественного прогресса от потенциала нации. В период экономической стабилизации и роста острота социальных проблем несколько снизилась, что позволило государству перейти от неотложных мер к выработке более сбалансированной долгосрочной политики. В этих условиях сущность и содержание социальной политики меняются, расширяются сферы ее действия. Решение социальных проблем зависит не только от наличия достаточных финансовых ресурсов, но также и точности избранной стратегии реализации государственной политики. В этой связи вновь актуализируются поиски новых подходов в реализации эффективной социальной политики в условиях глобализации экономики.

Ключевые слова: законодательство, модернизация, реформы, интеграция, инновации, гражданское общество, рыночные отношения, социальная система, интеллектуальные ресурсы, международные стандарты.

Information about authors:

Ayupova Z.K. - doctor of juridical sciences, professor, chair of law, Kazakh national agrarian university, Kazakhstan, Almaty;

Kussainov D.U. - doctor of philosophy sciences, professor, interuniversity chair of politology and socio-philosophy disciplines, Kazakh national pedagogical university named after Abai, Kazakhstan, Almaty;

Winston Nagan - professor of law, University of Michigan, USA, Department of Law, United States of America

REFERENCES

[1] Aghion, P.,Schankerman, M. Competition, Entry and the Social Returns to Infrastructure in Transition Economies. Economics of Transition. **2017**, 7(1): 79-101. http://dx.doi.org/10.1257/aer.103.1.277(in English).

[2] Aygazin, J.J.,Tulenov, T.B. Analysis of the Indicators Characterizing the Quality of Life of Population in the Republic of Kazakhstan. Astana: Private Institution Research Center for Applied Economics, **2015**. http://doi.org/10.13165/VPA-14-13-2-03(in English).

[3] English, L.M. Using Public-Private Partnerships to Deliver Social Infrastructure: The Australian Experience. The Challenge of Public-Private Partnerships: Learning from International Experience. **2016**
http://dx.doi.org/10.1177/0741713604271851 (inEnglish).

[4] «Программа занятости-2020» Утверждена Постановлением Правительства РК от 31 марта 2011 года №316(inRus.).

[5] Lavrentiev L.A. On Some Problems of the Legislative Solutions of Problems in the Field of Social Security and Social Assistance. Problems of Management in the Social State: The Resources and Real Politics: International Scientific and Practical Conference. Astana; **2017**. p. 260-4. http://dx.doi.org/10.1016/j.anihpc.2017.10.004 (in English).

[6] Ayupova Z.K., Kussainov D.U. Influence of integration processes on the development of the legal systems of the Central Asian countries// Reports of the Academy of sciences of the Republic of Kazakhstan. **2018**. Vol.2. P.96-101https://doi.org/10.32014/2018.2518-1483.7(in English).

[7] Ayupova Z.K., Kussainov D.U. Features of formation of statehood and law in the Republic of Kazakhstan// Reports of the Academy of sciences of the Republic of Kazakhstan. **2018**. Vol.5. P.61-65https://doi.org/10.32014/2018.2518-1483.8(in English).

[8] Ayupova Z.K., Kussainov D.U., Winston Nagan.To the question of pre-trial adjusting of the conflicts in the modern legal system of the Republic of Razakhstan// Reports of the Academy of sciences of the Republic of Kazakhstan. 2018. Vol.6. P.49-56. https://doi.org/10.32014/2018.2518-1483.26(in English).

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.7**
Volume 1, Number 323 (2019), 52 – 58

R. L. Aman, K. O. Nurgaliyeva

University of International Business (UIB), Almaty, Kazakhstan;
Raushan.aman.uib@gmail.com; kuralay-uib@mail.ru

INSTITUTIONAL ENVIRONMENT: IS IT AN ENABLER OR A CONSTRAINT TO FEMALE ENTREPRENEURSHIP?

Abstract. Institutional environment is one of the main factors that influence the creation and maintenance of self-employment, and hence the entrepreneurship. However, previous research demonstrates that sometimes institutional environment may serve as a barrier to the development of entrepreneurship. Therefore, based on previous studies, authors make an assumption that institutional environment has a dual role in female entrepreneurship's development of either being an enabler or a barrier. The article analyzes eight female entrepreneurs and the role of institutional environment in their business in the context of an emerging market - Kazakhstan. Semi-structured interviews were used in order to identify the role of institutions in female entrepreneurship's development in Kazakhstan. The findings illustrate that female entrepreneurs in emerging markets are mostly provided with informal support from family, friends, and network. However, none of the interviewed businesswomen were getting formal support from local institutions. The results also demonstrate a positive cognitive attitude of a society towards entrepreneurship in the country under consideration.

Keywords: female entrepreneurship, institutional environment, formal institutions, informal institutions.

I. Introduction

Female entrepreneurs constitute 1/3 of whole worldwide entrepreneurship sector. Yet, according to GEM 2016/17 report, decreasing the gender gap in terms of entrepreneurial activity remains the primary focus of many policymakers in many countries. However, female entrepreneurs are increasing in numbers by contributing to economic growth and creating employment opportunities [1]. Subsequently, the research on female entrepreneurship is also increasing. Previous research on female entrepreneurship was provided in the areas of motivation behind women's decision to create a venture [2, 3], obstacles that women face in their way of doing business [4, 5]. However, the factors that may have a dual role of both a constraint and enabler in female entrepreneurship development has been under researched. One of the factors that may have a dual role in women's business development is the institutional environment.

Previous research on entrepreneurship mainly focused on micro-level factors such as the role of cognition and emotions in order to explain entrepreneurial behavior [6, 7]. Simultaneously, scholars claim that entrepreneurial behavior needs to be explained in the context, where it actually occurs. It refers to the institutional environment, which is comprised of economic, political and cultural factors, at the place of business operation [8, 9]. North (1990) in Douglass (1990) defines institutions as the "rules of the game in a society". There are two types of institutions – formal and informal. If formal institutions include the legal, constitutional and organizational laws shaping the individuals' behavior, "informal institutions" refer to the norms, values, and codes of conduct and unwritten rules of a society. Welter and Smallbone (2011) claim that both formal and informal institutions may influence entrepreneurs' behavior. Welter et al (2004) and Puffer et al (2001) argue that inappropriate institutional environment is one of the factors that hinder female entrepreneurship's development in emerging markets. Davis and Abdiyeva (2012), Hayrapetyan (2016), Kuznetsov et al (2000), Izuymov and Razumnova (2000), Yalcin and Kapu (2008) agree with this view and claim that inefficient legal environment is one of the barriers to female entrepreneurship's development. Welter and Smallbone (2011, p.109) explains it by poor legal infrastructure that includes "implementation gaps, a lack of judges, specialists in commercial law, and economic courts". However, some countries have stable, planned and efficiently operating regulatory environment that can stimulate the development of entrepreneurship by declining transaction costs and

"allowing the economy to change from relationship-based, personalized transaction structure to rule-based, impersonal exchange regime" [8, p.109].

In addition to formal institutions, informal institutions in the form of embedded values, norms and cultural traditions also influence on female entrepreneurship development. Aidis et al (2008) claim that traditional gender norms and values in male-dominating societies can also be a barrier to female entrepreneurship's development. For example, in many emerging markets like India and Bangladesh women's main role is to take care of children and being a good housewife. Rouse and Kitching (2006) argue that female entrepreneurs' family status is an important dimension that should be taken into consideration in research, and that child-rearing problem is one of the main cause of many women-led business start-ups' failure. Yet, researchers claim that due to globalization women are coming out of their traditional housekeeping roles and engaging in a labor market including self-employment via own business [17].

From previous research, we can conclude that institutional environment may have a dual role of being either a barrier or enabler to female entrepreneurship's development. Therefore, further investigation is needed in order to find out whether both formal and informal institutions have a dual role in female entrepreneurs' success or not. The aim of this paper is to investigate the role of the institutional environment on women's business success and find out the way how certain institutions influence on female entrepreneurship. Qualitative research method was used in order to fulfill the research aim. In-depth semi-structured interviews were provided with eight female entrepreneurs from an emerging market – Kazakhstan in order to find out the effectiveness of formal and informal institutions in a country with transitional economy.

The article starts with a discussion of previous research on obstacles and barriers to female entrepreneurship, formal and informal institutions role in women's business. Further on, methodology implemented in this study is described and research findings are presented. Finally, the discussion is provided and conclusion with implications to policymakers and implications for further research is given.

II. Literature review

2.1. Institutions and institutional environment

North (1990) in Douglass (1990) defines institutions as the "rules of the game in a society". There are two types of institutions – formal and informal. If formal institutions include the legal, constitutional and organizational laws shaping the individuals' behavior, "informal institutions" refer to the norms, values, and codes of conduct and unwritten rules of a society. These institutions set expectations, which determines appropriate behaviors for organizations [18], they also create the logic through which laws, rules and expected organizational behavior seem to be natural and enduring [19]. Therefore, institutions define appropriate behavior from the objective point of view and leave remaining actions inappropriate or even beyond any consideration [20].

Scott (2008) divides institutional forces into three categories. The first type is called a regulative pillar, which as North (1990) pointed out control's individual and organizational behavior based on the formal rules. The second type is named as normative pillar, which demonstrates the individual and organizational behavior based on the compulsory rules of social and organizational communication. It is usually constituted or norms and values [21]. Certain societies' norms actively encourage entrepreneurship and its financial opportunities, whereas other societies prevent entrepreneurship from development [22]. The third type is called a cognitive pillar, which represents the subjectivity and slowly constructed rules and meanings that set appropriate individual behavior. The examples of cognitive pillar can be the culture and language of an individual and commonly accepted preconscious behavior that people don't even think about [18, 21]. This institutional dimension is important for entrepreneurship research as it shows the societal tolerance to entrepreneurship, ingrained values and creation of cultural environment that encourages entrepreneurship [23, 24].

2.2. Institutional environment: is it an enabler or a constraint to female entrepreneurs?

Institutions' role of being either a barrier or enabler depends on the country and its development level. Welter and Smallbone (2011) claim that both formal and informal institutions may influence entrepreneurs' behavior. Most of the female entrepreneurs operating in emerging markets or countries with transitional economy suffer from poor institutional environment. Welter et al (2004) and Puffer et al

(2001)'s view that inappropriate institutional environment is one of the factors that hinder female entrepreneurship's development in emerging markets is in line with our assumption. Davis and Abdiyeva (2012), Hayrapetyan (2016), Kuznetsov et al (2000), Izuymov and Razumnova (2000), Yalcin and Kapu (2008) agree with this view and claim that inefficient legal environment is one of the barriers to female entrepreneurship's development in countries with transitional economies. Welter and Smallbone (2011, p.109) explains it by poor legal infrastructure that includes "implementation gaps, a lack of judges, specialists in commercial law, and economic courts".

However, some countries have stable, planned and efficiently operating regulatory environment that can stimulate the development of entrepreneurship by declining transaction costs and "allowing the economy to change from relationship-based, personalized transaction structure to rule-based, impersonal exchange regime" [8, p.109].

In addition to formal institutions, informal institutions in the form of embedded values, norms and cultural traditions also influence on female entrepreneurship development. Aidis et al (2008) claim that traditional gender norms and values in male-dominating societies can also be a barrier to female entrepreneurship's development. These type of informal institutions hindering female entrepreneurs' activities are most common in third-world countries and emerging markets. For example, in many emerging markets like India and Bangladesh women's main role is to take care of the children and being a good housewife. Rouse and Kitching (2006) argue that female entrepreneurs' family status is an important dimension that should be taken into consideration in research, and that child-rearing problem is one of the main cause of many women-led business start-ups' failure. Yet, researchers claim that due to globalization women are coming out of their traditional housekeeping roles and engaging in a labor market including self-employment via own business [17]. In contrast, as Dhaliwal et al (2010) argue family is instead the institution, which promotes female entrepreneurship's development through provision of financial and other forms of support.

To sum up, extant research points out the twofold role of institutional environment in the development of female entrepreneurship in emerging markets. Consequently, further empirical research should be provided with an aim of exploring the dual role of both formal and informal institutions in emerging market's context. Our research takes gradually developing emerging market- Kazakhstan as a contextual country focus, and fills above stated gap by putting forward the research question: What is the role of formal and informal institutions in the enhancement of female entrepreneurship?

III. Methods

Given our research question, which inquired into the nature of exploratory and explanatory, the qualitative method is appropriate [25]. Semi-structured in-depth interviews were provided with eight female entrepreneurs operating in Kazakhstan, Almaty.

Semi-structured interview questions were carefully prepared based on the theoretical bases of research purpose. All interviewees were sent questionnaires five days before the interview. Female entrepreneurs in Kazakhstan were interviewed in either Kazakh or Russian. The interviews with female entrepreneurs were provided twice, firstly it was face-to-face, and secondly, it was provided via email. During the interviews, follow-up specifying and probing questions were asked. If specifying questions helps to reach the reliability of the interview answers, probing is a way for the interview to investigate new research paths which were not initially considered [26].

In total eight hours' interviews were conducted in Kazakh and/or Russian, and all prepared questions were asked and answered fully. Authors also offered opportunities to interviewees for adding any type of response. Recorded interview data were then transcribed and coded to themes and subthemes. All interviewees retain anonymity, and in this article, interviewees are only referred as Female entrepreneur 1, Female entrepreneur 2 and …. Female entrepreneur 8.

Interview sample

Personal characteristics of respondents including their age range, country of origin, country of residence, marital status and number of children are given in a table below. Respondents were of different age groups starting from 21 and ending with 70, majority of the respondents have Bachelor degree, only one respondent have upper-high school education and Master degree. All interviewed female entrepreneurs have children, number of children ranges from one to three.

Table 1 - Personal Characteristics

Personal characteristics	
Total number of interview participants	8
Age	21-30 years – 1 respondents 31-40 – 1 respondents 41-50 – 1 respondents 51-60 – 2 respondents 61-70 – 3 respondents
Country of origin and residence	Kazakhstan - 8
Education	Master Degree – 1 participant, Bachelor Degree – 6 participants, High School – 1 participants
Marital Status	Married – 6 Other (in a relationship and/or widow) - 2
Children	1 child – 3 respondents 2 children – 3 respondents 3 children – 2 respondents

Interviewed female entrepreneurs' current business' running experience ranges from 6 months to 25 years. Participants operate in different industry spheres including service, consultancy, and retail. Only one interviewed entrepreneur was self-employed, the majority of interview participants were employing from 1 to 5 employees, and only one respondent has been providing workplace to 160 people. The legal forms of interviewed female entrepreneurs' business establishment are mostly sole-proprietorship and Limited Liability Partnership (LLP).

Table 2 - Business Characteristics

Business Characteristics	
Country of business location	Kazakhstan (Almaty) – 8 participants
Years in a business	6 months – 25 years: 0-1 year – 2 participants, 1-5 years – 1 participants 6-10 years – 1 participant, 11-15 years – 1 participants 16-20 years – 1 participant, 21-25 years – 2 participants
Industry Type	Service – 3 participants Consultancy – 1 participants Retail – 4 participants
Number of employees working for the business	0-160 employees: Solo-self-employed entrepreneur – 1 respondents 1-5 employees – 5 respondents 5-10 employees – 1 respondent 11 - 160 employees – 1 respondent
Legal Form of Establishment	Sole Proprietorship – 5 participants Limited Liability Partnership (LLP) – 3 respondents

IV. Results

According to our interview results, female entrepreneurs received only informal forms of support their relatives, friends, family, although there are many institutions in Kazakhstan, which are devoted to support start-up businesses, but none of our interviewed women entrepreneurs have got the support from them. It implies that our findings are in line with Hayrapetyan (2016), Puffer and McCarthy (2001) and Welter (2004)'s views that institutional environment hinder female entrepreneurship's development in emerging markets. More specifically, as Welter and Smallbone (2011, p.109) argue there are "implementation gaps, a lack of judges, specialists in commercial law, and economic courts" in emerging markets that hinder female entrepreneurship's development.

Nevertheless, most of the interview participants pointed out that they got financial and emotional and other forms of support from families, relatives and friends.

Table 3 - Informal institutional support provided to female entrepreneurs

	Financial	Emotional	Financial + emotional	Business running tips	Financial +Business running tips	Not any
Family members	2	1	1			
Relatives						
Friends						
Business partners				1	1	
Instead I was providing support to my relatives	2					
Haven't got any support						
Total / 8	4	1	1	1	1	0

This means that society in Kazakhstan has a positive cognitive attitude towards entrepreneurship Welter and Smallbone (2011). Society there has positively ingrained entrepreneurship supporting values and people in Kazakhstan are eager to create a cultural environment that encourages entrepreneurship [23, 24].

Findings demonstrate that none of the interviewed female entrepreneurs faced the problem due to traditional norms and values of women's main role being a good housewife and child-rearing responsibilities. Thus, our research results contradict with Rouse and Kitching (2006)'s view that female entrepreneurs' family status is an important dimension that should be taken into consideration in research, and that above stated main responsibilities of women may be the main reason of their business' failure.

Women's primary function's alteration from traditional norms may be due to globalization, as Budhawar et al (2005) argue due to globalization women are coming out of their traditional housekeeping roles and engaging in a labor market including self-employment via own business[17]. For many interviewed female entrepreneurs, as Dhaliwal et al (2010) argue, family is instead the institution, which promotes female entrepreneurship's development through provision of financial and other forms of support.

From the discussion above we can summarize that none of interviewed Kazakh businesswomen indicated the formal support that they get from local institutions. However, Kazakh female entrepreneurs were getting informal support from their relatives, friends and family members. It demonstrates positive societal cognitive attitude towards the entrepreneurship in the country under the consideration. Current research didn't find out any case, when traditional norms and values had been hindering female entrepreneurship's development in emerging market - Kazakhstan. In contrast, Kazakh female entrepreneurs' spouses were very supportive of their wives' entrepreneurial journey.

V. Conclusion and discussion

Institutions are playing a significant role in female entrepreneurship's development. Our findings demonstrate that none of interviewed Kazakh businesswomen were getting the formal support from local institutions. However, Kazakh female entrepreneurs were getting informal support from their relatives, friends and family members. It demonstrates positive societal cognitive attitude towards the entrepreneurship in the country under the consideration. Current research didn't find out any case, when traditional norms and values had been hindering female entrepreneurship's development in emerging market - Kazakhstan. In contrast, Kazakh female entrepreneurs' spouses were very supportive of their wives' entrepreneurial journey.

To sum up, despite positive societal cognitive attitude towards entrepreneurship, female entrepreneurs in Kazakhstan haven't still got any support from formal institutions. Therefore, formal institutions having an aim to support female entrepreneurship in Kazakhstan should enhance their activities by identifying the needs of female entrepreneurs at the first place. Nevertheless, interview participants were getting informal support in the form of finance, positive emotions and business running tips from their previous colleagues, relatives, friends and family members.

Our research has certain limitations that should be considered in future research. The empirical results in our study were limited to only one emerging market – Kazakhstan, therefore, future studies should be provided on the role of the institutional environment in the context of other emerging markets. Furthermore, the dimensions of institutional environment, other than the ones mentioned in our study,

should also been taken into consideration, while identifying its role in the development of women entrepreneurship.

Р.Л. Аман, К. О. Нургалиева

[1] Университет Международного Бизнеса (УМБ), Алматы, Казахстан;

ИНСТИТУЦИОНАЛЬНАЯ СРЕДА: ИНСТРУМЕНТ РЕАЛИЗАЦИИ ИЛИ ПРЕПЯТСТВИЯ РАЗВИТИЮ ЖЕНСКОГО ПРЕДПРИНИМАТЕЛЬСТВА?

Аннотация. Институциональная среда является одним из основных факторов, влияющих на создание и поддержание самостоятельной занятости и предпринимательство. Однако предыдущие исследования показывают, что иногда институциональная среда может служить препятствием для развития предпринимательства. Следовательно, основываясь на предыдущих исследованиях, авторы делают предположение, что институциональная среда имеет двойную роль в развитии женского предпринимательства либо как возможности для улучшения бизнеса, либо как препятствие для бизнеса. В статье анализируются восемь женщин-предпринимателей и роль институциональной среды в их бизнесе в контексте развивающегося рынка - Казахстана. Полуструктурированные интервью использовались, чтобы определить роль учреждений в развитии женского предпринимательства в различных контекстах. Полученные данные показывают, что женщины-предприниматели в Казахстане в основном получают неофициальную поддержку со стороны семьи, друзей и сети. Однако ни одна из опрошенных деловых женщин не получала официальной поддержки от местных учреждений. Результаты также демонстрируют позитивное отношение общества к предпринимательству в Казахстане.

Ключевые слова: женское предпринимательство, институциональная среда, формальные институты, неформальные институты.

Р.Л. Аман, К. О. Нургалиева

Халықаралық Бизнес Университеті (ХБУ), Алматы, Қазақстан;

ИНСТИТУЦИОНАЛДЫҚ ОРТА: ӘЙЕЛ КӘСІПКЕРЛЕРЛІГІНІҢ ДАМУЫНА ТІРЕК ПЕ ӘЛДЕ ТОСҚАУЫЛ МА?

Аннотация. Институционалдық орта – өзін-өзі жұмыспен қамту мен кәсіпкерлікті қалыптастыруға және қолдауға ықпал ететін негізгі факторлардың бірі. Дегенмен, алдыңғы зерттеулер көрсеткендей, кейде институционалдық орта кәсіпкерліктің дамуына тосқауыл бола алады. Сондықтан, алдыңғы зерттеулерге сүйене отырып, авторлар институционалдық ортаның әйел кәсіпкерлігін дамытудағы немесе кедергі болудағы қосарлы рөлге ие екендігін болжайды. Мақалада дамушы нарық - Қазақстанда қызмет ететін сегіз әйел кәсіпкердің бизнесіндегі институционалдық ортаның рөлі талқылынады. Әйел кәсіпкерлігін дамытудағы институт рөлін анықтау үшін жартылай құрылымдалған сұхбат алынды. Зерттеу нәтижесі бойынша дамушы нарықта қызмет ететін әйел кәсіпкерлерге отбасыдан, достарынан және желіден тыс бейресми қолдау көрсетеді. Алайда, сұхбаттасқан кәсіпкерлердің ешқайсысы жергілікті мекемелерден ресми қолдау алмаған. Зерттеу нәтижесі Қазақстандағы қоғамның кәсіпкерлікке деген оң танымдық көзқарас қалыптасқандығын көрсетті.

Түйін сөздер: әйел кәсіпкерлігі, институционалдық орта, ресми институттар, бейресми мекемелер.

Information about the authors:

Raushan Lesbekkyzy Aman - University of International Business (UIB), Almaty, Kazakhstan, PhD student, Email: Raushan.aman.uib@gmail.com;

Kuralay Orazgalievna Nurgaliyeva - University of International Business (UIB), Almaty, Kazakhstan, Associate professor, Candidate of Economics Sciences, Email: Raushan.aman.uib@gmail.com

REFERENCES

[1] Aidis, R., Estrin, S., & Mickiewicz, T. (**2008**). Institutions and entrepreneurship development in Russia: A comparative perspective. *Journal of Business Venturing, 23*(6), 656-672. DOI: 10.1016/j.jbusvent.2008.01.005 (in Eng).

[2] Azmat, F. (**2013**). Opportunities or obstacles? Understanding the challenges faced by migrant women entrepreneurs. *International Journal of Gender and Entrepreneurship, 5*(2), 198-215. DOI: http://dro.deakin.edu.au/view/DU:30051849 (in Eng).

[3] Baumol, W. J., Litan, R. E., & Schramm, C. J. (**2007**). *Good capitalism, bad capitalism, and the economics of growth and prosperity*: Yale University Press. ISBN: 978-0-300-10941-2.

[4] Bosma, N. S., & Levie, J. (**2010**). Global Entrepreneurship Monitor 2009 Executive Report.

[5] Bruton, G. D., Ahlstrom, D., & Li, H. L. (**2010**). Institutional theory and entrepreneurship: where are we now and where do we need to move in the future? *Entrepreneurship theory and practice, 34*(3), 421-440. DOI: 10.1111/j.1540-6520.2010.00390.x (in Eng).

[6] Budhwar, P. S., Saini, D. S., & Bhatnagar, J. (**2005**). Women in management in the new economic environment: The case of India. *Asia Pacific Business Review, 11*(2), 179-193. DOI: 10.1080/1360238042000291199 (in Eng).

[7] DiMaggio, P. J., & Powell, W. W. (**1991**). *The new institutionalism in organizational analysis* (Vol. 17): University of Chicago Press Chicago, IL. ISBN: 9780226185941.

[8] Douglass, C. (**1990**). North, Institutions, institutional change and economic performance: Cambridge: Cambridge university press. ISBN: 9780521394161.

[9] Gray, D. E. (**2013**). *Doing research in the real world*: Sage. ISBN: 978-1847873378.

[10] Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research, 2*(163-194), 105. ISBN: 9780803946798.

[11] Hayrapetyan, M. (**2016**). *Factors that drive female entrepreneurship in Armenia (Doctoral dissertation)*.

[12] Hughes, K. D. (**2003**). Pushed or pulled? Women's entry into self-employment and small business ownership. *Gender, work & organization, 10*(4), 433-454. DOI: 10.1111/1468-0432.00205 (in Eng).

[13] Izyumov, A., & Razumnova, I. (**2000**). Women entrepreneurs in Russia: Learning to survive the market. *Journal of Developmental Entrepreneurship, 5*(1), 1. ISSN: 10849467.

[14] Katz, J. A., & Shepherd, D. A. (**2003**). Cognitive approaches to entrepreneurship research *Cognitive approaches to entrepreneurship research* (pp. 1-10): Emerald Group Publishing Limited. ISBN: 978-0-76231-052-4.

[16] Kuznetsov, A., McDonald, F., & Kuznetsova, O. (**2000**). Entrepreneurial qualities: A case from Russia. *Journal of Small Business Management, 38*(1), 101. ISSN: 00472778.

[17] McGowan, P., Redeker, C. L., Cooper, S. Y., & Greenan, K. (**2012**). Female entrepreneurship and the management of business and domestic roles: Motivations, expectations and realities. *Entrepreneurship & Regional Development, 24*(1-2), 53-72. DOI: 10.1080/08985626.2012.637351 (in Eng).

[18] Meyer, J. W., & Rowan, B. (**1977**). Institutionalized organizations: Formal structure as myth and ceremony. *American journal of sociology, 83*(2), 340-363. DOI: https://www.jstor.org/stable/2778293 (in Eng).

[19] Puffer, S. M., & McCarthy, D. J. (**2001**). Navigating the hostile maze: A framework for Russian entrepreneurship. *The Academy of Management Executive, 15*(4), 24-36. DOI: 210527458 (in Eng).

[20] Rouse, J., & Kitching, J. (**2006**). Do enterprise support programmes leave women holding the baby? *Environment and Planning C: Government and Policy, 24*(1), 5-19. DOI:10.1068/c0528 (in Eng).

[21] Scott, W. R. (**2008**). *Institutions and organizations: Ideas and interests*: Sage. ISBN: 978-142242224.

[22] Shane, S. (**2000**). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization science, 11*(4), 448-469. DOI: 1047-7039/00/110448/$05.00 (in Eng).

[23] Shepherd, D. A., Wiklund, J., & Haynie, J. M. (**2009**). Moving forward: Balancing the financial and emotional costs of business failure. *Journal of Business Venturing, 24*(2), 134-148. DOI: 10.1016/j.jbusvent.2007.10.002 (in Eng).

[24] Welter, F., & Smallbone, D. (**2011**). Institutional perspectives on entrepreneurial behavior in challenging environments. *Journal of Small Business Management, 49*(1), 107-125. DOI: 10.1111/j.1540-627X.2010.00317.x

[25] Welter, F., Smallbone, D., Isakova, N., Aculai, E., & Schakirova, N. (**2004**). Female entrepreneurship in the Ukraine, Moldova and Uzbekistan: characteristics, barriers and enabling factors and policy issues. *Access to financing and ICT: Women entrepreneurs in the ECE region*, 93-52.

[26] Zamberi Ahmad, S. (**2011**). Evidence of the characteristics of women entrepreneurs in the Kingdom of Saudi Arabia: An empirical investigation. *International Journal of Gender and Entrepreneurship, 3*(2), 123-143. DOI 10.1108/17566261111140206 (in Eng).

[27] Zucker, L. G. (**1977**). The role of institutionalization in cultural persistence. *American sociological review*, 726-743. DOI: 10.2307/2094862 (in Eng).

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.8**
Volume 1, Number 323 (2019), 59 – 68

UDC 336.58

Ye.B. Aimagambetov[1], A. Tingisheva[2]

[1,2]Karaganda Economic University of Kazpotrebsoyuz
mail@keu.kz, ajnur-88@mail.ru

ORGANIZATIONAL AND FINANCIAL MECHANISM OF PUBLIC MANAGEMENT OF THE HEALTH CARE SYSTEM IN FOREIGN COUNTRIES

Abstract: The article examines the health care system, selected on the basis of accounting for organizational and financial features: mainly state, mainly social - insurance, mostly private. Most clearly, these health systems are represented in the following countries: predominantly state, characterized by a significant role of the state - (United Kingdom, Greece, Denmark, Norway, Portugal, Sweden, etc.), predominantly social insurance - (Austria, Belgium, Netherlands, Germany, France , Switzerland, Japan), mainly private - (USA, South Korea, and others). The authors conducted a comparative analysis of the health care system in foreign countries. Identified organizational features of the management of the health care system, identified sources of financing health care in three types: budget, insurance, private. On the basis of the analysis made the appropriate conclusions. It should be noted that the study of the organizational and financial mechanism of the healthcare industry in foreign countries is necessary in order to be able to use the experience of countries with the most effective healthcare system in domestic practice.

Keywords: health care system; organizational and financial mechanism of the health care system; health financing; medical reform.

Introduction - The official website of the World Health Organization (WHO) states that the health system is the totality of all organizations, institutions and resources whose main goal is to improve health. The functioning of the health system requires human resources, financial resources, information, equipment and materials, transportation, communications, as well as general management and leadership [1].

The fundamental factor determining the effective and sustainable functioning of health care is the financing of the industry, characterized by volumes, model, and implementation mechanisms.

The problems associated with financing health care are most relevant due to the fact that in the modern world, health protection is viewed as one of the fundamental human rights and health development, as a specific type of economic activity, cannot be limited to any single country. This is due to the fact that the level of development of a particular country's health has an impact on the entire world space [2, p. 210-215].

Problems of the functioning and development of the public sector as a whole, an important component of which is the health care sector, are revealed in the works of many well-known foreign researchers. Thus, the problems of financing and regulating the state of health care, the inconsistency of the markets of medical services with the conditions of competitive markets, the introduction of health insurance and the implementation of reforms in the health sector are deeply disclosed in the well-known book by Stiglitz, “Public Sector Economics” [3]. The specific properties of medical care as an object of the normative economy, a comparative description of the health care industry with welfare economics norms, an analysis of the inefficiency of the medical services market caused by information asymmetry, demand uncertainty and external effects in health care are reflected in the works. K. Arrow [4, p. 941-973]. T. Getzen outlined in detail the main problems of production and economic analysis of health services; described means of stimulating and developing the organizational structure of the health system

based on an analysis of the relevant financial flows; highlighted the determinants of changes in public spending on health, and also analyzed the influence of the government on public and private health [5]. The fundamental study of reforming the European health care system was published in 2015 by experts from the WHO Regional Office for Europe and the European Observatory on Health Systems and Policies [6].

The purpose of the article is to conduct a comparative analysis of the organizational and financial mechanism of the health care system in foreign countries, to identify the features, as well as the possibilities of using the successful experience of public administration of the health sector in domestic practice.

Results of a research - At the beginning of the article, the models of the health care system studied in the modern literature are highlighted, highlighted on the basis of taking into account its organizational and financial features. A comparative analysis of the practice of the organizational and financial mechanism for managing the health system in foreign countries ends with a logical generalization. The system approach and comparative analysis are used at all stages of the study, including in the process of comparing the existing systems of health financing, organizational management system. To solve the tasks of statistical techniques and methods (collection, analysis and comparison of data). At the same time, the incompleteness of the statistical bases, as well as the lack of generally accepted approaches and methods for assessing the health care system, are a limitation in the proposed study.

The main results of the study:

From the point of view of organizational and financial peculiarities, the following health care systems are distinguished: predominantly state-run, predominantly social-insurance, predominantly private.

Predominantly state, characterized by a significant role of the state (Great Britain, Greece, Denmark, Ireland, Spain, Italy, Norway, Portugal, Sweden, etc.). The basic example of this system is the N. Semashko system, created in the Soviet Union, which was modified in Great Britain. And used in this country since 1944. Financing is carried out mainly from the part of the public resources that comes from tax revenues to the state budget. This model is traditionally based on the system of public medical institutions.

Mostly social insurance (Austria, Belgium, the Netherlands, Germany, France, Switzerland, Japan, some Latin American countries) when funding is made on a trilateral basis: at the expense of budget allocations, contributions from employers and the workers themselves, which implies the existence of compulsory health insurance.

Predominantly private (USA, South Korea, and others, began to approach this group of Azerbaijan and Georgia), mainly based on private medical practice with the payment of medical services at the expense of the patient.

Practically in no country in the world, these systems do not function in their pure form, since they are not only constantly modified, but each country, based on the economic situation, determines which system to prefer in a certain period of development of the state [7, 23-27].

Consider the experience of countries in which the above models received the most vivid embodiment.

Great Britain. An example of a developed European country in which the budget model of financing the health care system operates is the United Kingdom. The UK health care system is represented by the National Health Service, which consists of four public medical systems - the National Services of England, Northern Ireland, Scotland, and Wales. Moreover, each of the systems functions separately from each other, respectively, the responsibility for the work of each service is borne by the government of the administrative and territorial part of Great Britain, on whose territory the health service operates. Financing of the UK health care system is mainly due to public funds from tax deductions to the state budget - 85%. In addition, sources of funding can be the funds of the private health insurance system - 15%, as well as funds for obtaining paid medical services.

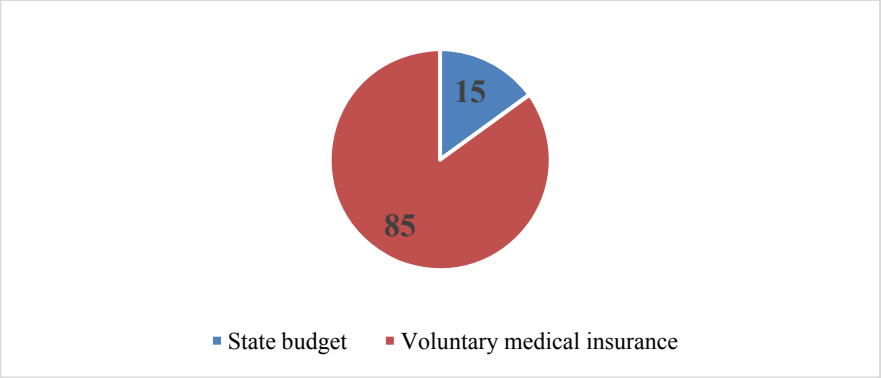


Figure 1 - Sources of health financing in the UK (in %)

Centralized financing of the health care system allows you to restrain the increase in the cost of medical services. Under this system, the entire population of the country have equal opportunities in obtaining medical care. The National Health Service provides prevention services, primary health care and specialized care to all Englishmen. However, not all types of services are included in the list of free services, some of which, if necessary, the patient must pay for themselves in full, others require co-payments of citizens, that is, provided that the cost of medical services is shared [8].

Mostly the public health system is also characteristic of the Scandinavian countries, as an example, consider the health system in Norway.

The Norwegian health management structure has three subordinate levels: the central authority (the country's parliament, the ministry of health), five medical-territorial districts (administrative-territorial units covering several municipalities, also called provinces, or “county”) and municipalities (called communes) . At the same time, the central authorities are responsible for the development and implementation of the regulatory framework, budget allocation, and the medical and territorial districts (five) and the municipalities (431) organize medical care and services. In particular, the country's parliament is the state legislature, and the Ministry of Health is responsible for the health sector at the national level, setting Norway’s health policy, and responsible for organizing reforms and implementing bills [9].

An important component in the organization of health care is its financing. For example, in Norway, the opening of own oil fields of birth made it possible to ensure high public spending on health. The main sources of funding for health care are the state budget, 73%, 12% from social insurance funds, 15% are co-payments of patients who come from the provision of paid medical services. services (Fig. 2). [10, p 24-28]

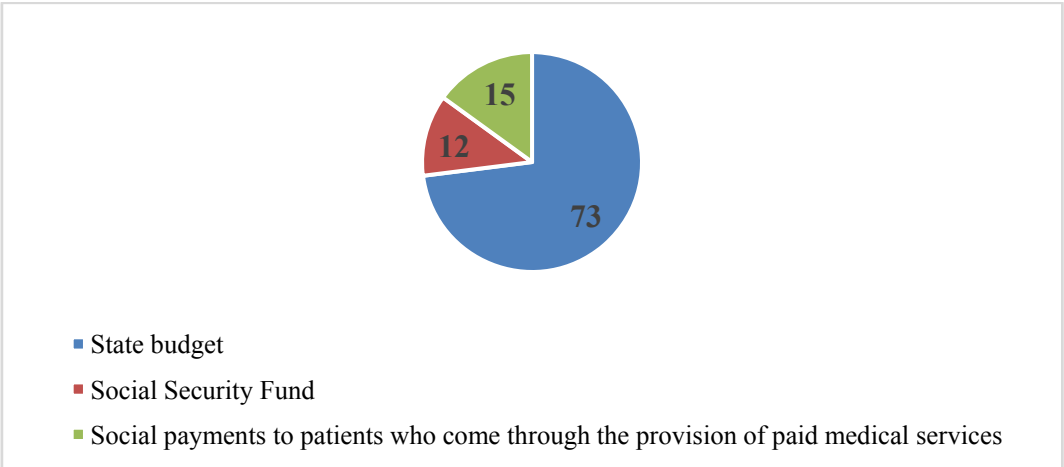


Figure 2 - Sources of health financing in Norway (in %)

It is known that the main determinant of the level of financing of health care is the percentage of expenditure in the field of health care on the size of the gross domestic product per capita. In Norway, this figure is 10%. In addition, given that Norway has one of the highest per capita GDPs in the world, per capita health care expenditures in absolute terms are also significantly higher than in most countries.

Consider the social insurance model of the health care system on the example of Germany and France. Germany is a classic example of a social insurance model. One of the main principles of the state health care system in Germany is the division of managerial powers between the federal government, the state and the legalized organizations of civil society. Thanks to the federalist traditions of Germany, as well as the legacy of the Bismarck social security system, the modern health care system in Germany is extremely decentralized, competences are divided between three levels: federal, regional (state) and corporate (there is a system of medical associations). However, different levels of government do not have a dominant role in the direct provision of medical care. These powers are delegated by legislation to local governments. In Germany, there are a number of specific subjects - medical associations and their associations, for example, the German Medical Assembly, representing the interests of doctors and patients. Main functions: control of the activities of medical institutions, representation of interests [11].

Financing. Since 2009, medical insurance has become mandatory for all German citizens (previously, some groups of the population might not have medical insurance, although in fact there were few such people). There is a competition between non-profit, non-state health insurance funds (the so-called “SHI” statutory health insurance scheme) implementing compulsory health insurance programs and structures implementing voluntary health insurance programs. (Private health insurance (PHI)) In Germany, the situation was as follows: compulsory medical insurance - 60%, voluntary medical insurance - 10%, state budget - 15%, personal media properties - 15% [12].

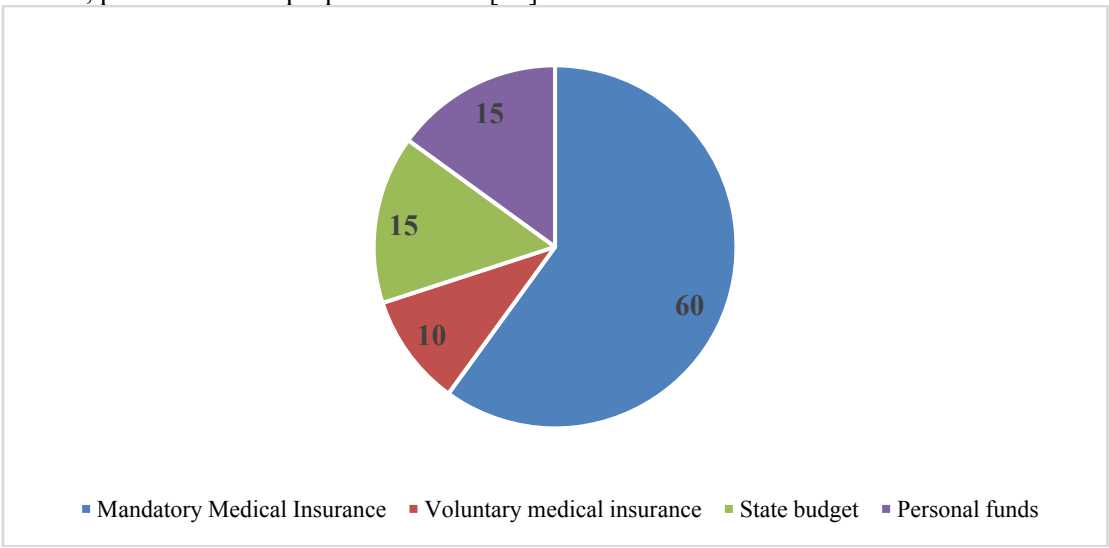


Figure 3 - Sources of health financing in Germany (in %)

France is characterized by a private model of health care with state regulation of compulsory health insurance programs (MMI). The highest public health authority in France is the Ministry of Health and Welfare. The form of health management is decentralized. Regional health authorities are responsible for the organization of inpatient and outpatient care in both public and private hospitals. The medical services market is developed, private insurance plays an important complementary role.

In France, institutions of various forms of ownership are combined with a predominance of private ones. Payment of medical services in hospitals is made by the method of CGC and the global budget, outpatient care is paid by the method of payment for the service and the result. Social insurance in France was introduced in 1946, thus, the availability of medical care was provided to the general population. Currently, the system of financing health care in France is as follows: Compulsory medical insurance - 50%, voluntary medical insurance - 20%, state budget - 10%, personal funds - 20% (Figure 4) [7].

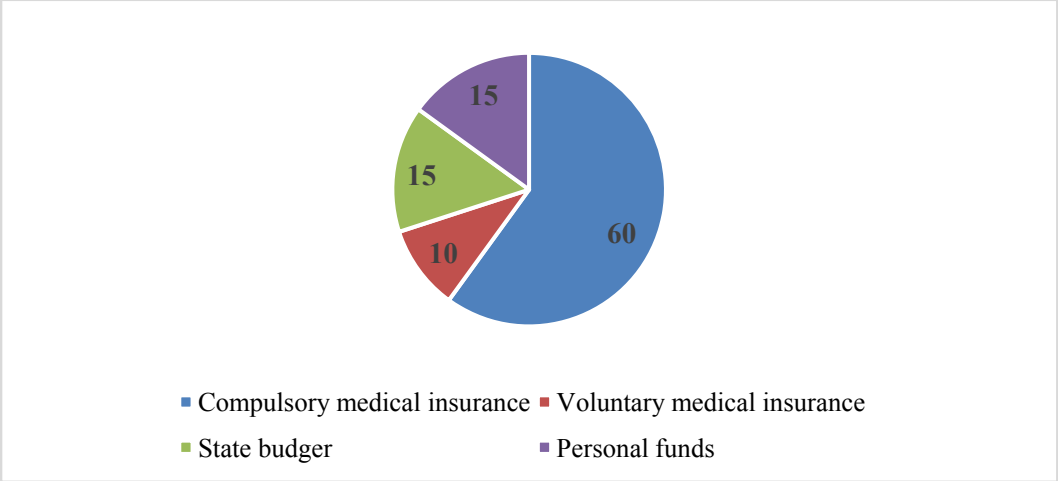


Figure 4 - Sources of financing of health care in France (in %)

A striking example of a private health care system is the United States of America (USA). The US healthcare system should be represented by the following structural elements, where the guarantors of providing medical care are the health insurance system — public and private: state health insurance programs, a network of public hospitals for military personnel, local, municipal and county programs, mandatory private health insurance for employees. , self-payment of medical expenses by citizens.

Regarding the US healthcare management system. The organizational structure of medical care is characterized by a decentralized system of health management with the separation of powers between the federal center and the states. As the federal executive body is represented by the US Department of Health and Human Services, which through 27 units implements and monitors social programs such as Medicare (health insurance for the elderly and disabled) and Medicaid (designed to pay for medical services provided to certain categories of people) low income). The state regulates the activities of insurance companies, the volume of medical services under the state programs. As part of private insurance plans, the scope of medical services is regulated by insurance companies. Quality control is carried out through accreditation and licensing of doctors who are under the authority of professional medical unions and associations [13].

It should be noted that the US healthcare system is predominantly private. The main source of financing is private insurance - 40%, personal funds - 20%, programs for the elderly and the poor - 40% (Figure 5).

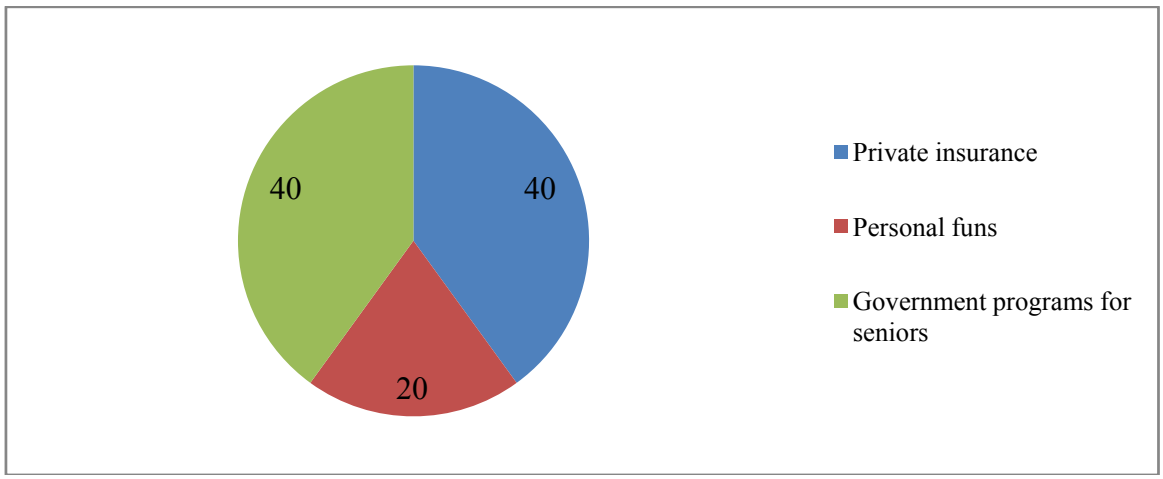


Figure 5 - Sources of US health financing (in %)

In the presence of a high proportion of the uninsured, which is almost 16% of the country's population, hospitals are forced to provide emergency care and invoice generated at free market prices to those who cannot pay for it. The need to pay treatment bills in the absence of health insurance is the leading cause of US bankruptcy. With the growth of insolvent debtors, hospitals are forced to raise tariffs to cover their costs at the expense of solvent patients. So there is a galloping unregulated rise in prices for medical services. One of the reasons for the increase in costs is that American economist A. Enthoven cites insufficient motivation for savings among medical service providers, since market demand creates supply. Here there is an excess supply of services against the background of information asymmetry. As a result, a third of the money spent on health care is spent inefficiently [14, p.50].

An example of a mixed health financing system, with several levels of protection to provide benefits to citizens and permanent residents, is Singapore. Singapore's healthcare system is recognized by experts as one of the best in the world. The World Bank recommends that countries adopt Singapore's experience in the health sector, taking into account differences in income, demographics and the current health financing system. In achieving such outstanding successes in Singapore's healthcare, scientists identify two key points: political stability and the compulsory health insurance system with an emphasis on personal responsibility. The main functions of public administration of the health system are assigned to the Ministry of Health of Singapore. The Ministry of Health carries out state policy and is also responsible for planning, financing, staffing. The state is actively pursuing a policy of promoting a healthy lifestyle, taking preventive measures and developing the medical care system, thereby motivating the population to become aware of responsibility for their health. [15, c 62-79].

In Singapore, a serious control over the quality of medical services is organized. The function of monitoring the safety and quality of medical products and devices is performed by a special organization, the Health Science Authority, whose criteria for assessing quality and safety comply with standards adopted in the United States and Europe.

At the time of independence, the state had a health system organized on the basis of the British model: free of charge for the population medical care provided by a network of public hospitals [16, c 51], but with the acquisition of Independence of the country, Singapore switched to the compulsory medical social insurance system. Singapore offers universal medical insurance for citizens, with a financing system built on a combination of the principles of individual responsibility and universal affordable medical care. Through the use of market mechanisms to promote competition and transparency and the development of technologies for better quality medical services, Singapore has achieved excellent health outcomes, with national health expenditures of about 4% of GDP [17].

The health financing system in Singapore has five levels: The first level of protection available to all citizens of Singapore is provided by the state, paying up to 80% of the costs in case of emergency care. The second level of protection is Medisave (MediSave), introduced in 1984 as part of the National Health Program. MediSave is a national medical billing system that helps people keep a portion of their income to pay for future hospitalization, surgical care and some types of outpatient care, with the obligatory opening of a medical savings account calculated on an individual basis, the size of which allows virtually all Singaporeans to pay their share treatment costs. Under this scheme, each employee contributes 8–10.5% of the monthly salary, depending on the age group, to a personal MediSave account. The percentage of accumulation is 2.5–4%, which exceeds inflation in the country.

The third level is Medishield. Its goal is to help individuals with chronic illnesses that require long-term care, which over time can empty a MediSave account. As a rule, all citizens of Singapore automatically fall under the MediShield Life program, but they can voluntarily refuse to open this account. Opening such an account must be no later than 75 years.

The fourth level - Eldoshild (ElderShield), approved in 2002, is the state's response to a sharp increase in the population over working age. As a rule, all citizens of Singapore, as well as persons with permanent residence are included in this program upon the occurrence of 40 years. The premium is paid before the onset of 65 years, with the ability to transfer funds from the Medisave account.

Fifth level - MediFund is a fund to provide support to low-income citizens for the purchase of medical services. Receiving resources from it is possible when proving that the income is less than the established minimum. To finance medical services, interest earned on the fund's capital is used [18, p 177-178].

Today, the problems of functioning of health care are in the constant focus of attention of the world community, monitoring of the main indicators, characteristics and directions of development of health care is carried out.

For example, the World Health Organization (WHO, continuously monitors the state of national health systems. The share of gross domestic product allocated to health needs and maintaining public health is a significant indicator in the global practice of the health system. Figure 5 shows the comparative characteristics of countries analyzed by the size of health financing as a percentage of GDP. First place in terms of the share of health expenditure relative to GDP is occupied by the USA - 16 , 8. Germany and France (11.2-11.1 %%) shared the second place after the United States in terms of the share of health expenditure relative to GDP. Norway ranked third (10%). In the UK, the corresponding figure is 9 , 9%, in Singapore –4,3% [19]. It is necessary to pay attention to the fact that WHO has set the desirable minimum of health care expenditure as a percentage of GDP - at least 5%.

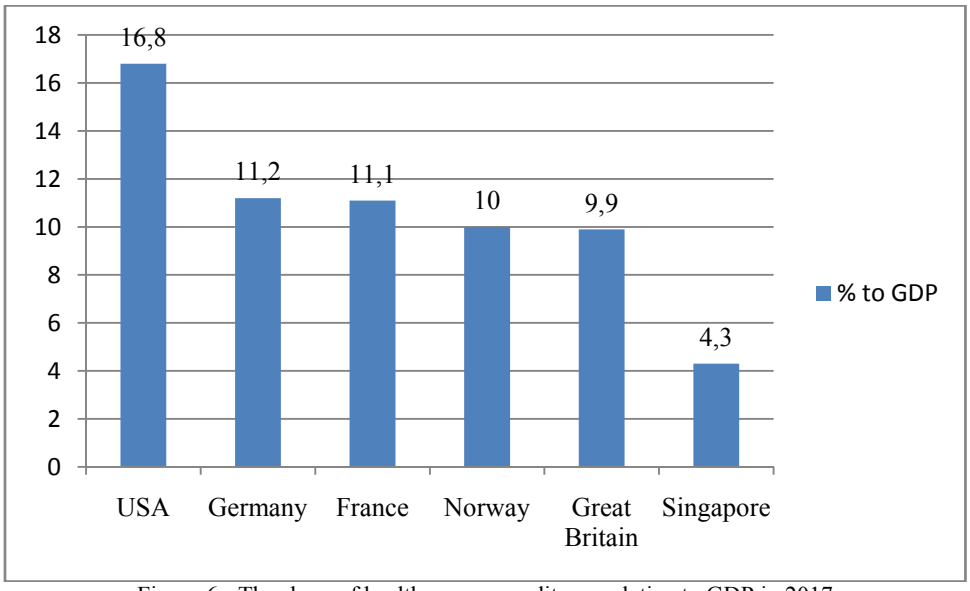


Figure 6 - The share of health care expenditures relative to GDP in 2017

Consider the rating of the effectiveness of the health care system in the analyzed countries. The world-famous rating agency Bloomberg has published a rating of countries with the most effective health care system in 2017 (Table 1).

Table 1 – Efficiency rating of the health care system in 2017

	Great Britain	Norway	Germany	France	USA	Singapore
Total expenses (% from GDP)	9,9	10,0	11,2	11,1	16,8	4,3
Cost of medical services ($)	4,356	7,464	4,592	4,026	9,536	2,280
Lifetime	81,0	82,3	80,6	82,3	78,7	82,7
Assessment	46,3	58,9	38,3	55,5	29,6	85,6
Place in Rating	35	11	45	16	54	2
Note – compiled by authors						

According to a study of the rating agency Bloomberg, a country with an effective health care system is Singapore - 85.6. The average life expectancy of citizens is 82.7, the cost of medical services is $ 2.280, the level of spending on health care is 4.3%. The second position is occupied by Norway - 11th place in the ranking, France is in 3rd place - 16th position in the health efficiency rating, the United Kingdom, Germany, and the United States ranked 35th, 45th and 54th. Attention should be paid to the fact that among the countries with a developed economy, the US spends the most on health care with the worst result with an efficiency rating of 29.6.

Thus, the indicator of life expectancy is disproportionate to the choice of sources of financing, the amount of resources allocated, which means, firstly, differences in the efficiency of spending money, secondly, the presence of other factors affecting the life expectancy of the population.

Based on a study of the organizational and financial mechanism of health systems in developed countries, the authors identified the main points:

- Each country mainly uses one of the financing models, but is not limited to other sources of financing;
- The state system of financing health care provides the majority of the population with free medical services, with the lowest cost compared to other models;
- The advantages of the socially insurance model of the health care system include the following: high compared with the budget model, the role of competitive mechanisms in improving the quality of medical services;
- The advantage of the private model of financing health care is a wide choice and high quality of services, high salaries for medical personnel. The disadvantages of the functioning of this health care system are the galloping unregulated rise in prices for medical services, low coverage of the population with the basic volume of medical care.

Conclusions - The study of the organizational and financial mechanism of the healthcare industry in foreign countries is necessary in order to use the experience of countries with the most effective system.

It should be noted that the system of financing health care in Kazakhstan is mainly based on the budget model. Currently in Kazakhstan, measures are being taken to reform the health care system. The main object of innovation in this area is the system of financing medical services - the transition from the budget model to the social insurance one.

When developing a system of compulsory health insurance should consider the following factors:

- the limited public resources that can be sent to the system. In addition to compulsory medical insurance, the state needs to finance the system of medical education, medical research institutes, the system of medical institutions that provide socially important medical care, the introduction of modern medical technologies and investments;
- undesirability of increasing the tax burden on employers;
- negative experience of the compulsory health insurance fund;
- the lack of reliable statistics to establish the level of insurance premiums, there is a high probability that the level of insurance premiums will be insufficient to cover a basket of many services [20].

The choice of health care reform in favor of compulsory social-health insurance was influenced by the fairly successful practice of its use in such developed countries as Germany, France, Singapore, etc. Also, the main direction of the reform is the modernization of the social and labor sphere, based on the joint responsibility of the state, the employer and the citizen. As for economic factors, the main goal was to attract additional sources of financing for health care. Obligatory medical insurance can be one of the levers of increasing economic interest, responsibility of the organization of health care and medical workers for the final result of their activities [21]. Market relations in healthcare will open up prospects for developing the competitiveness of medical organizations and improving the level and quality of medical services provided, and will also give impetus to the development of medical services.

Е. Аймагамбетов[1], А. Тынгишева[2]

[1, 2] Қазтұтынуодағы Қарағанды экономикалық университеті, Қарағанды қ., Қазақстан

ШЕТ ЕЛДЕРДЕГІ ДЕНСАУЛЫҚ САҚТАУ ЖҮЙЕСІН МЕМЛЕКЕТТІК БАСҚАРУДЫҢ ҰЙЫМДАСТЫРУШЫЛЫҚ-ҚАРЖЫЛЫҚ МЕХАНИЗМІ

Аннотация. Мақалада ұйымдық-қаржылық ерекшеліктерді есепке алу негізінде денсаулық сақтау жүйесі қарастырылған: үкіметтік басымды, әлеуметтік-сақтандыру басымды, меншік басымды.

Денсаулық сақтау жүйесінің көрсеткіштері айрықша айқын келесі мемлекеттерде көрсетілген: мемлекеттің маңызды рөлімен сипатталатын мемлекеттік басымды – (Ұлыбритания, Греция, Дания,

Норвегия, Португалия, Швеция және т.б.), әлеуметтік-сақтандыру басымды – (Австрия, Бельгия, Нидерланды, Германия, Франция, Швейцария, Жапония), меншік басымды – (АҚШ, Оңтүстік Корея және т.б.). Авторлармен шет елдердегі денсаулық сақтау жүйесіне салыстырмалы-салғастырмалы талдау жүргізілді. Денсаулық сақтау жүйесін басқаруды ұйымдастырудың ерекшеліктері анықталып, денсаулық сақтау саласын қаржыландыру көзінің үш түрі: бюджеттік, сақтандыру, жекеменшік айқындалды. Жүргізілген талдама негізінде сәйкесінше қорытындылар жасалды. Атап өтсек, мұндағы шет елдердің денсаулық сақтау жүйесін қаржыландырудың ұйымдастырушылық-қаржылық механизмін зерттеу келешекте аталмыш елдердің неғұрлым озық тәжірибесін Отандық денсаулық сақтау саласында қолдану қажеттілігінен туындап отыр.

Түйін сөздер: денсаулық сақтау жүйесі; денсаулық сақтау жүйесінің қызмет етуінің ұйымдастырушылық-қаржылық механизмі; денсаулық сақтауды қаржыландыру; медициналық реформа.

УДК 336.58

Е. Аймагамбетов[1], А. Тынгишева[2]

[1,2]Карагандинский экономический университет Казпотребсоюза, Караганда, Казахстан

ОРГАНИЗАЦИОННО-ФИНАНСОВЫЙ МЕХАНИЗМ ГОСУДАРСТВЕННОГО УПРАВЛЕНИЯ СИСТЕМОЙ ЗДРАВООХРАНЕНИЯ В ЗАРУБЕЖНЫХ СТРАНАХ

Аннотация. В статье исследуются системы здравоохранения, выделенные на основе учета организационно-финансовых особенностей: преимущественно государственная, преимущественно социально-страховая, преимущественно частная. Наиболее четко данные системы здравоохранения представлены в следующих странах: преимущественно государственная, характеризующаяся значительной ролью государства – (Великобритания, Греция, Дания, Норвегия, Португалия, Швеция и др.), преимущественно социально-страховая – (Австрия, Бельгия, Нидерланды, Германия, Франция, Швейцария, Япония), преимущественно частная – (США, Южная Корея, и др). Авторами проведен сравнительно-сопоставительный анализ системы здравоохранения в зарубежных странах. Выявлены организационные особенности управления системой здравоохранения, определены источники финансирования здравоохранения по трем видам: бюджетные, страховые, частные. На основании проведенного анализа сделаны соответствующие выводы. Следует отметить, что изучение организационно-финансового механизма отрасли здравоохранения в зарубежных странах необходимо с целью возможности использования опыта стран с наиболее эффективной системой здравоохранения в отечественной практике.

Ключевые слова: система здравоохранения; организационно-финансовый механизм функционирования системы здравоохранения; финансирование здравоохранения; медицинская реформа.

Information about the authors:

Aimagambetov Ye.B. - Karaganda Economic University of Kazpotrebsoyuz, https://orcid.org/0000-0002-1270-6479, mail@keu.kz;

Tingisheva A. - Karaganda Economic University of Kazpotrebsoyuz, https://orcid.org/0000-0002-1957-4325, ajnur-88@mail.ru

REFERENCES

[1] Official site of the World Health Organization. Access mode http://www.who.int/features/qa/28/ru/.

[2] Balakina A.P., Bablenkova I.I. (**2012**) Finance. Moscow. P. 384.

[3] Stiglitz J.E. (**2000**) Economics of the Public Sector. Norton. P. 823 (in Eng.).

[4] Arrow K. (**1963**) Uncertainty and the welfare economics of medical care. American Economic Review, № 53(68). P. 941-973.

[5] Getzen T.E. (**2012**) Health Economics: Fundamentals and Flow of Funds. John Wiley & Sons. P. 496 (in Eng.).

[6] Thomson S., Figueras J. et al. (**2015**) Economic Crisis, Health Systems and Health in Europe: Impact and Implications for Policy. Open University Press (OUP). Access mode http://www.euro.who.int/data/assets/pdffile/0009/285993/ Economic-crisis,-health-systems-and-health-in-Europe.-Impact-and-implications-for-policy-ru.pdf?ua=1. (in Eng.)

[7] Omelyanovsky V., Maximov L. (**2014**) Foreign experience: models of financing and organization of health systems. Financial Journal, № 3(15). P. 23-27.

[8] Barkina T., Semenchuk O. (**2017**) The main forms of organization of health care in developed countries of the world. Economy and Society, № 2(33). P. 135-139.

[9] Gurina N.A. (**2002**) Organization of Health in Norway. P.24-28.

[10] Zhukova O. (**2015**) The Kingdom of the Vikings and fjords. How to provide medical care in Norway. Drug review. №11 (78). Access mode http://www.aif.ru/society/healthcare.

[11] Die Auseinandersetzung die Digitalisierung des Gesundheitswesens. Access mode http://www.heise.de/ct/artikel/Die285 Auseinandersetzung-um-die-Digitalisierung-des-Gesundheitswesens-302570. html. (in German)

[12] Novikov I. (**2015**) The health insurance system in Germany. Economics and Management: Problems of Solution. P.335.

[13] Halfin R. (**2012**) The organization of the health care system in the United States. Health Manager. Access mode https://cyberleninka.ru/article/.

[14]Ulumbekova G. (**2012**) US Health Care Reform: Lessons for Russia. Electronic scientific journal. Social aspects of public health. № 5(15).P.35-41.

[15] Ramesh M. (**2008**) Autonomy and Control in Public Hospital Reforms in Singapore . The American Review of Public Administration. № 1(38) P. 62–79. (in Eng.)

[16] Nazarov V., Davis K. (**2014**) Medical savings accounts: prospects for the CHI system. Financial journal, №2(25) P. 51-59.

[17] Massalsky R. (**2015**) Medical insurance in Singapore. Journal Modern problems of science and education, №1(17) P.72-76.

[18] Zaretsky A. (**2015**) Chin Thi Han Ha Features of the health insurance system in the Republic of Singapore. Actual issues of innovative economy, №3(11) P. 77-78.

[19] Bloomberg (**2016**) Ranking of countries in the world on the effectiveness of health systems in 2016. Center for Humanitarian Technologies. Access mode https://gtmarket.ru/news/2016/10/08/7306 (in Eng.)

[20] Official website of the Kazakhstan insurance portal. Access mode https://allinsurance.kz

[21] Domalatov Ye. (**2018**) Kazakhstan in the context of global index of innovative activity. Reports of the national academy of sciences of the Republic of Kazakhstan. №320(4). P.88-94 https://doi.org/10.32014/2018.2518-1483.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.9**
Volume 1, Number 323 (2019), 69 – 74

A.M. Mubarakov[1], B.K. Ataev[2], A.Zh. Karymsakova[2]

[1]L.N. Gumilov Eurasian National University,Astana,Kazakhstan;
[2]Sh. Ualikhanov Kokshetau State University, Kokshetau, Kazakhstan
Akan-mubarak@mail.ru; ataevb@mail.ru; karymsakova-anara@mail.ru

MULTIMEDIA PRINCIPLES AND ITS USAGE IN GEOMETRY TEACHING

Abstract. Nowadays multimedia offers exciting possibilities both for learners and teachers. To get the educational benefits of new educational technologies such as multimedia learning tools it is important to study principles of multimedia learning and to use them for designing multimedia instructional messages. The purpose of this article is to acquaint the reader with principles of multimedia learning which has been popularized by an American educational psychologist Richard E. Mayer. An idea of that principles is organization of sound, text and images on the screen. There are some examples of mistakes that geometry teachers can make on their multimedia lessons in the article and it shows how they can be corrected. It may be useful for geometry teachers to make their multimedia presentations more effective. Each principle of multimedia learning for designing presentations for geometry lessons is subject to further research. All beliefs about benefits of multimedia must be supported by research.

Keywords: cognitive theory, multimedia learning, multimedia principles, multimedia learning tools, geometrylessons, visual information, aural information, selecting, organizing , integrating.

Gauss stated«Mathematics is a science for the eyes, not for the ears»[1], so it's important to prove that multimedia learning has its own place in teaching of mathematics. One of the major questions of pedagogy is improving the quality of education by using the multimedia learning tools.Also, the teachers' main duty in the teaching process is to teach students to searching, processing, understanding and using new information by themselves [2], even in this case the multimedia learning tools can be very useful.

There is an interesting question whether principles of multimedia learning are universal, which means they can be used for any subject (there is no matter if it is math or history). What if they are not universal and the multimedia principles must be adapted for a certain subject? For instance, would the ratio of animated pictures and narration on multimedia lessons for literature be the same also for math? In order to answer such questions we have to analyze scientific researches and to make a conclusion.

First of all we need to define what multimedia learning tools are. Mass communication media such as books, TV, radio, papers also can be used as instructional media in learning process. Most of researchers have argued that multimedia learning tools could be defined as a mix of various mass media.Especially multimedia learning tools are good for delivering visual and aural information to learners.

Richard E. Mayer and other researchers developed the cognitive theory of multimedia learning. According to their research, people learn more deeply from words and pictures than words alone, this statement is known as the multimedia principle and it is one of 14 principles that were defined by Mayer [3]. Researchers of multimedia learning consider multimedia as a connection of text and pictures. They assert that multimedia learning takes place when learners build mental representations from these words and pictures [4]. Words can be written or they can be spoken, visual information can be represented as pictures.The goals of researchers of multimedia learning is to define the best ways for combining words and pictures to make learning process more effective.

The cognitive theory of multimedia learning, introducing by Mayer, is based on such several cognitive theories as Baddeley's model of working memory[5], Paivio's dual coding theory[6], Sweller's cognitive load theory[7], Wittrock's generative theory[8].

The cognitive theory of multimedia learning can be considered as a model which is consisted of sensory memory, working memory, and long-term memory. According to this model, the students in multimedia learning engage in three cognitive processes like selecting, organizingand integrating.In the firs process, working memory selects verbal and visual information from sensory memory. In the second process, selected words and sounds converted to pictorial model and verbal model. In the third process students build connection between corresponding parts of the verbal model and the visual model, also with prior knowledge. Figure 1 is a representation of how memory works according to Mayer's cognitive theory of multimedia learning.

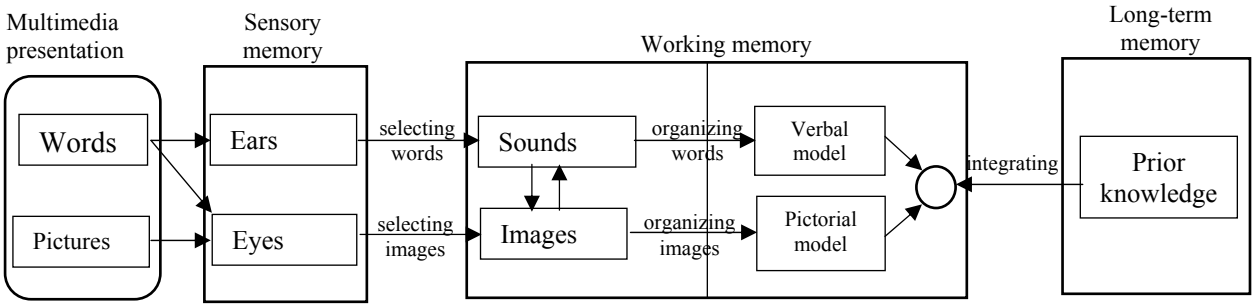


Figure1 - Mayer's Cognitive Theory of Multimedia Learning

Mayer introduces the nextbasic principles for designing effective multimedia presentation that will help people learn more deeply:

- Coherence Principle –deeper learning happens when extraneousmaterial is excluded rather than included.
- Signaling Principle –people learn better when important information on the presentation is highlighted.
- Redundancy Principle – people learn deeper from images with narration than from imageswith both narration and printed text.
- Spatial Contiguity Principle –deeper learning happens when corresponding words and pictures are presented near rather than far from each other on the page or screen[9].
- Temporal Contiguity Principle –deeper learning occurs when corresponding words and pictures are presented simultaneously rather than in successively.
- Segmenting Principal – People learn better when a multimedia lesson is presented in learner-paced segments rather than as a continuous unit.
- Pre-training Principle - People learn more deeply from a multimedia message when they receive pre-training in the names and characteristics of key components.
- Modality Principle - People learn better from graphics and narration than from graphics and printed text.
- Multimedia Principle - People learn better from words and pictures than from words alone.
- Personalization Principle - People learn better from a multimedia presentation when the words are in conversational style rather than in formal style.
- Voice Principle - People learn better when the words in a multimedia message are spoken by a friendly human voice rather than a machine voice.
- Image Principle - People do not necessarily learn more deeply from a multimedia presentation when the speaker's image is on the screen rather than not on the screen.
- Individual Differences Principle: Design effects are stronger for low-knowledge learners than for high-knowledge learners.
- Interactivity Principle: Deeper learning happens when learners can control the presentation rate than when they cannot.

We are going to show how we don't have to design presentation for geometry lessons based on Mayer's principles.

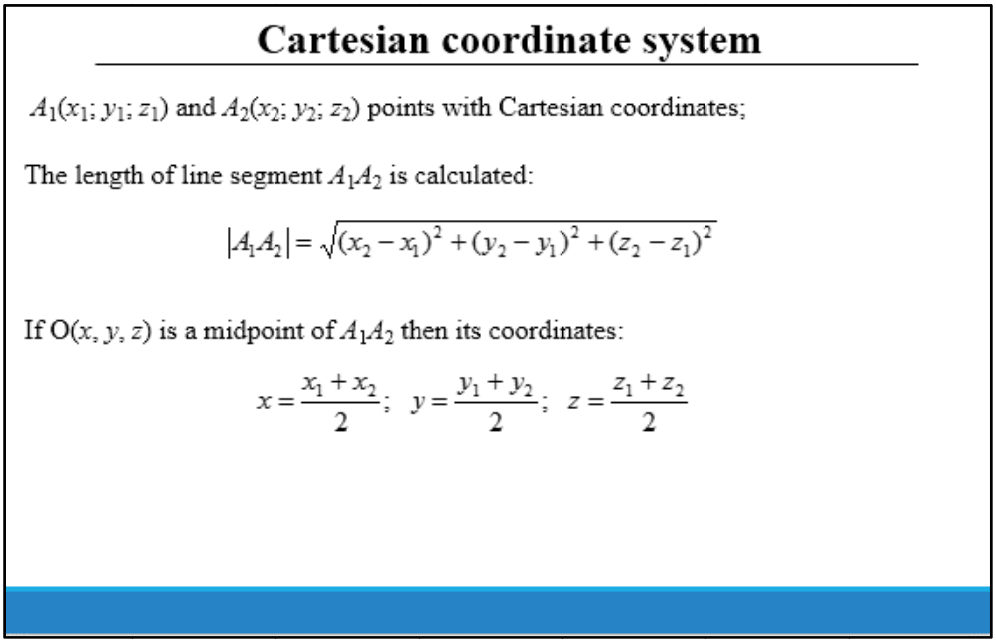


Figure 2 -Example, Contradiction to Signaling Principle

The slide on figure2 contradicts to Signaling Principle, because most important information is not highlighted. It would be better if the formulas were framed and corresponding words “length” and “midpoint” were highlighted. For highlighting it can be used bold text, arrows, circling, voice emphasizing and etc. Highlighting helps learners to pay extra attention to the relevant information.

We usually can see slides like on figure 3 in geometry classes[10].

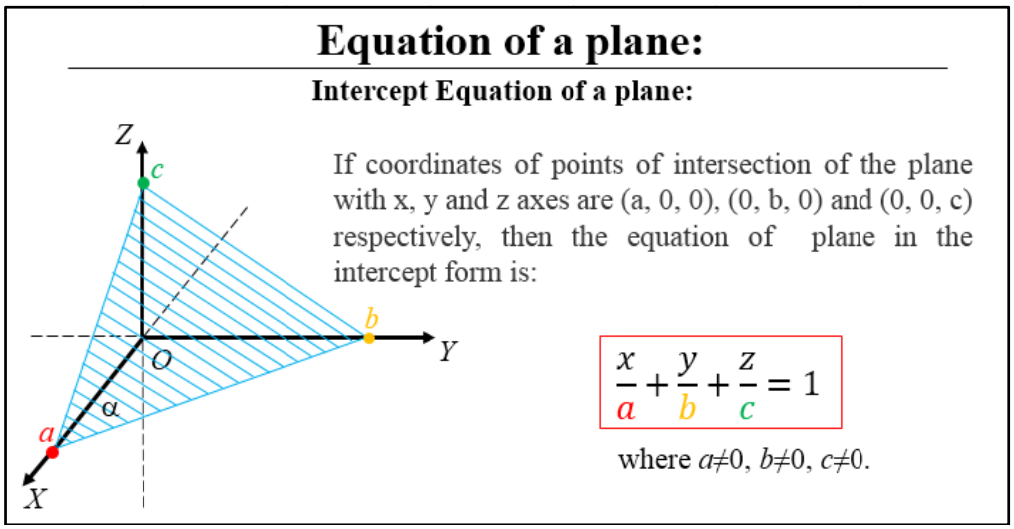


Figure 3 - Example, Contradiction to Modality Principle

If a teacher reads the text from the slide on figure 3 it will contradict to Redundancy Principle. According to this principle, if there isa text and images on the screen the teacher does not have to read the text from the screen. However, even if the teacher does not read thetext form this slide it is also in contradiction with Modality Principle. In accordance with Modality Principle, it is better to use narration for explaining graphical information instead of using a printed texton the screen[11].

There is the same information on figures 4 and 5, but they have different organization of that information. The slide on figure 4 contradicts to Spatial Contiguity Principle.

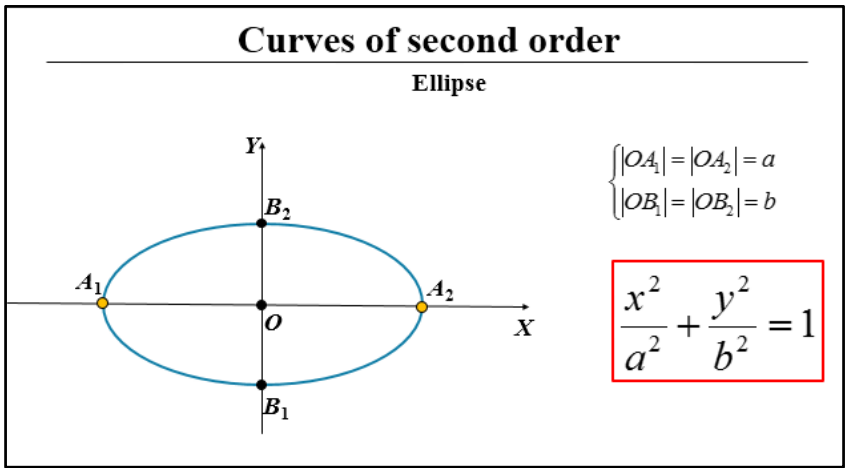


Figure 4 - Example, Spatial Contiguity Principle is not used

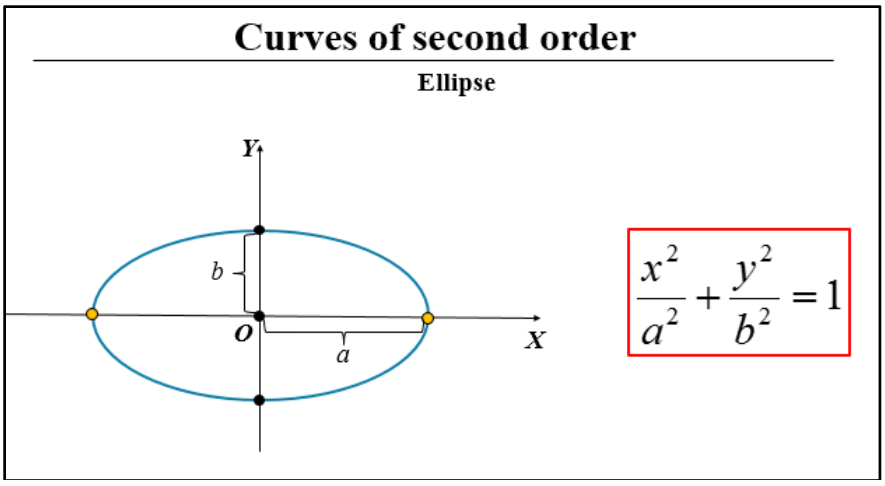


Figure 5 - Example, Spatial Contiguity Principle is used

In the example on figure 4, learners have to mentally make connections between corresponding words (letters) and objects (axis of the ellipse), so that when Spatial Contiguity Principle does not work,it is a bit difficult for learners to comprehend the message on the screen.

Temporal Contiguity Principle similar to Spatial Contiguity Principle. Spatial Contiguity Principle mainly concerned with the distance or spatial gaps but Temporal Contiguity Principle concerns with timing or temporal gaps. For instance, if we say "let's ***a*** be length of the semi-major axis of an ellipse" then at the same time we need to show it on the screen.

We show examples for some principles and some mistakes which we can make when we design slides for our lectures. It is not right to use multimedia learning tools like a paper. The multimedia learning tools have own advantages to use them we need to further test this principles for geometry.

In the conclusion we would like to give the quote. The President of the Republic of Kazakhstan N.A. Nazarbayev said: "It is important to continue work on developing **digital educational resources**, connecting to broadband Internet and equipping our schools with video facilities.It is necessary to **strengthen the quality of teaching mathematical and natural sciences** at all levels of education" [12].The multimedia learning tools as a part of digital educational resources can be useful to achieve these goals. That is why we need study principles of multimedia learning deeply.

УДК323.3

А.М. Мұбарақов, Б.К.Атаев, А.Ж. Қарымсақова

МУЛЬТИМЕДИЯЛЫҚ ОҚЫТУДЫҢ ҚАҒИДАЛАРЫ ЖӘНЕ ОЛАРДЫҢ ГЕОМЕТРИЯНЫ ОҚЫТУДА ҚОЛДАНЫЛУЫ

Аннотация. Бүгінгі таңда мультимедия білім алушылар мен оқытушыларға таңқаларлық мүмкіндіктер ұсынуда. Мультимедиялық оқыту құралдары секілді заманауи білім беру технологияларының оқытуда пайдасы болу үшін мультимедиялық оқытудың қағидаларын және оларды мултимедиялық оқыту хабарламаларын жасауға қолдана білу керек. Мақала мақсаты – оқырманды американдық психолог Ричар Е. Мейер жасаған мультимедия қағидаларымен таныстыру. Ол қағидалардың негізгі ойы экрандағы дыбыстың, мәтіннің және бейнелердің тиімді үйлесімін анықтау болып табылады. Сондай-ақ, мультимедиялық сабақтарда геометрия пәнінің оқытушылары жасайтын қателерге мысалдар келтірілген және оларды түзету жолдары көрсетілген. Бұл қағидалар геометрия пәндерінің оқытушалырына мультимедиялық сабақтарының тиімділігін арттыруға септігін тигізе алады. Мультимедиялық оқытудың әрбір қағидасы геометрия сабақтарының аясында призентациялар жасау үшін жете зерттеуді талап етеді. Мультимедиялық оқытудың артықшылытары туралы көзқарастар нақты пәнге қатысты, соның ішінде геометрия үшін де ғылыми зерттеулермен негізделуі тиісті.

Түйін сөздері: когнитивтік теория, мультимедиялық оқыту, мультимедиялық оқытудың құралдары, қағидалар, геометрия сабақтары, визуалды ақпарат, дыбысты ақпарат, таңдау, ұйымдастыру, байланыстыру.

А.М. Мубараков[1], Б.К. Атаев[2], А.Ж. Карымсакова[2]

[1]Евразийский национальный университет имени Л.Н. Гумилева,г. Астана, Республика Казахстан;
[2]Кокшетауский государственный университет имени Ш. Уалиханова, кафедра физики и математики, естественных наук, г. Кокшетау, Республика Казахстан

ПРИНЦИПЫ МУЛЬТИМЕДИЙНОГО ОБУЧЕНИЯ И ИХ ПРИМЕНЕНИЕ ПРИ ОБУЧЕНИИ ГЕОМЕТРИИ

Аннотация. В настоящее время мультимедиа предоставляет большие возможности как для учащихся, так и для преподавателей. Чтобы получить максимальную пользу от новых образовательных технологий, таких как мультимедийные средства обучения, важно знать принципы мультимедийного обучения и уметь использовать их при создании мультимедийных учебных презентаций. Цель этой статьи - познакомить читателя с принципами мультимедийного обучения, которые были предложены американским психологом Ричардом Э. Майером. Идея этих принципов заключается в сочетании звука, текста и изображений на экране. В статье приводятся примеры ошибок, которые учителя геометрии могут допускать на мультимединых уроках, а также указаны пути их исправления. Эти принципы могут быть полезны для учителей геометрии, чтобы сделать их мультимедийные презентации более эффективными. Каждый принцип мультимедийного обучения для разработки презентации,относительно предмета геометрия, является предметом дальнейшего исследования.

Ключевые слова:когнитивная теория, мультимедийное обучение, мультимедийные принципы обучения, мультимедийные средства обучения, уроки геометрии, визуальная информация, звуковая информация, отбор, организация, интеграция.

Information about the authors:

Mubarakova .M. - doctor of pedagogicalsciences, professor, chair of informatics, L.N. Gumilov Eurasian National University, Kazakhstan, Astana;

Ataev B.K. - Phd student,faculty of natural sciences Sн. UalikhanovKokshetau State University,Kazakhstan, Kokshetau;

Karymsakova A.ZH. - Phd student,faculty of natural sciences, Sн. UalikhanovKokshetau State University, Kazakhstan, Kokshetau

REFERENCES

[1] V.A. Dalinger. Cognitive-visual approach and its features in teaching mathematics// Bulletin of OmskState Pedagogical University. **2006**. –URL: http://omsk.edu/article/vestnik-omgpu-151.pdf. (in Russian).

[2] MubarakovA.M., AtaevB.K., ShindakievN.T.Technologies of education knowledge: signs and development // Humanitarian space of science: experience and prospects.- MaterialsofIXInternational Scientific-Practical Internet Conference.- Preaslavl-Khmelnitskiy. Ukraine, **2017**. P. 130-134(in Russian).

[3] Mayer R. E. The Cambridge Handbook of Multimedia Learning. New York: Cambridge University Press, **2014**. 930 p.(in English).

[4] Stephen D. Sorden. The Cognitive Theory of Multimedia Learning.Mohave Community College/Northern Arizona University – 2012. URL: http://sorden.com/portfolio/sorden_draft_multimedia2012.pdf. (in English).

[5] Baddeley A. Working memory// Science. 1992. Vol. 255, pp. 556-559(in English).

[6] Paivio A. Mental representations: A dual coding approach. Oxford. England: Oxford University Press, 1990. 332 p.(in English).

[7] Sweller J. Cognitive load during problem solving //Cognitive Science.–1988.Sweller J. Cognitive load during problem solving //Cognitive Science. **1988**. 12, pp. 257-285. 12, pp. 257-285(in English).

[8] Wittrock M. C. Generative processes of comprehension // Educational Psychologist. **1989**. 24, pp.345-376.(in English).

[9] Mauina G.A., Nurpeisova A.A., Dusembaeva L.K., Kurmanova D.S. Development of mathematical models for optimizing the process of creating innovative products// Reportsof National Academy of Sciences. **2018**. Vol 1. P.45-52https://doi.org/10.32014/2018.2518-1483

[10] Domalatov E.B.Kazakhstan in the context of the global index of innovation activity

// Reportsof National Academy of Sciences.. **2018**. Vol. 4. P.70-79 https://doi.org/10.32014/2018.2518-1483

[11] Panzabekova A.Zh., MussaevaD.M., Zhanbozova A.B. Formation and development of the information society in the context of its impact on the quality of life of the population// Reportsof National Academy of Sciences. **2018**. Vol. 5. P.17-24 https://doi.org/10.32014/2018.2518-1483

[12] State of the Nation Address by the President of the Republic of Kazakhstan NursultanNazarbayev.–New Opportunities Under the Fourth Industrial Revolution. 2018. URL:http://www.akorda.kz/en/addresses/addresses_of_president/state-of-the-nation-address-by-the-president-of-the-republic-of-kazakhstan-nursultan-nazarbayev-january-10-2018 (in English).

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.10**
Volume 1, Number 323 (2019), 75 – 78

UDK 339.138.

B.M. Bayadilova

Kazakh Humanities and Law Innovation University, Semey city
melisovna@mail.ru

THE RESEARCH ON THE INNOVATIVE POTENTIAL OF SMALL AND MEDIUM-SIZED ENTERPRISES UNDER THE FORMATION OF A NEW TECHNOLOGICAL STRUCTURE (BASED ON DATA OF EAST KAZAKHSTAN REGION)

Abstract. The article presents the current state of small and medium-sized businesses in the East Kazakhstan region of the Republic of Kazakhstan, in particular, the dynamics and structure of active innovatively developed small and medium-sized businesses, the main indicators characterizing the development of small businesses in the context of the formation of a new technological structure in the region.

The innovative potential of enterprises of the East Kazakhstan region is also considered, that is, the degree of its readiness to perform the tasks of small and medium-sized businesses, ensuring the achievement of the set innovation goal, the structure of performance indicators of small and medium-sized businesses, as well as the degree of readiness to implement an innovative project innovation transformation and innovation programs.

Keywords: small business, business, innovation, potential, competition, economic growth, concept, partnership.

INTRODUCTION

The development of the innovative potential of an enterprise can be carried out only through the development of all its divisions, as well as all elements of the production and economic system. Therefore, a thorough analysis or diagnosis of the organization's internal environment is necessary to assess the innovation potential [1].

World experience shows that the success of market transformations and the ongoing development of the national economy is largely determined by the extent to which the potential of small business, the most dynamic and flexible sector of the economy, is realized. In order for a small business in Kazakhstan to fully perform its economic and social functions, comprehensive and comprehensive support and ensuring its viability are needed.

In the Republic of Kazakhstan, the main strategic document of development is the Message of the President of the Republic of Kazakhstan - the Leader of the Nation N. A. Nazarbayev to the people of Kazakhstan, the strategy "Kazakhstan-2050", presented in 2012. Its main goal is to create a welfare society based on a strong state, a developed economy and opportunities for universal labor, the entry of Kazakhstan into the top thirty most developed countries of the world [2].

MAIN PART

In general, in Kazakhstan over the past 10 years, there has been an almost two-fold increase in the number of small businesses, including an increase of more than three times the number of individual entrepreneurs.

Consider the main indicators characterizing the development of small business by state in January 2018, in table 1.

Name	Total operating SMEs	including		
		legal entities SME	individual entrepreneurs	farms
East Kazakhstan region	79 966	10 058	55 407	14 501
Ust-Kamenogorsk	26 424	5 424	20 880	120
Kurchatov	468	55	411	2
Ridder	2 615	275	2 257	83
Semey	18 047	2 294	15 181	572
Abay district	888	33	308	547
Ayagoz district	3 391	161	2 063	1 167
Beskaragai district	892	63	347	482
Borodulikha district	1 312	93	647	572
Glubokovsky district	2 273	242	1 518	513
Zharma district	1 566	102	893	571
Zaisan district	2 450	107	1 211	1 132
Zyryanovsky district	3 166	301	2 656	209
Kokpektinsky district	1 621	132	737	752
Kurchum district	1 633	100	619	914
Katon-Karagay district	2 121	109	600	1 412
Tarbagatai district	2 829	83	837	1 909
Ulan district	1 890	156	700	1 034
Urjar district	4 039	141	1 667	2 231
Shemonaiha district	2 341	187	1 875	279
Statistical Business Register data stat.gov.kz [3]				

The largest number of active individual entrepreneurs is concentrated in Ust-Kamenogorsk (37.7%) of the total number and Semey (27.4%).

According to the statistical register, a significant number of working peasant or farm enterprises were recorded in Urjar (15.4%), Tarbagatai (13.2%), Katon-Karagai (9.7%), Ayagozsky (8.0%), and Zaisan (7.8%) areas.

The number of operating SMEs as of January 1, 2018 operating in the market amounted to 80 thousand units.

The time limit, the lack of specialists capable of conducting system analysis, the lack of information about the organization (especially when analyzing the innovative potential of competitors) force us to use diagnostic approaches to assess the innovative potential of the organization. It should be noted that conducting a diagnostic analysis requires certain skills and information base. As diagnostic parameters, available information is used that characterizes various aspects of the company's activities (for example, number of employees, average wage level, labor productivity, production costs, product and service quality, etc.).

Within the framework of regional development, funds from all existing programs were attracted for the development of villages: Employment Roadmap 2020, Development of Regions, Business Roadmap, Modernization of Housing and Public Utilities, Ak Bulak, Education Development, Healthcare Development "," Agribusiness 2020 ". In general, 40.0 billion tenge was directed to the development of villages, over 2.4 thousand projects were implemented. The main tasks in the context of the implementation of the New Economic Policy "Nurly Zhol" - ensuring sustainable growth of the economy and improving the quality of life of Kazakhstan [4, 5,6].

In addition to purely economic, small business performs other functions. An important social function of small business in industrialized countries is associated with its ability on a large scale to absorb the unoccupied workforce released from large enterprises to reduce social tensions that arise in conditions of chronic unemployment and economic crises. The experience of developed industrial countries that have coped with the structural crisis of the mid-70s of the twentieth century shows that employment issues of the population can be solved quite effectively through the mass creation of small enterprises..

World experience shows that small business plays a very important role in a market economy. In Western Europe and the United States, small business is one of the main areas of employment for the population (statistics show that 50–70% of employment in the economies of the country is accounted for small business and 60–70% of new jobs are generated by small businesses).

The number of small enterprises in such areas as construction, transport, consumer services is growing gradually.

Monitoring of small and medium-sized businesses in the East Kazakhstan region: in January-June 2018 compared with January-June of the previous year, output (in comparable prices) increased by 15.5%, the number of active subjects increased by 3.1% the number of employees - by 4.8%. The structure of performance indicators of small and medium-sized businesses, as a percentage, we consider in Figure 1.

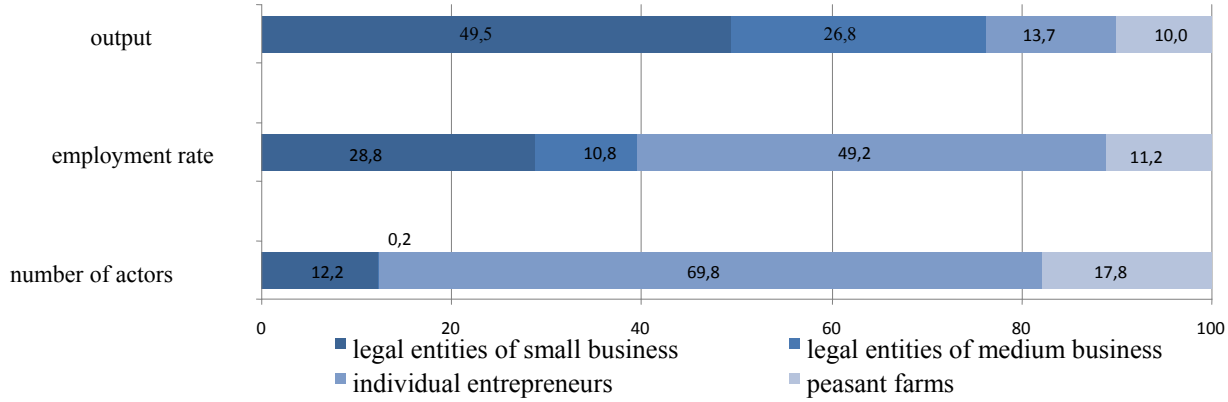


Figure 1 - Structure of performance indicators of small and medium-sized businesses

The output of small businesses by legal entities increased by 20.1% compared to January-June 2017, medium-sized enterprises - by 22.1%, peasant farms - by 12.8%, individual entrepreneurs decreased by 5.8%.

The strategic measures, which aim to increase the competitiveness of Kazakhstan, include not only strategic management decisions, but also concrete actions for the prompt response of the authorities to changes of an external and internal nature. Accordingly, this raises the need for strategic maneuvering and revision of priorities and objectives of public policy [7].

It is necessary to carry out technological modernization of production capacities due to the introduction of promising domestic scientific and technical developments and transfer of advanced foreign technologies, to form innovative production and to ensure accelerated modernization of existing enterprises in the structure of territorial production clusters, diversification of export directions of Kazakhstan hydrocarbons is necessary (including an increase in export to China) and the creation of appropriate infrastructure.

CONCLUSION

Thus, ensuring the integration of Kazakhstan into the world market and accelerating socio-economic development through the rational distribution of productive forces across its territory, the development of a settlement system, which will increase the population's access to all sources of socio-economic growth, and the development of an industrial region rich in mineral raw materials and fully meeting their own needs for food products and building materials due to domestic production.

Improving the standard of living of the population due to the formation of agglomerations with appropriate life-supporting infrastructure. Creating new jobs through the rapid development of small and medium-sized businesses in the manufacturing industry and the service sector.

УДК 339.138.

Б.М. Баядилова

Қазақ гуманитарлық-заң инновациялық университеті, Семей қаласы

ЖАҢА ТЕХНОЛОГИЯЛЫҚ ТӘРТІПТІ ҚАЛЫПТАСТЫРУ ЖАҒДАЙЫНДА ШАҒЫН ЖӘНЕ ОРТА КӘСІПКЕРЛІКТІҢ ИННОВАЦИЯЛЫҚ ӘЛЕУЕТІН ЗЕРТТЕУ (ШҚО МАТЕРИАЛДАРЫНДА)

Аннотация. Мақала Қазақстан Республикасының Шығыс Қазақстан облысындағы шағын және орта бизнестің ағымдағы жай-күйін, атап айтқанда, белсенді инновациялық дамыған шағын және орта бизнестің динамикасы мен құрылымын, аймақтағы жаңа технологиялық құрылымды қалыптастыру контекстінде шағын бизнестің дамуын сипаттайтын негізгі көрсеткіштерді көрсетеді.

ШҚО кәсіпорындарының инновациялық әлеуеті, атап айтқанда, шағын және орта бизнестің алдына қойылған міндеттерді орындауға дайындығы, белгіленген инновациялық мақсатқа жету, шағын және орта бизнестің көрсеткіштерінің құрылымы, сондай-ақ инновациялық жобаны іске асыруға әзірлік дәрежесі қарастырылады. инновациялық трансформация және инновациялық бағдарламалар.

Түйін сөздер: шағын бизнес, бизнес, инновация, әлеует, бәсекелестік, экономикалық өсу, тұжырымдамасы, әріптестігі.

УДК 339.138.

Б.М. Баядилова

Қазақ гуманитарлық-заң инновациялық университеті, Семей қаласы

ИССЛЕДОВАНИЕ ИННОВАЦИОННОГО ПОТЕНЦИАЛА МАЛОГО И СРЕДНЕГО ПРЕДПРИНИМАТЕЛЬСТВА В УСЛОВИЯХ ФОРМИРОВАНИЯ НОВОГО ТЕХНОЛОГИЧЕСКОГО УКЛАДА (НА МАТЕРИАЛАХ ВКО)

Аннотация. В статье авторами представлено современное состояние малого и среднего предпринимательства в Восточно-Казахстанской области Республики Казахстан, в частности динамика и структура активных инновационно-развитых субъектов малого и среднего бизнеса, основные показатели, характеризующие развитие малого предпринимательства в условиях формирования нового технологического уклада в разрезе региона.

Так же рассмотрен инновационный потенциал предприятий Восточно-Казахстанской области, то есть продемонстрирована степень его готовности выполнить задачи субъектов малого и среднего бизнеса, обеспечивающие достижение поставленной инновационной цели, структура показателей деятельности субъектов малого и среднего предпринимательства, а так же степень готовности к реализации инновационного проекта или программы инновационных преобразований и внедрения инноваций.

Ключевые слова: малое и среднее предпринимательство, бизнес, инновации, потенциал, конкуренция, экономический рост, концепция, партнерство.

Information about the authors:
Bayadilova B.M. - Kazakh Humanities and Law Innovation University
Semey city, melisovna@mail.ru, https://orcid.org/0000-0002-4972-3408

REFERENCES

[1] Goncharov V.V. In search of excellence in management: A guide for senior management personnel. T.2. 2nd ed. M .: MNIIPU, **2002**. p. 256.
[2] http://www.akorda.kz
[3] www.shygys.stat.kz
[4] The program of development of the territory of the East Kazakhstan region for 2011 – 2015.
[5] "Kazakhstan" National Encyclopedia / Ch. Ed. B. Ayagan. Almaty, **2006.**
[6] Abstracts of the report of the East Kazakhstan oblast akim Akhmetov D.K. in front of the population // http://www.akimvko.gov.kz
[7] Medynsky V.G., Skamai L.G. Innovative entrepreneurship. - M .: Unity-Dana, **2002**. p. 54-63
[8] Sabirova R.K., Baymuhasheva M.K., Utepkalieva K.M., Dingaziyeva M.D., Sanalieva L.K. Intellectual potential of the Republic of Kazakhstan. "Bulletin of the Republic of Kazakhstan." ISSN 1991-3494 3. 2018 P.192-197 website address http://www.bulletin-science.kz/index.php/en/arhive. DOI https://doi.org/10.32014/2018.2518-1467

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.11**
Volume 1, Number 323 (2019), 79 – 85

UDC 3 33 330.3

Vilena Seitova[1], Roland Giese[2]

[1]University of Turan, Almaty, Kazakhstan;
[2]University of Applied Sciences Hochschule Zittau/Görlitz)
Vilena_11@mail.ru r.giese@hszg.de

FORMATION AND DEVELOPMENT OF INNOVATIVE COTTON-TEXTILE CLUSTER IN KAZAKHSTAN

Abstract. The article is devoted to the formation and development of innovative services in the cotton industry. Innovation is an objective stimulus and a prerequisite for the dynamic development of the economy. A comparative analysis of the new innovative cotton variety "Turkistan" was carried out, the possibilities of their introduction in production were investigated. The introduction of innovation results, first of all, will contribute to the sustainable economic growth of the cotton industry and, secondly, increase the competitiveness of cotton-textile cluster production in the country.

Innovative cluster approach allows to mobilize all economic factors in the certain direction. Cluster development today is a widely recognized instrument that provides economic development and competitiveness. Rapid growth of cluster initiatives in developed and developing countries has shown their effectiveness and viability. The usage of the cluster model in the development of cotton-textile industry in Kazakhstan is a key factor in the competitiveness of the private companies and the economy associated with the production.

Keywords: innovation, cotton industry, strategy, development, cluster technology, cotton-textile cluster, efficiency, competitiveness.

Kazakhstan's economy is reflected in the system of product complexes of the existing agrarian sector. The living conditions of the country's population depends primarily on the level of agricultural production, the volume of agrarian production, directly related to the formation and development of the economy.

The head of the state N.A.Nazarbayev in his Message to the People set out the question of Kazakhstan's joining to the group of 30 developed countries «...development of agroindustrial complex on the basis of industrial-innovation clusters, deep processing of raw materials and products, export orientation »[1].

One of the export-oriented sectors of the agrarian sector of Kazakhstan, the results of scientific research in cotton growing and the formation of competitive structure on the basis of introducing innovative [2.3], development of the sectoral economy determine the relevance of this theme and its content.

The decline in the production of raw cotton after years of independence led to the country's textile sectors supply of raw materials and reduced demand for export products. Low productivity of raw cotton, high labor and production costs, as well as low purchasing prices compared with fuel and energy costs, inflation led to decrease efficiency in production and the growth of raw cotton output.

These conditions include the loss of the previous logistics system, the inequality of prices for agricultural and industrial products, technologies for outdated production facilities and resources due to financial deficits, etc. the inability to update, in turn, had a negative impact on the development of the cotton industry.

Analysis of long-term data on cotton production in the Republic of Kazakhstan shows an increase in raw cotton output from year to year. According to the data of 2017 y., 95,0% of the total production of raw cotton is in the share of peasant (farmer) farms, and 5,0% - by agricultural enterprises. For the last five years, the volume of raw cotton production in peasant (farmer) farmsincreased to 33,6% or to 77,0 thousand tons. There were specialrequirements to establishcompetitive cotton structures at the production sites taking into account specialization of production on the territories.

Table 1 – Main indexes of cotton industry of Kazakhstan [4]

years	Total crop of cotton industry		Total product of raw cotton		Productivity of raw cotton	Volume of cotton fibre
	thousand ha.	previous year in %	thousand tons	previous year in %	centners/ha.	thousand tons
1991-1995 yy. average	112,3	100,0	234,9	100,0	20,9	85,0
1996-2000 yy. average	124,0	110,4	215,7	91,8	17,4	74,2
2001-2005 yy. average	196,2	158,2	422,6	195,9	21,8	135,9
2005	204,0	103,9	465,0	110,0	23,1	156,3
2006	200,0	98,0	435.4	93,6	22,2	145,0
2007	206,1	103,1	441,7	101,4	22,1	110,5
2008	178,7	86,7	317,5	71,9	18,2	133,3
2009	140,0	78,3	270,0	85,0	19,6	97,1
2010	137,2	98,0	239,8	88,8	17,9	91,4
2011	160,6	117,1	336,0	140,1	21,8	75,5
2012	147,7	91,9	379,7	113,0	26,2	105,8
2013	140,5	95,1	396,7	104,4	28,7	105,7
2014	127,6	90,8	320,7	80,8	25,1	73,8
2015	99,3	77,8	273,9	85,4	27,8	110,7
2016	109,6	110,4	286,7	104,6	26,2	94,2
2017	135,5	123,6	330,5	115,3	24,4	93,1
2017 y. 2010 y., (+,-)	-1,7	97,8	+90,7	137,8	+6,5	136,3

According to the data given in Table 1, the largest amount of raw cotton production in 2005 y. was 465,0 thousand tons. The average annual increase in the production of raw cotton in 2010-2017 yy. was 8,6 thousand tons [5].

Based on the mathematical models using long-term cotton data, trend patterns of the industry's core indicators were identified, analyzed and predicted for the future.

Computing and analysis of determinable values of mathematical models and equations, determined on the basis of special software on the computer, the need to apply the equation $y = +517{,}22 - 40{,}302x + 1{,}9225x^2$ for the future calculation of raw cotton production of the Republic of Kazakhstan, where the coefficient of determination is equal to 0,5331 (Figure 1).

It is calculated on the computer that the model of a trend model $y = 241{,}95 - 16{,}488x + 0{,}5458x^2$ of the general crop area of a cotton crop is a mathematical equation, and its determinant coefficient $R^2 = 0{,}8594$ was calculated. This is a very high level.

Meanwhile, the cotton yields per hectare, in hectare / ha. The application of the equation for calculating the predicted values $y = +21{,}764 - 0{,}3199\,x + 0{,}0531\,x^2$, where the determination coefficient is equal to $R^2 = 0{,}4074$.

As a result of the factual analysis of the problem on the computer with the multiple regression equation should be used the following equation [6]:

$$y = -307{,}32 + 2{,}0015x_1 + 13{,}1035x_2 + 0{,}3141x_3 + 0{,}2833x_4,$$

where the productive index y - total product of raw cotton, thousand tons, and the influencing factors: x_1 - total crop of cotton, thousand hectares; x_2 - productivity of raw cotton, centners/ha; x_3 - consumption of mineral fertilizers, kg.; x_4 - 1 ton of raw cotton, thousand tenge.

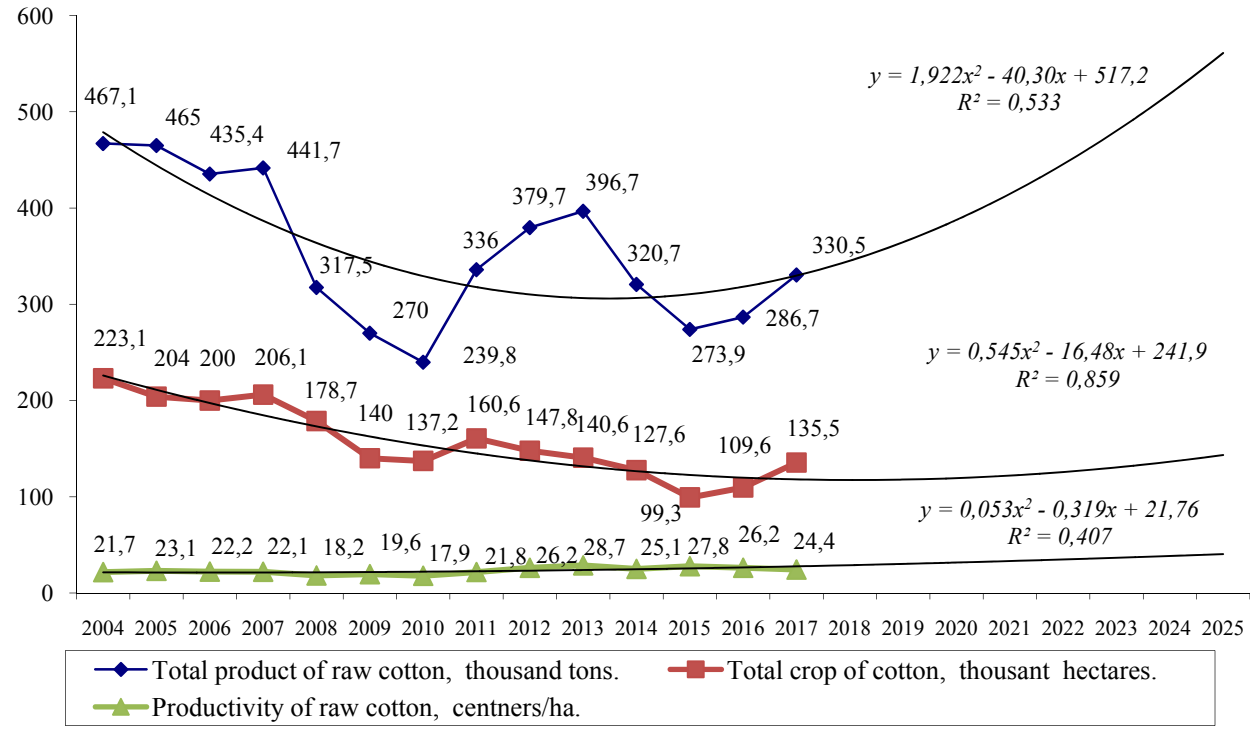


Figure 1 - Description of the output of raw cotton in terms of cotton yields [4]

The value of the coefficient of multiplicity $R^2 = 0{,}9947$ determines the change in the result, depending on the factors presented in the equation in the overall change of result. Here, this share is 99.47%, and the high level of result changes indicates that the deviation factor, in other words, the effectiveness of the indicator is closely related to the factors in the equation.

Despite the growth of cotton production and financial sustainability, many cotton-breeding farms face a lack of quality seeds, a low level of fertilizers and their base and high cost, and many unresolved problem [7.8].

Currently cotton growing is one of the fastest growing industries in the country, and cotton fiber is the most necessary raw material for the processing industry in the cotton-textile cluster.

Innovative cluster approach allows to mobilize all economic factors in the certain direction. Cluster development today is a widely recognized instrument that provides economic development and competitiveness. Rapid growth of cluster initiatives in developed and developing countries has shown their effectiveness and viability. The usage of the cluster model in the development of cotton-textile industry in Kazakhstan is a key factor in the competitiveness of the private companies and the economy associated with the production. Although textile industry in the Republic of Kazakhstan isn't well known in the world, it has all the capabilities to create textile industry at the regional level. In this regard, innovative strategic project for the development of cotton-textile cluster in Kazakhstan has been set up in Kazakhstan to enhance the competitiveness of the cotton industry and its rational management [9.10].

Free economic zone «Ontustik» was createdto develop the innovative cotton-textile cluster in theTurkestan oblast, subsidies and other benefits were provided by the state. About 15 textile enterprises in the territory of special economic zone (SEZ) «Ontustik» produce 100 thousand tons of cotton fibers a year and the main types of production are new innovative products made in Kazakhstan, such as jeans, textiles, garments and hard fabrics, home textile products. LLP «Cottonprom-Cellulose» - «Organization of production of hygroscopic cotton, cotton cellulose and technical carboxymethylcellulose from cotton raw materials», LLP «KazDemirTextile»- «Organization of production of cotton and fiber products assortment» and LLP «Oxy Textile»- «Spinning is a complex automated factory»were created and operatetoday [11].

Cotton Textile Cluster is a regenerator of intermediate links in the value chain of the cotton-textile industry for the rapid development of yarn and fabric production today with the largest competitive potential.

The raw cotton in Kazakhstan is the average fiber type. More than 80% of the cotton fiber produced on the cotton-cluster is export-oriented. The rest is used in textile enterprises such as LLP «Alliance Kazakh Russian Textile», JSC «Melange», JSC «Yutex», LLP «Nimex Textile» located in the Turkestan Region. The whole volume of cotton produced in the country was directed to Russia.

In western European countries such as Germany, France and the United States, the share of textile and light industry in industrial production is 4%, in Italy - 12%. This allows them to form 20% of the budget, and 75-85% of the domestic market supplies their products [12.13]. Textile share in Turkey and China will reach 30% in GDP. Textile and clothing industry of Kazakhstan covers only 10% of domestic demand. At the same time, the volume of domestic production should meet at least 30% of the domestic demand for the economic security of the country. Kazakhstan has a great potential for the successful development of the textile industry. This is proved with the low cost of raw cotton, the proximity to cotton raw material and the potential sales market for the products, the attractive investment climate and the developed transport infrastructure.

Cotton products are competitive because elite cotton seeds are used as early ripening crops that are resistant to diseases and pests with high quality fibers that meet international standards.

Implementation of new types of innovative cotton is realized through the introduction of all the necessary agro-technical measures and all necessary factors for plant life. This allows obtaining cotton product through using, optimizing and managingcorrectly all the influencing factors.

Table 2 – Comparative indicators of varieties of raw and cotton cultures in the Republic of Kazakhstan [14]

№	Grade	Raw cotton productivity, c/ha			Aver-age productivity, cen/ha	Deviation from standard, price	Vegetation period	Mass of the first box, gr.	Fiber output, %	Wilt disease, %
		Experience years								
		1 year	2 year	3 year						
1	2	3	4	5	6	7	8	9	10	12
1	C-4727	22,1	22,6	26,8	23,8	standard	113	5,4	37,6	6,1
2	Machtaral 4005	22,8	22,4	25,9	23,7	-0,1	112	5,7	36,2	2,0
3	Machtaral 4007	23,8	21,3	24,5	23,2	-0,6	114	5,7	36,4	2,7
4	Machtaral 4011	24,4	21,6	23,7	23,2	-0,6	118	5,5	37,1	0,2
5	Myrzashol-80	24,7	22,6	26,8	24,7	0,9	118	5,8	37,3	0
6	Bereke-07	21,2	28,3	30,9	26,8	+3,0	117	5,7	38,4	0
7	Machsat	23,6	21,6	30,1	25,1	+1,3	116	5,2	36,3	2,1
8	MA-3047	-	-	29,8	29,8	+6,0	117	5,7	37,4	0,3
9	Turkestan	24,2	29,1	31,3	28,2	+4,4	110	6,0	38,5	0
10	Turkestan-1	24,3	28,7	30,7	27,9	+4,1	109	5,7	36,6	0,3

At present, the basic principles of the introduction of cottonseed crops are identified based on the introduction of innovative technological optimal production programs, identifying key factors and calculation and optimization models that allow for relatively accurate programming of the crop.

Innovative new technology «Turkestan» raw cotton wasstudied and developed in the research Institute of ecology and practical biology (innovative research enterprise) in Saryagash district of Turkestan oblast. The earliest maturity period is 108-131 days, with the early maturing, innovative crop of cotton seeds and climatic conditions up to maturity, up to 50% from 50% of seedlings. Opening of cotton boxes is at a high level. Until October 1, the cotton-production is 36 - 46 centners per hectare. The fiber productivity is 36 - 37%, the fiber length is 35 - 36 mm. The sparkling white color, the load cut 4,5 – 4,6 g. The relative breaking load is 27,5 - 28,5 g.wt. /fiber. On the international certification fiber is 4,3 - 4,6 micronair, the code is 36 - 37. The size of the seeds is 19-20% [15.16].

The results of this variety quality test were selected to compare with other existing cotton varieties in Kazakhstan (Table 2). Different variety tests were carried out at the «Saryagash» state innovative research complex, where cotton varieties were compared with different indicators.

According to Table 2, Turkestan crude cotton varieties exceed all indicators by their innovative achievements compared to other proven varieties.

The innovative advantage of "Turkestan" raw cotton is that its vegetation period is 110 days from seeding to ripening. This cotton is shorter for 3 days compared to the base grade of the plant. Thus, the weight of the first box of "Turkestan" raw cotton grade is 6,0 grams, 0,4 g higher than the base grade, and fiber fertility is 38,5%, which is not affected by vild disease [17].

«Turkestan» grade cotton seeds is higher than C-4727 raw cotton. «Turkestan» raw cotton is dried rapidly, so the dry weight of this variety is about 2 times more than the dry weight of C-4727. The studies have shown that the opening of the first boxes of «Turkestan» is much more intense than the C-4727. Boxes are openedin 12-13 days. Also, according to the size and weight of the box, the grade «Turkestan» exceeds the C-4727 level.

These specifications affect the cotton productivity. For example, raw cotton yield from 1 hectare of «Turkestan» was 10,1 centner higher than C-4727. In the reporting year, the productivity of the «Turkestan» varieties was 36,3 centners per hectare, while the C-4727 productivity was only 26,2 centner / hectare [18].

Table 3 – Comparative analysis and evaluation of the new innovative «Turkestan» to cotton of base technology

№	Indicators	Measu-ring unit	Indicators		deviation +,-
			Base technology	project	
1	Main volume of the produced raw cotton product in the natural form	centner	262	363	+101
2	Main volume of the produced raw cotton product in the essential level	thousand tenge	2046,3	2835,3	+801,7
3	Production cost of raw cotton per 1 cen.	tenge	6762	7811	-1049
4	Growth of net weight	thousand tenge	-	789	+789
5	Efficiency level	%	15,3	39,2	+23,8
6	Vegetation period	days	113	110	-3
7	Mass of a box	gram	5,4	6,0	+0,6
8	Fiber output	%	37,6	38,5	+0,9
9	Wilt disease	%	6,1	0	-6,1
10	Average productivity	cen./ha	26,2	36,3	+10,1

The analysis shows that in the northern part of the Turkestan region, the introduction of raw cotton of «Turkestan» allows producing 10,1 centners of raw cotton from the hectare of crops and further development of raw cotton in the agricultural production of the Republic of Kazakhstan.

Using the data in the tables above, we can calculate the project's key indicators. The value of production volumes was determined based on the contractual price level. In the analysis of the above table data, the overall growth of the raw cotton crop was reduced to 3 days, the weight of a box increased to

11%, the cotton fiber yield was 2,4% higher, and we see that the vilt disease disappeared. The produced cotton productivity was 36,3 cen./ha on the developed innovative technology project, which is 38,5% higher than the productivity of the main technology. According to the project, the efficiency level of 1 centner of cotton was 39,2%, which is higher than the efficiency of raw cotton productivity using the basic technology [19.20].

Based on the results of the analysis, the following conclusions were made:

In the Turkestan region, it is technically and economically feasible to implement an innovative technological project «Turkestan Early ripening cotton grade».

It is necessary to identify the methods of innovative services management, mechanisms and sources of funding for innovative services based on innovative development programs and create conditions for their implementationin Kazakhstan:

– to attract investments for the purpose of introduction of scientific and technical projects into production in perspective directions of cotton-textile cluster development;

– to implementthe cotton-textile cluster on the market, with the release of competitive scientific and technical products;

– it is necessary to create effective mechanisms for reinvesting instruments and means fixed in innovative research projects.

The use of new innovative technologies in the production directly affects business development. The use of new varieties of seeds, machinery and equipment, new irrigation techniques for the introduction of new elite cotton crops will increase the productivity of raw cotton crops and increase the volume of gross product, as well as increase product quality.

УДК 3 33 330.3

Вилена Сейтова[1], Роланд Гизе[2]

[1]Тұран Университеті, Алматы, Қазақстан;
[2]Қолданбалы ғылымдар университеті, Хохшуле Циттау/Герлитц

ҚАЗАҚСТАНДА ИННОВАЦИЯЛЫҚ МАҚТА-ТОҚЫМА КЛАСТЕРІН ҚАЛЫПТАСТЫРУ ЖӘНЕ ДАМЫТУ

Аннотация. Мақалада мақта саласында инновациялық қызметтерді қалыптастыру және дамыту қарастырылған. Инновация - экономиканың қарқынды дамуын қалыптастыратын объективті күшті ынталандыру және оның қажетті шарты. Инновациялық жетістіктер негізінде «Түркістан» ерте пісетін мақта сорты» инновациялық технологиялық жобасын жүзеге асыруға, техникалық жағынан мүмкін және экономикалық тиімді екендігі зерттелген. Қолданыстағы инновациялық жаңалықтар, біріншіден, мақта саласының орнықты экономикалық өсуін, екіншіден, мақта-тоқыма кластері өндірісінің бәсекеге қабілеттілігін арттыруға мүмкіндік жаратады.

Инновациялық кластерлік көзқарас барлық экономикалық факторларды нақты бағытта қолдануға мүм-кіндік береді. Кластерлерді дамыту бүгінгі күні экономикалық даму мен бәсекеге қабілеттілікті қамтамасыз ететін кеңінен танылған құрал болып табылады. Дамып келе жатқан және дамушы елдердегі кластерлік бастамалардың жылдам өсуі олардың тиімділігі мен өміршеңдігін көрсетті. Қазақстандағы мақта және тоқыма өнеркәсібін дамытуда кластерлік модельді қолдану жеке компаниялардың және өндірістің экономикасының бәсекеге қабілеттілігінің негізгі факторы болып табылады.

Түйін сөздер: инновация, мақта саласы, стратегия, даму, инновациялық қызмет, кластерлік технология, мақта-тоқыма клатері, тиімділік, бәсекеге қабілеттілік.

УДК 3 33 330.3

Вилена Сейтова[1], Роланд Гизе[2]

[1]Университет Туран, Алматы, Қазақстан;
[2]Университет прикладных наук, Хохшуле Циттау/Герлитц

ФОРМИРОВАНИЕ И РАЗВИТИЕ ИННОВАЦИОННОГО ХЛОПКО-ТЕКСТИЛЬНОГО КЛАСТЕРА В КАЗАХСТАНЕ

Аннотация. Статья посвящена формированию и развитию инновационных услуг в хлопковой отрасли. Инновация является объективным стимулом и предпосылкой для динамичного развития экономики. Проведен сравнительный анализ нового инновационного сорта хлопка «Туркестан», были изучены возможности их внедрения в производство. Внедрение инновационного сорта хлопка, в первую очередь, будет способствовать

устойчивому экономическому росту хлопковой отрасли и, во-вторых, повышению конкурентоспособности хлопко-текстильного кластерного производства в стране.

Инновационный кластерный подход позволяет мобилизовать все экономические факторы в определенном направлении. Развитие кластеров сегодня является широко признанным инструментом, который обеспечивает экономическое развитие и конкурентоспособность. Быстрый рост кластерных инициатив в развитых и развивающихся странах показал их эффективность и жизнеспособность. Использование кластерной модели в развитии хлопко-текстильной промышленности в Казахстане является ключевым фактором в конкурентоспособности частных компаний и экономики, связанной с производством.

Ключевые слова: инновации, хлопковая отрасль, стратегия, развитие, кластерная технология, хлопко-текстильный кластер, эффективность, конкурентоспособность.

Information about authors:

Vilena Seitova – third year doctoral student, Department of Economics, University of Turan, Almaty, Kazakhstan. Phone number: +77029910074, E-mail: Vilena_11@mail.ru;

Roland Giese – professor Dr. oec, Prorektor bildung, University of Applied Sciences Hochschule Zittau/Görlitz , phone number:+03583 61-1497, E-mail: *@hs-zigr*.de

REFERENCE

[1] Poslanie Prezidenta RK N.A.Nazarbaeva “Kazahstanskiy put – 2050" obschaya cel, obschie interesy, obschee buduschee», Astana. 14 dekabrya 2012 g.

[2] Bokenchina L.K. Theoretical aspects of social development in rural areas. Bulletin of National Academy of sciences of the Republic of Kazakhstan ISSN 1991-3494 Volume 3, Number 367 (**2017**), 197–202.

[3] Zh. Abylkassimova Economic integration of subjects of the agro-industrial complex of Kazakhstan in modern conditions. Reports of the National Academy of sciences of the Republic of Kazakhstan ISSN 2224-5227 Volume 4, Number 314 (**2017**), 136–141.

[4] G. K. Turabaev Analysis of increase factors of competitiveness of cotton producers. Bulletin of National Academy of sciences of the Republic of Kazakhstan ISSN 1991-3494 Volume 1, Number 365 (2017), 109–122.

[5] Porter M. Konkurentnaya strategiya: Metodika analiza otraslej i konkurentov /Majkl Porter: Per. s angl. 3-e izd. M.: Al'pina Biznes Buks, **2007**. 453 s.

[6] Oficialnyy sayt Komiteta statistiki Ministerstva narodnogo hozyaystva Respubliki Kazahstan / www.stat.gov.kz

[7] Dandaeva B.M. Current state of investment and development of agriculture in Kazakhstan. Bulletin of National Academy of sciences of the Republic of Kazakhstan ISSN 1991-3494 Volume 3, Number 355 (**2015**), 149–154.

[8] Gataulin A.M., Gavrilov G.V., Uskenov M.K. i dr. EHkonomiko-matematicheskie metody v planirovanie sel'skohozyajstvennogo proizvodstva. Uchebnoe posobie dlya VUZ-a. Tashkent, Uzbekistan: Izd. "Mekhnat", **1999**. 292 s.

[9] N. Korabayeva. Sustainable Economic Development As An Essential Element Of Environmental Management In The Context Of The National Economy Bulletin Of National Academy Of Sciences Of The Republic Of Kazakhstan ISSN 1991-3494 volume 6, number 370 (**2017**), 176–181.

[10] A.Sh.Abdimomynova The formation of cluster systems in the preparation of business personnel. Reports of the National Academy of sciences of the Republic of Kazakhstan ISSN 2224-5227 Volume 2, Number 306 (**2016**), 210–218.

[11] Myrhalykov ZH.U., Ajdarova A.B., Uskenov M.K. i dr. K voprosu razvitiya tekstil'noj promyshlennosti Respubliki Kazahstan v usloviyah Tamozhennogo Soyuza. Tekhnologiya tekstil'noj promyshlennosti. Nauchno-tekhnicheskij zhurnal. Izdanie Ivanovskogo gosudarstvennogo politekhnicheskogo universiteta, № 3 (363) **2016**. S. 8-15.

[12] L. M. Bekenova Strategic directions of attracting investments in industry of Kazakhstan. Reports of the National Academy of sciences of the Republic of Kazakhstan ISSN 2224-5227 Volume 2, Number 306 (**2016**), 199 – 209.

[13] Myrhalykov ZH.U., Ajdarova A.B., Uskenov M.K. i dr. Razvitie malogo i srednego biznesa v shvejnoj promyshlennosti v Respublike Kazahstan. Tekhnologiya tekstil'noj promyshlennosti. Nauchno-tekhnicheskij zhurnal. Izdanie Ivanovskogo gosudarstvennogo politekhnicheskogo universiteta, 6 (372) **2017**. S. 29-35.

[14] Shamuratova N.B., Kodasheva G.S. , Zhetesova M.T. Financing of agricultural cooperatives. Bulletin of National Academy of sciences of the Republic of Kazakhstan ISSN 1991-3494 Volume 6, Number 370 (**2017**), 213 – 216.

[15] A.B. Yessenbekova. Issues Of The Theory And Practice Of Formation Of The Sustainable Development Of The National Economy Bulletin Of National Academy Of Sciences Of The Republic Of Kazakhstan ISSN 1991-3494 volume 5, number 363 (2016), 246 – 252.

[16] M. I. Sigarev Public financial support for production of agricultural products in terms of the EAEU. News of the National Academy of sciences of the Republic of Kazakhstan ISSN 2224-526x Volume 2, Number 44 (**2018**), 42 – 48.

[17] Patrik EH., YAshin V. Innovacionnaya deyatel'nost' v Germanii// Problemy teorii i praktiki upravleniya. 2009. № 1.

[18] Yusupov SH, Teңlibaeva A.S. Vnedrenie skorospelogo sorta hlopchatnika «Turkestan» v usloviyah severnoj zone YUKO. Tashkentskij gosudarstvennyj universitet im. Nizami «Razvitie sel'skogo hozyajstva i ehkologiya». Tashkent, **2010**.

[19] R. Abdrakhmanova Regional development of tourism cluster. Bulletin of National Academy of Sciences of the Republic of Kazakhstan ISSN 1991-3494 Volume 3, Number 367 (**2017**), 155–160.

[20] A. Zh. Bakhtiyarova The Basic problems and current situation in the agricultural sector of the Republic Of Kazakhstan. Reports of the National Academy of Sciences of the Republic of Kazakhstan ISSN 2224-5227 Volume 3, Number 313 (**2017**), 164–172.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.12**
Volume 1, Number 323 (2019), 86 – 89

UDC 338.001.36

M.S. Dariskalieva[1], D.O. Ahmurzina [2], A.Sh. Nurzhanova, Zh.R. Abuziarova

Atyrau State University named after H. Dosmukhamedov
Aiko-er@mail.ru, Zhanna81@mail.ru, janar_baxa@mail.ru

INNOVATIVE DEVELOPMENT OF SMALL BUSINESS AS A FACTOR OF SUSTAINABLE DEVELOPMENT OF THE KAZAKHSTAN ECONOMY

Abstract. Traditionally, small business is not only a catalyst for economic growth in the economy, but also a guarantor of its stability in solving employment issues, optimizing the industrial sector, the quality of science and innovations, etc. In this connection, the authors of the article consider the innovative development of entrepreneurship as a factor for the sustainable development of the economy of Kazakhstan. The process of innovation development can effectively proceed only in certain conditions created by the innovation environment. Innovation environment is a prerequisite for the formation of an effective innovation system. The development of the country in the future should become innovative, the spatial configuration should become more flexible, not tied to the existing energy source base and centers of concentration of financial flows. Small businesses are most suitable for individual psychological characteristics of a person, they are simpler and more transparent, and therefore accessible to a wide range of citizens.

Keywords: small business, entrepreneurship, innovations, programs, support, competitiveness.

INTRODUCTION

Entrepreneurship should be viewed as a manifestation of initiative, economic activity in conditions of constant risk, as a function of a special kind, associated primarily with the systematic receipt of income and profit from a particular activity. As A. Popov notes, by its nature, entrepreneurship has a dual basis. On the one hand, it acts as a type of labor activity, on the other - as a special type of behavior of an economic entity.

The essence of entrepreneurship as a type of activity is manifested through entrepreneurial initiative, innovation and creative search, constant economic risk, economic interest in the results of work, responsibility for the results of labor. “Historically, the development of the productive forces of any society, as a rule, began with a small production. It is not by chance that in the Western theory, the main features and principles of entrepreneurship are often considered on the example of small ones, in particular, within the framework of the Gründurgsforschung, New venture theory, which provides a sharp increase in new companies in a favorable economic environment. It should be noted that in the Gunder’s theory, the creation of a new enterprise and a set of related questions are interpreted on the basis of the initial small business. From this we can conclude that entrepreneurship as a type of activity usually starts from a small size and already in the process of carrying out its economic activity, further transformation into a medium or large business takes place, or it remains small” [1].

MAIN PART

Consider the essence of the concept of "innovative development". The most fully reveals the essence of innovation development as “a special innovation focus of goals, ways to achieve them, a special innovation“ setting ”the mechanism of state influence on the economy and market self-organization, due to the preferential orientation of links in all spheres of the economy to the integrated use of innovations in the production of goods and services, redistribution of forms and regulatory methods for impact impact "To reveal the essence of the socio-economic process" innovation On-line development ”it is necessary to

identify a number of principles of its organization, reflecting the conditions necessary for its implementation (such as the presence of the innovation environment and the innovation system); defining the importance of the human factor in the innovation process (the innovative susceptibility of the individual and society, the motivational mechanisms for the development of innovative thinking).

Small business in its essence is not an organizational-legal form of management, that is, only because it is such. The subjects of small business of various organizational and legal forms may be small, and the concept of "small" at best can provide certain features for individual forms. For example, the specific nature of the peasant (farmer) economy does not follow from the size, but from the nature, of the principles of organization of this form of management. Small business as a component of entrepreneurship in general characterizes the size, parameters of this phenomenon in relation to a specific subject. Since we are talking about small forms, this means that the dimensions of the lower, minimum possible to a certain level are fixed [2].

This definition will help to protect innovations from processes that do not give the desired effect, and can be applied to any improvements and new developments in the production and organizational areas of the enterprise [2].

Table 1 - The main content and properties of innovations, innovations and innovations

Category	Stage	Content	Properties
Innovation	Introductory	Patent, invention, discovery, new methodology, etc.	Availability of novelty
Innovation	Intermediate	Introduction of innovation, its use	The need and materialization of novelty
Innovation	Final	Dissemination of innovation	Diffusion of novelty, obtaining the necessary effect

Innovative activity begins on the basis of research, development and (or) design works, which create a reserve for the innovation cycle. As a result of these works there is an innovation that becomes an innovation in the form of a method, product or service. Such a complex nature of innovation, a variety of applications, methods of use and its versatility require the classification of innovations necessary to identify the type of innovation and the degree of its impact on the effectiveness of production. Consider the existing classification of innovations of domestic and foreign scientists.

Forming effective innovation mechanisms in the economy of Kazakhstan using the potential of small business is a pressing problem and the fact that the accumulated experience of industrialized and post-industrial countries focused on the development of market economy relations certainly shows that small business is a necessary condition for achieving economic success and is the main engine of innovation development [3].

All structures are interested in the development of such a sector of the economy, since small business is the basis on which the entire economic pyramid will be created, which can provide jobs for a significant part of the population and form the middle class of society. From this it follows that the faster a significant stratum of small business entities is created within the state, the more actively the model of an effective market economy will develop, including the implementation of the tasks of economic restructuring and transition to a new level of technological structure.

The process of commercialization of innovation is a problem for small enterprises, and at the same time is a very important stage in the innovation activity of small enterprises (hereinafter referred to as MP).

Thus, reimbursement of the costs of the founder (developer) of the innovative product and further profit from his idea is carried out. Innovation activity is an activity aimed at finding new ideas and their further commercialization in order to increase the range and quality of products, modernize technologies and organize production [4]

Innovation activity contains the identified problems of enterprises, the introduction of the innovation process, as well as its organization. The advantage of the innovation activity of enterprises is that all the

developed ideas are gradually aging. It follows from this that innovations include changes in the economy, industry and behavior of people, and therefore they should be oriented to the market, meeting its needs. But, despite all the features of innovation, the problem of innovation in small business remains open today [5].

The process of innovation development can effectively proceed only in certain conditions created by the innovation environment. Innovation environment is a prerequisite for the formation of an effective innovation system. Therefore, it is necessary to consider in more detail the essence of this category.

To provide the necessary support for innovation processes, it is necessary to create an appropriate infrastructure that would implement financial, information, consulting, marketing and other types of support for innovation projects. The combination of scientific and technological clusters and innovation infrastructure creates conditions for the development of the territory in which they are located.

So, the main advantages of a regional cluster include [6]:

1. The presence of a sustainable system of dissemination of new knowledge (technological network).
2. Additional competitive advantages of cluster enterprises due to their internal specialization within the cluster economy.
3. An important feature of innovation-industrial clusters is the presence in their structure of flexible entrepreneurial structures that form the innovative potential.
4. Regional industrial clusters are extremely important for the development of small business, which facilitates access to ideas, the market and capital.

To date, a unified theoretical position in the formation and development of comprehensive measures for the development of innovative entrepreneurship has not yet been formed, which implies the expedient continuation of research in this direction.

Thus, the effectiveness of the innovation development of the economy depends not only on how effective the activity of independent economic agents (firms, scientific organizations, universities, etc.) are individually, but also on how "they interact with each other as elements of a collective system creating and using knowledge, as well as with public institutions (such as values, norms, law)".

In foreign countries, including European, small business is considered as the most important type of business, based on a direct search for innovations and opportunities for the production of goods and services based on scientific research. According to American scientists J. Kay and S. Davis, small business should be considered as a special type of activity that contains the basic mandatory conditions and requirements [7]. Consequently, the founder of the innovation idea initiates the connection of resources, capital and labor with one process of producing a product or service, and also solves the problem of making important decisions in the process of productive productivity, which will later determine the direction of innovation in small business. They also believe that the initiator of the project is an entrepreneur who seeks to introduce innovative technologies based on both commercial and product services, with the introduction of new forms of organization of activities that have no analogues, in which the project initiator participates a certain risk.

CONCLUSION

In addition to the above, it is worth agreeing also with P. Drucker, who puts forward two entrepreneurial functions that, in our opinion, emphasize the special features of entrepreneurship: it is about marketing and innovation [8]. The scientist claims that a business is different from all human organizations in that it provides for the sale of goods and services, that is, any organization that uses marketing when developing or selling a product can be called a business. The second function of business is innovation, that is, the provision of better and cheaper goods and services (it is not enough just to produce cheap goods and services, the business must provide better and cheaper ones).

Thus, it can be said that the spread of innovation in the economy is a direct goal and function of entrepreneurship. The problem of successful development and implementation of innovative projects in the context of economic reforms is of fundamental importance. Unfortunately, in modern conditions the innovative potential of small business is underused. The development potential in this area has not yet been exhausted. In the countries of the world, the ranking in terms of innovation of small and medium businesses and the results remain unchanged, Switzerland remains the leader. He is followed by the United Kingdom, Sweden, Finland, the Netherlands, the United States of America, Singapore, Denmark, Luxembourg and Hong Kong.

УДК 338.001.36

М.С. Дарискалиева, Д.О. Ахмурзина, А.Ш. Нуржанова, Ж.Р. Абузьярова

Х. Досмұхамедов атындағы Атырау мемлекеттік университеті

ҚАЗАҚСТАННЫҢ ЭКОНОМИКАСЫНЫҢ ТҰРАҚТЫ ДАМУЫ ФАКТІЛЕРІНІҢ ШАҒЫН БИЗНЕСІНІҢ ИННОВАЦИЯЛЫҚ ДАМЫТУЫ

Аннотация. Дәстүрлі түрде шағын бизнес экономикадағы экономикалық өсудің катализаторы ғана емес, сонымен қатар жұмыспен қамту мәселелерін шешудегі тұрақтылықтың кепілі, өнеркәсіп секторын оңтайландыру, ғылым мен инновациялар сапасы және т.б. Осыған байланысты, мақаланың авторлары Қазақстанның экономикасын тұрақты дамыту факторы ретінде кәсіпкерліктің инновациялық дамуын қарастырады. Инновациялық даму үдерісі инновациялық ортаны құрған белгілі бір жағдайларда ғана тиімді түрде жұмыс істей алады. Инновациялық орта тиімді инновациялық жүйені қалыптастырудың алғышарты болып табылады. Болашақта елдің дамуы инновациялық болуға тиіс, кеңістіктік конфигурация қолданыстағы энергия көзі базасына және қаржы ағындарының шоғырлану орталықтарына емес, икемді болуы керек. Кішігірім кәсіпорындар жеке адамның жеке психологиялық сипаттамаларына сәйкес келеді, олар қарапайым және ашық, сондықтан азаматтардың кең ауқымы үшін қол жетімді.

Түйін сөздер: шағын бизнес, кәсіпкерлік, инновациялар, бағдарламалар, қолдау, бәсекеге қабілеттілік

УДК 338.001.36

М.С. Дарискалиева, Д.О. Ахмурзина, А.Ш. Нуржанова, Ж.Р. Абузьярова

Атырауский государственный университет им.Х.Досмухамедова

ИННОВАЦИОННОЕ РАЗВИТИЕ МАЛОГО БИЗНЕСА КАК ФАКТОРА УСТОЙЧИВОГО РАЗВИТИЯ ЭКОНОМИКИ КАЗАХСТАНА

Аннотация. Традиционно малый бизнес является не только катализатором экономического роста в экономике, но и гарантом его стабильности в решении вопросов занятости, оптимизации промышленного сектора, качества науки и инноваций и т.д. В связи с чем, авторы статьи рассматривают инновационное развитие предпринимательства как фактор устойчивого развития экономики Казахстана. Процесс иннова-ционного развития может эффективно протекать только в определенных условиях, созданных иннова-ционной средой. Инновационная среда является предпосылкой формирования действенной инновационной системы. Развитие страны в перспективе должно приобрести инновационный характер, пространственная конфигурация должна стать более гибкой, не привязанной к сложившейся энергосырьевой базе и центрам концентрации финансовых потоков. Малые предприятия наиболее подходят для индивидуальных психоло-гических характеристик человека, они более просты и прозрачны, и поэтому доступны широкому кругу граждан.

Ключевые слова: малый бизнес, предпринимательство, инновации, программы, поддержка, конку-рентоспособность.

Information about authors:

Dariskalieva M.S. - Atyrau State University named after H. Dosmukhamedov, https://orcid.org/0000-0002-4697-3188;

Ahmurzina D.O. - Atyrau State University named after H. Dosmukhamedov, https://orcid.org/0000-0001-8616-9939;

Nurzhanova A.Sh. - Atyrau State University named after H. Dosmukhamedov, https://orcid.org/0000-0002-0871-0029;

Abuziarova Zh.R. - Atyrau State University named after H. Dosmukhamedov

REFERENCES

[1] Kusainov N. Competitive advantages of Kazakhstan in the context of integration into the global economy // Kazakhstan in the global economic processes: Proceedings of the international conference. Almaty: Dayk-Press, **2015**. p. 63.

[2] Golub A., Chebotaryov A. Model of the efficiency of financing innovation // Questions of economy. **2016**. № 3. P. 104–107.

[3] Nurpeisova A.A., Dyusembaeva L.K., Kurmanova D.S. DEVELOPMENT OF MATHEMATICAL MODELS OPTIMIZING THE PROCESS OF CREATING INNOVATION PRODUCTION.

[4] Bogdanova E.L. Some aspects of sustainable innovative development of an enterprise [Text] / E.L. Bogdanova, A.B. Titov // Bulletin of the Samara State University of Economics. Samara, **2014**. № 11 (121). pp. 95-98.

[5] Vinokurov V. I. Basic terms and definitions in the sphere of innovations // Innovations. **2015**. № 4. p. 34.

[6] Sabirov R.K., Kurmasheva S.O. Profiles of the regional development of the agrarian sector. Proceedings of the National Academy of Sciences of the Republic of Kazakhstan. ISSN 2224-526X, a series of agricultural sciences. No. 1 2018, p.52-56 site address http://agricultural.kz/index.php/en/arhiv. https://doi.org/10.32014/2018. 2224-526X

[7] Barlybaeva N.A. National Innovation System of Kazakhstan: Theory, Methodology, Development Mechanism: Dis ... Dr. Econ. Sciences: 08.00.05. Almaty, **2017**. p. 199.

[8] Baimuratov U. Investments and Innovations: Nonlinear Synthesis // Vol. 3. Selected Scientific Works. - Almaty: BIS, **2015**. 320 p.

[9] Zhansagimov A.E. Entrepreneurship in the field of tourism. News of NAS RK. Series of social sciences and humanities No. 5, **2016**. Pp. 208-214**.** http://soc-human.kz/index.php/en/arhiv**.** https://doi.org/10.32014/2018.2224-5294.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.13**
Volume 1, Number 323 (2019), 90 – 98

УДК 338.2
МРНТИ 52.01.75

A.Kh. Galiyeva [1], A.N. Toksanova [1], G.S. Ukubassova [1], A.Sh. Abildina [1], M.T. Kulubekov [2]

[1]Kazakh University of Economics, Finance and International Trade,
[2]Kostanay Engineering Economic University named by M. Dulatov
alma_galiyeva@mail.ru, taigul1@mail.ru, ukubasova_g@mail.ru, aalimbaeva@mail.ru, kmaksat_79@mail.ru

METHODOLOGY FOR EVALUATING THE QUALITY OF THE PREDICTIONS OF CONSUMER DEMAND AND VOLUMES OF MINERAL-RAW MATERIAL RESOURCES PRODUCTION

Abstract. The aim of the article is to develop theoretical and methodological foundations for improving consumer demand forecasting and the volume of mineral resources production гтвук modern conditions in order to identify priority areas for the mining industry development. The paper reveals the role and importance of forecasting for consumer demand and the volume of production of mineral resources and identifies deficiencies in forecasting, reducing the forecasts quality. As recommendations for improving the forecasting of consumer demand and the volume of mineral resources production, the multi-criteria economic and mathematical models developed by the authors are proposed for forecasting the volume of mineral resources production, taking into account the consumer demand.

The value of work for economic science is that the forecasting of demand and production volumes is considered in its close relationship. The practical significance of the work lies in the possibility of applying a set of models for economic forecasting of demand and production volumes of mineral resources under the modern conditions.

Keywords: forecasts, quality, consumer demand, demand, production volumes, mineral resources, quality indicators, integral indicators.

Introduction

One of the main scientific and practical necessities of countries that got political and economic independence is effective utilization of its mineral-raw resources. Taking a leading place in the world on these resources reserves, Kazakhstan is able to enhance its production for exporting and satisfaction of the national economy demands of the Republic.

At the present time, the mining industry experiences definite difficulties due to lack of perceptions on perspectives of demand forming on mineral-raw resources [1]. Moreover, the developed practice of forecasting does not ensure the obtaining of quite accurate data in the volume and structure of demand.

The forecasting of consumer demand and volumes of mineral-raw resources production provides an opportunity for the mining branch to operate effectively and satisfy the necessities of the nation economy. That is why it is necessary to solve issues on forecasting the consumer demand and volumes of mineral-raw resources production in its interrelation. In this regard, it is necessary to determine the influence of change of mining and geological conditions and production situations on technological, qualitative and economic indicators of mining industry enterprises operation. It is necessary to investigate also the ways to improve the methods on forecasting the volumes of mineral-raw resources production for bauxite and iron-ore deposits as the rational determination of production parameters leads to its successful sale in the market.

Basing on the advanced experience and scientific researches it is necessary to determine the estimation criteria of short-term, mid-term, and long-term forecasting for the mining industry development. Our researches must be based on the methods of interrelated economic forecasting of consumer demand and volumes of mineral-raw resources production on the base of multi-criteria economic and mathematical modeling allowing improving the forecasts quality.

The information stated above confirms that the improvement of the forecasting methods for consumer demand and volumes of mineral-raw resources is a topical task.

The theoretical and methodological base of the research were the provisions and conclusions of the advanced theories on forecasting of consumer demand and volumes of mineral-raw resources production, and researches and significant conclusions of the national and foreign scientists-economists: A.A. Alimbayev, U.B. Baymyuratov, L.Ya. Baranova, A.I. Burachas, J. Duesenberry, A.A. Golikov, V.A. Gorelova, K. Kazhymurat, R.S. Karenov, N.D. Kondratyev, L. Marshall, M.G. Milgram, S.A. Sarkisyan, E. Hansen, S.M. Yampolskiy, P.E. Basovskiy, L.I. Bushuyeva, N.Sh. Kremer, B.G. Mazmanov and other.

Methods.

To implement the work the methods of multi-criteria economic and mathematical modeling, multi-criteria optimization, expert estimations, grouping, analysis of research-methodical literature, operational experience, etc. were used.

Results.

The application of different semantic characteristics of the notion "quality of forecasts of consumer demand and volumes of production" determines the requirements to the techniques of its quantitative estimation. The critical point is the necessity to estimate integral indicators and availability of corresponding differentiated single indicators for its measuring.

In this regard, the special attention, in our opinion, deserves a work in which the development of a technique for quantitative estimation of quality takes into account two options for measuring and estimation of integral indicators: with no costs for its improving, and with such costs. These options are substantiated by technical and economical nature of quality. In the first case the indicators are technical and describe the technical level of things and phenomena; in the second, the integral indicators that reflect economic requirements describe not only the level, but also the effectiveness of the integral indicators. Sharing the mentioned approach, we will adapt it to the estimation of forecasts quality for consumer demand and volumes of mineral-raw resources production [2].

The study of the existing procedures on determining the quality of forecast of consumer demand and volumes of mineral resources production shows that the estimation of forecasts quality is currently conducted on the base of the common methodical approach. In its behind is the differentiated method based on separate subjective comparison of individual indicators of quality of the estimated forecast with values of the corresponding criteria. The estimation is conducted without consideration of costs on improving the methods on assessing the integral indicators of forecasts of consumer demand and volumes of mineral resources [3,4,5].

In our opinion, due to one-sided approach of some researchers, the characteristics of integral indicators of the forecast quality of consumer demand and volumes of production were formulated not accurately [6,7,8].

The forecast quality described in those works actually represents the technical characteristics only as all estimations are conducted without any costs on its improving [9,10].

Thus, the basis of the integral indicators estimation of the forecast quality of consumer demand and volumes of mineral resources production is availability of two interconnected criteria: technical and economical. The technical criterion of integral indicators, in our opinion, is the numerical value that corresponds to the optimal level of the fixed or expected requirements regarding the forecasting information on consumer demand and on the volume of mineral resources production. As the economic criterion we consider minimum costs on improving the integral indicators of the forecasts quality of consumer demand and volumes of mineral resources production.

The estimation of the forecast quality of consumer demand and volume of mineral resources production by individual indicators on the base of technical criterion should be conducted using only relative indicators of different properties. Only in this case the individual indicators of forecasts quality expressed in the form of simple multiple ratio and having the same size will be comparable. And the technical criterion values of the integral indicators should correspond to its most effective level.

In general view, the mathematical model of the forecast quality assessment of consumer demand and volumes of mineral resources production by the individual indicators on the base of the technical criterion, in our opinion, can be represented as follows:

$$K_c = Ki\ Kj \longrightarrow Kij\ (_H)\ , \quad (1)$$

where K_c – representing quality of the forecast of consumer demand and volumes of mineral resources production; Ki, - actual value of i-th integral indicator used for the quality estimation of the consumer demand forecast; Kj, - actual value of j-th integral indicator used for quality estimation of the production volume forecast; Kij (н)- criterion of estimation (normative value) of the forecast quality regarding individual indicator of i-th integral indicator of consumer demand and j-th integral indicator of production volume.

For the numerical estimation of the representing quality of the forecast of consumer demand and production volume it is proposed to calculate a range of individual indicators. All individual indicators describing the quality of the forecasts of consumer demand and production volume, in our opinion, can be divided in three groups: indicators of accuracy, reliability, and confidence. The indicators of reliability in its turn can be divided into the following subgroups: deviation values of the reference forecast, indicators of connection closure (Figure 1).

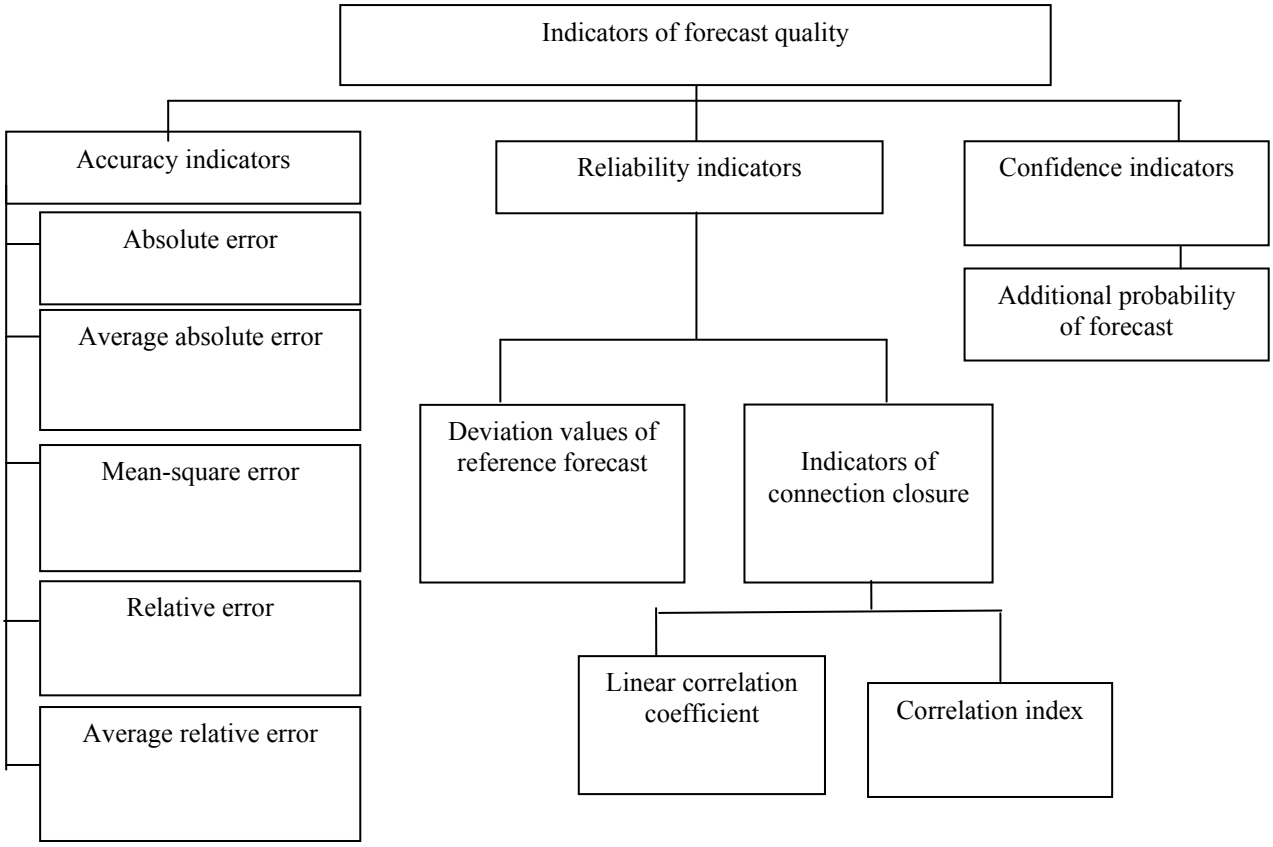


Figure 1 – Indicators of forecasts quality

Using the technique on assessing the forecasts quality for consumer demand and using the technique on assessing the forecasts quality for production volumes we have calculated typical values of relative error of the forecast for consumer demand and production volume. Its interpretation is shown in Tables 1 and 2.

Table 1- Interpretation of relative errors of forecasts for mineral resources production volumes

Short-term forecast, %	Mid-term forecast, %	Long-term forecast, %	Interpretation
1,5-2,5	<10	<20	High accuracy
2,5-5	10-20	20-30	Good accuracy
5-15	21-30	31-50	Satisfactory accuracy
> 10	>30	>50	Unsatisfactory accuracy

Table 2 – Interpretation of relative errors of forecasts for consumer demand on mineral resources

Short-term forecast, %	Mid-term forecast, %	Long-term forecast, %	Interpretation
<5	<10	<15	High accuracy
5-10	10-20	15-30	Good accuracy
11-25	21-50	31-75	Satisfactory accuracy
> 25	>50	>75	Unsatisfactory accuracy

It should be noted that the criteria values of the forecast relative error are subjective [11,12,13].

This approach to estimation of the forecast quality is possible only under the condition that the advance period has already finished and there are actual data on consumer demand and volume of mineral resources production, and under the retrospective forecasting. In the latter case, the available information is divided into two parts, one of which covers previous data on consumer demand and on the volume of mineral resources production, and another – later data.

The first group data allow assessing the parameters of multi-criteria economic and mathematical model of the forecast, and the second group data are considered as actual data of the forecasted indicator. The forecast error obtained prospectively characterizes the a priori quality of the forecast for the consumer demand and production volume (Figure 2).

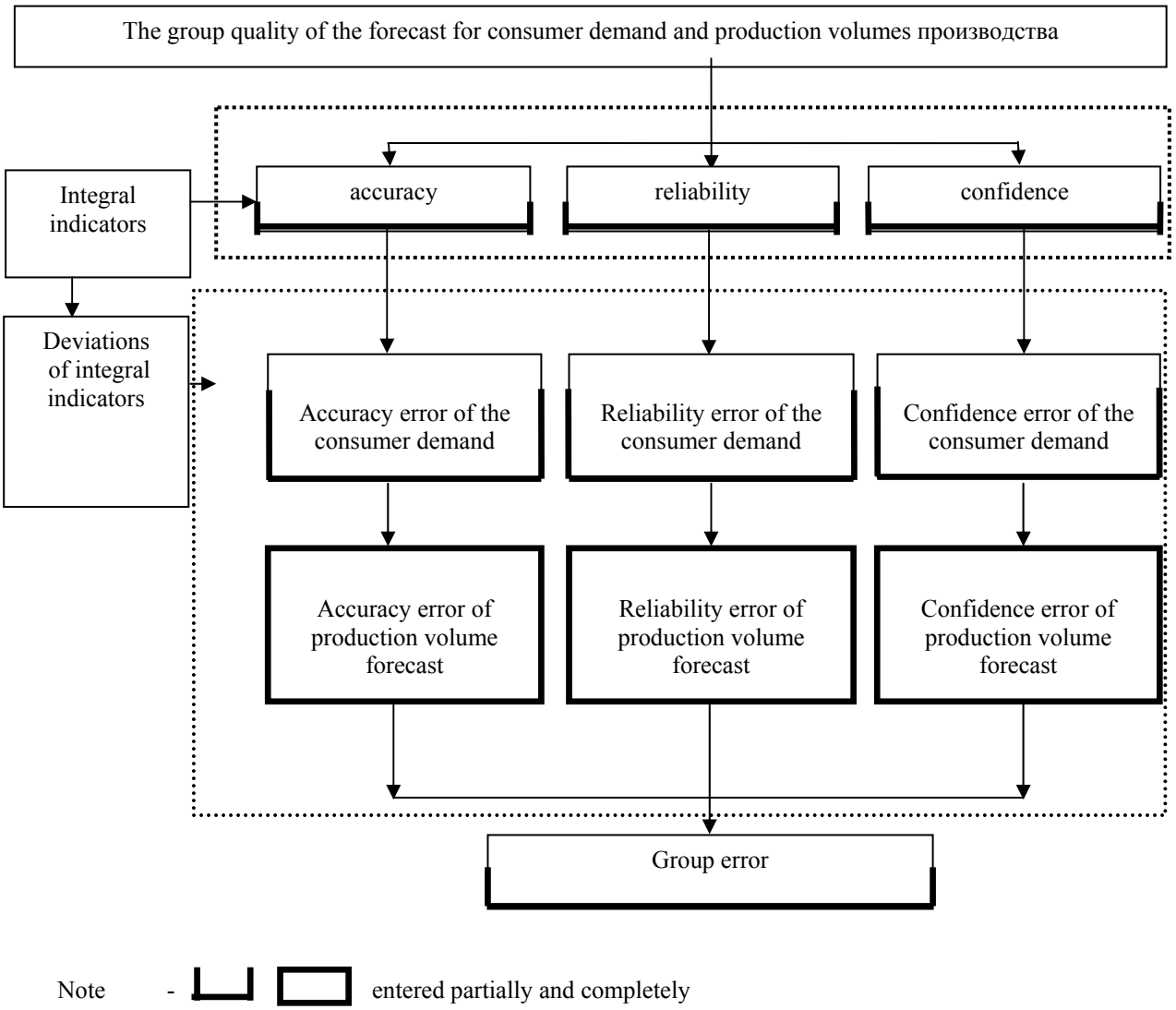


Figure 2 – The scheme of interconnection of integral indicators and errors of the group quality of the forecast for consumer demand and production volumes of mineral resources.

Thus, the determination of the forecast quality for consumer demand and mineral resources production volume under the conditions of uneven dynamics of the mining manufacture cannot be based on the estimation of its technical level only. For the complete characteristics of integral indicators of the forecast for consumer demand and mineral resources production volumes (especially to reveal the reserves for the growth of efficiency by quality enhancement) the technical level only is not enough. It is also necessary to determine the level of effectiveness, calculated by the indicators of actual and reference effectiveness, to the corresponding indicators of properties while making the forecast for the production volume, and for the consumer demand forecast. The level of effectiveness corresponding to representing quality of the forecast can be calculated using the following equations [14]:

$$L_c = Ej(n)/E_j, \quad (2)$$

$$L_{dm} = E\ i(n)/Ei \quad (3)$$

where, Ej(n) – effectiveness of the reference forecast that corresponds to the reference (normative) value of j-th integral indicator during the production volume forecast; E i(n)- effectiveness of the reference forecast that corresponds to the reference (normative) value of i-th integral indicator during the consumer demand forecast; E i – effectiveness of the estimated forecast that corresponds to actual value of i-th integral indicator during the consumer demand forecast; Ej- effectiveness of the estimated forecast that corresponds to actual value of j-th integral indicator during the production volume forecast.

The effectiveness corresponding to the integral indicators can be determined differentially by one of the costs elements using a group method – by combination of elements, and in its entirety – by all elements of costs [15].

Therefore, in very general view, the representing quality can be corresponded by the levels of effectiveness in differentiated, group, and integral expressions:

$$L_{ci} = E_{ci\,(N)}/E_{ci}; \quad L_{cn} = E_{cn\,(N)}/E_{cn}; \quad L_{cm} = E_{cm\,(N)}/E_{cm} \quad (4)$$

$$L_{cj} = E_{cj\,(N)}/E_{cj}; \quad L_{cl} = E_{cl\,(N)}/E_{cl}; \quad L_{ck} = E_{ck\,(N)}/E_{ck} \quad (5)$$

where, i- one of the cost elements used for estimation of integral indicator effectiveness of consumer demand forecast quality; j – one of the costs elements used for estimation of integral indicator effectiveness of production volume forecast quality; k- whole assembly of elements of production volume costs; l- a group of elements of production volume costs; m- whole assembly of elements of consumer demand costs; n- a group of elements of consumer demand costs.

So, three types of economic indicators of effectiveness can correspond to one technical indicator of the forecast of consumer demand and production volumes.

Another critical point of the quality estimation of the forecast of consumer demand and mineral resources production volumes is an opportunity of direct utilization of individual indicators of the group and integral quality [16,17].

Due to incompatibility of absolute individual indicators, the group and integrated forecasts of consumer volumes of mineral resources production should be calculated on the base of relative individual indicators. The general base of relative indicators calculation allows its joining into one expression and determining the group and integrated quality.

The group coefficient of quality (Gc) of the forecast of consumer demand and mineral resources production volumes can be expressed by the following target function [18]:

$$Ki = \frac{\sum_{j=1}^{m-x} ai\ Ki}{\sum_{j=1}^{m-x} ai} * \frac{\sum_{j=1}^{n-x} bj\ Kj}{\sum_{j=1}^{n-x} bj} \longrightarrow \min \quad (6)$$

where Ki – actual value of i-th integral indicator used for the demand forecast quality assessment; Kj - actual value of j-th integral indicator used for the production volume forecast quality assessment; b_j- a parameter characterizing the significance of j-th integral indicator used for the production volume forecast quality assessment; a_i- a parameter describing the significance of the 1-st integral indicator used for the demand forecast quality assessment; n – assembly of all known integral indicators used for quality assessment of production volume forecast; m –assembly of all known integral indicators used for quality assessment of consumer demand forecast; x- integral indicators not taken for the calculation.

The technical indicator of the group forecast quality for consumer demand and mineral resources production volumes, the same as for the assessment of integral indicators can be corresponded by individual, group, and integral values of effectiveness levels:

$$L_{ri} = E_{ri(N)}/E_{ri}\ ; \qquad L_{rrn} = E_{rrn\,(N)}/E_{rn}; \qquad L_{rm} = E_{rm\,(N)}/E_{rm} \tag{7}$$

$$L_{rj} = E_{rj\,(N)}/E_{rj}\ ; \qquad L_{rl} = E_{rl\,(N)}/E_{rl}; \qquad L_{rk} = E_{rk\,(N)}/E_{rk} \tag{8}$$

The integral quality should be estimated by the values of the whole assembly of integral indicators. The integral quality coefficient (Qc) of the forecast for consumer demand and production volumes can be represented as follows:

$$K\kappa = \frac{\sum_{j=1}^{m} ai\ Ki}{\sum_{j=1}^{m} ai} * \frac{\sum_{j=1}^{n} bj\ Kj}{\sum_{j=1}^{n} bj} \longrightarrow \min \tag{9}$$

The levels of effectiveness corresponding to the technical indicator of the integrated quality are determined by the following expressions:

$$L_{ki} = E_{ki(N)}/E_{ki}\ ; \qquad L_{kn} = E_{kn\,(N)}/Ek_{n}; \qquad L_{km} = E_{km\,(N)}/E_{km} \tag{10}$$

$$L_{kj} = E_{kj\,(N)}/E_{kj}\ ; \qquad L_{kl} = E_{kl\,(N)}/E_{kl}; \qquad L_{kk} = E_{kk\,(N)}/E_{kk} \tag{11}$$

The considered methods and indicators system are based on individual estimations and allow determining the interconnection of the levels of individual properties, conceptual characteristics of forecasts quality of consumer demand, production volumes, and effectiveness. Table 3 shows the indicators classification.

Table 3 – Classification of indicators of quality and effectiveness of forecasts of consumer demand and mineral resources production volumes

Conceptual characteristics of quality	Indicators of quality and effectiveness		
	individual	group	integrated
Representing	$K_c = Ki\ Kj \longrightarrow Kij\ (_N)$ $L_{ci} = E_{i\,(N)}/E_i$ $L_{ci} = E_{j\,(N)}/E_j$	$L_{cn} = E_{cn\,(N)}/E_{cn;}$ $L_{ce} = E_{ce\,(N)}/E_{ce}$	$L_{cm} = E_{cm\,(N)}/E_{cm}$ $L_{ck} = E_{ck\,(N)}/E_{ck}$
Group	$L_{ri} = E_{ri(N)}/E_{ri}\ ;$ $L_{rj} = E_{rj\,(N)}/E_{rj}$	$Ki = \sum_{i=1}^{m-x} ai\ Ki / \sum_{i=1}^{m-x} ai * \sum_{j=1}^{n-x} bj\ Kj / \sum_{j=1} bj$ $L_{rn} = E_{rn\,(N)}/E_{rn}$ $L_{re} = E_{re\,(N)}/E_{re}$	$L_{rm} = E_{rm\,(N)}/E_{rm}$ $L_{rk} = E_{rk\,(N)}/E_{rk}$
Integrated	$L_{ki} = E_{ki(N)}/E_{ki}\ ;$ $L_{kj} = E_{kj\,(N)}/E_{kj}$	$L_{kn} = E_{kn\,(N)}/Ek_{n};$ $L_{ke} = E_{ke\,(N)}/E_{ke}$	$Kk = \sum_{i=1}^{m} ai\ Ki / \sum_{i=1}^{m} ai\ *$ $*\sum_{i=1}^{n} bj\ Kj / \sum_{i=1}^{n} bi \longrightarrow \min$ $L_{km} = E_{km\,(N)}/E_{km}$ $L_{kk} = E_{kk\,(N)}/E_{kk}$

As mentioned above, under the conditions of uneven dynamics of the mining industry, the technique on determining the forecast quality of consumer demand and mineral resources production volumes should be oriented on the group quality and meet the following requirements [19,20,21]:

- be suitable for assessment of a posterior and a prior quality of forecasts;
- be based on generalized assessment of the most important set of properties of the mineral resources quality;
- be based on quantitative estimation of error value of the forecast for consumer demand and mineral resources production volumes;
- eliminate the measuring scale of the levels of consumer demand and production volumes;
- include indicators that take into account the cyclic nature of consumer demand change;
- take into account the indicators allowing making comparisons of the considered forecasts with the reference forecasts of a definite type;
- the indicators taken for the estimation should not correlated between each other;
- the selected indicators should be estimated by its significance and confidence;
- **the final estimation should be expressed in the form of a simple multiple relation and represent a target function minimizing the group error of the consumer demand and mineral resources production volumes;**
- a technique should be easy and applicable for the mining enterprises.

The calculation of the group quality coefficient is reasonable to be conducted if there is positive correlation between the forecasted and actual indicators of consumer demand and production volumes (R>0) as negative correlation (R <0) and its absence (R-0) is a satisfactory basis for empirical refutation of the forecast.

While developing the methodical provisions for the group assessment of the forecast quality the issue on interpreting the coefficient proposed by us is of the special significance.

Taking into account a model of the forecast group quality of consumer demand and production volumes under the conditions of uneven dynamics of the mining enterprise, and considering that the forecast errors represent a deviation value of i-th integral indicators of quality from its reference values, the interconnection of the integral indicators and forecast errors of consumer demand and mineral resources production volumes can be represented as follows.

Every *i*- th integral indicator that forms the group quality of the consumer demand is corresponded by i-th special error, and every j-th integral indicator that forms the group quality of the production volume forecast is corresponded by j-th special error. The i-th and j-th special errors taken for the assessment, in its entirety determine the group error of the forecast for consumer demand and mineral resources production volumes.

Discussion.

Thus, the intent of the group quality coefficient is that it represents a group error of the forecast of consumer demand and mineral resources production tending to minimum. And the integrated coefficient of quality reflects the integrated error of the forecast of consumer demand and mineral resources production volumes tending to minimum, and an individual coefficient of quality describes a special error used in the calculation to assess the forecast quality of consumer demand and production volumes, and tending to its normative (reference) value on consumer demand and volume of mineral resources production.

The group coefficient of quality should be used for characteristics of the group level of the forecast quality of consumer demand and volumes of mineral resources production.

The suggested typical values of the group coefficient and its interpretation are shown in Table 4.

Table 4 – Interpretation of the group coefficient
of the forecast quality for consumer demand and production volumes

Gc			Interpretation
Short-term forecast	Mid-term forecast	Long-term forecast	
<0,11	<0,10	<0,27	High quality
0,11-0,19	0,19-0,31	0,27-0,42	Good quality
0,20-0,31	0,32-0,52	0,43-0,76	Satisfactory quality
>0,31	>0,52	>0,76	Unsatisfactory quality

Conclusion.

Developed by the authors the multi-criteria economic and mathematical model of the forecasting for mineral resources production volumes considering the consumer demand assumes the measurement of the group quality of the forecast of consumer demand and production volumes under the conditions of uneven dynamics of the mining industry. For the successful measurement of the group level of the forecast quality for consumer demand and mineral resources production volumes, the estimation of the quality group coefficient under uneven dynamics of the mining industry development should be conducted at the stages of elaboration, adoption, and correction of forecasts.

At the stage of elaboration the group coefficient of quality should be used for the selection of forecast methods of the consumer demand and production volumes, for estimation of a priori quality of information and forecasting models, selection of models with suitable statistical characteristics and forecast expertise. At the stage of adoption the group coefficient of the forecast quality for production volumes should be applied to reveal a moment of consumer demand transition into the development mode of alternative option of the forecast, and to estimate the correspondence of the conditions of consumer demand forming to the forecasted conditions. At the stage of correction it is recommended to determine the trends on improving the selected techniques and forecasting methods of consumer demand and mineral resources production volumes using the group coefficient of the quality.

Introduction of the proposed method of the forecast quality estimation of consumer demand and mineral resources production volumes into the forecasting activity, in our opinion, will enhance the reliability, accuracy, and confidence of the developed forecasts that will result in more effective influence of forecasts on the level of accepting management decisions in industry and sale of the extracted mineral resources.

А.Х. Галиева[1], А.Н. Токсанова [1], Г.С. Укубасова [1], А.Ш. Абильдина [1], М.Т. Кулубеков [2]

[1]Қазақ Экономика, қаржы және халықаралық сауда университеті;
[2]М. Дулатов атындағы Қостанай инженерлік-Экономикалық университеті

МИНЕРАЛДЫ-ШИКІЗАТ РЕСУРСТАРЫНЫҢ ӨНДІРІС КӨЛЕМІ МЕН ТҰТЫНУШЫЛЫҚ СҰРАНЫСЫНА ҚАТЫСТЫ БОЛЖАМДАРДЫҢ САПАСЫН БАҒАЛАУ ӘДІСТЕМЕСІ

Аннотация. Мақаланың мақсаты тау-кен өнеркәсібін дамытудың басым бағыттарын анықтау үшін қазіргі кездегі минералды шикізатты өндіру көлемі мен тұтынушылық сұранысын болжауды жетілдірудің теориялық және әдістемелік негіздерін әзірлеу болып табылады. Жұмыста тұтынушылық сұраныс пен пайдалы қазбаларды өндіру көлемін болжаудың рөлі мен маңызы көрсетіліп, болжамдардың сапасын төмендететін болжаудағы кемшіліктер анықталған. Минералды-шикізат өндірісінің көлемі мен тұтынушылық сұранысты болжауды жетілдіру бойынша рекомендациялар ретінде авторлармен әзірленген тұтынушылық сұранысты есепке алатын минералды-шикізат өндірісінің көлемін болжайтын көп критерийлі Экономикалық-математикалық модель ұсынылды.

Жұмыстың Экономикалық ғылым үшін құндылығы ондағы сұраныс пен өндіріс көлемінің болжамдары олардың тығыз қарым-қатынастарында қарастырылатындығында жатыр. Жұмыстың тәжірибелік маңызы заманауи жағдайларда минералды-шикізат ресурстары өндірісінің көлемі мен сұранысын Экономикалық болжау үшін үлгілер кешенін қолдану мүмкіндігінде жатыр.

Түйін сөздер: болжамдар, сапа, тұтынушылық сұраныс, сұраныс, өндіріс көлемдері, пайдалы қазбалар, сапа көрсеткіштері, интегралдық көрсеткіштер.

А.Х. Галиева[1], А.Н. Токсанова [1], Г.С. Укубасова [1], А.Ш. Абильдина [1], М.Т. Кулубеков [2]

[1]Казахский университет Экономики, финансов и международной торговли;
[2]Костанайский инженерно-Экономический университет им. М. Дулатова

МЕТОДИКА ОЦЕНКИ КАЧЕСТВА ПРОГНОЗОВ ПОТРЕБИТЕЛЬСКОГО СПРОСА И ОБЪЕМОВ ПРОИЗВОДСТВА МИНЕРАЛЬНО-СЫРЬЕВЫХ РЕСУРСОВ

Аннотация. Целью статьи является разработка теоретических и методических основ совершенствования прогнозирования потребительского спроса и объемов производства минерально-сырьевых ресурсов в

современных условиях для выявления приоритетных направлений развития горнодобывающей промышленности. В работе раскрыты роль и значение прогнозирования потребительского спроса и объемов производства минерально-сырьевых ресурсов и выявлены недостатки прогнозирования, снижающие качество прогнозов. В качестве рекомендаций по совершенствованию прогнозирования потребительского спроса и объемов производства минерально-сырьевых ресурсов предложена многокритериальная экономико-математическая модель прогнозирования объемов производства минерально-сырьевых ресурсов с учетом потребительского спроса, разработанная авторами статьи.

Значение работы для экономической науки заключается в том, что в ней прогнозирование спроса и объемов производства рассматривается в их тесной взаимосвязи. Практическая значимость работы заключается в возможности применения комплекса моделей для экономического прогнозирования спроса и объемов производства минерально-сырьевых ресурсов в современных условиях.

Ключевые слова: прогнозы, качество, потребительский спрос, потребность, объемы производства, минерально-сырьевые ресурсы, показатели качества, интегральные показатели.

Information about authors:

Galiyeva A.Kh. Kazakh University of Economics, Finance and International Trade, docent of "Economics" chair, alma_galiyeva@mail.ru;

Toksanova A.N. Kazakh University of Economics, Finance and International Trade, professor of "Economics" chair, taigul1@mail.ru;

Ukubassova G.S. Kazakh University of Economics, Finance and International Trade, Counselor of the President, e-mail: ukubasova_g@mail.ru;

Abildina A.Sh., Kazakh University of Economics, Finance and International Trade, e-mail: aalimbaeva@mail.ru;

Kulubekov M.T. Kostanay Engineering Economic University named by M. Dulatov, Dean of the Economics Faculty, kmaksat_79@mail.ru

REFERENCES

[1] Ajtzhanova D.A. **(2015)** Vektory sovershenstvovanija resursno-syr'evoj politiki v celjah ustojchivogo funkcionirovanija mineral'no-syr'evogo kompleksa Kazahstana. *News of the national academy of sciences of the Republic of Kazakhstan series of social and human sciences,* ISSN 2224-5294, Volume 2, Number 300, P. 64 – 70. DOI: https://doi.org/10.32014/2018.

[2] Suharev M.G. **(2009)** *Metody prognozirovanija: Uchebnoe posobie.* M.: RGU nefti i gaza, 2009. 208 p.

[3] B.N. Kuzyk, V.I. Kushlin, Ju.V. Jakovec**. (2008)** *Prognozirovanie, strategicheskoe planirovanie i nacional'noe programmirovanie: uchebnik*. M.: Jekonomika, 575 p.

[4] Vladimirova L.P. **(2000)** *Prognozirovanie i planirovanie v uslovijah rynka: ucheb.* Posobie. M.: Dashkov i K, 307 p

[5] Beljaevskij, I. K. **(2001)** *Marketingovoe issledovanie: informacija, analiz, prognoz*. Moskva: Finansy i statistika, 320 p.

[6] D'juzenberr D.S. **(1958)** Kisti H. Rol' sprosa v jekonomicheskoj strukture. V sb.: *Issledovanie struktury amerikanskoj jekonomiki.* M:Gosstatizdat.

[7] Kazhmuratov K.K., Galieva A.H. **(2001)** Metody ocenki kachestva prognozov ob#ema proizvodstva i potrebitel'skogo sprosa mineral'no- syr'evyh resursov. *Regional'nye problemy integracionnyh processov v uslovijah rynochnyh reform.* Materialy Mezhdunarodnoj nauchnoj konferencii. -Kostanaj, P.328-335.

[8] Chejz, R. B. **(2001)** *Proizvodstvennyj i operacionnyj menedzhment.* R. B. Chejz, N. D. Jekvilajn, R. F. Jakobs: per. s angl. 8-e izd. Moskva: Vil'jams, 704 p.

[9] Mazmanova B.G. **(2004)** *Metodicheskie voprosy prognozirovanija sbyta.* Marketing v Rossii i za rubezhom, №10. P.9-12.

[10] Basovskij P.E. **(2002)** *Prognozirovanie i planirovanie v uslovijah rynka. Ucheb. posobie.* M.: INFRA-M, 260 p.

[11] Alimbaev A.A., Ajnabek K.S. **(2002)** *Osnovy upravlenija rynochnoj jekonomiki.* Kollektivnaja monografija. Karaganda: Bolashak Baspa, 354p.

[12] Karenov R.S. **(2000)** *Mineral'no-syr'evoj kompleks Kazahstana v uslovijah rynochnoj jekonomiki.* Almaty: RIO VAK RK, 296p.

[13] Bushueva L.I. **(2005)** *Metody prognozirovanija obemov prodazh*. Marketing v Rossii i za rubezhom, №3. P.11-14.

[14] Bidjuk P.I. **(2013)** *Analiz kachestva ocenok prognozov s ispol'zovaniem metoda kompleksirovanija.* P. I. Bidjuk, A.S. Gasanov, S. E. Vavilov. Sistemni doslidzhennja ta informacijni tehnologiï. № 4. P. 7-16.

[15] Tulegenova M**.(2007)** *Finansovyj kapital i integrirovannye struktury.* A.: Jekonomika, 422 p.

[16] Veselevich V.I., Lihterman S.S., Revazov M.A. **(2005)** *Planirovanie na gornom predprijatii:* Uchebnoe posobie. M.: Izd-vo Gornaja kniga, ISBN: 5-98672-006-7, 405 p.

[17] Turunceva M.Ju (2011). Ocenka kachestva prognozov: prostejshie metody. *Rossijskoe predprinimatel'stvo.* Tom 12. № 8. P. 50-56.

[18] Gabdulin T. G. **(2002)** Strategicheskoe planirovanie proizvodstva mineral'no-syr'evyh resursov. *Vestnik ChelGU*, №1. P. 86-93.

[19] Poon S.H. **(2005)** *A Practical guide to forecasting financial time volatility.* NY: John Wiley & Sons, Inc., 238 p.

[20] Kremer N.Sh. **(2002)** *Teorija verojatnostej i matematicheskaja statistika:* Uchebnik dlja vuzov // M.: JuNITI-DANA, 543 p.

[21] T.G. Morozovoj, A.V. Pikul'kina. M. **(2000)** *Prognozirovanie i planirovanie v uslovijah rynka.* 604 p.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.14**
Volume 1, Number 323 (2019), 99 – 103

UDK 336.22

M.Zн. Dyussegaliyev, R.K. Sabirova, A.I. Zinullina, A.A. Kenzheshov

Atyrau State University named after H. Dosmukhamedov
mukhit-65@mail.ru, sabirovarysty@mail.ru, Aynamkoz.abilhan.94@mail.ru, mplusj@bk.ru

STATE BUDGET OF THE REPUBLIC OF KAZAKHSTAN

Abstract. According to the authors, the budget classification of the Republic of Kazakhstan is used to compile and execute budgets and ensure the comparability of budget indicators at all levels of the budget system of the Republic of Kazakhstan. Budget classification is a grouping of revenues and expenditures of budgets of all levels of the budget system and sources of financing deficits of these budgets with assignment of classification codes to objects of classification. To implement the reorientation of the economy, large financial investments are necessary; therefore, important problems are finding sources of structural transformations, determining the correlation between state funds in the form of budget allocations and own funds of enterprises. The state budget as an instrument of economic management has an integrated impact on social production as a financial instrument, as an economic lever and as an incentive. Despite the annual growth of state budget expenditures, their effectiveness decreases.

Keywords: state budget, revenues, expenses, taxes, efficiency, classification, reform.

INTRODUCTION

Since independence, Kazakhstan has established the foundations of a modern public financial management system.

A system of public finances has been created that meets the conditions and requirements of a market economy, the legislative framework for financial support for the activities of state authorities at the central and local levels. Implemented program budgeting and program classification of expenses. Fixed on a permanent basis, sources of income with their distribution between the republican and local budgets.

With a view to macroeconomic stabilization, the financing of the state budget deficit has since 1998 shifted to non-inflationary sources.

MAIN PART

An important reform in the budget system of Kazakhstan was the creation of the National Fund and the budget code of the Republic of Kazakhstan.

Thus, since independence, Kazakhstan has established the foundations of a modern budget management system. An integrated system of regulation of budgetary legal relations has been created, uniform principles of the budgetary system have been established, a mechanism for saving oil revenues has been introduced, and a system of intergovernmental relations has been established.

The theoretical and methodological basis of the research is formed by the works of several generations of prominent domestic and foreign scientists and practitioners in the field of the tax system. The methodological basis consists of general scientific methods of knowledge, a dialectical approach to understanding and analyzing the most important components of the tax system, a systematic approach, functional analysis, methods of economic statistics, classification, comparison, etc.

At the same time, in the formation of the budget policy, there are problems and negative trends, which in the medium and long term can negatively affect its efficiency.

For example, the current expenses and the volume of subsidies from the state budget to support the housing and utilities sector, the transport industry, and agriculture are increasing annually.

At the same time, a taxation policy that is not accompanied by an increase in the revenue base may, in the long term, be inadequate to increasing liabilities. In the long run, this can lead to an imbalance in government finances.

Effective management of budgetary resources is also hampered by a large number of programs, the implementation of which is assigned to various government agencies.

In December 2012, the Development Strategy of the Republic of Kazakhstan until 2050 was presented in the Address of the Head of State to the people of the country. Its main goal is the creation of a welfare society based on a strong state, a developed economy and opportunities for universal labor, the entry of Kazakhstan into the top thirty most developed countries in the world.

President of the Republic of Kazakhstan N.A. Nazarbayev noted that: "... we must arm ourselves with a new principle of fiscal policy - to spend only within our capabilities.

Based on this statement, it is possible to analyze the main parameters of the republican budget, which mainly show growth for 2013-2017.

Thus, the revenues of the republican budget increased from 5.18 trillion tenge (2013) to 7.66 trillion tenge (2016). In 2017, the budget revenues were approved in the amount of 9.54 trillion tenge. During the same period, the expenses of the republican budget increased from 5.7 trillion tenge (2013) to 10.74 trillion tenge in 2017, which represents an increase in percentage of over 180%. During the period under review, the peak of budget loans issued from the republican budget falls on 2016. - 315 billion tenge (93.6 billion tons were redeemed), whereas in 2013 the amount was 122.1 billion. tenge (83.9 billion tenge repaid). The largest amount for the acquisition of financial assets was spent in 2014 (KZT 480 billion), in 2017, this amount was approved in the amount of KZT 162.4 billion. Deficit of the republican budget in 2017 approved in the amount of -1.55 trillion tenge in comparison with 2016. -741.2 billion tenge, the growth of the budget deficit amounted to 209%.

The revenue part of the republican budget is formed from receipts in the form of tax and non-tax receipts, receipts from the sale of fixed capital and receipts of transfers.

The main part of the republican budget revenues is tax revenues: 2013. - 3.5 trillion tenge - 67.8%, 2014 - 3.66 trillion tenge - 62%, 2015 - 3.32 trillion tenge - 54.3%, 2016 - 4.28 trln. - 55.8% of all revenues of the national budget (the share of tax revenues in the central budgets of developed countries is 80-90%). Despite the growth in the amount of tax revenue in 2017. (approved in the amount of 4.79 trillion tenge), the share ratio is reduced to 50.2%. This change is associated with an increase in transfers, the proportion of which amounted to: in 2013. - 30.1%, 2014 - 35.6%, 2015 - 42.9% in 2016 - 40.2%, and in 2017 - 48.74% of all revenues of the republican budget. Non-tax revenues constitute about 2% of the total amount of revenues of the republican budget, and proceeds from the sale of fixed capital, as a rule, not more than 0.3%.

Budget expenditures are such expenditures of budgetary funds that are directly related to their development, the implementation by state bodies of the functions and powers assigned to them. The main attribute determining the category of costs is the allocation of budget funds on a non-refundable basis. Comparing costs with other types of expenses, such as budget lending, the acquisition of financial assets, the repayment and servicing of loans, which, unlike costs, are returnable, i.e. must be returned to the appropriate budget under certain conditions.

The main share in state budget expenditures is social assistance and social security (20%), health care (17%), industrial, agricultural development (15%) and administrative costs (10%).

If we rely on the analyzed data, we can conclude that the current situation shows a still weak interconnection between strategic and budget planning. In the case of more detailed consideration, it is necessary to make some studies, the main objectives of which are:

- Consideration of theoretical and methodological approaches, i.e. data analysis
- Identification of problems, as well as ways to solve them
- Development of scientific and practical recommendations

The main objectives of the research are:

- To investigate the theoretical and methodological aspects of the content of state budget expenditures
- To analyze the execution of the expenditure part of the state budget
- Develop proposals for improving the expenditures of the state budget of the Republic of Kazakhstan.

In order to realize these objectives and goals, it is necessary to refer to the initial understanding of government spending.

So, Karl Marx considered government spending as a method of primitive accumulation of capital. This is a historical process during which conditions were created for capitalist production. The concept of "primitive accumulation of capital" was first introduced in the writings of Adam Smith and developed by Marx as a theory of primitive accumulation.

In turn, George Keynes considered government spending as a tool for state intervention in the economy in an unstable development.

According to the authors, I.N. Zhuk, E.F. Kireev budget expenditures represent the costs arising in connection with the performance of state functions.

Budget classification is a systematic grouping of revenues and expenditures of the budget according to homogeneous features, which is the basis of all budget activities of the state financial bodies. The budget classification provides a close relationship with plans, forecasts and programs of economic and social development of the state, with financial plans of the ministry and departments, organizations and institutions; allows you to combine individual estimates and financial plans in free estimates and plans, provides a link between master plans and budget painting.

Budget classification enables economic and statistical analysis of income and expenditure budgets of the Republic of Kazakhstan, provides targeted allocation of financial resources.

Budget classification includes:

1. classification of budget revenues of the Republic of Kazakhstan;
2. functional classification of expenditures of the budgets of the Republic of Kazakhstan;
3. economic classification of expenditures of the budgets of the Republic of Kazakhstan;
4. classification of sources of domestic financing of budget deficits of the Republic of Kazakhstan;
5. classification of sources of external financing of the republican budget deficit;
6. classification of types of public domestic debt of the Republic of Kazakhstan;
7. classification of types of public external debt of the Republic of Kazakhstan and state external assets of the Republic of Kazakhstan;
8. departmental classification of expenses of the republican budget.

The budget classification is the same for all levels of the budget system and is used in the preparation, approval and execution of budgets of all levels and the preparation of consolidated budgets of all levels. Legislative (representative) bodies of state power and bodies of local self-government are entitled, through their normative acts, to further refine the objects of the budget classification without violating the general principles of construction and unity of the budget classification of the Republic of Kazakhstan.

The study of the problems associated with the organization and trends of development and reform of the tax system of Kazakhstan is not only theoretical, but also of great practical importance. They have historical, social, legal, civil and territorial roots.

The study of the problem of the tax system is also necessary because in the economic literature there are very contradictory views on issues such as the concept of the tax system, its constituent parts (elements) and on a number of other issues, which leads to disagreements in the interpretation of the conceptual apparatus.

In March 2017, by the decree of the Head of State, Nurmukhambet Abdibekov was appointed to the post of Chairman of the Accounts Committee. The head state auditor of the country told "Kazakhstanskaya Pravda" about the work of the department, the financial discipline of budget beneficiaries and much more.

"In essence, you need to understand everything in order to assess the effectiveness of the use of public resources. And I think that my long-term experience in economic structures, as akim of the city and region, where I had to control the activities of local executive bodies, will help me in this," says Abdibekov

He also stressed that - "Over 30% of violations were committed due to non-compliance with accounting, the Budget Code, more than 40% - industry legislation. At the same time, thanks to measures taken in recent years, including to improve the regulatory framework, the number of violations of legislation on public procurement and construction activities has decreased.

According to the results of audit activities, an inefficient implementation of budget programs was noted, which, as a rule, was connected with their poor-quality planning, which subsequently negatively affects their execution, leading to non-appropriation of funds.

Of particular concern was the implementation of state and government programs. Last year, the programs “Salamatty Kazakhstan”, “Information Kazakhstan 2020”, “Business Road Map 2020”, the Program for the development of the agro-industrial complex were checked. These are very important social programs for which significant budget funds are allocated. However, the state audit showed that there are systemic gaps in their implementation, including those associated with the selected mechanisms for their implementation.

For example, according to the results of the evaluation of the implementation of the state program “Salamatty Kazakhstan”, it has been established that the measures taken so far are not sufficiently effective in increasing the life expectancy of the population, reducing maternal, infant and general mortality, HIV and tuberculosis morbidity, and increasing the detection of cancer patients. The situation is complicated by the lack of medical personnel, especially in rural areas.

Systemic deficiencies are established in such areas as education, state expertise, agriculture and water management, the fuel and energy complex and the gas sector, and transport. Numerous violations were revealed during auditing activities in the regions. This and violations committed in the implementation of investment projects, pro frame documents.

In the Message “The Third Modernization of Kazakhstan: Global Competitiveness”, the Head of State stressed the need to drastically improve the efficiency of using budgetary funds.

First of all, the President ordered to check the effectiveness of the use of funds allocated to the three ministries: labor and social protection of the population, health, education and science. And this is not by chance, since they account for more than 40% of the republican budget, and, most importantly, the activities of these government bodies affect the interests of the daily life of the population.”

The state budget is actively used by the state to manage the economy. It plays a significant role in enhancing the concentration of funds in the most important areas of socio-economic development, in improving the sectoral and territorial structure of the economy in accordance with socio-economic development, in accelerating the intensification of production, in carrying out savings in the use of all types of resources. At the same time, the state budget in all forms of its manifestation and use acts as a tool for managing the economy and has an integrated impact on social production and as a financial document, an economic lever, and as an incentive.

УДК 336.22

М.Ж. Дюсегалиев, Р.К. Сабирова, А.И. Зинуллина, А.А. Кенжешов

Х. Досмұхамедов атындағы Атырау мемлекеттік университеті

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ МЕМЛЕКЕТТІК БЮДЖЕТІ

Аннотация. Авторлардың пікірі бойынша, Қазақстан Республикасының бюджеттік сыныптамасы республикалық бюджеттің барлық деңгейлерінде бюджеттердің құрастырылуы мен орындалуына және бюджет көрсеткіштерінің салыстырмалығын қамтамасыз етуге пайдаланылады. Бюджеттік сыныптау - бұл бюджеттік жүйенің барлық деңгейлеріндегі бюджеттердің кірістер мен шығыстарын топтастыру және осы бюджеттердің тапшылығын қаржыландыру көздері жіктеу объектілеріне жіктеу кодын беру. Экономиканы қайта бағдарлауды жүзеге асыру үшін үлкен қаржы инвестициялары қажет, сондықтан маңызды проблемалар құрылымдық өзгерістердің көздерін табу, бюджет қаражаты мен кәсіпорындардың меншікті қаражаты түріндегі мемлекеттік қаражат арасындағы корреляцияны анықтайды. Экономикалық басқару құралы ретінде мемлекеттік бюджет әлеуметтік өндіріске қаржы құралы ретінде экономикалық левери ретінде және ынталандыру ретінде ықпал етеді. Мемлекеттік бюджеттің шығындарының жыл сайынғы өсуіне қарамастан олардың тиімділігі төмендейді.

Түйін сөздер: мемлекеттік бюджет, кірістер, шығыстар, салықтар, тиімділік, жіктеу, реформа.

УДК 336.22

М.Ж. Дюсегалиев, Р.К. Сабирова, А.И. Зинуллина, А.А. Кенжешов

Атырауский государственный университет им.Х.Досмухамедова

ГОСУДАРСТВЕННЫЙ БЮДЖЕТ РЕСПУБЛИКИ КАЗАХСТАН

Аннотация. По мнению авторов для составления и исполнения бюджетов и обеспечения сопоставимости показателей бюджетов всех уровней бюджетной системы Республики Казахстан используется бюджетная классификация Республики Казахстан. Бюджетная классификация является группировкой доходов и расходов бюджетов всех уровней бюджетной системы и источников финансирования дефицитов этих бюджетов с присвоением объектам классификации группировочных кодов. Для осуществления переориентации экономики необходимы крупные финансовые вложения, поэтому важными проблемами являются изыскание источников структурных преобразований, определение соотношения между средствами государства в виде бюджетных ассигнований и собственными средствами предприятий. Государственный бюджет в качестве инструмента управления экономикой оказывает интегрированное воздействие на общественное производство как финансовый документ, как экономический рычаг и как стимул. Несмотря на ежегодный рост расходов государственного бюджета, их результативность снижается.

Ключевые слова: государственный бюджет, доходы, расходы, налоги, эффективность, классификация, реформа.

Information about authors:

Dyussegaliyev M.Zн. - Atyrau State University named after H. Dosmukhamedov, mukhit-65@mail.ru,, https://orcid.org/0000-0003-3507-7625

Sabirova R.K. - Atyrau State University named after H. Dosmukhamedov, https://orcid.org/0000-0002-9947-6564, sabirovarysty@mail.ru

Zinullina A.I. - Atyrau State University named after H. Dosmukhamedov, https://orcid.org/0000-0003-4387-4632

Kenzheshov A.A. - Atyrau State University named after H. Dosmukhamedov, https://orcid.org/0000-0003-1920-8584

REFERENCES

[1] Blank I.A. Asset Management . K .: Nick Center, Elga, **2012**. 720 p.

[2] Kreinina M.N. Financial management. M .: Business and Service, **2013**. 304s.

[3] Budget Code of the Republic of Kazakhstan. Almaty 2007.

[4] The state program of industrial-innovative development of the Republic of Kazakhstan for 2015-2019. http://www.baiterek.gov.kz/ru/programs/gpiir-2/

[5] V. Bishimbayev. Innovative vector of Kazakhstan // Kazakhstanskaya Pravda. **2015**. June 13th. http://www.kazpravda.kz/rubric/mir/proriv-k-innovatsionnomu-budushchemu/

[6] Website of the Ministry of Finance of the Republic of Kazakhstan: www.minfin.kz

[7] Message of the President of the Republic of Kazakhstan - Leader of the Nation N.Nazarbayev to the people of Kazakhstan. Strategy "Kazakhstan - 2050": a new political course of an established state. Kazakhstan truth. December 15, **2012**. No. 437-438.

[8] Zhansagimova A.E., Auezov G.B.. Optimization of cost management in the enterprise during the global crisis. Proceedings of the National Academy of Sciences of the Republic of Kazakhstan, a series of social sciences and humanities, No. 5, **2016**. Pp. 127-132 https://doi.org/10.32014/2018.2518-1629

[9] 9. Kosherbayeva N. A., Abdreimova K., Kosherba G., Anuarbek A. Synthesis of achievements of world mankind in humanity pedagogy. Procedia - Social and Behavioral Sciences 89, 2013. P.886-889. https://doi.org/10.1016/j.sbspro.2013.08.950

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.15**
Volume 1, Number 323 (2019), 104 – 108

UDC 334.7.012

L.K. Dyusembaeva[1], Zh.M. Bulakbay[2], Zh.A. Babazhanova[3], G.Ye. Nurbayeva[4]

[1]Kazakh Agrotechnical University. S.Seifullin;
[2,3] Eurasian National University named after L.N.Gumilyov;
[4]Innovative University of Eurasia, Pavlodar city
lazzat_196464@mail.ru, bulakbay_zhannat@mail.ru, Babazhanova_zh@mail.ru, nuvi79@mail.ru

IMPROVING THE STRATEGY OF INTERACTION BETWEEN THE STATE AND SMALL BUSINESSES IN KAZAKHSTAN

Abstract. Forming effective innovation mechanisms in the economy of Kazakhstan using the potential of small business is a pressing problem and the fact that the accumulated experience of industrialized and post-industrial countries focused on the development of market economy relations certainly shows that small business is a necessary condition for achieving economic success and is the main engine of innovation development. All structures are interested in the development of such a sector of the economy, since small business is the basis on which the entire economic pyramid will be created, which can provide jobs for a significant part of the population and form the middle class of society. From this it follows that the faster a significant stratum of small business entities is created within the state, the more actively the model of an effective market economy will develop, including the implementation of the tasks of economic restructuring and transition to a new level of technological structure.

Keywords: taxation, tax risks, management, enterprise, budget, efficiency, microcredit.

INTRODUCTION

The process of commercialization of innovation is a problem for small enterprises, and at the same time is a very important stage in the innovation activity of small enterprises (hereinafter referred to as MP).

Thus, reimbursement of the costs of the founder (developer) of the innovative product and further profit from his idea is carried out. Innovation activity is an activity aimed at finding new ideas and their further commercialization in order to increase the range and quality of products, modernize technologies and organize production [1].

Innovation activity contains the identified problems of enterprises, the introduction of the innovation process, as well as its organization. The advantage of the innovation activity of enterprises is that all the developed ideas are gradually aging. It follows from this that innovations include changes in the economy, industry and behavior of people, and therefore they should be oriented to the market, satisfying its needs. But, despite all the features of innovation, the problem of innovation in small business remains open today [2].

MAIN PART

To date, a unified theoretical position in the formation and development of comprehensive measures for the development of innovative entrepreneurship has not yet been formed, which implies the expedient continuation of research in this direction.

In foreign countries, including European, small business is considered as the most important type of business, based on a direct search for innovations and opportunities for the production of goods and services based on scientific research. According to American scientists J. Kay and S. Davis, small business should be considered as a special kind of activity that contains the basic mandatory conditions and requirements [3]. Consequently, the founder of the innovation idea initiates the connection of resources, capital and labor with one process of producing a product or service, and also solves the problem of making important decisions in the process of productive productivity, which will later

determine the direction of innovation in small business. They also believe that the initiator of the project is an entrepreneur who seeks to introduce innovative technologies based on both commercial and product services, with the introduction of new forms of organization of activities that have no analogues, in which the project initiator participates a certain risk.

In addition to the above, it is worth agreeing also with P. Drucker, who puts forward two entrepreneurial functions that, in our opinion, emphasize the special features of entrepreneurship: it is about marketing and innovation [4]. The scientist claims that a business is different from all human organizations in that it provides for the sale of goods and services, that is, any organization that uses marketing when developing or selling a product can be called a business. The second function of business is innovation, that is, the provision of better and cheaper goods and services (it is not enough just to produce cheap goods and services, the business must provide better and cheaper ones).

Thus, it can be said that the spread of innovation in the economy is a direct goal and function of entrepreneurship. The problem of successful development and implementation of innovative projects in the context of economic reforms is of fundamental importance. Unfortunately, in modern conditions the innovative potential of small business is underused. Thus, the development potential in this area has not yet exhausted itself. In the countries of the world, the ranking in terms of innovation of small and medium businesses and the results remain unchanged, Switzerland remains the leader. He is followed by the United Kingdom, Sweden, Finland, the Netherlands, the United States of America, Singapore, Denmark, Luxembourg and Hong Kong.

Over the last period of economic development, a steady trend has been observed in the main indicators of innovation activity. The main indicator - the share of innovations as a result of the total volume of products supplied to innovative enterprises, increased and amounted to 4.1%. Nevertheless, despite the presence of pronounced competitive advantages in individual indicators, a comparison with the leaders shows Kazakhstan’s large-scale lag in many dimensions of the rating.

Small innovative business is enterprises that are on the balance of industrial property applied objects (patents, utility models, industrial designs), as well as those that systematize and protect intellectual property from trade secrets. At the same time, innovation activities of small enterprises, as experts note, in contrast to the existing research and development sector, cannot be created on demand. This requires more development than funding. This includes, among other things, the formation of innovative forms as a tool to improve small business development using the necessary conditions for the formation of innovations, their implementation, commercialization, expansion of strategic management, and the accession of subjects of state innovation institutions.

In order to improve the resource support of scientific, technical and innovation activities of small innovative enterprises and solve problems, the authors propose the improvement of innovation activities with the introduction of state support in the form of innovative forms as a tool for the effective development of small business. This form will take the form of organization of state innovation institutions in the form of funds. Government funding for research activities will be carried out on the basis of program-oriented planning, and will be directly linked to the budget's capabilities. To effectively use the innovative form, it is necessary to be guided by the innovative development strategy for the period up to 2020, including five main tasks: to expand the class of innovative entrepreneurs, to increase the innovative activity of small and medium businesses, to raise the innovative activity of the state, to form a balanced research sector, to increase the transparency of innovative system. The strategy involves an increase in the share of innovative enterprises to 40-50%, the share of domestic high-tech exports in the world - up to 20%, the share of innovative products in the total industrial output to 25-35%. In conclusion, it can be noted that the improvement of the innovation activities of small enterprises is a necessary direction for the effective development of the domestic economy.

For the Republic of Kazakhstan, the problem of introducing new scientific and technical developments into production, the transition to an innovative development path has always remained relevant. If earlier proposals for innovative projects came from scientists without taking into account the interests of industrial enterprises, at present the focus will be on innovation in industry and the proposals of the enterprises themselves. This will provide an opportunity to implement innovative projects, starting with the launch phase.

In order to develop an innovative economy in the Republic of Kazakhstan, the State Program of Forced Industrial-Innovative Development of the Republic of Kazakhstan was adopted, aimed at ensuring sustainable and balanced economic growth through diversification and increasing its competitiveness.

According to the Ministry of National Economy of Kazakhstan, 865.4 billion tenge was allocated from the budget for the implementation of this program in 2013, and the analysis of the structure shows that these funds were not directly related to the implementation of industrial policy: only 15.1% were allocated to industrialization of total expenses (129.1 billion tenge).

The logical continuation and taking into account the experience of the implementation of this program is the State Program of Industrial-Innovative Development of the Republic of Kazakhstan for 2015-2019. As a result of the ongoing reforms, since the implementation of this program, the share of innovatively active enterprises increased from 3.9% to 7.5%, the costs of enterprises for technological innovations increased threefold (from 112.9 to 325 billion tenge) and the volume increased three times as compared with innovative products (from 110.3 to 378 billion tenge). As for the “Innovations” indicator of the Global Competitiveness Index of the World Economic Forum, Kazakhstan increased its rating by 18 positions and took 83rd place, and by the coefficient “Technological readiness” - by 24 positions (56th place).

Technological platforms are being created in the priority sectors of the State program for industrial-innovative development. The state provides a platform for enterprises and scientific organizations capable of solving these technological problems. Thus, consortiums are formed, in which enterprises will finance research, united by a single theme - a platform. The Republic of Kazakhstan has a corresponding innovation infrastructure, including nine technology parks, five national central and fifteen regional laboratories, nine venture funds, three design bureaus have already been established. Ultimately, all measures to transform the economy should lead to the creation and development of a stable system that allows to produce high-tech products with a high level of gross value added, support research and promote the effective implementation of scientific research and technology transfer.

When analyzing measures to stimulate small innovative entrepreneurship, one of the key issues is the provision by the state of a clear regulatory framework for the functioning of economic entities. Thus, according to the Ernst & Young study, it was found that 52% of respondents believe that the degree of transparency and stability of the regulatory framework remains insufficient.

Summing up the considered aspects of measures to stimulate and support innovative entrepreneurship in Kazakhstan, it should be noted that within the framework of certain strategic positions of Kazakhstan, the state pursues an active policy to develop and implement measures for the comprehensive support and motivation of business legal entities. Financing of the innovation activities of enterprises comes from internal and external sources.

In the Republic of Kazakhstan, there are almost two million such enterprises, but despite this, since the mid-90s of the 20th century it seems that the situation has improved a lot and has gained momentum. Only 25% of the population is employed in such enterprises, and more than one million firms have only one employee, this employee is the owner of the economic entity.

The contribution of small and medium businesses to the development of domestic GDP is small and amounts to 22.7%. It should be clarified that it is considered to consider the economy of a country as normal if this figure is above 65%.

The total number of small and medium enterprises in Kazakhstan is significantly lower than abroad. As in developed countries, the majority of small and medium-sized enterprises are micro enterprises and individual entrepreneurs (95%), small enterprises account for 4.3%, medium-sized businesses - 0.8%.

It is important to note that, accounting for only 1% of the small and medium-sized business sector in Europe, medium-sized enterprises account for 22% of total turnover and 17% of employment. Kazakhstan's average enterprises account for only 3.9% of turnover and 3.2% of total employment. [2]

The current taxation system of Kazakhstan is distinguished by the fact that it does not take into account the peculiarities of the costs of small business and has a purely fiscal nature. The tax system is aimed at maximizing the withdrawal of funds of economic entities, which practically deprives them of their profits. You can also note the tendency of increasing the tax burden of small enterprises, which has emerged recently. [1, p. 56]

The next most important problem of small enterprises is the lack of funds that are necessary for the development of economic entities. To solve these problems of small business related to the lack of investment resources, a decision was made to provide grants to small business start-ups.

In modern conditions for small enterprises there are no opportunities for free development. [6, p. 89]

Opening a small business requires cash, and the main source for start-up capital is bank lending, but obtaining a credit for developing a small business in banking organizations is currently very difficult, as credit institutions believe that the probability of repayment is small.

CONCLUSION

Thus, the imperfection of the tax system of Kazakhstan is exacerbated by excessive bureaucratization and excessive administration of the development of small enterprises by state authorities.

The disadvantages of taxing small businesses can be reduced to the following problems: the wrong mechanism for the redistribution of taxes, inconsistency in tax policy, the vagueness of legislation adopted and their different interpretation, poor organization of tax authorities.

However, the increase in the number of small enterprises does not mean the effectiveness of their functioning, which is a consequence of the fragmentation and incompleteness of infrastructure, the ineffectiveness of the mechanism of interaction between small enterprises and infrastructure institutions.

The main factors that reduce the effectiveness of small business support in Kazakhstan are: the lack of consistent measures at the republican level, which can change the situation in the development of small business, the inconsistency of the regulatory framework, the partial implementation and declarative goals of republican and regional small business support programs, the inconsistency of their goals used lack of clarity of identification criteria, conflict of relations between small businesses and government representatives, the impact of quality infrastructure services, support for small businesses in terms of their real needs.

One of the main problems is the problem of interaction of small business with government representatives. Government regulation and government support play an extremely important role in the development of small businesses. The problems of entrepreneurship development, characteristic of the current stage of development of the economy of Kazakhstan, are largely determined by inadequate government regulation of the infrastructure process.

УДК 334.7.012

Л.К. Дюсембаевна[1], Ж.М. Бұлақбай [2], Ж.А. Бабажанова [3], Г.Е. Нурбаева [4]

[1]С.Сейфуллин атындағы Қазақ агротехникалық университеті;
[2,3]Л.Н.Гумилев атындағы Еуразия ұлттық университеті;
[4]Инновациялық Еуразия университеті, Павлодар қ.

ҚАЗАҚСТАНДАҒЫ МЕМЛЕКЕТ ПЕН ШАҒЫН БИЗНЕС АРАСЫНДАҒЫ ӨЗАРА ӘРЕКЕТТЕСУ СТРАТЕГИЯСЫН ЖЕТІЛДІРУ

Аннотация. Шағын бизнестің әлеуетін пайдалана отырып, Қазақстан экономикасында тиімді инновациялық механизмдерді құру проблема болып табылады және индустрияландырылған және постиндустриалды елдер жинақталған тәжірибесі нарықтық қатынастарды дамытуға бағытталған. Әрине, бұл шағын бизнестің экономикалық жетістікке қол жеткізудің қажетті шарты және инновациялық дамудың негізгі қозғалтқышы болып табылатынын көрсетеді.

Барлық құрылымдар экономиканың осындай секторын дамытуға мүдделі, өйткені шағын бизнес - бұл бүкіл экономикалық пирамида құрылатын негіз болып табылады. Халықтың елеулі бөлігі үшін жұмыс орындарын қамтамасыз ете алады және қоғамның орта тапын қалыптастырады. Осыдан кейін мемлекет ішінде шағын бизнес субъектілерінің анағұрлым маңызды қалысы құрылады, экономикалық қайта құрылымдау міндеттерін іске асыруды және технологиялық құрылымның жаңа деңгейіне көшуді қоса алғанда, тиімді нарықтық экономиканың моделі дамитын болады.

Түйін сөздер: салық салу, салықтық тәуекелдер, басқару, кәсіпорын, бюджет, тиімділік, микрокредиттер

УДК 334.7.012

Л.К. Дюсембаевна[1], Ж.М. Бұлақбай [2], Ж.А. Бабажанова [3], Г.Е. Нурбаева [4]

[1]Казахский агротехнический университет им. С.Сейфуллина;
[2,3]Евразийский национальный университет имени Л.Н.Гумилева;
[4]Инновационный Евразийский Университет, г. Павлодар

СОВЕРШЕНСТВОВАНИЯ СТРАТЕГИИ ВЗАИМОДЕЙСТВИЯ ГОСУДАРСТВА И МАЛОГО ПРЕДПРИНИМАТЕЛЬСТВА В РК

Аннотация. Формирование эффективных механизмов инноваций в экономике Казахстана с использованием потенциала малого бизнеса является насущной проблемой и состоит в том, что накопленный опыт промышленно развитых и постиндустриальных стран, ориентированных на развитие отношений рыночной экономики, безусловно, показывает, что малый бизнес есть необходимое условие для достижения экономического успеха и является основным двигателем инновационного развития.

Все структуры заинтересованы в развитии такого сектора экономики, поскольку малый бизнес является основой, на которой будет создана вся экономическая пирамида, которая сможет обеспечить рабочие места для значительной части населения и сформировать средний класс общества. Из этого следует, что чем быстрее внутри государства создается значительный слой субъектов малого бизнеса, тем активнее будет развиваться модель эффективной рыночной экономики, в том числе реализация задач экономической реструктуризации и перехода на новый уровень технологической структуры.

Ключевые слова: налогообложение, налоговые риски, управление, предприятие, бюджет, эффективность, микрокредитование

Information about authors:
Dyusembaeva L.K. - Kazakh Agrotechnical University. S.Seifullin, https://orcid.org/0000 0003 2950 8062;
Bulakbay Zh.M. - Eurasian National University named after L.N.Gumilyov, ORCID 0000-0002-3742-6756;
Babazhanova Zh.A. - Eurasian National University named after L.N.Gumilyov, ORCID - 0000-0001-5414-135X;
Nurbayeva G.Ye. - Innovative University of Eurasia, Pavlodar city, ORCID 0000-0001-7006-4403

REFERENCES

[1] Bogdanova E.L. Some aspects of sustainable innovative development of an enterprise [Text] / E.L. Bogdanova, A.B. Titov // Bulletin of the Samara State University of Economics. Samara, **2014**. № 11 (121). pp. 95-98.

[2] Vinokurov V. I. Basic terms and definitions in the sphere of innovations // Innovations. **2015**. № 4. p. 34 Barlybaeva N.A. National Innovation System of Kazakhstan: Theory, Methodology, Development Mechanism: Dis ... Dr. Econ. Sciences: 08.00.05. Almaty, **2017**. p. 199.

[3] Barlybaeva N.A. National Innovation System of Kazakhstan: Theory, Methodology, Development Mechanism: Dis ... Dr. Econ. Sciences: 08.00.05. Almaty, **2017**. p. 199.

[4] Baimuratov U. Investments and Innovations: Nonlinear Synthesis // Vol. 3. Selected Scientific Works. Almaty: BIS, **2015**. 320 p.

[5] Egorov D.A. Comprehensive analysis and control of innovation. M.: Finance and Statistics, **2016**. 394 p.

[6] Davidov V. V., Ilinskaya, S. A. Innovations as a Factor of Economic Growth // Finance and Credit. **2015**. № 17. C 27.

[7] Zhansagimova A.E. Regional cluster development. News of NAS RK. Number 3, 2017 ISSN 2224-526X p.155-161, site address http://soc-human.kz/index.php/en/arhiv. https://doi.org/10.32014/2018.2224-5294

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.16**
Volume 1, Number 323 (2019), 109 – 112

UDK 336.71.02

O.Zh. Zhadigerova, G.M. Kadyrova

Caspian State University of Technology and Engineering named after Sh. Esenov
olia_kz@mail.ru, gulzhiyan76@mail.ru

IMPORTANCE OF SECOND LEVEL BANKS AT THE STAGE OF MODERNIZATION OF THE ECONOMY OF KAZAKHSTAN

Abstract. The article discusses the role of development of second banks (STB) in the context of the implementation of the third modernization of the economy of Kazakhstan. According to the authors, a developed banking system is the basis of a modernized economy, and therefore, there is a growing need for the operation of several large universal banks that accumulate large amounts of financial resources. Financial intermediation of second-tier banks will allow business entities wishing to efficiently manage their money capital to become strategic investors in the economic modernization of Kazakhstan. Therefore, it is important to study the problems and prospects for the development of banking in the conditions of growing uncertainty and cyclical development of the economy. An important condition for a full-fledged and high-quality financing of the modernization process is to achieve sustainability of the financial system of Kazakhstan, where second-tier banks play an important role.

Key words: second-tier banks, economic modernization, financial sustainability, global competitiveness.

INTRODUCTION

The role of commercial banks as financial intermediaries in lending to the real sector of the economy is increasing. Large banks will provide full funding for the economy. Today, there is a tendency in Kazakhstan to consolidate the banking sector through the processes of merging banks, which will allow to combine capital and other available resources necessary to meet the needs of the economic system, especially high-tech industries. The consolidation of banks will increase the willingness to accept risks of regulation and the mutual coordination of modernization activities. Thus, according to the National Bank of Kazakhstan, as of January 1, 2017, the banking sector in Kazakhstan is represented by 33 second-tier banks, of which 15 are banks with foreign participation, including 11 subsidiary banks. Then, as of January 1, 2011, 39 second-tier banks operated in the country.

MAIN PART

Financial intermediation of second-tier banks will allow business entities wishing to efficiently manage their money capital to become strategic investors in the economic modernization of Kazakhstan, the creation of new industries and the introduction of advanced technologies [1]. Consider the dynamics of indicators reflecting the role of the banking sector in the economy of Kazakhstan (see table 1).

Table 1 - Dynamics of relative indicators characterizing the role of the banking sector in the economy of Kazakhstan [2]

Name of the indicator / date	2013	2014	2015	2016	2017
GDP, billion tenge	30 347	34443,4	38624,4	40 884,1	44 354,0
The ratio of assets to GDP,%	45,7%	44,9%	47,2%	61,4%	57,6%
Loan portfolio to GDP ratio,%	38,4%	38,8%	36,7%	37,9%	35,0%
The ratio of customer deposits to GDP,%	28,1%	28,6%	29,4%	41,7%	38,9%
The ratio of the allocation of funds in domestic assets	1,145	1,133	1,148	1,157	1,041
according to the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan					

As can be seen from the data of table 1 in the period of 2016-2017, the indicators of the banking sector declined slightly relative to the country's GDP. This is primarily due to the fact that the consequences of the global crisis of 2008–2009 continue to affect the state of the banking sector, which

should become the locomotive of the modernized economy. In the global economy, open international money flows affect the exchange rate and interest rates within the country. This is manifested in the financial system of Kazakhstan [1].

In order to implement the Address of the President of the Republic of Kazakhstan Nazarbayev N.A. to the people of Kazakhstan "The Third Modernization of Kazakhstan: Global Competitiveness" in 2017, the National Bank of Kazakhstan adopted the Program for Improving the Financial Sustainability of the Banking Sector of the Republic of Kazakhstan, one of the main goals of which is to restore lending to the real sector of the economy, to ensure uninterrupted banking services for the economy and the population, and to ensure competitive banking sectors within the framework of integration processes (WTO and SES).

The second-tier banks and state development institutions (Development Bank of Kazakhstan, National Innovation Fund, etc.) have great potential for attracting international loans and loans to finance the Kazakh economy. The regional integration of the financial payment and foreign exchange systems of Kazakhstan is important for the financial support of modernization. In this case, banks play an important role.

Scientists Bayniyazov M. and Kaygorodtsev A.A. believe that banks will have to be responsible for lending effective modernization, ensuring the stability of the national currency and, ultimately, for the state of the balance of payments of the country [1]. At the same time, in their opinion, the list of authorized commercial banks that directly work on the implementation of the national strategy should be determined, their contribution to the growth of social production efficiency should be stimulated. The National Bank needs to create a special unit coordinating the activities of authorized investment institutions for the implementation of the national strategy.

These measures should lead to the search for additional impulses for modernization, open access for enterprises and financial sector entities to the world market, which will diversify risks, gain benefits from the export of capital, and strengthen the competitive advantages of the countries participating in regional unions by overcoming the limitations small financial systems.

Assets of second tier banks of the Republic of Kazakhstan as of January 1, 2017 amounted to 25,556.8 billion tenge (at the beginning of 2016 - 23,780.3 billion tenge), an increase in 2016 - 7.5%. In the structure of assets, the largest share (56.9% of total assets) is in the loan portfolio (principal) in the amount of 15 510.8 billion tenge (at the beginning of 2016 - 15 553.7 billion tenge), a decrease in 2016 - 0.3% [2].

The lending market is experiencing a gradual recovery. For 9 months of 2017, the increase in the volume of loans issued by banks amounted to 4% compared to the same period last year. The volume of loans in national currency increased by 11% to 9.5 trillion. tenge The average rate on loans following the base rate of the National Bank decreased from 14.5% in December 2016 to 14% in September 2017.

The liabilities of second-tier banks of the Republic of Kazakhstan at the beginning of 2017 amounted to 22,716.2 billion tenge (compared to the beginning of 2016 - 21,290.2 billion tenge), an increase in 2016 - 6.7%. In total liabilities of second-tier banks, the largest share was held by customer deposits - 76.0% and issued securities - 7.8%. The obligations of second-tier banks of the Republic of Kazakhstan to non-residents of Kazakhstan amounted to KZT 1,687.5 billion or 7.4% of total liabilities [2].

The deposit market continues dedollarization processes. The share of deposits in foreign currency decreased from 55% at the beginning of 2017 to 49% in September 2017. It is expected that the preservation of stability and predictability in the domestic foreign exchange market, the reduction of inflation will continue to stimulate savings in tenge. Private capital can also be used to finance modernization processes in Kazakhstan. By accumulating depositors' money in their accounts, banks collect sufficient amounts for the full-fledged financing of measures envisaged by the goals of modernization.

In times of crisis, the state is interested in supporting banks in order to ensure the sustainability of the entire financial system and economy. In this regard, the President of the Republic of Kazakhstan entrusted to take a set of measures to improve the banking sector. Not timely adoption of these measures can reduce the credibility of banks, as economic intermediaries, which is necessary to ensure the stability of the economy.

Government measures to ensure the financial sustainability of the banking sector will be implemented in three main areas: 1) changing the regulatory and supervisory environment to improve the quality and

responsiveness of the supervisory response; 2) rehabilitation of the backbone bank; 3) measures to recapitalize large banks [3].

In order for the economy to resist such influence, it must be laid the foundation for independent capital formation. This requires a transition to international standards of prudential regulation for second-tier banks, the development of the reinsurance sector for risk insurance, as well as sufficient awareness of participants in the financial system. In an integrated bank this is easier to achieve. The basis and the main support of the country during the modernization will be financial capital, which will be placed as private capital in the shares of large banks, and banks, in turn, will have shares in the capital of industrial enterprises. Such capital will help create new industries and introduce new technologies.

Currently, banks have cash accumulated and constantly growing in the pension system in the form of deposit funds and savings deposits. It is banks that have the most experience in financing and servicing investment projects. Consequently, Kazakhstani enterprises will be able to develop dynamically with financial support from banks.

It is undesirable to finance domestic projects by transnational corporations, since there is a high risk of absorption of national enterprises by foreign companies. The profits from such investments either go beyond the national economy or are reinvested in the securities of foreign firms. For domestic enterprises, it is preferable to cooperate with domestic banks, with which they have a common goal - the modernization of the national economy.

Strong business is a condition for creating strong states. In turn, a strong business cannot be created without sufficient funding. For this it is necessary to resort to the help of banks and other financial institutions, which are accumulators of money. If banks work stably, the economy will be continuously supplied with the necessary funds.

Second-tier banks take part in the implementation of the unified program of business support and development “Business Road Map - 2020” (hereinafter - CST - 2020), which contributes to the development of the private sector, entrepreneurial initiative and business ability, productive employment and development of mass entrepreneurship. This is a program of issuing government grants and loans, reducing interest payments on loans, guaranteeing loans and training entrepreneurs, aimed at supporting and developing business in Kazakhstan. The goal of the program is to ensure sustainable and balanced growth of regional entrepreneurship, as well as to maintain existing and create new permanent jobs.

The program provides four areas in which the state supports private entrepreneurship in Kazakhstan: 1) support for new business initiatives, 2) recovery of the business sector *(currently, applications for this area are suspended)*, 3) reduction of currency risks for entrepreneurs, 4) provision of non-financial public support - strengthening entrepreneurial potential. The purpose of these tools is simple - to reduce the cost of loans for enterprises operating in priority sectors of the economy. If a businessman takes a loan under the Business Roadmap 2020 program (its size should not exceed 4.5 billion tenge), at 14% per annum, of which 7% is paid by a businessman, and the difference is Damu Fund. The term of the subsidy is 3 years, while prolongation is allowed up to 10 years. Now business loans are very expensive, the interest rate reaches 16-18%, and if it is a novice businessman, it can exceed 18% per annum. With all this in mind, the subsidies for the “Business Road Map 2020” program, paid by the Damu Fund, are an excellent tool for small and medium businesses.

CONCLUSION

“Damu” Fund cooperates with partner banks with which a loan subsidy agreement has been concluded and loan guarantee projects signed. Subsidies can be obtained not only if you take a loan for investment purposes (for the purchase of equipment, buildings, etc.), but you can also receive subsidies for loans aimed at replenishing working capital. The amount of the subsidized loan for working capital is up to 60 million tenge, in this case the Damu Fund can also provide its loan guarantee. This is a very good support for businessmen, for whom it is important that the production cycle is not interrupted. The most active banks in terms of the number of paid subsidies and guarantees issued were Sberbank, Halyk Bank of Kazakhstan, Bank CenterCredit [4].

Thus, the banking system is one of the main factors affecting the ability of the state to pursue an independent and effective economic policy and modernization of the economy.

УДК 336.71.02

О.Ж. Жадигерова, Г.М. Кадырова

Ш.Есенов атындағы Каспий мемлекеттік технологиялар және инжиниринг университеті

ҚАЗАҚСТАННЫҢ ЭКОНОМИКАНЫ ЖАҢҒЫРТУ ЖОБАСЫНДАҒЫ ЕКІНШІ ДЕҢГЕЙЛІК БАНКТІҢ МАҢЫЗДЫЛЫҒЫ

Аннотация. Мақалада Қазақстан экономикасын үшінші жаңғыртуды жүзеге асыру контекстінде Екінші банктердің (ЕДБ) дамуының рөлі талқыланды. Авторлардың пікірінше, дамыған банк жүйесі жаңартылған экономиканың негізі болып табылады, сондықтан үлкен қаржы ресурстарын жинақтайтын бірнеше әмбебап әмбебап банктердің жұмыс істеуіне қажеттілік бар. Екінші деңгейдегі банктердің қаржылық делдалдығы Қазақстанның экономикасын жаңғырту кезінде стратегиялық инвесторлар болу үшін ақшалай капиталын тиімді басқаруды қалайтын шаруашылық субъектілеріне мүмкіндік береді. Сондықтан экономиканың белгісіздігімен және циклдік дамуында банктік дамудың проблемалары мен перспективаларын зерттеу маңызды. Жаңғырту үдерісін толыққанды және сапалы қаржыландырудың маңызды шарты екінші деңгейдегі банктер маңызды рөл атқаратын Қазақстанның қаржы жүйесінің тұрақтылығын қамтамасыз ету болып табылады.

Түйін сөздер: екінші деңгейлі банктер, экономикалық жаңғырту, қаржылық тұрақтылық, жаһандық бәсекеге қабілеттілік.

УДК 336.71.02(574)

О.Ж. Жадигерова, Г.М. Кадырова

Каспийский государственный университет технологий и инжиниринга имени Ш.Есенова

ВАЖНОСТЬ БАНКОВ ВТОРОГО УРОВНЯ НА ЭТАПЕ МОДЕРНИЗАЦИИ ЭКОНОМИКИ КАЗАХСТАНА

Аннотация. В статье рассмотрена роль развития банков второго (БВУ) в условиях реализации третьей модернизации экономики Казахстана. По мнению авторов, развитая банковская система является основой модернизируемой экономики, в связи с чем, возрастает необходимость функционирования нескольких крупных универсальных банков, аккумулирующих большие объемы финансовых ресурсов. Финансовое посредничество банков второго уровня позволит обеспечить хозяйствующим субъектам, желающим эффективно управлять своими денежными капиталами, стать стратегическими инвесторами экономической модернизации Казахстана. Поэтому важно исследование проблем и перспектив развития банковской деятельности в условиях роста неопределённости и цикличного развития экономики. Важным условием полноценного и качественного финансирования процесса модернизации является достижение устойчивости финансовой системы Казахстана, где важную роль играют банки второго уровня.

Ключевые слова: банки второго уровня, модернизация экономики, финансовая устойчивость, глобальная конкурентоспособность.

Information about authors:

Zhadigerova O.Zh. - Caspian State University of Technology and Engineering named after Sh. Esenov, https://orcid.org/0000-0003-2208-0913, olia_kz@mail.ru;

Kadyrova G.M. - Caspian State University of Technology and Engineering named after Sh. Esenov, ORCID 0000-0001-9820-0171, gulzhiyan76@mail.ru

REFERENCES

[1] Bayniyazov M., Kaygorodtsev A.A. The role of second-tier banks in the implementation of the Nula Zhol program.

[2] The current state of the banking sector of the Republic of Kazakhstan. National Bank of Kazakhstan. As of January 1, 2017 (including the final turnovers). Almaty, **2017**.

[3] Resolution of the Board of the "National Bank of the Republic of Kazakhstan" On the approval of the Program for improving the financial sustainability of the banking sector of the Republic of Kazakhstan on June 30, **2017**.

[4] Trubacheva T. The portfolio of subsidized loans by the Damu Fund reached 1 trillion tenge. 11/26/2014. https://forbes.kz/finances/finance/portfel_subsidiruemyih_fondom_damu_kreditov_dostig_1_trln_tenge/?utm_source=forbes&utm_medium=mlt_articles&utm_campaign=73780.

[5] Omarhanova Zh.M., Mukhambetova Z.S., Mataeva B.T.. Key problems of the development of the sector of meat cattle. News NAN RK. A series of social sciences and humanities. №3, **2018** y. P. 186-191. http://soc-human.kz/index.php/en/arhiv. DOI https://doi.org/10.32014/2018. 2224-5294.

[6] Current State of the Republic of Kazakhstan. National Bank of RK. As of January 1, **2017** (taking into account the final turnovers). Almaty 2017. (In Russian).

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.17**
Volume 1, Number 323 (2019), 113 – 116

UDC 338.246

Z.K. Igibaeva

Eurasian National University named after L.N.Gumilyov
zarina_130590@mail.ru

SYSTEM OF INTERNAL GOVERNMENT AUDIT IN THE REPUBLIC OF KAZAKHSTAN

Abstract. The study presents the system of internal state audit of the Republic of Kazakhstan, discusses the problematic aspects of their implementation and the prospects for their resolution in the reform process. The system of financial control of Kazakhstan is undergoing a stage of radical reform. The transformation of the internal public audit system requires the reform of all elements of the existing control system. The creation of effective mechanisms for implementing the principles lays the foundation for the effective functioning of the state audit system in the financial management of state bodies. In order to create an effective state audit system, measures have been identified for its implementation, in particular, to improve the quality of control measures and ensure their compliance with international standards.

Keywords: audit, compliance, system, taxes, internal state audit.

INTRODUCTION

At present, the state financial resources management system is in the process of cardinal reform. The strategy "Kazakhstan - 2050" set the task of joining the thirty most developed countries in the world. The solution of this ambitious task in the first place requires a significant increase in the efficiency of management of public financial resources.

During 2013, as part of the implementation of the Strategy, three Concepts were adopted with the goal of reforming all stages of the management of public financial resources ranging from forecasting and planning to monitoring.

The concept of improving the system of state-oriented results. The purpose of the concept is to create a balanced system of strategic and budget planning, increase the effectiveness of the implementation of strategic and program documents and the activities of government bodies [1].

MAIN PART

The concept of a new fiscal policy aims to ensure the stability of public finances, increase the effectiveness of budget spending, increase the efficiency of local executive bodies and create favorable conditions for sustainable economic growth [2].

The concept of introducing a state audit is aimed at reforming the state financial control system into a state audit system [3].

Types of Internal Audits

Internal auditing has historically been synonymous with the performance of financial audits, which seek to ensure an organization is using generally accepted accounting procedures (GAAP) to create and manage financial information through the review of financial statements. Businesses also recognize the need for other types of auditing that look beyond ledgers and balance sheets with respect to legal compliance, IT security, environmental, operational and performance oversight objectives:

Compliance Audits are used to evaluate an organization's compliance with applicable laws, regulations, policies and procedures. Legal and policy requirements may be created by federal or state statute. An organization's management or board of directors can also create compliance requirements internally.

Environmental Audits identify the impact of a company's activities on the environment and determine whether the company is complying with environmental laws and regulations.

Information Technology Audits evaluate information management systems and computer databases to ensure that confidential customer information and proprietary intellectual property is secure. Information technology audits ensure that only authorized users are able to gain access to privileged information and that the information itself is accurate.

Performance Audits assess whether an organization is meeting the goals and objectives set forth by the board of directors. If the organization is not meeting its stated goals, the internal auditor will identify process shortfalls and make suggestions for improvement to the board of directors.

Operational Audits assess the overall efficiency and reliability of an organization's control mechanisms. An essential component of operational auditing is the objective review of the way an organization allocates resources. If resources are not being used efficiently, the internal auditor will report these findings along with recommendations on how to reduce wasteful or inefficient resource allocation.

If we look at the experience of foreign countries in which the institute of state audit is most developed, such as the United States and the United Kingdom, it should be noted that in these countries there is no special system of certification of state auditors. The certification system for employees of the financial sector is the same for both private and public sector organizations, both for accountants and auditors, while certification is not carried out by government bodies. Certification of financial sector workers in these countries is fully within the competence of self-regulatory, public organizations. The most recognized of these in the United States is the American Institute of Certified Public Accountants and Auditors (AICPA). This is a professional association of practicing accountants and auditors, which is the most authoritative non-governmental professional organization representing the accounting and auditing community in the United States. When applying for a job at state audit bodies, the presence of an auditor's certificate is not mandatory, but at the same time, preference is given to certified employees.

The budget at all levels plays a huge role in the development and prosperity of the state, the promotion of scientific and technological progress, and the development of the economy. State budget revenues to GDP in developed countries are in Australia - 50.6%, in Norway - 55.2% and 39.8% in Canada [4].

The Budget Code of Kazakhstan does not fully indicate the main components of state control, in particular, control over the formation and use of financial resources of national companies, holding companies, joint-stock companies with state participation, control over the formation and use of state extra budgetary funds, state accumulative pension fund, control efficiency and evaluation of the provision of various tax benefits and preferences, etc.

We do not pretend to determine the full component of the state audit system, which requires a comprehensive scientific approach. However, without defining the elements of this system, the problem of duplication arises, the desire to exercise financial control of each state body. In this regard, it is necessary to examine the main directions of state audit. After that, the bodies performing state audit should be identified.

An analysis of international experience shows that a country develops in a democratic way only when the activities and structure of the state meet the needs of civil society, the interests of every citizen. Under these conditions, it is necessary to establish a single legal order that is compulsory for all citizens and civil society institutions and to build an adequate system of state audit, which would focus on meeting the needs of the whole society, protecting the interests of citizens, including the delegation of their property. That is why in developed countries special attention is paid to the organization of state audit.

To improve the quality of control measures and ensure their compliance with international standards, it is necessary to create an effective state audit system, in particular, to create a coordinated methodology for planning and conducting control measures, to solve the issue of centralized training and retraining of personnel, and to create a unified audit information base.

In the process of the internal control services, there are also difficulties with the full implementation of the principle of independence. In accordance with the current Rules for the implementation of internal control, it is stipulated that the Internal Control Service is organizationally and functionally independent of the activities of other structural divisions, at the same time, the boundaries and this independence and ways to ensure it were not fixed by law. In the new draft law, an attempt was made to eliminate this gap. A number of norms were included to ensure the independence of the Services, in particular, it was stipulated that the Internal Audit Service could not be involved in work related to the competence of other structural subdivisions of the state body, as well as in the preparation or execution of programs and projects not related to its powers. Moreover, the New Draft Law made an attempt to limit and regulate the

interaction of the Internal Audit Services (IAS) directly with the head of the state body. It is assumed that the interaction of IAS with the head will be carried out only for the approval of the work plan, the decision to implement the recommendations of the audit results and to review the annual report on internal audit. The introduction of these restrictions, in our opinion, is superfluous, since it limits the potential potential of using CBA. Their activities are limited to audits, recommendations on the results of audits and reporting. We believe that closer interaction of NEA with the head of the state body at the stage of developing a strategic plan, forming a budget request, in the process of implementing current monitoring would help prevent violations and more effective work of state bodies.

At the same time, the draft law provides for an assessment of the effectiveness of the work of the internal audit services, on the part of the authorized state audit body. The need to assess the effectiveness of one internal audit body, another internal audit body is questionable, since it initially contradicts the principle of independence. The ultimate goal of IAS is not to identify or even prevent violations, but to increase the efficiency of the state body, and to evaluate its work is necessary from the standpoint of the state body as a whole. We believe that it will be appropriate to conduct an assessment of the IAS by the external audit body as part of a comprehensive audit of the activities of a state body [5].

To create a public audit system, the following activities are proposed:

- improvement of the regulatory legal, methodological and information base of control over the execution of the republican and local budgets, including the creation of a unified database of objects of control, the introduction of methods of economic analysis, information and computer audit technologies;
- delineation of the functions and powers of state bodies conducting external and internal audits;
- Strengthening the status of bodies performing external audit (the Accounts Committee and Audit Commissions) and taking the necessary measures to ensure their independence from the executive and the status of documents adopted as a result of ongoing monitoring activities;
- legislatively fixing the mechanisms of interaction and coordination of all controlling bodies in the field of public audit, in order to eliminate the existing elements of duplication in their activities;
- improvement of the mechanisms for implementing the decisions taken by the external audit bodies on the basis of control measures;
- implementation of the transition to international standards in the field of accounting, financial reporting and auditing, which will ensure transparency of the process of managing public resources, full mobilization of taxes, fees and other payments to the budget, increase the rationality and efficiency of spending state funds, as well as the quality of activity of state bodies themselves ;
- completion of the informatization of the state audit system taking into account the introduction of budget programming methods;
- increasing public confidence in controllers and their professionalism by presenting the qualification requirements of employees of audit bodies;
- strengthening the capacity of the internal audit service.

CONCLUSION

GFOA makes the following recommendations regarding the internal audit function:

- Every government should consider the feasibility of establishing a formal internal audit function because such a function can play an important role in helping management to maintain a comprehensive framework of internal controls. As a rule, a formal internal audit function is particularly valuable for those activities involving a high degree of risk (e.g., complex accounting systems, contracts with outside parties, a rapidly changing environment). If it is not feasible to establish a separate internal audit function, a government is encouraged to consider either 1) assigning internal audit responsibilities to its regular employees or 2) obtaining the services of an accounting firm (other than the independent auditor) for this purpose;
- The internal audit function should be established formally by charter, enabling resolution, or other appropriate legal means;
- It is recommended that internal auditors of state and local governments conduct their work in accordance with the professional standards relevant to internal auditing contained in the U.S. General Accounting Office s publication Government Auditing Standards, including those applicable to the independence of internal auditors;

- At a minimum, the head of the internal audit function should possess a college degree and appropriate relevant experience. It also is highly desirable that the head of the internal audit function hold some appropriate form of professional certification (e.g., certified internal auditor, certified public accountant, certified information systems auditor); and
- All reports of internal auditors, as well as the annual internal audit work plan, should be made available to the government s audit committee or its equivalent.

The real implementation of the principle of publicity of financial control should be publicly available. Implementation of activities should not be too hasty. It is necessary to consistently make changes and additions to the regulatory legal acts and to carry out a large joint work with all controlling and law enforcement agencies in the framework of the implementation of the new fiscal policy in the republic.

УДК 338.246

З.К. Игибаева

Л.Н.Гумилев атындағы Еуразия ұлттық университеті

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ІШКІ ҮКІМЕТ АУДИТІНІҢ ЖҮЙЕСІ

Аннотация. Зерттеу Қазақстан Республикасының ішкі мемлекеттік аудит жүйесін ұсынады, оларды іске асырудың проблемалық аспектілерін және оларды реформалау процесінде оларды шешу перспективаларын талқылайды. Қазақстандағы қаржылық бақылау жүйесі түбегейлі реформалар кезеңінен өтуде. Ішкі мемлекеттік аудит жүйесін трансформациялау қолданыстағы бақылау жүйесінің барлық элементтерін реформалауды талап етеді. Осы принциптерді енгізудің тиімді тетіктерін құру мемлекеттік органдардың қаржылық басқаруындағы мемлекеттік аудит жүйесінің тиімді жұмыс істеуіне негіз болады. Мемлекеттік аудиттің тиімді жүйесін құру үшін оны іске асыру бойынша, оның ішінде бақылау шараларының сапасын жақсарту және олардың халықаралық стандарттарға сәйкестігін қамтамасыз ету бойынша шаралар анықталды.

Түйін сөздер: аудит, сәйкестік, жүйе, салықтар, ішкі мемлекеттік аудит.

УДК 338.246

З.К. Игибаева

Евразийский национальный университет имени Л.Н.Гумилева

СИСТЕМА ВНУТРЕННЕГО ГОСУДАРСТВЕННОГО АУДИТА В РЕСПУБЛИКЕ КАЗАХСТАН

Аннотация. В исследовании представлена система внутреннего государственного аудита Республики Казахстан, рассмотрены проблемные аспекты их реализации и перспективы их разрешения в процессе реформирования. Система финансового контроля Казахстана проходит этап кардинального реформирования. Трансформация системы внутреннего государственного аудита требует реформирования всех элементов существующей системы контроля. Создание действенных механизмов реализации принципов закладывает основу эффективного функционирования системы государственного аудита в финансовом менеджменте государственных органов. Для создания эффективной системы государственного аудита выявлены мероприятия для его проведение, в частности, для повышения качества контрольных мероприятий и обеспечения их соответствия международным стандартам необходимо проводить оценку СВА органом внешнего аудита в рамках комплексного аудита деятельности государственного органа и другие мероприятия, которые освящены в данной статье.

Ключевые слова: аудит, соответствие, система, налоги, внутренний государственный аудит.

Information about authors:

Igibaeva Z.K. - Eurasian National University named after L.N.Gumilyov, zarina_130590@mail.ru, ORCID 0000-0003-0212-5096

REFERENCES

[1] Lima Declaration of Auditing Guidelines // www. Issai.org. (In engl)

[2] International Standards for Supreme Audit Institutions (ISSAI) are published by the International Organization of Supreme Audit Institutions (INTOSAI) // www.intosai.org. (In engl)

[3] Decree of the President of the Republic of Kazakhstan dated April 7, 2009 No. 788 “On Approval of Standards of State Financial Control”. (In Russian)

[4] OECD Data. “General government revenue” [online] Available at: https://data.oecd.org/ 6 Jul 2015 (In engl)

[5] Sabirova R.K., Dysegalalieva B.M., Zinullina A.I., Kalauov A.R. ISSN 2224-5227 Volume 3, Number 319 (2018), No. 4. 2018. website address http://reports-science.kz/index.php/en/archive. DOI https://doi.org/10.32014/2018.2518-1483

[6] Government Finance Officers Association of the United States and Canada. http://www.gfoa.org/internal-audit-function

[7] Accounting Resources. https://www.accountingedu.org/internal-auditing.html

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.18**
Volume 1, Number 323 (2019), 117 – 121

УДК 004.383.3

Zh.E. Kenzhebaeva[1], R.M. Baynazarova[2]

[1]JSC "Financial Academy";
[2]Caspian State University of Technology and Engineering. Sh.Esenova
janka_taz@mail.ru, rysgul-13@mail.ru

MATHEMATICAL AND ALGORITHMIC MODELS OF INFORMATION PROCESSING AND MANAGEMENT SYSTEMS

Abstract. The article presents mathematical and algorithmic models of information processing and control systems. The algorithm should be standardized for all permissible input data, since the development of an algorithm is a process that is quite creative, therefore it requires significant costs and time and mental effort, and therefore, it is preferable that it provides a solution to unique tasks and developed to solve one problem. Regarding the purpose of information models, it is often in obtaining data to achieve the best performance indicators of a modeling object that can be used to prepare and make decisions of an economic, social, organizational or technical nature. Mathematical models consider many different functional dependencies, however, the main problem of modern systems for constructing mathematical models is still obtaining analytical equations describing the dynamics of the system under study.

Keywords: computer science, information, algorithmic model, computer system, logical design.

INTRODUCTION

With the development of information theory, cybernetics, information science as a science, the concept of “information” (from the Latin infor-matio - information, clarification), along with the concepts of “material”, “energy”, “space” and “time” lay The basis of the modern scientific picture of the world. At the same time, the unambiguous definition of this concept does not yet exist.

All approaches to the phenomenon of information have the right to exist and are explored in the relevant areas of science. "In computer science, information can be viewed as a product of the interaction of data and methods for their processing that are adequate to the problem being solved."

The word "algorithm", "algorithm" comes from the name of the outstanding scientist of the ninth century, Muhammad ibn Musa al-Khorez (translated from Arabic, Muhammad, son of Musa from Khorez ¬). According to the Latin translation of his work (XII century), Western Europe became acquainted with the decimal positional number system and the rules (algorism) of performing arithmetic operations in it.

MAIN PART

Formalization of the concept of algorithm. In all areas of its activities, in particular, in the field of information processing, a person is faced with various methods of solving problems. They determine the order of actions to obtain the desired result - we can interpret this as the initial or intuitive definition of the algorithm.

An algorithm is a finite prescription given in a language, defining a finite sequence of executable elementary operations for solving a problem, common to a class of possible input data.

Variants of the verbal definition of the algorithm belonging to Russian scientists and mathematicians A. N. Kolmogorov and A. A. Markov:

An algorithm is any system of computations performed according to strictly defined rules, which after some number of steps deliberately leads to the solution of the problem (Kolmogorov) .

The algorithm is an exact prescription that defines the computational process, going from variable input data to the desired result (Markov).

Algorithm Properties:

• Discretion. The algorithm consists of consecutive commands, only by executing one command, the performer can proceed to the next one. That is, the structure of the algorithm is discrete (interrupted).

• Extremity. The algorithm contains a finite number of elementary executable prescriptions, i.e., it satisfies the requirement of finite notation. The executor of the algorithm must perform a finite number of steps in solving the problem, that is, the algorithm satisfies the requirement of finiteness of actions.

• Accuracy (certainty). Each instruction of the algorithm must determine the unique action of the executor. This property often does not have prescriptions and instructions that are drawn up for people.

• Understandable. Each command of the algorithm should be clear to the performer. The algorithm is not designed to make independent decisions by the performer, not specified by the compiler of the algorithm.

• Universality (mass). The algorithm should be the same for all valid source data. The development of an algorithm is a creative process, but requiring a considerable amount of time and mental effort, so it is desirable that it provide a solution to the problems of this type. This property is optional; equally important are unique algorithms designed to solve one problem.

The algorithm presupposes the presence of an executor - a human or technical device (automatic, robot, computer) with a strictly defined set of possible commands. The set of commands that can be executed by the executor is called an executive command system (SKI). The performer can execute commands from SKI and nothing more.

The algorithm allows you to formalize the execution of the processing of the source data and obtaining the result. This is the basis of the work of software-controlled executive automata, such as industrial robots. The operator is not required to understand the essence of the algorithm, he must accurately execute commands in a given sequence.

An example of a performer who automatically performs various algorithms is a computer. Consider recording a television program onto a hard disk of a television program using a TV tuner. By specifying the start and end time in the schedule, by checking the “check box” next to “Turn off computer after recording”, the user can be sure that the program will be recorded and the computer will be turned off. All the assigned work will be performed by the computer according to the algorithm developed earlier, without making any changes (other transfer, other time, not turning off the computer).

Verbal description is applicable only for the simplest algorithms. In the case when the links between the actions are complicated, a high degree of detail leads to a cumbersome description.

The description in the algorithmic language (pseudocode) is realized with the help of natural language words, but in a special form that reflects the structure of the algorithm. Increasingly, verbal description and writing on algorithmic language is reduced to one method - verbal.

Mathematical processing of statistical data, the results of the experiment. The use of dynamic (electronic) tables for processing and presenting the results of natural science and mathematical experimentation, economic and environmental observations, social surveys.

Mathematical processing of statistical data, experimental results.

The dependencies between the parameters of a certain object, process, phenomenon can be expressed using mathematical formulas. But in some cases the coefficients in these formulas can be obtained as a result of statistical processing of experimental data. Statistics is the science of collecting, measuring and analyzing large amounts of quantitative data. Statistics are approximate, averaged, obtained by repeated measurements. The mathematical apparatus of statistics develops a section of science called “Mathematical Statistics”. Statistical data are used, in particular, to obtain a simplified mathematical description of a complex or unknown relationship between the data of a certain system (regression models). The statistical functions of spreadsheets make it possible to process statistical data, for example, to calculate the arithmetic mean of numerical data (AVERAGE), the geometric mean of the positive number of data, the minimum and maximum values from the data set, perform calculations (COUNT, COUNTDOWS, COUNT, COURT READINGS, etc.).

Models can be material and informational. Material models reproduce the physical, geo- metric and other properties of the object. Examples: a globe, a skeleton, models of buildings and bridges, models of airplanes, ships, automobiles.

The subject of study of computer science are informational models. Information models represent objects in a figurative or symbolic form. The object of information modeling can be physical (body fall), chemical (combustion reactions), biological (photo synthesis in plant leaves) processes, meteorological phenomena (thunderstorm, tornado), economic (currency devaluation), social (migration, population growth) processes, etc. A sign information model can be presented in the form of text (a program in a programming language), formulas (Newton's second law F = ma), tables (periodic law D. I. Mendeleev), maps, diagrams, drawings (language is used graphically x elements). Natural languages are used to create descriptive information models (the heliocentric model of the world of Copernicus). With the help of formal languages, formal informational models (mathematical, logical) are built. Models built using mathematical concepts and formulas are called mathematical models. In physics, many different functional dependencies are considered, expressed in the language of algebra, which are mathematical models of the phenomena or processes under study.

The subject of study of computer science are the general principles of building information models. The computer allows scientists to work with such information models that require large amounts of computation that are not possible in the "pre-computer" era. Only with the help of a computer, it became possible to calculate the forecast for the day before tomorrow.

The same object can have many different models, and the same model can describe different objects.

The purpose of information models is often to obtain data that can be used to prepare and make decisions of an economic, social, organizational or technical nature, in order to achieve the best performance indicators of an object of modeling. The object of modeling can be considered as a system. A system is a complex object consisting of interconnected parts (elements) and existing as a whole. Every system has a specific purpose (function, goal). A structure is a set of connections between elements of a system, i.e., the internal organization of a system.

To reflect the state of the systems, static and dynamic models are used.

Models that describe the state of a system at a specific point in time are called static information models (the structure of molecules, the structure of the solar system, the “System of Nature” by C. Linnaeus).

Models describing the processes of change and development of systems are called dynamic information models (the process of a chemical reaction, nuclear reaction, body movement, the development of organisms and populations).

To reflect systems with different structures, various types of information models are used:

- Tabular models are used to describe objects with the same property sets. Can be dynamic and static. The properties of an object are presented in the form of a list, and their values are placed in the cells of a rectangular table (the law and the Periodic Table of Chemical Elements of DI Mendeleev).

In hierarchical models, objects are distributed in levels. Each element of a higher level can consist of elements of the lower level, and an element of the lower level can be part of only one element of a higher level (genealogical tree, classification of objects).

- Network models are used to reflect such systems in which the connections between the elements have a complex structure (the Internet, a telephone network, a ball transfer process in a collective game, for example, in football). Can be static and dynamic.

For computing systems, called real-time systems [10], time is the most important parameter that determines the results and allows calculating the derivatives of parameters over time — speed and acceleration of the calculated values. Termination of the time measurement in this case is equivalent to a complete system failure, since the time connection of the computing process is lost with the state of sources of external information and consumers of the data generated. In addition to direct participation as a parameter when changing the values of variables and generating output values, the real time in such systems is used to regulate the sequence of solving various kinds of periodic tasks, which is also directly related to the operation of external subscribers.

The volume of tasks and the rate of their solution in control systems determine not only the required performance of the control aircraft, but also the amount of long-term memory of programs and constants. The average time of a task solving cycle depends mainly on the performance of the control aircraft and the program complexity of the tasks to be solved. The delay of messages before processing, apart from these parameters, is greatly influenced by the type and method of using long-term memory for storing programs,

which determines the minimum time for searching and accessing any program. In addition, as the time for a complete solution cycle decreases, the certainty of the list of tasks to be solved increases and the degree of specialization of the structure of devices and memory of the control aircraft increases. However, it is assumed below that the main factor determining the effectiveness of the methods of organizing the computational process is the use of VS performance, and the efficiency of using program memory is not analyzed.

CONCLUSION

Depending on the types of functional tasks to be solved and the purpose of the control system, the requirements for the characteristics of the means of organizing the computational process in real time are significantly changed. This circumstance can be used to classify control and information systems and the aircraft used in them. As parameters that allow classification of control and information systems by type, it is advisable to take the allowable waiting time for the results of solving a certain problem (system reactivity) and the average time interval between a complete repetition of solving single-type tasks (system cyclicality) [9]. The classification of this type takes into account the main feature of the control aircraft associated with solving problems in real time and with the efficiency of management processes and the distribution of computing resources. These indicators are determined mainly by the inertia of objects and systems under control actions, and the necessary periodicity of the adjustment of their states on the part of the control system. In this case, as a rule, the allowable waiting time for the results of processing a message or solving a certain problem is one-two orders of magnitude less than the average repetition interval for solving single-type tasks.

УДК 004.383.3

Ж.Е. Кенжебаева [1], Р.М. Байназарова [2]

[1] «Қаржы академиясы» АҚ;
[2]Каспий мемлекеттік технологиялар және инжиниринг университеті. Ш.Есенова

АҚПАРАТТЫҚ ЖҰМЫС ЖӘНЕ БАСҚАРУ ЖҮЙЕСІНІҢ МАТИМАТИКАЛЫҚ ЖӘНЕ АЛЬГОЙТИМИЙ МОДЕЛДЕРІ

Аннотация. Мақалада ақпаратты өңдеу және басқарудың математикалық және алгоритмдік модельдері ұсынылған. Алгоритм барлық рұқсат етілген деректер бойынша стандартталған болуы керек, себебі алгоритмді жасау өте креативті процесс, сондықтан ол айтарлықтай шығындар мен уақытты және ақыл-ойды қажет етеді, сондықтан ол бірегей міндеттерді шешуге мүмкіндік береді және бір мәселені шешу үшін әзірленген. Ақпараттық модельдердің мақсаты туралы ақпарат көбінесе экономикалық, әлеуметтік, ұйымдық немесе техникалық сипаттағы шешімдерді дайындау және қабылдау үшін пайдаланылуы мүмкін модельдеу объектісінің ең жақсы көрсеткіштеріне қол жеткізу үшін деректерді алу болып табылады. Математикалық модельдер әртүрлі функционалдық тәуелділіктерді қарастырады, алайда математикалық модельдерді құрудың қазіргі заманғы жүйелерінің негізгі мәселесі зерттелетін жүйенің динамикасын сипаттайтын аналитикалық теңдеулерді алу болып табылады.

Түйін сөздер: информатика, ақпарат, алгоритмдік модель, компьютерлік жүйе, логикалық дизайн

УДК 004.383.3

Ж.Е. Кенжебаева [1], Р.М. Байназарова [2]

[1]АО «Финансовая Академия»;
[2]Каспийский государственный университет технологий и инжиниринга им. Ш.Есенова

МАТЕМАТИЧЕСКИЕ И АЛГОРИТМИЧЕСКИЕ МОДЕЛИ СИСТЕМ ОБРАБОТКИ ИНФОРМАЦИИ И УПРАВЛЕНИЯ

Аннотация. В статье представлены математические и алгоритмические модели систем обработки информации и управления. Алгоритм должен быть стандартизирован для всех допустимых исходных данных, так как разработка алгоритма – это процесс достаточно творческий, поэтому требует значительные

затраты и времени, и умственных усилий, в связи с чем, предпочтительно, чтобы он обеспечивал решение задач уникальными и разработанные для решения одной задачи. Относительно назначения информационных моделей, то зачастую в получении данных для достижения наилучших показателей деятельности объекта моделирования, которые могут быть использованы для подготовки и принятия решений экономического, социального, организационного или технического характера. Математические модели рассматривают множество различных функциональных зависимостей, однако, основной проблемой современных систем построения математических моделей по прежнему получение аналитических уравнений, описывающих динамику исследуемой системы.

Ключевые слова: информатика, информация, алгоритмическая модель, вычислительная система, логическое проектирование

Information about authors:
Kenzhebaeva Zh.E. - JSC "Financial Academy", janka_taz@mail.ru, 0000-0002-1942-4474 ORCID;
Baynazarova R.M. - Caspian State University of Technology and Engineering. Sh.Esenova, rysgul-13@mail.ru, 0000-0003-4906-5908 ORCID

REFERENCES

[1] Informatization of education: directions, means, technologies / Ed. S.I. Maslova.M.: Publishing House MEI, 2004. 868 p.
[2] Management in higher education: experience, trends, prospects / Ed. V.M. Filippova. M.: Logos, **2006**. 488 p.
[3] Baymukhamedov M.F. Principles of building an university management information system / Proceedings of the republican “Innovative methods and means of education in the field of university education”. Kostanay, **2004**.
[4] Saitov N.ZH. The program for input and correction of personal data of students and applicants "AVN 2.1" [Text] / N.Zh.Saitov // Official bulletin. Intellectual property. State Patent Service Rep. Bishkek, **2008**. No. 12. C.133-134.
[5] Saitov N.ZH. The program for calculating and distributing the load of departments and teachers “AVN 6.1” [Text] / N. Z. Saitov // Official Bulletin. Intellectual property. State Patent Service Rep. Bishkek, **2008**. No. 12. C.134.
[6] Mastering Data Warehouse Aggregates: Solutions for Star Schema Performance. Wiley, **2006**. 346c.
[7] Bashein B.J., Markus M.L. Data Warehouses: More Than Just Mining. Financial Executives Research Foundation, **2000**. 125c.
[8] Cybersecurity is a good resource // http://www.goodnewsfinland.ru/arhiv/mesyaca/c703aa4e/c87e38d0/
[9] Kenzhebayeva Zh.E. Geoinformation technologies in various systems. Reports of the National Academy of Sciences of Kazakhstan. Volume 5, Number 321 (**2018**). PP.20-23. ISSN 2224-5227 https://doi.org/10.32014/2018. 2518-1483.3
[10]Kosherbayeva N. A., Abdreimova K., Kosherba G., Anuarbek A. Synthesis of achievements of world mankind in humanity pedagogy. Procedia - Social and Behavioral Sciences 89, 2013. P.886-889. https://doi.org/10.1016/j.sbspro.2013.08.950

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.19**
Volume 1, Number 323 (2019), 122 – 126

UDC 336.71.02

G.S. Kodasheva, G.S. Shaykhanova, A.Zh. Zhunusova

Eurasian National University named after L.N.Gumilyov
kodasheva@mail.ru, g.shaikhanova@mail.ru, zhunussova.azh@yandex.ru

ASSESSMENT OF RISK MANAGEMENT OF KAZAKHSTAN BANKS IN CONDITIONS OF GROWTH UNCERTAINTY

Abstract. Today, one of the most topical issues is the unstable position of second-tier banks of the Republic of Kazakhstan. The authors found out the cause of the unstable position of the banking system in the country and made a number of proposals for their implementation. If previously it was thought that the inefficiency of the functioning of this system is due to the deterioration of asset quality, risks of implementing aggressive growth strategies or the state of the economy, however, the study showed that banks sit on huge liquidity reserves, investing them on monetary and stock markets, preferring them lending market. That is, for the effective functioning of banks, it is necessary to improve the system of bank management, and to minimize negative impacts, strengthen the risk management process taking into account the factors of uncertainty events.

Keywords: risk management, bank, minimization, financial stability, uncertainty, assessment.

INTRODUCTION

With a view to realizing the Address of the President of the Republic of Kazakhstan, N.Nazarbayev. to the people of Kazakhstan, "Third modernization of Kazakhstan: global competitiveness" in 2017, the National Bank of the Republic of Kazakhstan adopted a program to improve the financial stability of the banking sector of the Republic of Kazakhstan, one of the main goals of which is to restore lending to the real sector of the economy, to provide uninterrupted provision of banking services to the economy and population and ensure the competitiveness of the banking sector sector in the framework of integration processes (WTO and SES).

Optimization is encouraging: bankers and the regulator are not idle. Serious gaps between the level of risk management in systemically important banks, the quality of regulation and the current level of traditional risks have already been eliminated. The most noticeable success is in the retail sector, where a streamlined credit risk management system becomes a competitive advantage, and regulators' actions are aimed at curbing the growth of risks. Due to healthy conservatism, the banks of the Republic of Kazakhstan are not exposed to serious threats when realizing market risks. A liquidity risk management system adequate to current threats is being created before our eyes..

Bank risk management is a risk management process, that is, a set of actions aimed at identifying risk problems and developing ways and methods to solve them. At the same time, the goal of risk management is to ensure the effectiveness of bank management, taking into account the factors of uncertainty events that may negatively or positively affect the bank's performance indicators. Hence, the main task of risk management is to minimize the negative effects of risks on the financial results of banks. Therefore, the priority is to ensure the financial stability of banks and increase the income received by shareholders of the bank.

MAIN PART

An analysis of the current profile of credit risks allows us to confidently state: favorable macroeconomic conditions make the "bad debt" crisis scenario unlikely. Nevertheless, answering the question about the most significant risks that threaten the stability of the business, bankers traditionally put credit risks first.

The main signs of risk, according to many scientists, include the following characteristic features for him: uncertainty, inconsistency, alternativeness. Uncertainty is the main source of risk. To avoid uncertainty, you must have the most complete and reliable information. The inconsistency of risk is that, on the one hand, risk is of public importance and is aimed at achieving results through the use of new technologies, on the other hand, risk means the inevitability of making a specific choice at a given moment. Alternativeness means that the risk has two or several options; the adoption of a choice of further actions, i.e. if there is no choice, then this indicates the absence of risk. In addition to the above features, risk is characterized by another important property: risk is always a phenomenon that characterizes the future, i.e. it is getting results in the future, not achievements or failures in the past. Uncertainty and risk are interrelated and interrelated with each other in various ways, the dependence is reflected in the fact that the bank, assessing the possibility of repayment of loans provided by its customers and generating income in the future, does not know for sure whether it will get the expected result.

However, it is worth noting that banking risk management is a risk management process, that is, a set of actions aimed at identifying risk problems and developing ways and methods to solve them. At the same time, the goal of risk management is to ensure the effectiveness of bank management, taking into account the factors of uncertainty events that may negatively or positively affect the bank's performance indicators. Hence, the main task of risk management is to minimize the negative effects of risk on the financial results of banks. Practice suggests that banks often do not suffer losses from high risks, and losses arise as a result of poor management and poor control. Because of this, in any bank, risk managers are required to adequately and timely assess risks, to be able to correctly make a forecast and effective management. Moreover, given the fact that every year the number of banking services increases, respectively, and risks will arise. In addition, for this, the bank every year develops a methodology for assessing and analyzing banking risks so that the risks that arise are later on becoming a source of income.

Dynamics of assets and loan portfolio of banks In general, 2017 was saturated for the banking sector of Kazakhstan: Halyk Bank bought Kazkommertsbank, Delta Bank lost its license, ATF Bank, Eurasian Bank, Tsesnabank and Bank CenterCredit received funding from the National Bank as part of the recovery program. Many banks have cleared their loan portfolio. Against the background of these events, the size of the banking sector of Kazakhstan decreased: assets decreased by 5.2%, loans by 12.4%, and deposits by 3.4%. We expect that in 2018, the banking sector will continue to clean its balance sheet from toxic assets and begin to increase lending. The attractive sectors for banks will be consumer lending, the trade sector, as well as transportation and logistics. The banking sector is lagging behind the economy, so by the beginning of 2018, the economy of Kazakhstan, according to preliminary estimates, grew by 10% in nominal terms and by 4% in real terms, while the dynamics of the banking sector was negative. Against this background, the level of penetration of the banking sector into the economy declined in 2017. Thus, the ratio of loans to GDP at the beginning of 2018 was 26% against 33% at the beginning of the year. This indicator is considered low and demonstrates the low involvement of banks in lending to the economy now. In addition, it can be interpreted as having the potential for growth in lending to the economy. The issue of the quality of potential borrowers is also important, of course, but it will improve with lower rates (the lower the rate, the easier it is for the borrower and the better its quality) and the improved macroeconomic situation. Now banks are sitting on huge liquidity reserves, investing them in the monetary and stock markets, preferring their lending market. This can also be seen in the share of loans (net loans) in total assets, which are now at record low levels - 48%. In 2018, another major "clearing" was conducted in relation to Tsesnabank - the state supported the bank in the form of repurchase of loans issued to agribusiness companies in the amount of 450 billion tenge. This measure has allowed Tsesnabank to stabilize liquidity and asset quality indicators and reduce the pressure on capital....

In the rating analysis of the solvency of Kazakhstan banks S & P, the assessment of capital adequacy has a neutral or negative impact on the ratings. The agency expects that the pressure on capitalization indicators will continue in the next two years. This is due to the still high requirements for the formation of reserves (due to the significant volume of problem loans), the limited ability of Kazakhstan banks to generate profits, as well as the negative impact associated with the introduction of IFRS 9 in 2018.
Currently, about half of the banks have been assigned negative ratings outlooks, which is mainly caused by analytics' concerns about a possible decrease in capitalization, deterioration in asset quality, or risks of implementing an aggressive growth strategy, which can lead to a decrease in capital adequacy...

Table 1 - Credit ratings of banks at the end of 2018

1.	Tengri Bank	B- / Stable
2.	Bank of Astana	NR
3.	Home Credit Bank	B+ / Стабильный
4.	Kaspi Bank	Ba3 / Stable
5.	AsiaCredit Bank	NR
6.	Tsesnabank	B / Negative
7.	Halyk Bank of Kazakhstan (Halyk Bank)	Ba1 / Stable
A source: S&P Global Ratings		

Experts believe that the ability of Kazakhstan's banking sector to generate profits remains weak. Kazakh banks have a limited ability to generate capital from domestic sources. S & P believes that, in addition to the significant need for reserves, negative factors affecting the profitability of the banking sector are factors that reduce margins - the continued high level of dollarization and tenge volatility…

The forecast examines the difficulties faced by banks, seeking to reach a compromise between the long-term need to restructure core business processes, on the one hand, and business expansion in the short term, on the other.

We expect the rate of real economic growth to stabilize at around 3% on average in 2018–2021. against the background of the implementation of government programs for the development of infrastructure and increasing oil production at the Kashagan field.

According to our estimates, it will be up to 1.8%, on average for the period of 2012–2021, i.e. The level of development will be the same.

The six most important macroeconomic factors affecting long-term growth in the banking sector are:

1) customer focus;
2) revision of the regulatory framework;
3) technology management;
4) reducing the level of cyber risks;
5) FINTECH-projects and large IT companies;
6) rethinking of labor resources.

Despite the fact that over the past few decades there have been improvements in the banking sector in many ways, most organizations here, unlike other industries, have not revised their business processes in favor of customer focus. In the context of the widespread development of digital innovation, banks risk losing the ability to control customer satisfaction.

However, each bank has its own characteristics and its own methodology for calculating and observing the principles of adequacy. Following the policy, it constantly monitors the extent to which risks in the bank are subject to management.

Thus, the risk management of the bank is the main focus, which explores the problem of the bank as a whole, taking into account all the risks. A well-established risk management system contributes to minimizing losses and increasing trust in customers, strengthening the bank in the financial market.

CONCLUSION

Banks for the functioning of an effective risk management system need to:

- develop internal bank documents governing risk management strategies and objectives;
- identify principles, methods for assessing and identifying risk as a basis for setting priority strategies and objectives;
- to ensure adequate protection of the interests of investors, depositors, correspondent banks, bank customers, using risk management mechanisms that minimize risks;
- organize effective monitoring of the financial condition of the largest borrowers;
- build an effective crisis early warning system;
- enhance the role of corporate governance. It is more expedient for shareholders to plan and set objectives for management to achieve targets (in particular, profits) on a long-term scale, and not at the expense of short-term projects;
- establish basic management control procedures;
- identify accountability mechanisms and performance appraisals in accordance with the risk management strategy and control system;
- develop risk monitoring procedures.

Thus, a well-functioning risk management contributes to the achievement of the financial stability of the bank and its value, enhancing the bank's ability to minimize unforeseen losses and increase its credibility with counterparties. Thus, the main task of risk management in banks is the development and implementation of standards, risk management procedures, models for their assessment, the formation of a work plan under conditions of uncertainty.

УДК 336.71.02

Г.С. Кодашева, Г.С. Шайханова, А.Ж. Жунусова

Л.Н.Гумилев атындағы Еуразия ұлттық университеті

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ БАНКТЕРДІҢ ТӘУЕКЕЛДЕРДІ БАСҚАРУ ЖӨНІНДЕГІ АСПЕКТІЛЕРДІ БАҒАЛАУ

Аннотация. Бүгінгі күні ең өзекті мәселелердің бірі - Қазақстан Республикасының екінші деңгейдегі банктерінің тұрақсыз позициясы, авторлар елдегі банк жүйесінің тұрақсыз жағдайының себебін анықтап, оларды жүзеге асыру бойынша бірқатар ұсыныстар жасады. Егер бұрын осы жүйенің жұмысының тиімсіздігі активтердің сапасының нашарлауына, агрессивті өсу стратегияларын немесе экономиканың жай-күйін жүзеге асыру тәуекелдеріне байланысты болса, онда зерттеу көрсеткендей, банктер үлкен өтімділік резервтеріне отырады, оларды ақшалай және биржалық нарыққа инвестициялайды, оларды артық көреді кредиттеу нарығы. Яғни, банктердің тиімді жұмыс істеуі үшін банк менеджмент жүйесін жетілдіру, жағымсыз әсерді барынша азайту, белгісіздік факторларын ескере отырып, тәуекелдерді басқару процесін күшейту қажет.

Түйін сөздер: тәуекелдерді басқару, банк, минимизация, қаржылық тұрақтылық, белгісіздік, бағалау.

УДК 336.71.02

Г.С. Кодашева, Г.С. Шайханова, А.Ж. Жунусова

Евразийский национальный университет имени Л.Н.Гумилева

ОЦЕНКА РИСК-МЕНЕДЖМЕНТА КАЗАХСТАНСКИХ БАНКОВ В УСЛОВИЯХ РОСТА НЕОПРЕДЕЛЁННОСТИ

Аннотация. На сегодняшний день одна из самых актуальнейших тем является неустойчивое положение банков второго уровня Республики Казахстан.. Авторы выяснили причину нестабильного положения

банковской системы в стране и вынесли ряд предложений по их реализации. Если ранее считалось, что неэффективность функционирования данной системы происходит из за ухудшения качества активов, рисков реализации стратегии агрессивного роста или состояния экономики, однако исследование показало, что банки сидят на огромных запасах ликвидности, инвестируя их на денежно-кредитном и на фондовом рынках, предпочитая их рынку кредитования. То есть для эффективного функционирования банкам необходимо улучшить систему управления банками, а для минимизация негативных влияний усилить процесс риск-менеджмента с учетом факторов событий неопределенности.

Ключевые слова: риск-менеджмент, банк, минимизация, финансовая устойчивость, неопределенность, оценка.

Information about authors:

Kodasheva G.S. - Eurasian National University named after L.N.Gumilyov, kodasheva@mail.ru, https://orcid.org/0000-0002-1734-418X;

Shaykhanova G.S. - Eurasian National University named after L.N.Gumilyov, g.shaikhanova@mail.ru, https://orcid.org/0000-0003-2379-0458;

Zhunusova A.Zh. - Eurasian National University named after L.N.Gumilyov, zhunussova.azh@yandex.ru, https://orcid.org/0000-0003-1016-2575

REFERENCES

[1] M. Bayniyazov, A.A. Kaygorodtsev "Nuly zhol." (In Russian).

[2] The rules “On the formation of a risk management and internal control system for second-tier banks”, approved by the Resolution of the Board of the National Bank of the Republic of Kazakhstan No. 29 of February 26, 2014 / [Electronic resource]. Access mode: http: // www. www.nationalbank.kz (appeal date: 02/05/2015).

[3] Current State of the Republic of Kazakhstan. National Bank of RK. As of January 1, 2017 (taking into account the final turnovers). Almaty 2017. (In Russian).

[4] Resolution of the National Bank of Kazakhstan on June 30, 2017. (In Russian).

[5] Trubacheva T. The portfolio of loans subsidized by the "Damu" Fund reached 1 trillion tenge. 11/26/2014. https://forbes.kz/finances/finance/portfel_subsidiruemyih_fondom_damu_kreditov_dostig_1_trln_tenge/?utm_source=forbes&utm_medium=mlt_articles&utm_campaign=73780 (In Russian).

[6] Menyaylo G.V. Management of the loan portfolio of a commercial bank: dis. Candidate sciences. Voronezh, 2005. 199 p.

[7] S. Svyatov, A. Nurgaliyeva. Modernization of the credit risk management system in the Middle East Bank of the Republic of Kazakhstan // Life Science. **2014**. № 11 (8). P.527-531.

[8] Omarhanova Zh.M., Mukhambetova Z.S., Mataeva B.T. News NAN RK. Http://soc-human.kz/index.php/en/arhiv. DOI https://doi.org/10.32014/2018. 2224-5294.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.20**
Volume 1, Number 323 (2019), 127 – 132

MRNTI 06.73.21
UDC 339.97:338.49

M. Kuttybai[1], N. Davletbayeva[2], Ye. Orynbassarova[3], A. Kamenova[4]

[1]PhD student: Karaganda Economic University of Kazpotrebsoyuz, Republic of Kazakhstan, Karaganda Akademicheskaya str. 9;
[2]Candidate of economic sciences, Dean: Karaganda state industrial University, Republic of Kazakhstan, Karaganda region, Temirtau, Republic Avenue, 30;
[3]Ph.D.,Chief of Department of management and innovation: Karaganda Economic University of Kazpotrebsoyuz, Republic of Kazakhstan, Karaganda Akademicheskaya str. 9;
[4]PhD student: Pavlodar state University. S. Toraighyrov, Republic of Kazakhstan, Pavlodar street Lomova 64
miras777@inbox.ru; n.davletbaeva74@mail.ru; erke.08@mail.ru; kamenova_asel@mail.ru

WORLD PRACTICE OF FINANCING INFRASTRUCTURE PROJECTS BASED ON PUBLIC-PRIVATE PARTNERSHIP

Abstract: The article discusses the global practice of financing infrastructure projects based on public-private partnership with the determination of the possibility of application in Kazakhstan. It has been established that despite the presence of specific features of financing, support and the used schemes of interaction between the banking and real sectors of the economy through the use of the public-private partnership mechanism, they interact without fail with the participation of the state institution, whose goal is to support the interaction process using alternative tools such as guarantees, insurance, subsidies, tax breaks, etc. In the conditions of Russia and Kazakhstan, taking into account the Eurasian Economic Union, recommendations on the development of mechanisms for interaction between the banking and real sectors of the economy in the framework of the implementation of the infrastructure of public-private partnership have been proposed.

Keywords: public-private partnership, infrastructure projects, global experience.

Introduction. Appeal to the world practice of public-private partnership (PPP) shows that over 50% of successful examples of PPP projects are carried out with the participation of monetary institutions: state banks (China), state infrastructure banks (Great Britain and the United States), specialized banks with state participation (Germany, France) and development banks. At the same time, the presence of a developed institutional environment in OECD countries allowed improving PPP mechanisms with the participation of banks, due to which it was possible to significantly change the role of the state in the interaction process and expand its scope. In particular, in China, up to 50% of all infrastructure projects in the country are financed by the sustainable resource base of state banks, formed by issuing guaranteed by the Ministry of Finance, bonds and household deposits. The transfer of the created infrastructure companies to self-financing through the sale of shares to an IPO and cash flow from paid services of ready-made infrastructure facilities together provide for the return of loans issued by banks.

A feature of the US state-owned infrastructure banks is their right to issue bonds backed by capital and payments to repay loans from a pool of local borrowers, which reduces risks for investors and the cost of resources. Various sources, including targeted use of tax revenues, special contributions or receipts from the payment for using the infrastructure (for example, fuel charges, the amount of which varies by region) - provide for the return of loans issued. At the same time, credit guarantees are used that allow borrowing at a low price.

Methods of research. The theoretical and methodological basis of the research is the classical theory of reproduction, the work of domestic and foreign economic scientists in this direction, as well as scientific and theoretical materials in scientific monographs and periodicals.

In preparing this article the systematic approach, methods of comparative analysis, as well as factor analysis and generally accepted methods of economic research were used.

Results obtained. Specialized banks in Europe with state participation in the capital support the real sector together with private banks. They occupy a neutral position between commercial banks and enterprises, carrying out concessional financing of the project and taking up to 50% of all credit risks. Additionally, in such financing schemes, guarantee banks are used, which accumulate up to 80% of the credit risks of projects oriented primarily to SMEs. The attractiveness of such co-financing is achieved when loans cover up to 40% of the investment required for the project. For such joint loans, a grace period for the payment of interest payments is established, and for the amount of principal debt installments up to 10 years.

In India, the role of the financial regulator in increasing the participation of banks in the implementation of PPP transactions by deciding to consider the annual payments of the state (compensation payments for PPPs) and the right to collect payment for services from the sale of the finished PPP object as “solid collateral” for banks is important also establishing a differentiated approach to the level of provisions for unsecured infrastructure loans [1].

Despite the existing features of financing, support, and used schemes of interaction between the banking and real sectors of the economy based on the use of the PPP mechanism, they interact without fail with the participation of the state institution whose goal is to support the interaction process using alternative instruments (guarantees, insurance, subsidies, tax incentives etc.). In addition, the experience of foreign countries shows that the boundaries of PPP are much wider than the participation of the state and business in the implementation of infrastructure projects. The authenticity of the use of PPP mechanisms in order to intensify the interaction of the banking and real sectors of the economy is evidenced by its advantages in terms of meeting the needs of the national and regional economy and its correlation with the solution of previously identified problem nodes: “risks”, “resources” and “regulation” limiting the effectiveness of the process of interaction between the subjects of the banking and real sectors of the economy.

Despite the fact that the development of large-scale infrastructure projects in the construction of roads and high-speed rail lines, port facilities and air terminals and the modernization of engineering infrastructure, significant amounts of funds are invested, however, the chronic shortage of infrastructure financing persists worldwide, on average, from 20% to 40% of the total existing needs.

At the same time, estimates by some experts indicate that government investment generates a multiplicative effect in the ratio of 1 / 1.6 dollars while reducing the transport and operating costs of a business. According to McKinsey research conducted for developing countries in 2014, 1% of GDP investment in infrastructure contributes to the creation of 4 million additional jobs in India, 1.5 million in the United States and 1.3 million in Brazil. Calculations by the Ministry of Economic Development of Russia show that such costs for the development of transport infrastructure alone will provide 0.3% of GDP growth and 1.7 million additional jobs, while transport costs for all types of goods are reduced by 10% at the same time, which in turn , adds 0.12% to GDP. In this regard, maintaining GDP growth at 4% per year will require an increase in expenditures on the development of engineering infrastructure to 70 trillion. dollars for the period up to 2030 [2-4].

To date, in the structure of infrastructure investments in terms of sources of financing, more than 65% fall on state budgets and funds, since infrastructure projects, fulfilling, including the social function, are not focused on obtaining high commercial results and, therefore, are not interesting for private business entities. business. For example, the share of the banking sector in Russia and Kazakhstan is on average 7.7% of the total investment in infrastructure. Such modest participation is limited to high industry risks, problems accumulating long-term liquidity and the high cost of banking resources. In addition, on the part of business representatives, there is still uncertainty that the state will be able to insure participants' risks for the entire period of a long-term project implementation against the background of an annual budget review and approval [4].

Under these conditions, the most active participants in the implementation of infrastructure projects in Russia and Kazakhstan are development institutions and banks with state participation in the capital (Gazprom, VTB, etc.). For example, the Bank for Development of Russia (Vnesheconombank), having

corporations in the PPP regions, can take infrastructure deposits and provide loans in the transport and energy sector at the expense of the National Wealth Fund (in the amount of 40% of the Fund's funds).

From the point of view of the development bank's participation in infrastructure projects, the most promising, in our opinion, is the use of mezzanine financing, which is a quasi-financial instrument with the features of equity and debt financing instruments, since it is possible to convert it into equity capital after commissioning the PPP facility and ensure the return of funds in the form of dividends. Its size can vary from 5 to 100 million dollars with a maturity of 2 to 10 years. At the same time, the Development Bank has the opportunity to invest capital in exchange for the shares of SPV - a company, acquiring rights to the company's assets and participation shares with payment of dividends.

However, a more significant impetus to the development of this area of PPP, in our opinion, can be given by the active participation of private banks, including regional ones. World experience shows that the implementation of infrastructure projects takes place with the participation of SPV - a company that transmits issued bonds secured by loan rights, which, due to their inclusion in the Lombard list, can be used by the central bank for making repos, with the participation of SPV. At the same time, minimization of risks for domestic second-tier banks is possible if the central bank or the Development Bank assumes the risk of refinanced loans, since the current risk assessment standards will continue to limit the independent participation of small banks in the implementation of PPP projects.

Securitization of loans or their "packing" in infrastructure bonds included in the pawn list can not only increase liquidity in the banking sector, but also provide a reduction in risks for potential creditor banks, encouraging their participation in infrastructure projects. At the same time, for those cases where project participants are unwilling or unable to enter the capital market, you can use the mechanism for attracting bank funds against infrastructure investment bills ("pay-as-you-go") by the design organization, which is also cheaper, than the bond issue.

Institutional investor funds can be used to implement PPP projects as a resource source by purchasing infrastructure bonds or crediting them to infrastructure deposits (Israel's experience in organizing mixed financing by combining consortium bank loans and a syndicated loan using pension assets in transport infrastructure projects [5, p. 13]).

The involvement of pension assets in the process of implementing infrastructure projects is dictated by the fact that such projects are by their nature long-term, which in most cases allows to achieve the optimal balance between risk and return. This is evidenced by the increase in the share of pension assets invested in infrastructure bonds in a number of economically developed countries: in Australia 4-18%, Great Britain 5-15%, Canada 15-30%. At the same time, investments in long-term infrastructure projects provide pension funds with a stable income and tax benefits (in some countries, the yield on infrastructure bonds reaches 40% per annum) [6, p. 43], and also minimization of risks in comparison with risks on financial instruments traded on stock markets. One of the principal conditions for the use of pension fund funds and budgetary funds in the implementation of PPPs is the creation and operation of the Public Council, which would include representatives of the media, NGOs, various groups of the population, whose main task will be to monitor the progress of projects and the targeted use of allocated funds.

An alternative tool for attracting long-term resources of institutional investors and savings of the population can be special infrastructure savings deposit accounts, non-taxable and secured with a state guarantee, interest payments for which are indexed in accordance with the rate of inflation, due to which long-term loans are provided only for the development of social or economic infrastructure, secured by guarantees of a development bank for a period of 25 years (experience of France).

The effectiveness of the bank lending process within the framework of PPP projects in the practice of foreign countries is directly related to the system of guarantee support of such projects by the state for loans issued by banks that are traditionally in demand and do not require the immediate alienation of budget funds. For example, in India, the total amount of state guarantees on bank loans to the real sector reaches 15% of the country's GDP, and in Russia and Kazakhstan this indicator does not exceed 1% of GDP [7]. Therefore, a wider use of guarantee mechanisms in the process of implementing PPP projects can be an important factor ensuring the growth of bank participation in the development of the national economy.

In particular, we consider it expedient to supplement the mechanism of interaction between the banking and real sectors in the infrastructure sector with the creation of the Fund for the Insurance of

Credit Risk of Banks (the Fund), lenders of non-primary sector of the economy. Due to the fact that banks themselves insure their risks by creating provisions, the Fund will act as a reinsurer, and its authorized capital may be formed not with 100%, but with 50% participation of the state. The sources of the resource base of the Fund may be the funds of the National Fund, the required reserves of second-tier banks stored in the central bank, as well as insurance contributions by the banks themselves. In this case, the object of insurance is only long-term loans over 5 years, directed to long-term infrastructure and innovation (in the case of innovation) projects of enterprises and industries of non-primary sector with the condition that the Fund's funds can be used only in case of complete use of bank reserves to cover damages. When calculating the credit limit and insurance of a potential borrower, the results of the assessment of the liquidity of its assets are taken into account. Depending on the industry sector, individual factors can be used for each group of assets. In addition, to ensure a fair risk assessment, it is necessary to develop a risk assessment methodology that differs from the practice of commercial banks, taking into account the specifics of basic industries.

In order to ensure the transparency of the distribution of the Fund's funds, the decision on insurance payments should be taken collectively, for example, in the person of a specially created Expert Council, which will include representatives of the financial regulator and the banking community. At the same time, the responsibility of the Fund's managers and members of the expert council should be legislatively fixed in order to prevent the use of funds in corruption schemes.

As an alternative to the guarantee support of the real sector entities from the state in the framework of the infrastructure direction of the PPP in the interaction of the banking and real sectors of the economy, the use of the affordability tool, which provides for the payment of compensation by the state to a private business representative in the form of investment and operating costs and also remuneration for the management of the concession object in equal payments. However, in order to improve the mechanism using this tool from the standpoint of taking into account the risks of both private business entities and the state, we believe that payments should be made in proportion: 50% of the total payments during the entire term of the concession agreement in the framework of projects, for which weak cash flow generation is predicted and the remaining 50% is expected after completion of the project, as a fee for readiness, the quality of the concession object.An important role in increasing the attractiveness of infrastructure projects belongs to ensuring the most favored regime for banks, actively interacting with enterprises of the real sector in the form of compensating for the difference between market and preferential interest rates. And if in the world there is a decrease in the use of this type of financial instrument due to an increase in the volume of the stock market (only 3% of government support programs in OECD countries use interest rate compensation), then for Russia and Kazakhstan the use of a subsidy tool in the context of the implementation of industrial-innovative programs development, is one of their promising due to the weakness of the stock market. In Russia, interest rate subsidies for investment loans are used in the sectors of agriculture, food industry, transport and communications, construction and SMEs. At the same time, the subsidy scheme for loans attracted by enterprises for the reconstruction and renovation of production facilities provides for a compensation of 3/4 of the interest for using the loan within 1 year. Kazakhstan also has a scheme of partial subsidization of interest rates on loans from banks from the state budget, according to which the state compensates for loans from 5% to 8% with a maximum period of 3 years for loans, and for loans to SMEs with a market interest rate up to 50 % interest rate, both for existing enterprises and for new projects with a maximum term of up to 7 years.

At the same time, under pressure from a number of macroeconomic factors, resource base sources rose again, which cannot but affect the true market value of banking resources for enterprises, whose value exceeded 30%, which reduces the effectiveness of subsidy instruments. Therefore, in order for the measures taken by the state support within the infrastructure direction of the PPP to work on the result, in our opinion, it is necessary to significantly expand the number of banks willing to participate in the implementation of long-term infrastructure projects based on the following conditions: mandatory accounting of the market value of bank loans ; prolongation of the loan period for up to 10 years; exemption of participants (and banks and enterprises) for the first two - three years from obligatory payments; the placement of temporarily free funds of the state to deposit accounts of banks, the accrued interest on which can be used to increase subsidies or make compensation payments from the budget [8, 9].

Tax incentives that can be granted to subjects of interaction in the process of implementing infrastructure projects should be considered as another tool for stimulating action. The system of privileges established by the tax code of Russia and Kazakhstan (exemption from taxation of certain categories of taxpayers, reduction of tax rates, targeted tax incentives, including tax investment loans, the provision of tax holidays and preferences, exemption from taxation of individual elements of the taxable item, etc.) view, is not focused on the end result of work of both banks and enterprises of the real sector, which is typical of foreign tax practice, when tax for at least 5 years exempt companies that demonstrate productivity growth while increasing employment and improving capacity utilization, and at the same time tax breaks are provided for banks as their investments in promising sectors of the innovation sector increase [10].

Conclusion. Thus, in the conditions of Russia and Kazakhstan, taking into account the Eurasian Economic Union [11-15], debugging the mechanism of interaction between the banking and real sectors of the economy in the framework of the implementation of the infrastructure direction of PPP requires the following measures using legal, organizational, administrative, financial and credit instruments:

- in a single law on PPP should be fixed conditions of PPP - agreements in the framework of anti-crisis, infrastructure and innovation direction of PPP, the procedure for distributing risks between participants and the extent of their responsibility, including at the regional level;
- provide for a change in the structure of the investment portfolio of sovereign funds in favor of the national economy so that at least 40% of these funds, according to the proportion of the “golden section”, which serves as an indicator of stability, sustainability and harmony, should be distributed among the main areas of PPP;
- changes should be made to the prudential standards of the central bank, in terms of recognition of guaranteed payments by the state in PPP transactions as “solid collateral for commercial banks based on the inclusion of state concession obligations and a guarantee of consumption by the state in the first group of banks' assets weighted by credit risk and also to differentiate the norms for the formation of reserves in relation to banks of various levels that are actively working in the innovation sector.

М. Құттыбай, Н. Дәулетбаева, Е. Орынбасарова, А. Каменова

МЕМЛЕКЕТТІК-ЖЕКЕМЕНШІК ӘРІПТЕСТІК НЕГІЗІНДЕ ИНФРАҚҰРЫЛЫМДЫҚ ЖОБАЛАРДЫ ҚАРЖЫЛАНДЫРУДЫҢ ӘЛЕМДІК ТӘЖІРИБЕСІ

Абстракт: Мақалада Қазақстан жағдайында қолдану мүмкіндігін анықтау мен мемлекеттік-жекеменшік әріптестік негізінде инфрақұрылымдық жобаларды қаржыландырудың әлемдік тәжірибесі қарастырылған. Мемлекеттік-жекеменшік әріптестікте тігін пайдалану негізінде қаржыландырудың, қолдаудың ерекшелік-терінің және экономиканың банк және нақты секторларының өзара іс-қимылының пайдаланылатын схемаларының болуына қарамастан, олардың өзара іс-қимылы мемлекеттік институттың қатысуымен міндетті болып отыр, оның мақсаты кепілдік, сақтандыру, субсидиялар, салықтық жеңілдіктер және т.б. сияқты баламалы құралдарды пайдалана отырып өзара іс-қимыл процесін қолдау болып табылады. Ресей мен Қазақстан жағдайында Еуразиялық экономикалық одақты ескере отырып, мемлекеттік-жекеменшік әріптестіктің инфрақұрылымдық бағытын іске асыру шеңберінде экономиканың банктік және нақты секторларының өзара іс-қимыл тетіктерін дамыту бойынша ұсыныста ржасалды.

Түйін сөздер: мемлекеттік-жекеменшік әріптестік, инфрақұрылымдық жобалар, әлемдік тәжірибе.

М. Куттыбай, Н. Давлетбаева, Е. Орынбасарова, А. Каменова

МИРОВЫЕ ПРАКТИКИ ФИНАНСИРОВАНИЯ ИНФРАСТРУКТУРНЫХ ПРОЕКТОВ НА ОСНОВЕ ГОСУДАРСТВЕННО-ЧАСТНОГО ПАРТНЕРСТВА

Аннотация: В статье рассмотрены мировые практики финансирования инфраструктурных проектов на основе государственно-частного партнерства с определением возможности применения в условиях Казахстана. Установлено, что несмотря на наличие особенностей финансирования, поддержки и используемых схем взаимодействия банковского и реального секторов экономики на основе использования механизма государственно-частного партнерства, их взаимодействие происходит непременно при участии государственного института, целью которого является поддержка процесса взаимодействия с

использованием таких альтернативных инструментов как гарантии, страхование, субсидии, налоговые льготы и т.д. В условиях России и Казахстана с учетом Евразийского экономического союза предложены рекомендации по развитию механизмов взаимодействия банковского и реального секторов экономики в рамках реализации инфраструктурного направления государственно-частного партнерства.

Ключевые слова: государственно-частное партнерство, инфраструктурные проекты, мировой опыт.

Information about authors:

Miras Kuttybai - PhD student: Karaganda Economic University of Kazpotrebsoyuz, Republic of Kazakhstan, Karaganda Akademicheskaya str. 9, +7(701)5527753 miras777@inbox.ru, ttps://orcid.org/0000-0001-6285-0375;

Nazgul Davletbayeva - Candidate of economic sciences, Dean: Karaganda state industrial University,

Republic of Kazakhstan, Karaganda region, Temirtau, Republic Avenue, 30, +7(701)3751450 n.davletbaeva74@mail.ru, https://orcid.org/0000-0003-3463-8937;

Yerkenazym Orynbassarova - Ph.D.,Chief of Department of management and innovation: Karaganda Economic University of Kazpotrebsoyuz, Republic of Kazakhstan, Karaganda Akademicheskaya str. 9, +7(701)9984499 erke.08@mail.ru, https://orcid.org/0000-0002-5577-6434;

Asel Kamenova - PhD student: Pavlodar state University. S. Toraighyrov, Republic of Kazakhstan, Pavlodar street Lomova 64, +7(701)7770941kamenova_asel@mail.ru, https://orcid.org/0000-0001-7786-5350

REFERENCES

[1] On the application of prudential standards with respect to the infrastructure sector: [directive of the Reserve Bank of India of April 23, 2010]. [Electronic resource] // Reserve Bank of India. - URL: http://www.rbidocs.rbi.org(access date: 09/17/2018).

[2]Ganelin, M. (**2014**), Infrastructure of Russia. Big ship - great swimming.[InfrastructuraRossii. Bolshomukorablu–bolshoeplavanie.AnalyticheskiyotchetGazprombanka]Moskva: Gazprombank. P. 5-6. (In Russian)

[3]Kondratiev, V.B. (**2010**) Infrastructure as a factor of economic growth [Infrastructurakakfaktoreconomicheskogorosta]Russian entrepreneurship, №11. P. 29-36. (In Russian)

[4]Bogetic, Z. (**2006**) Forecasting Investment Needs in South Africa's Electricity and Telecom Sectors. South African journal of economic, Vol. 74.,Is. 3. P. 530-556.

[5]Public-private partnership in Israel [Gosudarstvenno-chastnoepartnerstvo v Israile[Electronnyiresurs] / Tsentr for Public-Private Partnership of Vnesheconombank. - URL: http://www.pppcenter.ru (access date: 01/17/2018)

[6]Berenda, Y. (**2012**). Pension money as a source of financing of long-term investment projects in the economy [Pensionnyedengikakistochnikfinansirovaniiadolgosrochnykhinvestitsionnykhproektov v ekonomike], Securities Market, №5 (423), P. 42-44. (In Russian)

[7]Shvetsov, Yu.G. (**2013**) A bank as a participant in a public-private partnership in investment processes [Bank kakuchastnikgosudarstvenno-chastnogopartnerstva v investitsionnykhprotsessakh], Problems of Finance and Accounting. №1(9). P. 27-33. (In Russian)

[8]Merzlov, I.Yu. (**2013**) Features of the use of banking investment technologies in public-private partnership projects [Osobennostiprimeneniiabankovskikhinvestitsionnykhtekhnologii v proektakhgosudarstvenno-chastnogopartnerstva] Fundamental research.№6.P. 953-957. (In Russian)

[9]Galantseva, I.V., Akhmedzyanova F.K. (**2012**) Study of the sources of contradictions between the financial and real sectors and determination of approaches to their solution [Issledovanieistochnikovprotivorechiimezhdufinansovymirealnymsektoramiiopredeleniepokhodov k ikhresheniiu] Bulletin of Kazan Technological University. T.15., №12. P. 266-270. (In Russian)

[10] On project financing and securitization: [the law of the Republic of Kazakhstan of February 20, 2006. No. 126-III]. [Electronic resource] // IP "Lawyer". - URL: http://www.online.zakon.kz(access date: 09/17/2018)

[11] About the Eurasian Economic Union: [the contract was signed in Astana on May 29, 2014]. [Electronic resource] // ATP ConsultantPlus: Legislation: Version Prof. - URL: http://www.consultant.ru (appeal date: August 27, 2014).

[12] Taubayev, A.A.; Doskalieva, B.B.; Akyenov,S.Sh. (**2016**) The role of the social-entrepreneurship corporations in Kazakhstan in the development of the public private partnership mechanisms. Bulletin of Taras Shevchenko National University of Kyiv. Economics. №6(183). p.15-22. http://dx.doi.org/10.17721/1728-2667.2016/183-6/3

[13] Taubayev, A.; Akenov, S.; Ulybyshev, D.; Kernebaev, A (**2017**) Institutional support of agro-industrial complex entities of quasi-public sector of Kazakhstan. Journal of Advanced Research in Law and Economics, Volume VIII, Issue 4(26), Summer 2017. pp. 1560-1565. DOI: 10.14505/jarle.v8.4(26).35

[14]Dyussembekova G.S., Beisembayeva G.M., Bayandina G.B., Burgumbayeva S.K. Analysis of the interdependence of entrepreneurship development and the growth of population employment within the realization of state programs. Bulletin of National Academy of sciences of the Republic of Kazakhstan ISSN 1991-3494 Volume 4, Number 374 (**2018**), 111 – 121

[15]Sanalieva L.K., Kengzhegalieva G.B., Idelbayeva A.S., Niyazbekova Sh.U. Investigation of modern economic mechanisms for construction of the intellectual potential of the country as a moving factor of innovative economic development. Bulletin of National Academy of sciences of the Republic of Kazakhstan ISSN 1991-3494 Volume 5, Number 375 (**2018**), 144 – 149 https://doi.org/10.32014/2018.2518-1467.19

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.21**
Volume 1, Number 323 (2019), 133 – 137

UDC 8:81:371

D.K. Nygmanova

Eurasian National University named after L.N.Gumilyov G.Astana, Kazakhstan
dingokz@mail.ru

LINGUO-CULTURAL STUDY OF LEXICO-SEMANTIC GROUPS "CLOTHING"

Abstract. The author conducted a survey study of lingua-cultural studies in the framework of a new direction, both scientific and for the purpose of the Internet communication field, by means of a comparative method, that is, it is devoted to building and analyzing the lexico-semantic field "Clothes" in Russian and English. The relevance of the research topic in the specifics of this vocabulary, since the analysis of its semantic aspect requires constant concentration to extra-linguistic reality, as well as to ethnographic factors. However, the study of the names of "clothing" as a community of structure, caused the need to take into account the changes occurring as a result of the transformation of economic and socio-political living conditions. In general, the picture of the world has undergone significant changes in the way new sectors have appeared - these are astronautics, the latest technologies, computer equipment, innovative projects, genetic engineering and more. Accordingly, a new sector in human activity automatically fixes attention on the lexical field.

Keywords: linguistic-cultural studies, juxtaposition, lexico-semantic field, clothing, changes, research, analysis, new sector.

INTRODUCTION

The lexical meaning of many words has a complex structure and consists of semantic particles, or fam. In this case, the main, or nuclear, seme and peripheral, located hierarchically around the main, or nuclear, seme are distinguished. The study was carried out in the framework of a new research area - comparative linguistic-cultural studies - and is devoted to the construction and analysis of the lexico-semantic field “Clothes” in the Russian and English languages.

IN AND. Zabotkina, exploring new vocabulary units in the aspect of functional lexicology, notes that the picture of the world is changing, new sectors are emerging: astronautics, computer technology, genetic engineering. The emergence of a new sector in the active experience of a person is automatically recorded on the lexical map. Between the picture of the world as a reflection of the real world and the language map as the fixation of this reflection, there is a complex, unidirectional dialectic relationship that indicates a change in categorization in the picture of the world, the emergence of new concepts [1].

An important aspect of the conceptualization of emotions in the linguistic picture of the world, which is directly related to the symptomatic vocabulary, is their relation to the idea of light. Positive emotions (love, joy, happiness) are conceptualized as bright, and negative emotions (hate, longing, anger) as dark.

MAIN PART

“Whenever we are dealing with the inner world of man, language is perhaps the most reliable conductor to this world, because it reinforces the experience of the introspection of tens of generations over thousands of years” [2].

G.M. Alimzhanova [3] gives a structured and precisely worked out system of methods for linguoculturological analysis. Based on this research, it is possible to distinguish the following methods used in linguoculturological analysis:

1. Comparative-functional method: aimed at identifying differences between the two compared languages and identifying differences at the level of functioning of linguocultural units. This category can

be attributed, and allocated VA. The oil contrastive method, since it also aims at identifying the most significant discrepancies in language structures in general and at its individual levels, and, as a result, produces optimal recommendations for concretely overcoming discrepancies between the native language and non-native [4].

2. The semiotic system-structural method: manifests itself in a systemic description of the facts of language and culture, taking into account not only the general connection of phenomena, but also the natural connections between parts of a single phenomenon, that is, taking into account their structural organization, and the definition of semantics.

3. The method of semantic linguistic-cultural field, proposed by V.V. Sparrow, is one of the main in the study of various linguistic and culturological units on the material of different systems of languages, because this field contains "the focus of generation, perception and evaluation of cultural values expressed in language" [5].

4. Methods of field ethnography, aimed at collecting material-source of scientific knowledge:

a) survey - one of the main methods of collecting primary information in ethnographic and ethnosocial research, based on the socio-psychological interaction of the researcher and the respondent;

b) observation is a method of studying and fixing the whole complex of ethnic, national and peculiar cultural and everyday data, based on direct contact between the researcher and the object of study;

c) the method of remnants is based on the fact that in the culture of every nation the remnants of the past are preserved, from which conclusions can be drawn about the state of affairs at an earlier historical stage [6].

boron material source of scientific knowledge:

5. The experimental method is a study in which the conditions necessary and sufficient for the manifestation and measurement of the connection between the phenomena of interest to the experimenter in connection with the purposeful testing of an already formulated scientific hypothesis are being created or sought. In linguoculturology, several variations of this method are used:

a) modeling experiment: the subject acts according to the instructions of the experimenter and knows that he participates in the experiment as a subject;

b) associative experiment: used to identify verbal associations from the perspective of the national-specific cultural characteristics of a country, the respondents' attitude to a particular culture of the country through the prism of their national language picture of the world.

6. Interview is a method of obtaining primary information through direct, purposeful conversation between the interviewer and the respondent. It is used at an early stage of the study to clarify the problem and draw up a program, when interviewing experts, specialists; allows to take into account the peculiarities of the person being interviewed.

7. Descriptive method: allows you to make a systemic description of linguistic facts and cultures, linguocultural units on the material of different system languages. Taxonomic description implies the establishment of classes of linguistic units and relations existing between them; The dynamic description consists in the description of all the rules that generate the correct language expressions and only them (presented in the generating grammar or in the “meaning - text” model).

8. Distribution method: based on the study of the environment (distribution), the context of the use of individual units in the text.

Various types of linguistic and cultural analysis are also formed on the basis of private scientific research methods in linguoculturology.

The most widely distributed among researchers is conceptual analysis — a method that involves identifying concepts, modeling them on the basis of conceptual commonality of means, their lexical representation in uze and text, and studying concepts as units of a conceptual picture of the world of an ethnos [7]. Its goal is to “identify the paradigm of culturally significant concepts and describe their concept sphere”. The object of the study is the meanings conveyed by individual words, grammatical categories or texts, and the involvement of a large body of contexts of using words in various texts allows not only to outline the concept in question, but also to structure it, isolating a set of the most characteristic features.

There are two approaches to the study of the concept: linguocognitive and linguocultural. Within the framework of linguo-cognitive science, the concept is interpreted as an operational informative unit of the

memory of the mental lexicon, the conceptual system and the language of the brain, the whole picture of the world, reflected in the human psyche. We see this interpretation of the concept in the works of E.K. Kubryakova, Z.D. Popova, I.A. Sternina, VN Telia, and others [8].

In this case, the integral seme is “clothes” in a broad sense as “a set of objects with which they cover, clothe the body” [9]. In the “New Dictionary of the Russian Language” by T.F. Ephraim clothing - is: 1) a collection of objects (from fabric, fur, leather, etc.), which cover the body or put on him; 2) what is worn on someone or what someone is wearing [10]. The archisk field, i.e. the unit expressing the general meaning is “vestment, covering the body”. Thus, the core (name) of the lexical-semantic field in the Russian language is “clothing”.

After analyzing the definitions of words in the explanatory dictionaries of the Russian language included in the named integral to this, we can identify the center of the field. In our opinion, the center of the lexico-semantic field "Clothes" are: clothes, costume, toilet, dress (in the broad sense of the synonymous lexeme "clothes").

It is globalism and Internet communication that led to the development of an on-line casual fashion clothing trade, since All these "averaging" world population trends characteristic of globalism were projected onto the general characteristics of clothing, its classification in catalogs in approximately the same form, regardless of whether the catalog belongs to a particular culture. This fact allows you to take almost any catalog of clothes and conduct research on it, because The development trend of the vestibmentary code is the same.

The lexico-semantic field “Clothes” of the Russian language is a hierarchical multistage system in which microfields are distinguished: women's clothing, men's clothing, accessories, shoes, unisex (clothing and shoes).

Groups “according to the conditions of operation” (outerwear, underwear, hosiery, home clothes), and “for the intended purpose” (casual clothes, clothes for sports and leisure) are brought to the near periphery. The distant periphery consists of groups “according to the nature of the support” (shoulder, waist), “according to the season” (summer, winter, demi-season, all-season). The composition of the microfield "men's clothing" includes the hyponym "ceremonial clothing."

The most numerous group in this LSP is the group of "women's clothing" (67 LE). In our opinion, this indicates that the clothes of Russian women are diverse and adapted for various purposes. At the same time,

It can be noted that in the microfield “women's clothing” and in the microfield “men's clothing” the “casual wear” group contains more LEs than the “sportswear” group. From this we conclude that in Russian culture people prefer to dress strictly and elegantly.

The group of "women's shoes" also contains more LEs than the group of "men's shoes", but the similarity lies in the fact that the group of "shoes for sports and leisure" has more LEs than the group of "casual shoes". This, in our opinion, testifies to the fact that in modern Russia, comfortable, soft shoes that do not hinder movement and do not cause inconvenience take advantage. Also noteworthy is the fact that the “clothing and footwear unisex” groups are small in number (32 and 11 LU, respectively). From this we conclude that in Russian linguistic culture, despite global trends, there are still gender boundaries.

In the studied vocabulary-semantic field of the Russian language “Clothing”, of the 206 lexical units in vocabulary sources, approximately 5% are transcriptions of English lexical units, which have ceased to be exotic and in modern Russian linguistic culture function as independent words, for example: Russian. blazer - eng. blazer, russk. Macintosh - English Mackintosh, Russian shorts - eng. shorts. Along with these lexical units, we separately consider 49 lexical units, which, despite widespread use in everyday life, in the media and professionals in the field of clothing and fashion, are not recorded in the dictionary sources and are not included in the lexical composition of the Russian language.

The lexico-semantic field of nouns - the names of "Clothing" in the English language is 333 lexical units. The following microfields are distinguished in this LSP: women's wardrobe, men's wardrobe, accessories, footwear, Unisex (clothing, footwear).

The “peripheral conditions” (outwear (overcoat), clothes, lingerie, hosiery, home wear), “purpose wear” (casual wear, sportswear and active wear) are brought to the near periphery. The distant periphery consists of the groups “according to the structure” (shoulder, waist), “season” (summer, winter, winter, autumn, winter wear), year-round. The “wardrobe” microfield includes the “formal wear” hyponyme.

The most numerous group in this lexical-semantic field is the group “women's clothing” (157 lexical-semantic field). In our opinion, this suggests that the clothes of English women, like Russians, are diverse and adapted for various purposes. It should be noted that both in the women's clothing microfield and the men's clothing microfield, the casual wear group contains more lexical items than the sport and active wear group, although it is also quite voluminous (women's clothing — 42, men's clothing - 25).

From this we conclude that in English culture it is customary to dress depending on the event, but at the same time there is a tendency towards a freer sporting style. The women's footwear and women's footwear groups contain the same number of LUs, while the casual footwear group (23 lexical units) contains much more lexical units than the sports and active footwear group (7 lexical units). This, in our opinion, indicates that in modern English society, preference is given to beautiful, but as far as possible comfortable shoes. Also noteworthy is the fact that the Unisex Clothing and Unisex Footwear groups are numerous (73 and 21 lexical units, respectively). From this we conclude that in English linguistic culture, society adheres to the global tendency to erase gender boundaries and search for universal clothing and footwear.

CONCLUSION

Each language has its own ways of creating imagery, reflecting the national and cultural identity. At the same time, the unique abilities of the people are reflected, direct contacts between nature and man are recorded. Observation of this allows an analysis of the diversity and richness of the national culture, world view in the linguistic and cultural aspect. In other words, each language is nationally specific, it reflects not only the peculiarities of the natural conditions, but also the life of society, its history, the mentality of each ethnic group, the originality of its national character and culture.

Thus, one of the most important components of the ethnic identity of a people is clothing. Its names occupy a special place in the linguistic picture of the human world, they are directly related to the way of life, history, culture of the people, their development and functioning depend on social changes in the life of the ethno-cultural community. The value of clothes is not exhausted only by its utilitarian role. Being one of the most stable ethnic indicators, the folk costume has long performed ceremonial, symbolic, social functions. The formation of the traditional complex of folk clothes is influenced by ethical, aesthetic ideas, traditions of generations, material and economic conditions of life, as well as links with other ethnic groups. The specificity of this vocabulary is such that the analysis of its semantic spectrum requires a constant appeal to extra-linguistic reality, to ethnographic data. The study of clothing names as an integral structure necessitated taking into account the changes occurring in the traditional costume of the Cossack subethnos as a result of the transformation of economic and socio-political living conditions.

УДК 8:81:371

Д.К. Ныгманова

Л.Н.Гумилев атындағы Еуразия ұлттық университеті, г. Астана, Қазақстан,

ЛИНГВО-МӘДЕНИЕТТІК ЗЕРТТЕУ ЛЕКСИКО-СЕМАНТИКАЛЫҚ ТОП «КИІМ»

Аннотация. Автор ғылыми және ғаламтор-коммуникация саласының жаңа бағыты бойынша лингво-мәдени зерттеулерді салыстырмалы әдіс арқылы, яғни «Кілттер» лексика-семантикалық өрісін ресейлік және ағылшын тілдерінде құруға, талдауға және зерттеуге арналған. Зерттеу тақырыбының өзектілігін осы лексиканың ерекшеліктерімен салыстыруға болады, өйткені оның семантикалық аспектісін талдау қосымша тілдік шындыққа, сондай-ақ этнографиялық факторларға үнемі шоғырлануды қажет етеді. Алайда, «киім» атауларын құрылымдық қоғамдастық ретінде зерттеу, экономикалық және әлеуметтік-саяси өмір сүру шарттарын өзгерту нәтижесінде пайда болған өзгерістерді ескеру қажеттілігін тудырды. Жалпы, әлемнің бейнесі жаңа салалар пайда болғанда айтарлықтай өзгерістерге ұшырады - бұл астронавтика, жаңа технологиялар, компьютерлік техника, инновациялық жобалар, гендік инженерия және тағы басқалар. Тиісінше, адам қызметінің жаңа саласы лексикалық салаға автоматты түрде назар аударады.

Түйін сөздер: лингвомәдениеттану, салыстыру, лексика-семантикалық өріс, киім, өзгерістер, зерттеу, талдау, жаңа сектор.

УДК 8:81:371

Д.К. Ныгманова

Евразийский национальный университет им. Л.Н. Гумилева, г. Астана, Казахстан

ЛИНГВО-КУЛЬТУРОЛОГИЧЕСКОЕ ИССЛЕДОВАНИЕ ЛЕКСИКО-СЕМАНТИЧЕСКИХ ГРУППЫ «ОДЕЖДА»

Аннотация. Автором проведено обзорное исследование лингво-культурологии в рамках нового направления, как научного, так и с целью интернет-коммуникационного поля, путем сопоставительной методики, то есть посвящено построению и анализу лексико-семантического поля «Одежда» в русском и английском языках. Актуальность темы исследования в специфике данной лексики, так как при анализе ее семантического аспекта требуется постоянное сосредоточение к внеязыковой действительности, а так же к этнографическим факторам. Однако, изучение названий «одежды», как общности структуры, вызвало потребность учитывать и изменения, происходящие в результате преобразования экономических и социально-политических условий жизни. В целом, картина мира претерпела значительные изменения так, как появились новые сектора – это космонавтика, новейшие технологии, компьютерная техника, инновационные проекты, генная инженерия и другое. Соответственно новый сектор в деятельности человека автоматически фиксирует внимание на лексическом поле.

Ключевые слова: лингво-культурология, сопоставление, лексико-семантическое поле, одежда, изменения, исследование, анализ, новый сектор.

Information about authors:

Nygmanova D.K. - Eurasian National University named after L.N. Gumilyov, G.Astana, Kazakhstan, dingokz@mail.ru, ORCID 0000-0002-3761-2196.

REFERENCES

[1] Arnold I.V. The semantic structure of the word in modern English and its research methods: author. ... Cand. philologist. Sciences: 10.02.04. L., 1966. 33 c.

[2] Apresyan Yu.D. Domestic theoretical semantics at the end of the twentieth century // News of the Russian Academy of Sciences SLYa. 1999. t.58. № 4. p. 39-53.

[3] Alimzhanova G.M. Comparative linguoculturology: interaction of language, culture and person / G.M. Alimzhanova. Almaty, 2010. 300 s.

[4] Maslova V.A. Linguoculturology [Electronic resource] / V.A. Maslova. Study Guide for stud. higher studies. Institutions. M .: Publishing Center "Academy", 2001. p. 208.

[5] Vorobiev V.V. Linguoculturology: Theory and Methods / V.V. Sparrow. M.: Publishing house of the Peoples' Friendship University of Russia, 2006. p. 112.

[6] Krasnykh V.V. Ethnopsycholinguistics and cultural linguistics: a course of lectures / V.V. Krasnykh. - Moscow: Gnosis, 2002. 284 p.

[7] Oparin E.O. Linguoculturology: methodological foundations and basic concepts / E.O. Oparin. Language and culture: Sat. reviews. M .: INION RAS, 1999. p. 183-187.

[8] Kalinina, M In the Lexico-semantic field "Clothes" in the Don Cossack dialects / M In Kalinina // Izv Volgogr pedatun Ser Philological sciences. 2007. No. 2 (20). C 82-85.

[9] Polyakova G.M. "The lexico-semantic field" clothing "in the aspect of comparative cultural linguistics" [Electronic resource]. Access Mode [URL: http://cyberleninka.ru/article/n/leksiko-semanticheskoe-pole- odezhda-v-aspekte-sopostavitelnoy-lingvokulturologii].

[10] Kalinina Margarita Vladimirovna. The lexico-semantic field "Clothes" in the Don Cossack dialect: ethno-linguistic and linguoculturological aspects: dissertation ... Candidate of Philological Sciences: 10.02.01 / Kalinina Margarita Vladimirovna; [Place of protection: Volgogr. state ped. un-t] - Volgograd, 2008. 268 seconds.

[11] Rysbergen K.K. ETHNOCULTURAL SPECIFICITY OF ONOMASTIC NOMINATION. ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN SERIES OF SOCIAL AND HUMAN OF SCIENCES 54 - 57. https://doi.org/10.32014/2018. 2224-5294

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.22**
Volume 1, Number 323 (2019), 138 – 142

UDC 658.64

R.K. Sadykova, A.S. Bikenova, L.T. Eleusiz, Z.S. Temiralieva

Kazakh University of Economics, Finance and International Trade
rystysadykova@mail.ru, a.s.bikenova@mail.ru, lyaila@list.ru, zubaira.zere.9@gmail.com

FEATURES OF INNOVATIVE ACTIVITY IN THE SPHERE OF TOURISM

Abstract. The authors of the article present the features of innovation activity in the field of tourism. The main reason for requiring the introduction of new technologies in the tourism sector is globalization processes that spawn the processes of standardization and unification of national cultures, increase the demand not only for the tourist product, but also the peculiarities of different countries and regions, visiting which partly compensates for the lack of new impressions in the standardized modern the world. An important process that accompanies globalization is the merger and concentration of tourism firms, the formation of large transnational conglomerates in the field of tourism. There is a need to bring disparate tourism into a single system to create a powerful industry that is able to accumulate cash to allocate significant revenues to the state budget and further intensive development of national tourism.

Keywords: innovation, tourism services, industry, features, infrastructure, cluster.

INTRODUCTION

Today, Kazakhstan is undergoing radical transformations of its mixed economy in order to increase the competitiveness of the country, where technological transformations are of primary importance - overcoming technological degradation and mastering the techniques of the modern fifth and future sixth technological orders. According to the President of the Republic of Kazakhstan, five positive trends in the innovative development of the economy of Kazakhstan are of particular importance: Energy efficiency, which is provided only by new technologies [1].

1. Growth in the non-primary sector. Mechanical engineering should become the core of the innovation development process of the country, which includes the automotive industry with new technologies and car building.

2. Agro-industrial complex. Today, the state is making considerable efforts for the development of vegetable and livestock production.

3. Projects implemented in small and medium businesses.

4. Labor productivity, which should steadily grow, which automatically entail an increase in incomes and qualitative changes in the social development of society [2].

MAIN PART

In the official legal documents of Kazakhstan, the concept of “innovation” has been used in the last 10-15 years, it was consolidated in the Law of the Republic of Kazakhstan “On Innovation Activity” and is defined as the result of innovation activity, which has been implemented as new or improved products (work, services), new or improved technological process, as well as organizational, technical, financial, economic and other solutions in various spheres of public relations, rendering constituents progressive effect on the various areas of production and management obschestvom.I sphere. Schumpeter interprets innovation as a new scientific and organizational combination of production factors, motivated by an entrepreneurial spirit [3].

Kazakhstan faces the challenge of dynamically modernizing the entire system of socio-economic and socio-political relations. The main focus is on the markets of Russia, China, Central Asia, the Caspian and Black Sea regions. This implies government support for the expansion of Kazakhstani capital, goods and services to foreign markets [4].

The most widespread in modern practice of tourism are such types of innovation (according to the criterion of the carrier of the innovation process):

1. Product Innovation Group:

The development of new, previously unknown on the market tours. At one time, rural (green) tourism, ecological, congress, adventure (adventure), underwater, cruise ornithological and other types of tourism appeared in their capacity. In the innovations of 2007–2008 The following proposals were noted: expeditionary tourism (the French company Poseidon Arctic Voyages Ltd is the world's largest tour operator for expeditions to the North Pole and the Russian Arctic); Prison tourism (Johor Baru, Malaysia; Helsinki, Finland); summer tourism (special programs for older tourists from Japan, including potato digging at summer cottages in the Khabarovsk region of Russia); flour fights (Greece).

Attraction to the tourist process of new types of resources or the creation of resources with predetermined properties and a new target function. In tourist visits, the proportion of a special class of natural-man-made objects is growing (reservoirs, ponds, forest parks, etc.); the prospects of technogenic are seriously evaluated, incl. mining (mines, mines, quarries) and factory tourism [5]. The choice of objects in route and stationary tourism is increasingly subject to the requirement of exoticism (marriage on the ice of Baikal; accommodation of hotels in trees (Germany), lighthouses (Frisland, Netherlands), in wine barrels (Rüdsheim, Germany), under water (Key Largo, state of Florida USA);

Holding business conferences in an inflatable conference hall ("Sphere") (Moscow region); visiting both rolled up and operating military facilities (Balaklava, Crimea), etc.

- development of new segments of the tourist market, including the involvement of new natural environments (space), territories of extreme type (desert, Antarctica, equatorial forests, etc.) in the tourist movement. The development of the tourist market can be carried out by expanding the period of the tourist seasons, covering the new target clientele (“third age” tourism, tourism by professional groups, etc.).

- The creation of new tourist and recreational areas. Initially, the role of such territories was performed by national natural parks, combining environmental and recreational functions; currently, the theme park unites a variety of entertainment facilities with a crosscutting educational theme (Disneyland parks in California and Florida, USA, France, Japan, Fantazialend in Germany serve the flow of tourists from 7 to 13 million people per year).).

There were examples of oases of tourism in the Sahara, specializing in extreme, ethnographic, adventure and recreational tourism (for example, scenery left after the filming of Star Wars, Tunisia) [6].

1. Group of technological innovations:

development of new types of logistics for tourist services that improve the quality of services (for example, equipping hotels with sound mail, satellite reception, closed video network, electronic information on television (account control, automatic calculation), computers with modem, modern smoke detectors, silent air conditioners etc.). In Cordoba (Spain), in 2006, sightseeing routes were introduced on “talking” cars using GPS (sightseeing text, reproduction of display objects on a computer screen).

Introduction of computer (information) technologies in the booking and reservation of hotels, air tickets (GDS - Global Distribution Systems - Saber, Amadeus, Galileo, Worldspan) [7].

Ecologization of tourist services technologies was a forced result of the increase in the scale of recreational use of natural resources and the increasing negative impact of tourism on the quality of natural complexes and their ability to recover. Thus, according to estimates of the United Nations Environment Program (UNEP), one average tourist creates about 1 kg of solid waste per day [8].

The know-how in the system of transport service for tourists is aimed at reducing the time of delivery of clients to the resort area, increasing comfort and cheaper transport tariffs. The introduction of low-cost charter flights into the system of domestic and international tourism in the mid-1980s was of revolutionary importance in the growth of tourist travel.

Being one of the most dynamically developing global industries, the tourist market of Kazakhstan demonstrates low rates of development. The limited material resources of citizens, the underdeveloped tourist infrastructure, the inconsistency of the interests of the state and the private sector are constraining factors for the development of the tourism industry of Kazakhstan.

As can be seen from table 1, the number of served visitors in the Republic of Kazakhstan for 2017 in outbound tourism has remained the leader for many years 10,260.8 people, thanks to the EXPO-2017 the influx of tourists 7,701.2 people, domestic tourism remains at the smallest position 5 572.8 people.

Consider where tourists prefer to relax, in which areas and which resort areas of the Republic of Kazakhstan for 2017.

Table 1 - Number of served visitors by type of tourism in the Republic of Kazakhstan for 2017, thousand people [9]

	Exit	Entry	Inside
Total	10 260,8	7 701,2	5 572,8
of them			
placements	-	891,9	4 387,5
spa resorts	-	2,4	295,7
organizations	-	372,3	889,6

Table 2 - Number of served visitors by regions and resort areas of the Republic of Kazakhstan for 2017, people [9]

	Number of entry and internal visitors	including			Number of "self-organized" entrance and internal visitors (estimate)
		stayed in placements	having a rest in the sanatorium organizations	visiting specially protected natural areas	
The Republic of Kazakhstan	6 839 433	5 279 406	298 085	1 261 942	3 947 962
Akmola	1 122 835	341 399	36 581	744 855	560 720
Of them					
Shchuchinsko-Borovaya resort area	860 479	150 481	36 491	673 507	207 585
Zerenda resort area	95 503	48 085	-	47 418	105 806
Aktobe	105 249	100 450	4 546	253	251 067
Almaty	911 581	703 663	10 516	197 402	257 567
Of them					
Almaty resort area	614 624	426 342	854	187 428	32 285
Atyrau	211 553	184 353	4 798	22 402	111 251
Western Kazakhstan	120 537	112 321	8 216	-	103 322
Zhambylskaya	116 523	103 912	12 611	-	233 117
Karaganda	345 363	292 509	19 649	33 205	231 437
Of them					
Karkaraly resort area	82 140	49 628	-	32 512	14 751
The coastal zone of Lake Balkhash	39 945	37 238	2 707	-	86 202
Kostanay	212 690	192 174	19 992	524	160 406
Of them					
Kostanay resort area	17 668	6 369	11 299	-	2 896
Kyzylorda	82 180	59 192	22 988	-	148 383
Mangystau	207 378	205 904	1 364	110	101 929
Of them					
Resort area Kenderli	19 205	19 095	-	110	21
South Kazakhstan	375 548	269 974	79 887	25 687	441 321
Of them					
Saryagash resort area	53 911	7 447	46 464	-	33 146
Pavlodar	307 208	147 485	12 196	147 527	105 766
Of them					
Bayanaul resort area	176 430	30 753	-	145 677	4 387
North Kazakhstan	124 067	120 847	3 220		64 414
Eastern Kazakhstan	590 913	486 157	14 779	89 977	287 515
Of them					
Altai resort area	51 762	44 703	7 059	-	4 634
Alakol resort area	135 698	79 192	570	55 936	953
Bukhtarma resort area	64 208	63 376	-	832	6 135
Ulanskaya resort area	12 894	12 894	-	-	1 292
Katon-Karagay resort area	34 041	842	687	32 512	525
Astana city	989 205	989 205			519 941
Almaty city	1 016 603	969 861	46 742	-	369 806

Unfortunately, there are a very small number of holidaymakers in sanatorium-resort organizations - 298,085 people, the number of "self-organized" entrance and internal visitors is 3,947,962 of the total number of holidaymakers, 6,839,433 people. The largest number of tourists in the regions of Kazakhstan amounted to slightly more than a million people in the Akmola region - 1 122 835 people, then Almaty almost a million people 1 016 603 and Astana on the 3rd place nearly nearly 989 205 people. In general,

the development of tourism in Kazakhstan requires the introduction of innovation, since the availability of tourist and recreational resources provides all the prerequisites for the development of almost all types of tourism.

The absence or ineffective participation of stakeholders is one of the main obstacles to the realization of concepts for the sustainable development of tourism (ST) and uncertainty about how best to solve this problem [2].

The development of national tourism is impossible on the basis of only market mechanisms, since tourism is not only an economic phenomenon, but also deeply social, spiritual and cultural. Therefore, we need a state policy of tourism development in Kazakhstan. Important is the need to create mechanisms to promote the construction of new and reconstruction of existing facilities of tourist and resort infrastructure. It is necessary to form a system of tourist information centers - an element of the tourist industry, the creation of tourist offices abroad. A significant role in the implementation of these tasks can play a cluster approach.

For the economy of Kazakhstan, the following advantages are expected of applying the cluster approach in the tourism sector [7]:

- overcoming the uneven development of the tourism sector, the formation of new developed tourist areas in the regions.
- overcoming stagnation in a number of indicators of the tourism industry due to the intensification of infrastructure development in the regions.
- Concentration of administrative and financial efforts with the use of scientific research for the development of promising areas with unique tourist recreational resources.
- To increase the inflow of investments in the tourism industry and ensure its intensive development by the state.

The experience of foreign countries shows that competitiveness in the global tourism market is possible due to the development of new forms of economic integration between the state, the tourism business and the country's population [3]. Therefore, the formation and creation of favorable conditions for the effective functioning of tourist clusters is one of the priorities of the state tourism policy of Kazakhstan.

Despite the fact that Kazakhstan has a vast territory, in which potentially attractive tourist areas are located, the country's tourism industry is characterized by an insufficient level of development. Its share in the gross domestic product is about 1.6%.

Many areas of the region have great potential for the development of domestic tourism. There is a well-developed network of holiday homes, sanatoriums, tourist centers, dispensaries, boarding houses, etc.

Shchuchinsko-Borovskaya resort area is a resort with excellent natural and climatic conditions, rich therapeutic and recreational resources and historical and cultural foundation, favorable geographical location in the center of the Republic, proximity to the capital of the Republic of Kazakhstan, Astana. In the future, it promises to become a large modern tourist center of Eurasia. It is planned to build facilities for business, social, cultural, scientific, educational, and also entertainment purposes [6].

CONCLUSION

Thus, the innovative development of the tourism sector involves the formation of infrastructure that meets modern international requirements. Introduction of additional flights of high-speed trains on the route Astana-Burabay and search for opportunities to open the high-speed route Omsk-Burabai. The introduction of national standards for roadside service facilities, taking into account all types of services, including fast-food outlets, overnight stays, the availability of a service station for vehicles, standard bathrooms with cold and hot water supply.

As well as proper roads, equipped and safe with a minimum of service (toilets, electricity, communication with the city, places of recreation and entertainment, places of food and overnight), parking lots, campgrounds, motels, parking. And of course, the provision of tourism development processes with professional staff. What is necessary is the revision of the curricula of universities, training specialists for tourism (compulsory study of foreign languages) and the direction of students from leading training centers for training specialists in tourism.

УДК 658.64

Р.К. Садыкова, А.С. Бикенова, Л.Т. Елеусиз, З.С. Темиралиева

Қазақ экономика, қаржы және халықаралық сауда университеті

ТУРИЗМ САЛАСЫНДАҒЫ ИННОВАЦИЯЛЫҚ ҚЫЗМЕТІНІҢ ЕРЕКШЕЛІКТЕРІ

Аннотация. Мақаланың авторлары туризм саласында инновациялық қызметтің ерекшеліктерін ұсынады. Туризм саласына жаңа технологияларды енгізудің негізгі себебі - бұл стандартталған қазіргі заманғы жаңа әсерлердің жетіспеушілігін ішінара өтейтін, әртүрлі елдер мен өңірлердің ерекшеліктерін ескере отырып, ұлттық мәдениеттерді біріздендіру мен стандарттау процестерін көтеретін, туристік өнімге деген сұранысты арттыратын жаһандану үдерістері. әлем. Жаһандану жолымен жүретін маңызды процесс туристік фирмалардың біріктіруі және шоғырлануы, ірі трансұлттық конгломераттардың туризм саласында қалыптасуы болып табылады. Мемлекеттік бюджетке айтарлықтай кірістер бөлу және ұлттық туризмді одан әрі қарқынды дамыту үшін қаражат жинай алатын қуатты индустрияны құру үшін тең туризмді бірыңғай жүйеге енгізу қажеттілігі туындайды.

Түйін сөздер: инновация, туристік қызметтер, өнеркәсіп, ерекшеліктер, инфрақұрылым, кластер.

УДК 658.64

Р.К. Садыкова, А.С. Бикенова, Л.Т. Елеусиз, З.С. Темиралиева

Казахский университет экономики, финансов и международной торговли

ОСОБЕННОСТИ ИННОВАЦИОННОЙ ДЕЯТЕЛЬНОСТИ В СФЕРЕ ТУРИЗМА

Аннотация. Авторами статьи представлены особенности инновационной деятельности в сфере туризма. Основной причиной, требующей внедрение новых технологий в туристскую сферу, являются процессы глобализации, которые порождают процессы стандартизации и унификации национальных культур, повышают спрос не только на туристский продукт, но и особенности разных стран и регионов, посещение которых отчасти компенсирует нехватку новых впечатлений в стандартизированном современном мире. Важным процессом, который сопровождает глобализацию, является слияние и концентрация туристских фирм, образование крупных транснациональных конгломератов в сфере туризма. Возникает необходимость приведения разрозненного туризма в единую систему для создания мощной индустрии, способной аккумулировать денежные средства для отчисления значительных доходов в бюджет государства и дальнейшего интенсивного развития национального туризма.

Ключевые слова: инновации, туристские услуги, индустрия, особенности, инфраструктура, кластер.

Сведения об авторах:

Садыкова Рысты Каруевна – PhD, старший преподаватель, Казахский университет экономики, финансов и международной торговли, ORCID 0000-0002-9970-1397;

Бикенова Айгуль Сериковна – магистр экономических наук, старший преподаватель, Казахский университет экономики, финансов и международной торговли, ORCID 0000-0002-6540-6373;

Елеусиз Ляйля Турсынкызы – к.э.н., старший преподаватель, Казахский университет экономики, финансов и международной торговли, ORCID0000-0002-0394-6518;

Темиралиева Зубайра Саулетовна - магистр по специальности Туризм, старший преподаватель, Казахский университет экономики, финансов и международной торговли, ORCID0000-0002-6516-6197

REFERENCES

[1] The concept of development of the tourism industry of the Republic of Kazakhstan until 2020, approved by the Government of the Republic of Kazakhstan dated February 28, **2013**. No. 192.

[2] Resurrection V.Yu. International Tourism, Moscow: Uniti-Dana Publishing House, 2006, 153 p. Business in real time. Tourist information retrieval system Tury.ru. M., **2006**. 148 p.

[3] Morozov MA, Morozova N.S. Information technology in the socio-cultural service and tourism. Office equipment. Textbook. M .: Academy, **2002**. 240 p.

[4] Erdavletov S.R., Podvalov A.Yu., Titova M.A. Tourist cluster and the problems of the formation of the tourism industry of the Republic of Kazakhstan // Mater. III Intern. scientific-practical conf. "Geography of tourism: current issues of theory and practice." Almaty, **2007**. p. 5–10.

[5] Mazbayev OB Tourism of Kazakhstan. Condition. Problems. Ways of development. / / Materials of the scientific-practical conference "Modern problems of development of tourism and geography in Kazakhstan: the present and the future". 2013. 439 C.

[6] Sayabayev K.M., Zhansagimova A.E. Green tourism as a basis for strengthening and enhancing the economic potential of rural areas. XX International Scientific and Practical Conference "Agrarian Science - Agricultural Production of Siberia, Kazakhstan, Mongolia, Belarus and Bulgaria" (Novosibirsk, October 4-6, 2017) p. 374-376 ISBN 978-5-94477-211-4 (In Russian).

[7] Sabirov R.K., Kurmasheva S.O. Profiles of the regional development of the agrarian sector. Proceedings of the National Academy of Sciences of the Republic of Kazakhstan. ISSN 2224-526X, a series of agricultural sciences. No. 1 2018, p.52-56 site address http://agricultural.kz/index.php/en/arhiv. https://doi.org/10.32014/2018. 2224-526X

[8] Predvaritel'nye dannye za 2017 god. Statisticheskij ezhegodnik. Astana, **2018**. 214 s. Rezhim dostupa: http://stat.gov.kz.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.23**
Volume 1, Number 323 (2019), 143 – 147

UDC 338.43.01

D.A. Tleuzhanova [1], D.S. Kurmanova[2], A.A. Beisembaeva [3], M.N. Nurgabylov[4]

[1,2,3]Kazakh Agrotechnical University. S.Seifullin;
[4]Taraz Innovation and Humanitarian University
tda_06@mail.ru, dana14.86@mail.ru, a_s_em_o_k@mail.ru

PROBLEMS AND PROSPECTS OF SUSTAINABLE DEVELOPMENT OF AGRICULTURE

Abstract. Rural territories of Kazakhstan are the most important socio-economic and ecological subsystem of society. They have specific features, their own goals, objectives, principles, criteria and development indicators. Here are concentrated significant human, natural and industrial resources, industries, the effective development of which can significantly improve the state of the economy and raise the standard of living of the population of the state. The authors believe that the unfavorable demographic situation in the Republic of Kazakhstan, as a result of which the decline in the rural population is progressing. In accordance with this, in the context of the issue being studied, first of all it is advisable to consider the indicators characterizing the standard of living of the population in rural areas of the Akmola region of Kazakhstan. Currently, the development of rural areas of Kazakhstan attracts the attention of a wide range of specialists who are trying to build the conceptual foundations of this process.

Keywords: agriculture, sustainable development, prospects, resources, standard of living, improvement of life.

INTRODUCTION

Improving rural life and developing the rural economy is one of the priorities of the state social and economic policy. Ensuring sustainable development of rural areas in modern conditions involves the expansion of sources of employment, an increase in incomes of the rural population, the creation of normal living conditions.

The Head of State's article "Looking to the future: modernization of public consciousness", proposed by the president's Tugan Jer program and the project "Religious shrines of Kazakhstan" - "Sacred Geography of Kazakhstan" introduced a new impetus to the development and strengthening of rural areas well-being of any state, primarily due to the fact that a sustainable level of development of rural areas is the key to food independence of the state. No exception is Kazakhstan. In addition, rural territories occupy 76.30% of the total territory of Kazakhstan, which means that the majority of the population lives in these territories and therefore needs to be provided with a corresponding number of jobs. Consequently, the above factors show the full significance of strengthening and maximizing the economic potential of rural areas of the state.

MAIN PART

In the strategy of the President of Kazakhstan N.A.Nazarbayev "Kazakhstan-2030" and in the Concept of development of the tourism industry of the Republic of Kazakhstan until 2023, tourism and tourism infrastructure are considered as a priority for the development of the country's tourism potential and promoting the image of the state abroad. Without effective use of tourist and recreational and other potentials of various regions of Kazakhstan, it is impossible to turn tourism into a profitable sector of the economy. To implement tourism projects, special attention must be paid to the availability of natural tourist resources [1,2]. Also in his Message to the people of Kazakhstan on January 10, 2018, the President of the Republic of Kazakhstan N.Nazarbayev noted that the Kazakhstani should be the ideal of our society, who knows his own history, language, culture, while having a modern knowledge of foreign languages, having advanced and global views [3].

At the same time, the significant differentiation of incomes in urban and rural areas remains an alarming sign. In 2012, the poverty level in rural areas exceeded the urban level by more than 3.7 times, and in 2007 the difference was only 2.6 times. This suggests that the gap between the quality indicators of life for urban residents and those of the rural population has increased, despite the measures taken by the state.

It is important to note that about 45.5% of the population lives in the Kazakh village today, so the fight against poverty here can significantly improve the indicators of the republic on the quality of life. The rapid jump of Kazakhstan up from 72nd to 51st place in the annual competitiveness ranking of world economies is logical and predictable.

Thus, the current state of economic development of rural regions of Kazakhstan, as a categorical complex of land areas of the country as a whole, puts on the agenda the question of finding new forms of management. At the same time, it is rural green tourism that serves as a promising direction for the development of tourism services, which is based on active recreation in rural areas.

The economic condition of a region is determined by a set of indicators characterizing the socio-economic state of life in the region, areas of commercial activity that provide tax revenues to the regional budget, the investment climate, etc.

Today, the Akmola region, is in fourth place from the end in accordance with the rating of income differentiation of the population of Kazakhstan. At the same time, nominal incomes grew less than the rate of consumer inflation in the period from January to March (15.1%), thereby reflecting a drop in the level of real incomes of the population.

In the first quarter of 2017, wages accounted for 78% of all income per capita, which is 2% less than the figure for the previous reporting period. At the same time, the share of social transfers during the reporting period, on the contrary, increased by 1.7%, to the level of 18.4%.

Let us analyze the level of the rural population of Akmola region living below the poverty line using the data presented in Table 4 of this paper.

Table 1 - Analysis of the population of rural areas of Akmola region living below the poverty line for 2017.

Indicator	Akmola region	Absol. deviation. (+; -)	Relation. deviation, %
The share of the population with incomes (used for consumption) is lower than the subsistence minimum - total	3,5	+0,6	20,7
Urban area	2,6	+1,4	116,67
Countryside	4,3	-0,6	-12

Thus, on the basis of the presented data, it should be noted that in the Akmola region the share of the rural population with low income is 3.5, which is lower by 0.6 compared to the average of 2.9 for the Republic of Kazakhstan. However, in spite of this, it makes up the highest indicators for the urban population of 2.6, which is higher than the given indicator (1.2) in the republic by 1.4, based on the analyzed data, we see that rural areas account for 4.3, which is lower than the national average by 0.6. This trend is a negative characteristic of the domestic policy of the government of Kazakhstan and indicates the need for urgent review and improvement. The situation is aggravated by the fact that most of the population of Akmola region is just the rural population, which indicates a general high relative poverty indicator in the region.

At present, rural areas have a high need for diversification of economic activity, renewal of the material and technical base of production, reinforcement of staff and a significant increase in the level of effectiveness of municipal administration.

The goal of investment activity at the district level is to develop and implement a system of priorities, create mechanisms and specific measures to ensure the formation of investment projects that ensure the development of the economy of agricultural areas in accordance with the long-term strategy. Within this framework, an important role is played by the formation of a scientific, technical and technological potential adequate to a dynamically developing market economy, meeting the sustainable development strategy, the resource capabilities of the territory, the requirements of its effectiveness for ensuring the competitiveness of the economy, spiritual development, and improving the quality of life of the rural population.

The functioning of agricultural enterprises in the conditions of the market aggravates competition, which leads to a reduction in employment of labor resources, and as a result, a decrease in income, level and quality of life, outflow of the working-age population from rural areas. To prevent mass unemployment will help the development of new types of business activities. One of the most important areas of economic development in rural areas of the Republic of Kazakhstan is a diversification strategy, which involves the addition of traditional industries with new industries.

In accordance with the goal it is necessary to solve the following tasks:

- to review the completed projects for the transformation of the area;
- consider the main methods of managing sustainable rural development;
- select a system to support management decision making and conduct a comprehensive analysis of the socio-economic potential;
- develop a system of balanced indicators of the level of socio-economic development of rural areas, which is used to assess the level of development of the economy and natural potential;
- to evaluate, simulate and determine trends of the selected system of indicators in the context of information uncertainty;
- develop a set of investment projects that create the basis for sustainable development of the territory, consisting of interconnected investment projects.

The theoretical and methodological basis for the study of this issue can serve as objective economic laws, concepts of economists who have studied the sustainable development of the territory. To implement investment activities in a specific territory, a comprehensive economic and mathematical model of the territory should be proposed, which determines the specifics of rural areas. A balanced scorecard should be defined, reflecting the economic and social situation of the territory, as well as its natural and resource potential, and special measuring scales designed to measure indicators, designed to be used in conditions of uncertainty, inaccuracy and incompleteness of information, as well as using both quantitative and and quality ratings. It is also advisable to build dynamic models of the main indicators of territory development, assess the risks and potentials of a specific territory, evaluate the current state and formulate the main promising areas of development of the territory, develop a comprehensive investment model of territory development defining the main directions of socio-economic development and develop a complex business proposal.

Among the areas of innovation can also include:

- selection of promising and implementation on specific territories of domestic production technologies for the organization of effective agricultural activities;
- application of new energy-saving technologies and energy-generating systems, small energy facilities, renewable energy sources, focused on the specifics of agricultural activities; creation of an information and analytical base for managing the development of territories in the conditions of information uncertainty;
- proposals for pilot projects for rural development and a base of investment projects and development programs;
- specific pilot projects on the organization of eco-settlements in the territories, pilot projects for the creation of a system for managing regional and municipal development, pilot projects of historical, educational and sports-entertainment areas for family recreation;
- programs and systems of management training for rural development.

Currently, the development of rural areas attracts the attention of a wide range of specialists who are trying to build the conceptual foundations of this process. However, the practical results of the implementation of these theoretical constructs are obviously far away. And the point here is not so much and not only in the imperfection of theories, but also in the ungreediness of the territories themselves to accept them. This is due not only to financial difficulties, but above all to the lack or shortage of centers for the development of pilot projects for the development of territories, training sites in areas for the development of new production technologies, trained specialists in both production and management areas, business management technologies in modern market conditions. , forward planning programs. This is especially noticeable in areas where the outflow of able-bodied population to large cities is intensified. To improve the efficiency of agricultural production and management of territories, it is necessary to introduce a number of innovations that ensure the activation and implementation of investment activities.

First of all, it is necessary to assess the resource potential of a specific territory and determine the specific risks and potentials of the territory, as well as the actual tasks that need to be addressed for its harmonious development.

It is known that an important condition for the formation and development of rural areas is the availability of skilled labor resources - workers with knowledge and skills in the technological, environmental, agronomic and economic spheres. The unfavorable demographic situation, as a result of which the decline in the number of the rural population, including its able-bodied part, progresses inexorably, aggravates the situation with the labor force in the countryside.

CONCLUSION

Thus, since rural areas play an important role in the economy of the region, the region and the country as a whole, the sustainable development of rural areas is a priority of the state's social and economic policy. The growth of the level and quality of life of the rural population, the provision of enterprises in the agrarian sector and the social sphere with qualified personnel, and the preservation and development of folk culture depend on the effectiveness of this policy. While maintaining the current situation, attracting qualified specialists to the village, overcoming the depopulation of many rural territories and, therefore, maintaining sustainability in most of the country's rural territory is an unlikely and difficult task.

УДК 338.43.01

Д.А. Тлеужанова[1], Д.С. Курманова[2], А.А. Бейсембаева [3], М.Н. Нургабылов [4]

[1,2,3]С.Сейфуллин ат. Қазақ агротехникалық университеті;
[4]Тараз инновациялық гуманитарлық университеті

АУЫЛ ШАРУАШЫЛЫҒЫНЫҢ ТҰРАҚТЫ ДАМУЫНЫҢ МӘСЕЛЕЛЕРІ МЕН МІНДЕТТЕРІ

Аннотация. Қазақстанның ауылдық аумақтары қоғамның маңызды әлеуметтік-экономикалық және экологиялық кіші жүйесі болып табылады. Олардың ерекшеліктері, олардың мақсаттары, мақсаттары, принциптері, критерийлері және даму көрсеткіштері бар. Мұнда адамның, табиғи және өнеркәсіптік ресурстардың, өндірістің тиімді дамуы экономиканың жай-күйін едәуір жақсартуға және мемлекеттің тұрғындарының өмір сүру деңгейін арттыруға мүмкіндік беретін салаларда шоғырланған. Авторлар Қазақстан Республикасындағы қолайсыз демографиялық ахуалдың нашарлағанын, соның нәтижесінде ауыл халқының төмендеуі байқалады. Осыған сәйкес, мәселенің зерттелуіне байланысты, ең алдымен, Ақмола облысының ауылдық жерлеріндегі халықтың тұрмыс деңгейін сипаттайтын көрсеткіштерді қарастырған жөн. Қазіргі уақытта Қазақстанның ауылдық аумақтарын дамыту осы процестің тұжырымдамалық негіздерін құруға тырысатын кең ауқымды мамандардың назарын аударады.

Түйін сөздер: ауыл шаруашылығы, орнықты даму, перспективалар, ресурстар, өмір сүру деңгейі, өмірді жақсарту.

УДК 338.43.01

Д.А. Тлеужанова [1], Д.С. Курманова [2], А.А. Бейсембаева [3], М.Н. Нургабылов [4]

[1,2,3]Казахский агротехнический университет им. С.Сейфуллина;
[4]Таразский инновационно-гуманитарный университет

ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ УСТОЙЧИВОГО РАЗВИТИЯ СЕЛЬСКОГО ХОЗЯЙСТВА

Аннотация. Сельские территории Казахстана являются важнейшей социально-экономической и экологической подсистемой общества. Они имеют специфические особенности, собственные цели, задачи, принципы, критерии и показатели развития. Здесь сосредоточены значительные людские, природные и производственные ресурсы, отрасли, эффективное развитие которых может существенно улучшить состояние экономики и поднять уровень жизни населения государства. Авторы считают, что неблагоприятная

демографическая ситуация в РК, вследствие чего прогрессирует сокращение численности сельского населения. В соответствии с этим в контексте исследуемого вопроса в первую очередь целесообразно рассмотреть показатели, характеризующие уровень жизни населения сельских территорий Акмолинской области Казахстана. В настоящее время развитие сельских территорий РК привлекает внимание широкого круга специалистов, пытающихся построить концептуальные основы этого процесса.

Ключевые слова: сельское хозяйство, устойчивое развитие, перспективы, ресурсы, уровень жизни, улучшение жизни.

Сведения об авторах:

Тлеужанова Данагуль Амангельдиновна - к.э.н., и.о. ассоциированный профессор кафедры Финансы, Казахский агротехнический университет им. С.Сейфуллина, ORCID 0000-0003-2302-1595;

Курманова Дана Султанхановна - Докторанотка 1 курса, Казахский агротехнический университет им. С.Сейфуллина, ORCID 0000-0003-3854-584x;

Бейсембаева Асель Алимжановна - Магистр экономики, Казахский агротехнический университет им. С.Сейфуллина, ORCID 0000-0003-0880-9763;

Нургабылов Мурат Нуридинович - Д.э.н., профессор, Таразский инновационно-гуманитарный университет, г.Тараз, Казахстан, https://orcid.org/0000-0002-8203-7565

REFERENCES

[1] Nazarbayev N.A. The third modernization of Kazakhstan: global competitiveness / Message from the President of the Republic of Kazakhstan N.A. Nazarbayeva to the people of Kazakhstan / Yelorda, January 31, 2017 / Astana

[2] Vdovenko A.V., Kiselev E.P. World Agriculture: Study Guide / Pacific State University / PNU / Khabarovsk 2010. P. 140. ISBN 978-5-7389-1657-1

[3] Statistical information on the use of funds borrowed by KazAgro National Management Holding JSC from the National Fund of the Republic of Kazakhstan as of December 1, 2015.

[4] Strategy “Kazakhstan – 2050” New political course of the established state. Message of the President of the country to the people of Kazakhstan. Astana, December 14, 2012.

[5] The program of development of the agro-industrial complex of the country in the period up to 2020 (Agrobusiness - 2020)

[6] Sabirov R.K., Kurmasheva S.O. Profiles of the regional development of the agrarian sector. Proceedings of the National Academy of Sciences of the Republic of Kazakhstan. ISSN 2224-526X, a series of agricultural sciences. № 1 2018, p.52-56 site address http://agricultural.kz/index.php/en/arhiv. https://doi.org/10.32014/2018. 2224-526X

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.24**
Volume 1, Number 323 (2019), 148 – 151

UDK 338.43

T.G. Toilybek

University of International Business
toilubyi78@list.ru

ECONOMIC DEVELOPMENT OF LIGHT INDUSTRY IN KAZAKHSTAN AND RUSSIA IN THE CONDITIONS OF THE EAEU

Abstract. The economic development of light industry in Kazakhstan and Russia under the conditions of the EAEU operates according to the general rules of the game, which are established by the participants of the Eurasian Economic Union. Since only by protecting the domestic market of Kazakhstan from poor-quality imports, it will be possible to reanimate the domestic light industry. However, our entrepreneurs are not particularly interested in working in this sector of light industry because of long-term investments. Today, in Kazakhstan, production facilities have been modernized and have the ability to produce high quality products. That is, it complies with the necessary requirements of generally accepted international standards, which will provide an opportunity for trading in foreign markets. According to the author, the dynamics of the development of light industry with this state support will allow an increase in the competitiveness of products and the development of the industry as a whole.

Keywords: light industry, EAEU, support, production facilities, export market.

INTRODUCTION

Within the framework of the GPIID for the second five-year plan, light industry in the republic is not defined as a priority, however, this sector belongs to the manufacturing industry. At the same time, in the SPIID for 2015–2019, it is stipulated that 80% of state funds allocated to the manufacturing industry should be directed to support 14 priority sectors, the remaining 20% can be allocated to assist projects in other industries manufacturing industry, which include light industry. If we talk about the current state of the industry, then there is such a pattern. Sewing enterprises mainly focus on the production of uniforms for law enforcement agencies and workwear. And this is understandable: they receive government orders and have guaranteed sales. But we need to go further - go to the release of civilian clothes and go with the "needles" of government orders.

MAIN PART

According to our observations, there are enterprises in the country capable of providing the population with light industry goods, ranging from underwear to business and outerwear, but these brands are little known. This is due to the lack of advertising, distrust of local products, which as a result leads to a lack of demand and reduces productivity.

Therefore, in our shopping centers and in the markets there are mainly products of other countries, and, buying imported products, we, in fact, work for their economies. Often imports come in of poor quality and without proper certificates, and research is not conducted on the effect of low-grade products on public health. Light industry is a socially significant industry that provides employment for the able-bodied population. This is especially relevant in our time, when, under the influence of negative external factors, a crisis in the global economy, employees of a number of enterprises are released. And light industry provides mobility, the ability for a short period of time to retrain, switch to another type of activity. Maybe it will be less paid than in a large factory, but a person will provide himself with a stable income. A vivid example of the demonstration of Kazakhstani goods was the holding of an exhibition in the framework of the National Telemoset, at which the President familiarized himself with the products of

domestic manufacturers, asked them in detail about the state of affairs. Manufacturers frankly stated that after this event they took heart. And the population, in turn, had an interest in local products. After that, large-scale ideological work began to popularize domestic goods.

World experience shows that various measures are being taken to support light industry. For example, in Germany and Turkey they are provided through the mechanism of standardization and labeling of local goods, in Ukraine through advisory centers for the development of light industry, and in Russia these are tax preferences.

There is no need to go far for examples. In neighboring Kyrgyzstan, quite favorable conditions have been created for the development of light industry. Therefore, sewing production there is developing rapidly. We all see how their products have filled the consumer market in Kazakhstan and Russia. And after the cheap segment comes and expensive, including design work.

For example, we monthly taxed all manufactured products. In Kyrgyzstan, the garment workers pay only an annual one-time payment from each sewing machine, the so-called patent fee, which is not tied to the products. The customs duty on the import of fabrics in this country is 5%, while in our country it is from 12 to 20%. It turns out that the final noncompetitive price for our goods is already on the border.

As for other examples, in Uzbekistan the purchase of cotton fiber for production purposes is provided with a discount of 15% of the cost of cotton fiber purchased at world prices, there is an exemption from paying customs duties on dyes, accessories and accessories imported for the needs of the light industry, produced in the republic. The industry provides only 10% of the republic's domestic demand for textiles. Whereas the main part, and this is 90%, comes from imports.

All experts, as one, talk about the need to strengthen control over the access of imported goods to our market. Such a measure will be a kind of barrier to the entry of contraband and counterfeit products. Moreover, it does not contradict the laws of the EAEU and the WTO, and will contribute to the development of local production.

The Eurasian Economic Union is a common market. In which the general rules of the game, the so-called requirements established by the participants of the EAEU. And Kyrgyzstan, as a full member, assumed a number of obligations. Including in terms of putting in order and compliance with technical regulations.

Only by protecting the domestic market of Kazakhstan from the expansion of poor-quality and cheap imports, it will be possible to establish and reanimate the domestic light industry, experts say.

Considerable attention is paid to the development of light industry in many countries of the world, since this industry has a considerable socio-economic significance, ensuring high employment of the able-bodied population, in particular, the female. The importance of the industry is that in terms of consumption it occupies the second position, second only to the consumption of food products.

The main global manufacturers of light industry products are such countries as China and India. China accounts for 40% of global cotton production, 64% of global yarn production, 41% of global textile production and 50% of global clothing production. In general, the impact of the industry on our economy is insignificant relative to other sectors of the economy. Light industry has a small share in the manufacturing industry - no more than 1.2%. The industry carries out both primary processing of raw materials and the production of finished products. This is a complex industry that includes more than 20 sub-sectors, which can be grouped into three main groups: textile; sewing; leather, fur, shoe.

The largest share in the structure of light industry is the production of clothing and textile subsectors.

South Kazakhstan region - 35%, where the main enterprises of the region can be singled out: Melanzh JSC, Utex JSC, Azala Textile LLP, Zhanatalap-MT LLP, Khlopkoprom-Cellulose LLP, Bal Tekstil LLP; Almaty - 14% with main enterprises - Kazlegprom-Almaty LLP, KazSPO-N LLP, Kazakhstan Texti-Line PKF - Mimioriki; Almaty region - 12% - Mediateks-N LLP, Glasman LLP, Universal LLP.

Kazakhstan has illustrative examples of doing business, which include Kazakhstan Textileline with a children's clothing brand “Mimioriki”, “Kaz SPO-N” - which dresses foreign athletes, ZIBROO sports suits are exported to the EEU and EU countries, and “Semiramide” - produces the top clothes with the brand “SMD”, “Glasman” - opened a number of boutiques in the Republic of Kazakhstan and supplies its products to selected countries of the EAEU and the CIS (men's suits and school uniform), etc. Kazakhstani designers Aida KaumeNOVA, Aigul Kassymova, Kamila Kurbani and others also stay away developing the domestic light industry.

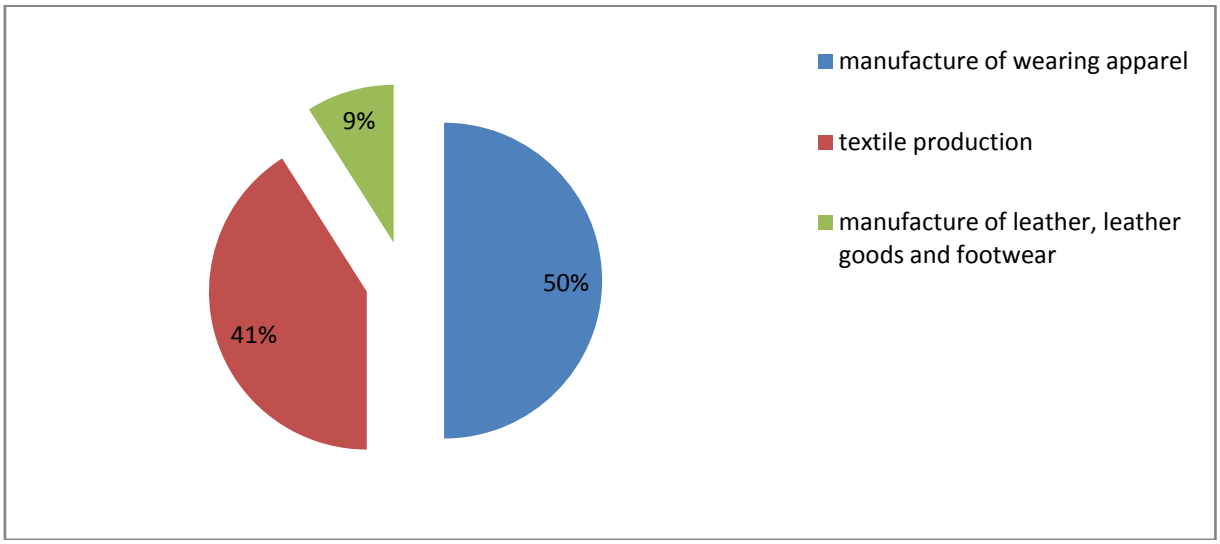


Figure 1 - The largest share in the structure of light industry in Kazakhstan

It is necessary to overcome the following major problems faced by the light industry of Kazakhstan. This is the lack of qualified personnel who meet modern requirements, not only workers, seamstresses, tailors, but also technical workers of the highest and middle level; tax burden - the need to declare the raw materials delivered for the production of invoices, paying customs duties, as well as VAT, customs fees; insufficiently deep processing and lack of high-quality raw materials. According to statistics, about 90% of the raw materials (in the form of raw cotton, raw leather, unwashed wool) are exported abroad. The clothing industry is forced to use imported fabrics, yarn, threads, and accessories, which are practically not produced in Kazakhstan. Consequently, a high cost of products is formed and, accordingly, their inability to compete in price with imported products. It is worth noting that the state provides support to domestic enterprises in the industry. Thus, the Ministry of Investment and Development approved the Comprehensive Plan for the Development of Light Industry for 2015–2019. The main objective of the Comprehensive Plan is to increase the competitiveness of products of light industry with an increase in its social efficiency. Among the main areas of work for the development of light industry in Kazakhstan, the Plan includes the following activities: - modernization of production facilities; - implementation of systematic measures of economic policy, including in the field of public procurement and increasing the share of local content; - providing industry with qualified human resources; - the development of science and innovation; - measures of post-crisis recovery and financial recovery of industry enterprises. In addition, there are other business support tools, including for enterprises of light industry - this is the “Business Road Map 2020” Program, Employment 2020, Productivity 2020, Exporter 2020, etc. Kazakhstan has all the prerequisites for the development of light industry - government support, basic production, and human resources. However, our entrepreneurs are not interested in working in this sector (to grow cotton, make leather and fur, to model and sew clothes and shoes), since there is no one-time profit here, for example, in trade and services. To date, the production capacity of textile production modernized and have the ability to produce high quality textile products. Kazakhstan's textile products comply with the necessary requirements of generally accepted international standards and regulations, which makes it possible to trade in foreign markets. Thus, taking into account the historical and current dynamics of the development of light industry, existing and planned measures of state support for the industry, existing integration (EAEU, WTO), as well as increased innovation activity of enterprises, we can expect an increase in the competitiveness of products and the development of the industry as a whole.

CONCLUSION

Enterprises are provided with service support. Today, companies involved in large projects are subject to strict requirements regarding the quality of their products, which must meet international standards. In this regard, the agency reimburses part of the costs of product certification and quality management systems in accordance with international standards under the program "Productivity 2020".

This applies to the provision of consulting services, certification audit and certification tests, as well as staff development related to certification of goods, works, services and quality management systems. 50% of the costs incurred are reimbursed, but not more than 3,000 MCI. Today we are seeing a positive trend. Producers felt that they were paying attention, opening "floodgates", and buyers turned to face Kazakhstani products. This wave should not be missed, turned into another campaign. It is necessary to support and promote these growth drivers further.

УДК 338.43

Т.Ғ. Тойлыбек

Халықаралық Бизнес Университеті

ЕАЭО ЖАҒДАЙЫНДА ҚАЗАҚСТАН МЕН РЕСЕЙДЕГІ ЖЕҢІЛ ӨНЕРКӘСІПТІҢ ЭКОНОМИКАЛЫҚ ДАМУЫ

Аннотация. ЕАЭО жағдайында Қазақстан мен Ресейдегі жеңіл өнеркәсіптің экономикалық дамуы Еуразиялық экономикалық одақ қатысушылары белгілеген ойынның жалпы ережелеріне сәйкес жұмыс істейді. Осылайша, Қазақстанның ішкі нарығын сапасыз импортпен қорғайтын болсақ, отандық жеңіл индустрияны қайта жандандыруға болады. Алайда, біздің кәсіпкерлер ұзақ мерзімді инвестициялардың арқасында жеңіл өнеркәсіптің осы секторында жұмыс істеуге мүдделі емес. Бүгінде Қазақстанда өндіріс орындары жаңартылып, жоғары сапалы өнім шығаруға қабілетті. Яғни, ол сыртқы нарықтарда сауда жасауға мүмкіндік беретін жалпы қабылданған халықаралық стандарттарға қойылатын талаптарға сай келеді. Автордың пікірінше, жеңіл өнеркәсіптің осы мемлекеттік қолдауымен даму динамикасы өнімнің бәсекеге қабілеттілігін арттыруға және тұтастай алғанда саланы дамытуға мүмкіндік береді.

Түйін сөздер: жеңіл өнеркәсіп, ЕАЭО, қолдау, өндірістік нысандар, экспорттық нарық.

УДК 338.43.

Т. Г. Тойлыбек

Университет Международного Бизнеса

ЭКОНОМИЧЕСКОЕ РАЗВИТИЕ ЛЕГКОЙ ПРОМЫШЛЕННОСТИ КАЗАХСТАНА И РОССИИ В УСЛОВИЯХ ЕАЭС

Аннотация. Экономическое развитие легкой промышленности Казахстана и России в условиях ЕАЭС действует по общим правилам игры, которые установлены участниками евроазиатского экономического союза. Так, как только лишь защитив внутренний рынок Казахстана от некачественного импорта, можно будет реанимировать отечественную легкую промышленность. Однако наши предприниматели не особо заинтересованы работать в этом секторе легкой промышленности из-за долгосрочных инвестиций. На сегодняшний день в РК производственные мощности производства модернизированы и имеют возможность выпускать продукцию высокого качества. То есть соответствует необходимым требованиям общепринятых международных стандартов, что даст возможность для торговли на внешних рынках. По мнению автора, динамика развития легкой промышленности при данной государственной поддержки, позволит рост конкурентоспособности производимой продукции и развитие отрасли в целом.

Ключевые слова: легкая промышленность, ЕАЭС, поддержка, производственные мощности, внешний рынок

Сведения об авторах:

Тойлыбек Тоты Ғаниқызы - Докторант 2 курса специальности Экономика, Университет Международного Бизнеса (UIB), г. Алматы, проспект Абая 8а.

REFERENCES

[1] Official website of the Agency of the Republic of Kazakhstan on Statistics [Electronic resource]. - Access mode: stat.kz

[2] Khudova L.N. On the current situation in the light industry in the Republic of Kazakhstan // Innovat. technology pr-va goods, improving the quality and safety of products lay down. prom-sti: Materials Intern. scientific-practical Conf., Almaty, May 25, 2012 - P. 59-61.

[3] Kairat BEKTURGENEV: Light industry will bring tremendous employment and economy effects https://www.kazpravda.kz/articles/eaes/kairat-bekturgenev-legkaya-promishlennost-prineset-kolossalnii-effekt-zanyatosti-i-ekonomike1

[4] Tolykbekova Aizhan, The state of development of light industry in Kazakhstan. http://kidi.gov.kz/public/publications/482

[5] Igibaeva Z.K., Beysenova L.Z. ASSESSMENT OF THE EFFECT OF INTERNAL GOVERNMENTAL AUDIT ON THE USE OF GOVERNMENTAL RESOURCES IN THE REPUBLIC OF KAZAKHSTAN. **Reports of NAS RK №6 (322), 2018г. с. 88-91** ISSN 2224-5227 https://doi.org/10.32014/2018.2518-1483.33

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.25**
Volume 1, Number 323 (2019), 152 – 160

UDC 331.55

A.M. Tulebayeva, Z.A. Salzhanova

Karaganda Economic University of Kazpotrebsoyuz
satname@bk.ru; aitulebayeva14@bk.ru

LABOR MOBILITY IN THE REPUBLIC OF KAZAKHSTAN

Abstract: The relevance of this article lies in the fact that the analysis of indicators of labor resources makes it possible to judge the effectiveness of the state policy in the field of employment regulation, which it is illegal to consider outside economic processes, which are objective prerequisites for the realization of opportunities, both of an individual and of the population countries in general.

The current situation in the labor market is always in the center of attention of the state, business and society as a whole. It affects both the economic development of the country, social policy, the competitiveness of enterprises, and the welfare of the individual. At the same time, the labor market itself is undergoing the strongest influence from demographic, economic, technological and political trends, which makes it unique in each country. This leads to the need for a comprehensive analysis, both at the global and national levels.

The article analyzes the labor market on the basis of official statistical data of the Republic of Kazakhstan, where internal labor migration processes are also actively involved, and where it is necessary to apply measures to increase labor mobility, primarily aimed at encouraging migration from labor-intensive to labor-deficient regions.

When writing the article, general scientific methods of cognition (statistical, normative analysis, synthesis, analogy, generalization), empirical-theoretical (collection, study and comparison of data), as well as methods of scientific knowledge (historical, legal, systemic, comparative legal) were used.). In processing and systematizing the data, grouping and classification methods were used. The information and statistical base of the study was compiled from official periodical and information and analytical publications of the Republic of Kazakhstan.

Keywords: labor market, labor mobility, migration, emigrants, labor-surplus regions, workers, skilled labor resources.

Introduction. In the system of economic relations, labor resources occupy an important place, as labor resources are one of the indicators, the state of which allows to judge about the national well-being, stability and efficiency of social and economic transformations.

The optimal allocation of resources depends on the definition of regional specialization, since, in determining regional specialization, they can find a solution to the problem of creating jobs, which, of course, permanently solves the problems of the self-employed. Currently, cluster initiatives are being launched that will help to understand what specialization a particular region will have.

In the Message of the President of the Republic of Kazakhstan, the Strategy "Kazakhstan-2050" is a new political course of the established state, within the framework of the second challenge of the 21st century. - global demographic imbalance, indicates the need for measures to increase the mobility of labor resources, primarily aimed at stimulating migration from labor-intensive to labor-deficient regions [1].

So, in 2017. in Kazakhstan, at the initiative of the National Chamber of Entrepreneurs and with the support of the Government, the Bastau Business program was launched, which aims to promote productive employment and citizen involvement in entrepreneurship, and to teach the population the basics of business and financial literacy. The project is financed at the expense of the republican budget.

As part of the implementation of the Plan of the Nation "100 Concrete Steps", the investment climate improves, the competitive environment and innovation activity is stimulated, which also contributes to a more efficient use of the working population, including young people, and will ensure a favorable effect of economic growth [2].

Results of a research–According to the Ministry of National Economy of the Republic of Kazakhstan, since 2002, external migration has largely ceased to be a cause of population decline. From 2001 to 2017, the negative migration balance amounted to a total of 108.2 thousand people. Such

dynamics is explained by the decrease in the number of Kazakh repatriates returning to their historic homeland. The wave of mass return of the Kazakhs to Kazakhstan, which began in the 90s, is replaced by a downward trend. Due to the demographic contribution of the arrived oralmans over the years of independence, it was possible to reduce the negative migration balance by 28%. Most of the returned oralmans chose the cities of Astana and Almaty, and the southern regions, increasing the negative balance of the northern regions (Table 1) [3].

Table 1 - External migration of the population of Kazakhstan in 2010-2017 (thousands of people)

Indicator	2010	2011	2012	2013	2014	2015	2016	2017	2010-2017
Arrived	42,1	38,0	28,3	24,1	16,8	16,6	13,7	16,1	195,7
Drop out	26,5	32,9	29,7	24,4	28,9	30,1	3,9	37,7	25,1
Net	15,6	5,1	-1,4	-0,3	-12,1	-13,5	-21,2	-21,6	-49,4
Note compiled by authors									

In the regional context, more than 50% of emigrants leave Karaganda, Kostanay, East Kazakhstan and Pavlodar regions. Basically, the urban population travels outside of Kazakhstan (86% in 2017). Traditionally, the outflow of qualified personnel is in technical (-6.6 thousand people), economic (-3.6 thousand people) and pedagogical (-2.3 thousand people) specialties. At the same time, more immigrants with low qualifications and a focus on rural or home-based work come to Kazakhstan (Table 2) [3].

Table 2 - External migration of the population over 15 years old by occupation in 2017 (people)

Specialty	Drop out	Arrived	Net
Total	20372	5786	-14586
Technical	6587	1328	-5259
Economic	3629	841	-2788
Pedagogic	2334	718	-1616
Medical	1063	491	-572
Legal	870	231	-639
Architecturalandconstruction	715	257	-458
Agricultural	376	156	-220
Others	4798	1764	-3034
Note compiled by authors			

Compared with 2010, the number of emigrants increased by 42%. In 2017, 37.7 thousand people left the country, of which 54% are qualified personnel. Such an outflow of labor resources forces enterprises to attract qualified foreign labor capable of performing innovative and technologically complex types of work to increase the productivity of companies.

Since 1993, a quota procedure was introduced to attract foreign workers, which led to the arrival of about 2.1 thousand people in the same year, and in 2017, 41.7 such permits were issued. At the same time, 40% of attracted foreign specialists are technical workers, mainly engineers. Also today, within the framework of the Eurasian Economic Union, there is a regime of free movement of labor resources on the territory of the member states.

Since 2017, new approaches to attracting foreign specialists have been implemented:

- employers pay fees for each employee involved. The rate of fees is differentiated by industry and skill level of workers. The established rates make profitable employers to attract skilled workers, rather than unskilled ones;

- it became possible for qualified personnel to independently reside in Kazakhstan and to be employed themselves if their profession and industry are defined as priorities.

According to the Center for the Development of Labor Resources in the world and Kazakhstan, a characteristic feature of recent years is the intensification of internal migration processes in Kazakhstan. Over the past 8 years, the number of internal migrants in the country has increased from 366 thousand to 603 thousand in 2017, of which 55% is due to inter-regional relocation. The intraregional mobility of the country's population is higher as compared with the interregional. The interregional migration turnover

increased from 139.5 thousand people in 2007 to 328.4 thousand people in 2017, and the intraregional migration turnover increased from 172.2 thousand people to 602.4 thousand people [4].

Two major cities, Astana and Almaty, remain the centers of gravity for internal migration, accounting for almost half of the total influx of internal migrants in 2017 (24% for Astana and 21% for Almaty). With the exception of the Mangystau region, where the accumulated internal migration balance over the same period was a positive value of 7.6 thousand people, no region could compensate for the number of people going to the others by 2017 (Table 3) [3].

Table 3 - Internal migration of the population of Kazakhstan in 2010-2017 (in thousands of people)

Region	2010	2011	2012	2013	2014	2015	2016	2017	2010-2017
Akmola	-5,6	-4,8	-1,6	-0,5	-2,8	3,7	-13,6	1,5	-23,7
Aktobe	2,7	-2,9	-2,7	-1,6	-0,3	-1,6	-2,6	-0,6	-9,6
Almaty	3,9	2,4	5,5	1,3	-5,5	-11,5	-3,7	-6,7	-1,3
Atyrau	-1,6	-0,9	0,1	-0,1	0,4	-0,03	-0,2	-0,05	-2,38
West Kazakhstan	-2,1	-1,1	-0,8	-0,2	-0,9	0,2	-2,5	-1,3	-8,7
Zhambyl	-8,5	-12,2	-7,5	-6,8	-7,8	-8,5	-15,6	-16,4	-83,3
Karaganda	-1,2	-1,9	-2,1	-1,7	0,5	-0,4	-6,9	-6,3	-20
Kostanay	-2,9	-2,7	-1,2	-1,3	-0,5	1,1	-4,0	-2,3	-13,8
Kyzylorda	-3,9	-3,1	-1,7	-2,2	-2,6	-3,2	-6,6	-4,6	-27,9
Mangistau	2,3	3,1	2,3	0,9	1,0	0,7	-2,4	-0,3	7,6
South Kazakhstan	-13,1	-15,9	-11,0	-12,4	-13,6	-14,5	-29,5	-15,4	-125,4
Pavlodar	-1,8	-2,2	-0,6	0,1	-0,3	0,3	-2,9	-3,1	-10,5
North Kazakhstan	-3,1	-3,8	-3,0	-2,8	-2,7	-1,6	-4,7	-2,9	-24,6
East Kazakhstan	-6,7	-7,0	-5,3	-5,0	-5,0	-,2	-11,3	-9,8	-54,3
Astana city	33,1	30,7	19,6	16,5	17,5	-2,5	76,9	36,5	228,3
Almaty city	8,5	22,3	10,0	15,8	22,6	1,9	29,6	31,7	182,4
Note compiled by authors									

Thus, since 2013, there is a tendency that the pace of urbanization in Kazakhstan has accelerated. In 2017, as a result of interregional migration, the number of arrivals in the cities and departures from the city is 234.1 thousand and 218.3 thousand, respectively. According to statistical data, the balance of regional migration reached +34 thousand people. In the aggregate, in rural areas, last year the number of villagers due to migration decreased by 49.8 thousand people.

The main donors of labor resources for the last five years are:

- South Kazakhstan region (12.6% of the total number of departures);
- Almaty region (11.2%);
- Almaty (11.3%);
- East Kazakhstan region (9.3%).

At the same time, the largest outflow growth for the period under review was observed in North Kazakhstan (158.7%), South Kazakhstan (151.7%), Aktyubinsk (144.1%) and Almaty (140.1%) regions.

It should be noted that in 2015, for the first time, an integral system for regulating the resettlement of citizens was established by amendments to the Law of the Republic of Kazakhstan [5]. In order to eliminate disproportions in the resettlement of the population, economic incentives were provided for voluntary relocation of the population from labor-surplus regions to regions with high potential for the development of the labor market.

In accordance with the Concept of the Migration Policy of the Republic of Kazakhstan for 2017-20121, the Government defined the resettlement regions (East Kazakhstan, Kostanay, Pavlodar and North Kazakhstan regions) and established regional quotas for migrants. They determine the maximum number of immigrant families arriving for permanent residence in the above regions, provided by measures of state support and employment promotion [6].

In order to level out regional economic and demographic imbalances, measures were announced to increase the mobility of citizens in the framework of the Employment Roadmap 2020 program, as well as to develop the educational infrastructure in the northern and eastern regions of the country. According to the "Business Road Map - 2020" program in 2017, positive results were obtained in increasing the

employment of Kazakhstanis, which is being implemented in four areas:

- support of new business initiatives of entrepreneurs of single-industry towns, small cities and rural settlements;
- sectoral support for entrepreneurs operating in priority sectors of the economy and manufacturing industries;
- reduction of currency risks of entrepreneurs;
- provision of non-financial business support measures.

The results of this program showed that the financing of business entities contributed to the creation of about 70 thousand jobs during the analyzed period, and also allowed more than 90 thousand start-up businessmen to be taught the basics of entrepreneurship [7].

Thus, during the period under review, the number of internal migrants increased from 298.6 to 455 thousand people, which indicates an increase in population mobility. The outflow of the population from the southern regions is explained by an excess of labor resources, leading to an increase in unemployment and, accordingly, forcing people to look for work in other regions. The distribution of labor flows by region looks different.

The majority of internal migrants go to major cities - the city of Almaty (17.2%) and the city of Astana (12.2%). At the same time, the largest increase in inflows is observed in the West Kazakhstan (269.1%), Pavlodar (206.0%) and Mangystau (189.9%) regions. This is due to the industrial growth of these regions, which implies the need to expand capacity, and, accordingly, growth in jobs (especially contract work in the west of the country).

It should be noted that the economically active population is not interested in the North, Central and East regions of Kazakhstan. In order to replenish these regions with labor, the state implements the Serpin-2050 Program, which allows graduates of Almaty, South Kazakhstan, Mangistau, Kyzylorda and Zhambylregions to obtain a higher, mainly technical, education. As a result, the main donors of labor resources are the following regions:

- South Kazakhstan region (the balance of internal migration is –67,490 people);
- Zhambyl region (–42 805 people);
- East Kazakhstan region (–26 480 people);
- Kyzylorda region (–13 851 people);

The main recipients are:

- Almaty (112,618 people);
- Astana (81,864 people);
- Mangystau region (7994 people).

In the South Kazakhstan, Zhambyl and Almaty regions there is a double negative balance of migration of the population, which indicates the direction of rural residents not to regional centers, but precisely in years. Almaty and Astana.

Geographical proximity plays an important role in determining the destination of internal migrant flows. About 30% of internal migrants arrived in years. Almaty and Astana from neighboring regions; this is also true for 52% of migrants who arrived in Karaganda, and 66% of migrants who arrived in Pavlodar. The reasons for the displacement are, above all, economic reasons. They are attracted by higher wages and various benefits, consisting in the use of certain benefits of economic development in the region.

Thus, internal and external migration processes are actively taking place in Kazakhstan, which, in turn, have an impact on the Kazakhstan labor market [8].

Based on the analysis, it can be said that the Republic of Kazakhstan adheres to the strategy of temporary migration to involve foreign workers, as well as long-term permanent migration towards ethnic repatriates arriving in the Republic of Kazakhstan. At the same time, the designated goals of joining Kazakhstan among the thirty developed countries of the world, as well as existing and expected internal and external challenges, require an expansion of the conceptual framework of migration policy.

Internal calls are:

- an excess of labor with low qualifications and a shortage of qualified personnel in certain sectors of the economy due to the low level of education. They become one of the reasons for the limited innovation potential;
- overpopulation of the largest cities and individual territories. Even today, a high birth rate in the

southern regions, an excess of labor and the resettlement of ethnic migrants in densely populated regions are becoming a hotbed of social tension;

- desertion of border areas and reduction of the population, especially of working age in the northern regions, in the future will lead to difficulties in ensuring their economic growth and generally affect the national security of the country;

- the growth of the burden on the state budget due to the high costs of education, health care for children and the elderly.

External calls include:

- the risk of low-skilled labor growth due to the expected influx of labor migrants from Central Asia, the People's Republic of China and the Republic of Turkey;

- the risk of an increase in the outflow of qualified personnel and talented youth. At the same time, the Russian Federation will become the main recipient in the near future. At present, the Russian Federation is considering the issues of orientation of migration policy towards long-term permanent migration and the implementation of a public program of staff development [9];

- decrease in the volume of foreign investments due to the lack of new initiatives that ensure economic growth.

These challenges require the formation of a new migration policy that supports the strategy:

1) temporary migration to attract foreign workers to certain sectors of the economy or specific priority projects. It will be aimed at ensuring a rapid economic effect in the basic sectors of the country's economy;

2) long-term migration to attract qualified foreign workers to long-term projects aimed at introducing new innovations, increasing entrepreneurship and developing human capital. It will be aimed at ensuring the competitiveness of the economy in the world arena, creating conditions for the emergence of completely new sectors of the economy, types of production, products [10];

3) implementation of a nationwide advanced training program. It will include training and retraining of personnel for the gradual replenishment of the labor market with national personnel and meeting the needs of the economy for qualified personnel.

However, a number of problems remain in the management of labor migration and labor mobility.

1. The system of attracting labor migrants to the Republic of Kazakhstan is not associated with the management of other migration flows.

At present, both internal migration (in terms of resettlement in the direction from labor-surplus regions to regions with a high need for labor resources), and external labor migration, de jure, are focused on the development of regional labor markets, ensuring their sufficient labor force (both local and foreign). However, in fact, the migration policy is devoid of consistency and each direction of the migration policy works separately, without an obvious relationship with each other. This leads to an imbalanced use of foreign labor and local labor resources, which affects the imbalance of the national labor market.

2. There is no mechanism for determining the demand for qualified foreign labor in regional labor markets.

At present, the need of the regions for foreign labor is determined by the procedure for establishing quotas. Often the regional quota is not focused on the implementation of plans for the socio-economic development of the region, provided for by the strategic program documents of the republic.

3. The system for recording the movement of labor migrants and determining the effectiveness of its use is not perfect. Currently, there is no methodology for the statistical recording of all flows of foreign labor, both qualified and unskilled, including those coming from the EEU countries[11].

4. There is an outflow of skilled workers from various fields of activity and there is no mechanism for retaining the so-called “talents” in the country. For the past three years, 93.9 thousand people have left Kazakhstan for the purpose of permanent residence, of which 41.6% are young people aged 15 to 34 years. Departure to the Russian Federation prevails - 79.8 thousand people, especially from border regions.

5. Illegal labor migration persists. According to experts, illegal labor migration is several times greater than the number of legal labor migrants. These are mainly citizens of the Republic of Uzbekistan and Tajikistan. As a rule, in relation to illegal labor migrants, the norms of the labor legislation of the Republic of Kazakhstan are not respected. They work without concluding an employment contract and

receive low wages, which creates unhealthy competition in the labor market of Kazakhstan and provokes social tension. It is obvious, therefore, that external labor migration, along with positive consequences, has significant problems that need to be addressed [12].

6. Repatriation of ethnic Kazakhs to their historic homeland. Throughout all the years of independence, the Republic of Kazakhstan has been pursuing a policy of encouraging the ethnic Kazakhs to return voluntarily to the country.

The main countries of origin of ethnic repatriates are the Republic of Uzbekistan (61.6%), the People's Republic of China (12.1%), Mongolia (11.7%), Turkmenistan (7.1%). Taking into account the countries of origin of ethnic repatriates, the largest number of them settled in South Kazakhstan (21.6%), Almaty (16.8%), Mangistau (13%) and Zhambyl (9.3%) regions.

In terms of education, the majority of ethnic repatriates have a general secondary education (61.1%) and secondary special education (20.5%). The greatest activity of resettlement of ethnic repatriates falls on the period from 2004 to 2008, when 43.7% of ethnic repatriates arrived (439.430 people). This is due to the fact that during this period the most favorable social support measures were provided (allocation of funds for the purchase of housing at the expense of the state, subsidies for relocation, etc.). At the same time, an analysis of state support measures for ethnic repatriates indicates a lack of consistency and a lack of consistency in the legal mechanisms used in their provision [13].

7. Regulation of internal migration processes, which every year are gaining momentum the migration mobility of the population within the country. Over the past five years, the number of internal migrants in the country increased from 337.8 thousand people (2013) to 610.7 thousand people in 2017, including: in interregional migration (from one region to another) - 294 , 0 thousand people; in the regional (within one region) - 316.7 thousand people. People migrate in search of higher wages, better living conditions, etc. The largest share in the migration outflow of the population is occupied by the southern regions of the country. The main regions of the population influx are he. Almaty, Astana, Almaty, Mangystau and Karaganda regions [14].

The National Report “Youth of Kazakhstan - 2016” noted that the predominant form in internal migration remains migration from rural regions to cities. On the one hand, it contributes to the process of urbanization of the country. On the other hand, spontaneous relocation to cities is fraught with negative consequences. Qualifications of relocated rural residents are often very low and do not meet the requirements of the labor market, which leads to unemployment or illegal employment. Unsystematic sprawl of cities and their suburbs leads to the aggravation of environmental, transport, housing and social problems. Periodically, within the framework of strategic and program initiatives, steps were taken to stimulate and regulate the resettlement of citizens within the country, but this resettlement was mainly of a narrow-purpose character [9].

For example, in the framework of the “With a diploma to the village!” Project, since 2009, measures have been taken to provide social support to specialists in education, health, social welfare, culture and sports, and the agro-industrial complex who arrived to work and live in rural settlements. For such specialists were provided:

- payment of a one-time lifting allowance in the amount of 70 MCI
- budget loan in the amount of 1,500 MCI for the purchase or construction of housing for a period of 15 years, with an interest rate of 0.01%;
- increase of at least 25% of salaries (tariff rates) to specialists of social institutions located in rural areas [10].

The social project “МігілікелЖастары --oyustaniyaға”, the implementation of which began in 2014, is one of the most important tasks voiced by the Head of State N.A. Nazarbayev in the Strategy "Kazakhstan-2050", and due to the need to train qualified personnel.

I would like to note that in 2015, by adopting amendments to the Law of the Republic of Kazakhstan “On Migration of the Population”, an integral system was established to regulate the resettlement of citizens. In order to eliminate disproportions in the resettlement of the population, economic incentives were provided for voluntary relocation of the population from labor-surplus regions to regions with high potential for the development of the labor market.

The Government of the Republic of Kazakhstan has identified resettlement regions (East Kazakhstan,

Kostanay, Pavlodar and North Kazakhstan regions), and has established a regional quota for the reception of immigrants, with the provision of state support measures and the provision of employment assistance.

According to the Kazakhstan Labor Market Survey, in 2014-2016, measures were taken to improve the registration of internal migrants, simplify and improve registration procedures. Along with an increase in the mobility of the population (especially spontaneous), some negative trends also emerged:

1) A demographic imbalance has developed and is intensifying. Currently, in the northern regions of the country (North Kazakhstan, Pavlodar, Kostanay regions), the population (about 2.2 million people in total) and the density of its resettlement are much lower compared to the southern regions (South Kazakhstan, Zhambyl, Kyzylorda, Almaty regions).), where 6.8 million people live.

According to the forecast data, by 2050 the population of the northern regions may be reduced by another 0.9 million people, and the southern regions will grow by 5.2 million people. The population density in the southern regions will be almost 4 times higher than the corresponding figure in the northern regions.

In addition, in the northern regions there is a high proportion of senior citizens. The aging index is maximum in North Kazakhstan - 53.1, Kostanay - 51.1 and East Kazakhstan - 46.2 regions, in the south, on the contrary, the number of elderly people is small (in South Kazakhstan region - 12.1, Kyzylorda region - 14.9);

2) There is an economic imbalance. Currently, in the southern regions (excluding the city of Almaty), 38% of the population lives, while their share in the gross regional product (GRP) is only 17%. In the northern regions, 17% of the population accounts for 13% of the GRP (excluding Astana). This contradicts the world practice of advancing economic growth in regions with a high concentration of population;

3) The increase in internal migration flows is accompanied by the desolation of villages, a reduction in the number and aggravation of the problems of productive employment in single-industry towns and small towns [15]. A difficult situation is developing in certain border areas of the Republic of Kazakhstan. The deterioration of the existing infrastructure, and the remoteness of the required services leads to a decrease in economic activity, population outflows into the interior of the country and depopulation of large areas;

4) In some cases, poorly managed migration processes are accompanied by marginalization and criminalization of a part of migrants, cause increased competition in local labor and housing markets and generate hot spots of social tension [16].

To a certain extent, this is due to shortcomings in the system for managing internal migration:

1) There is no clear-cut, state-stimulated system for directing internal migration flows to regional points of economic growth [17].

2) There is no perfect system for recording internal migration [18].

Thus, in the context of globalization and integration, the problems of employment, unemployment and labor mobility in Kazakhstan are becoming increasingly important and are always in the center of attention of the scientific, social, political and economic activities of the relevant departments, organizations and enterprises [19].

Conclusions -At present, registration of internal migrants is carried out only with permanent or temporary registration at the place of residence. At the same time, many citizens prefer not to register, even having housing on the basis of property rights. The introduction of liability for the absence of such registration from January 2017 somewhat improved the situation, however, it turned out to be insufficient to fully account for internal migration.

An analysis of the current situation, along with positive changes, indicates that there are certain problems in both external and internal migration, which increases social risks and creates obstacles to the implementation of the Strategic Program Documents of the Republic of Kazakhstan [20].

In accordance with the Strategic Plan of the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan for 2017–2021, mobility contributes to the stable development of the socio-economic situation in the country as one of the main solutions for the optimal use of labor resources in regions with labor shortages by moving them from work-surplus areas [14]. This makes it possible for individuals to get a better job offer, moving to another area within the country, and therefore increasing interregional mobility has been identified as one of the priorities

А.М. Тулебаева, З.А. Сальжанова

Қазтұтыну одағы Қарағанды экономикалық университеті, Караганды қ., Қазақстан

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ ЕҢБЕК РЕСУРСТАРЫНЫҢ ҰТҚЫРЛЫҒЫ

Аннотация. Осы баптың өзектілігі еңбек ресурстарының көрсеткіштерін талдау жеке адамның да, тұтастай ел халқының да мүмкіндіктерін іске асыру үшін объективті алғышарттар болып табылатын экономикалық процестерден тыс заңсыз қарайтын жұмыспен қамтуды реттеу саласындағы мемлекеттің саясатының тиімділігі туралы пайымдауға мүмкіндік береді.

Еңбек нарығындағы қалыптасқан жағдай әрқашан мемлекеттің, бизнестің және жалпы қоғамның назарында. Ол елдің экономикалық дамуына, әлеуметтік саясатқа, кәсіпорындардың бәсекеге қабілеттілігіне де, жеке адамның әл-ауқатына да әсер етеді. Сонымен қатар, еңбек нарығының өзі демографиялық, экономикалық, технологиялық және саяси трендтер тарапынан күшті әсер етеді, бұл оны әрбір елде бірегей етеді. Бұл жаһандық деңгейде де, ұлттық деңгейде де оның жан-жақты талдауын жүргізу қажеттігіне алып келеді.

Мақалада Қазақстан Республикасының ресми статистикалық деректері негізінде еңбек нарығына талдау жүргізілді, онда сондай-ақ ішкі еңбек көші-қоны процестері белсенді қатысады және онда еңбек ресурстарының ұтқырлығын арттыру жөніндегі шараларды қолдану қажет, бірінші кезекте еңбек тапшы өңірлерге еңбек күші мол өңірлерден көші-қонды ынталандыруға бағытталған.

Мақаланы жазу кезінде жалпы ғылыми таным әдістері (статистикалық, нормативтік талдау, жыйнақтау, үйлестік, қорыту), эмпирико-теориялық (деректердіжинау, зерделеужәнесалыстыру), сондай-ақ ғылыми таным әдістері (тарихи-құқықтық, формальды-логикалық, жүйелі, салыстырмалы-құқықтық) қолданылды. Деректерді өңдеу және жүйелеу кезінде топтау және жіктеу әдістері қолданылды. Зерттеудің ақпараттық-статистикалық базасын Қазақстан Республикасының ресми мерзімді және ақпараттық-талдау басылымдарының деректері құрады.

Түйін сөздер: еңбек нарығы, еңбек ресурстарының ұтқырлығы, көші-қон, эмигранттар, еңбеккүші мол өңірлер, жұмыс кадрлары, білікті еңбек ресурстары.

УДК 331.5

А.М. Тулебаева, З.А. Сальжанова

Карагандинский Экономический Университет Казпотребсоюза[1,2]

МОБИЛЬНОСТЬ ТРУДОВЫХ РЕСУРСОВ В РЕСПУБЛИКЕ КАЗАХСТАН

Аннотация. Актуальность данной статьи заключается в том, что анализ показателей трудовых ресурсов позволяет судить об эффективности политики государства в области регулирования занятости, которое неправомерно рассматривать вне экономических процессов, являющихся объективными предпосылками для реализации возможностей, как отдельного человека, так и населения страны в целом.

Складывающаяся ситуация на рынке труда всегда находится в центре внимания государства, бизнеса и общества в целом. Она влияет как на экономическое развитие страны, социальную политику, конкурентоспособность предприятий, так и на благосостояние отдельного человека. В то же время, сам рынок труда испытывает сильнейшее воздействие со стороны демографических, экономических, технологических и политических трендов, что делает его уникальным в каждой стране. Это приводит к необходимости проведения его всестороннего анализа, как на глобальном, так и на национальном уровнях.

В статье проведен анализ рынка труда на основе официальных статистических данных Республики Казахстан, где также активно участвуют процессы внутренней трудовой миграции, и где необходимо применять меры по повышению мобильности трудовых ресурсов, в первую очередь, направленных на стимулирование миграции из трудоизбыточных в трудодефицитные регионы.

При написании статьи были использованы общенаучные методы познания (статистический, нормативный анализ, синтез, аналогия, обобщение), эмпирико-теоретический (сбор, изучение и сравнение данных), а также методы научного познания (историко-правовой, формальнологический, системный, сравнительно-правовой). При обработке и систематизации данных применялись методы группировок и классификации. Информационно-статистическую базу исследования составили данные официальных периодических и информационно-аналитических изданий Республики Казахстан.

Ключевые слова: рынок труда, мобильность трудовых ресурсов, миграция, эмигранты, трудоизбыточные регионы, рабочие кадры, квалифицированные трудовые ресурсы.

Сведения об авторах:

Тулебаева А.М. - докторант специальности «Экономика» Карагандинского Экономического Университета Казпотребсоюза, E-mail:aitulebayeva14@bk.ru,https://orcid.org/0000-0001-6152-3524

Сальжанова З.А. - д.э.н., профессорКарагандинского Экономического Университета Казпотребсоюза, E-mail: satname@bk.ru,https://orcid.org/0000-0003-1666-3477

REFERENCES

[1]Nazarbayev N.A. (**2012**) Message of the President of the Republic of Kazakhstan Strategy Kazakhstan-2050: a new political course of the established state.

[2] Program of the President of the Republic of Kazakhstan Plan of the Nation - 100 Concrete Steps. (**2015**)

[3] Data of the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan for 2010-2017.

[4] Center for the Development of Labor Resources. (**2018**) Migration trends of the population in the world and Kazakhstan. Astana, https://www.enbek.kz.

[5] Law of the Republic of Kazakhstan. (**2018**) On Migration of the Population.

[6] Decree of the Government of the Republic of Kazakhstan. (**2016**) On the Concept of the Migration Policy of the Republic of Kazakhstan for 2017-2021.

[7] The program Business Road Map 2020. (**2010**).

[8] Shaukenova Z. (**2017**) The current state of the labor market in Kazakhstan. Astana.P.100

[9] Maulitov A. (**2016**) Youth of Kazakhstan - 2016. Astana. P.106

[10] Electronic resource https://strategy2050.kz/ru/news/39403.

[11] Kazakhstan Labor Market Review.(**2018**), www.halykfinance.kz.

[12] Esengazieva S. (**2016**) Influence of non-agricultural business on the level of employment in rural areas of the South Kazakhstan region. Almaty. P.205

[13]Mityushina E. (**2017**) Features of the EAEU labor market models, № 8 (2). P. 715-721.

[14] Strategic Plan of the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan for 2017–2021.

[15] Becker G. (**1964**) Investment in human capital: a theoretical analysis. Journal of Political Economy, № 70 (5). P. 9-49. (in Eng.)

[16] Becker G. (**1975**) Human Capital and the Personal Distribution of Income: An Analitical Approach. New York: Columbia University Press. P. 94-144 (in Eng.)

[17] Schultz T. (**1961**). Investment in Human Capital. American Economic Review, № 1(7). P. 75-83 (in Eng.)

[18] Armstrong M. (**2009**) The practice of human resource management. P. 219 (in Eng.)

[19] Drucker P. **2014**. Encyclopedia of Management. Publisher. P. 432 (in Eng.)

[20] Sabirova R.K., Adietova E.M. et al. (**2018**). Development of the labor market of the Republic of Kazakhstan in the conditions of innovative economy. Bulletin of national academy of sciences of the Republic of Kazakhstan. № 2(372). P.94-98. https://doi.org/10.32014/2018.2518-1467.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.26**
Volume 1, Number 323 (2019), 161 – 164

UDC 631.153

K.M. Utepkaliyeva, B.M. Dyusgaliyeva, A.D. Mukasheva, A.M. Kalauov

Atyrau State University named after H. Dosmukhamedov
kaldenova@mail.ru, bakitnur-90@mail.ru, murat---79@mail.ru zhmm1331@gmail.com

AGRARIAN SECTOR OF ECONOMY OF KAZAKHSTAN

Abstract. According to the authors, the agricultural sector is a collection of sectors of the national economy engaged in the production of agricultural products, their storage, processing and bringing to the consumer. The development of the agricultural sector contributes to a more rational allocation of production, an integrated and efficient use of resources, improvement of the final results of its operation, and ensuring the country's food security. In developed countries, the agro industrial complex accounts for a significant part of workers, fixed and circulating capital, and GDP. It is on the scale of the agro-industrial complex, the perfection of its structure and the efficiency of its functioning that the increase in the standard of living of the population and the provision of food security in general largely depend. The economy of Kazakhstan is characterized by the globalization of economic relations, increasing competition in the market. Domestic experience shows that reforms in the agricultural sector are carried out with considerable difficulties. To a greater extent, this is connected with the complex processes of transformation of ownership forms in the countryside and the formation of a class of real owners, as well as their adaptation to market mechanisms of free pricing and liberalization of foreign trade.

Keywords: economy, agriculture, products, competition, animal husbandry, crop production, agrarian sector.

INTRODUCTION

Kazakhstan is one of the few countries that can both provide for itself and develop agricultural exports. Therefore, the development of the agrarian market is one of the most promising priorities of many government programs. The agro-industrial complex of Kazakhstan is one of the main reproduction branches of the country's economy, it produces about 1/3 of the national income. Support for the agricultural industry, and in particular the food market, is one of the most important tasks of the state. In all developed countries, agriculture is largely supported by the state. This branch of the national economy is least adapted to the market and competition.

MAIN PART

State regulation is the main form of administrative-economic and organizational-legal intervention of the state in the socio-economic processes in order to maintain their rational balance and macroeconomic stability. State regulation of the agro-industrial complex is the economic impact of the state on the production, processing and sale of agricultural products, raw materials, foodstuffs, as well as on the production and technical maintenance and material and technical supply of agricultural production. The need for state regulation of the agro-industrial complex is caused by a number of circumstances, among which it is possible to designate:

- the impact of agro-industrial and commodity markets on the macroeconomic situation;
- market failures in ensuring an economically fair income distribution;
- the influence of natural factors on the efficiency of agricultural production;
- the demographic role of rural areas.

The main directions of state regulation of agro-industrial production in the Republic of Kazakhstan are as follows:

1) the formation and operation of the market for agricultural products, raw materials and food;

2) financing, crediting, insurance, preferential taxation;

3) protection of the interests of domestic producers in the implementation of foreign economic activity;

4) the development of science and scientific research in the field of agro-industrial production;

5) development of the social sphere of the village;

6) other areas determined by the legislation of the Republic of Kazakhstan.

The state finances the agro-industrial complex and agro-industrial production at the expense of the budget, the budgets of the subjects of the Republic of Kazakhstan and extra-budgetary sources. The main tasks of state regulation of the agro-industrial sector are the development of agro-industrial production (APP), ensuring food security, regulating markets and maintaining economic parity between agriculture and other sectors of the economy, creating an effective management system for the agricultural sector of the economy, and implementing a unified science and technology policy in protection of domestic producers and others.

Thus, the state policy in the field of development of the agrarian and related industries pursues short, medium and long-term goals and in the aggregate will be aimed at improving the well-being of the rural population through increasing productivity and profitability of agricultural production directly, advancing the development and support of all forms rural employment, including through the industrialization of rural areas.

For the development and modernization of the agrarian sector of the economy, in the framework of the Message it is noted - “that the state policy is focused on the development of farming and SMEs in agricultural processing, which is a key task of the state. The priority is to change the culture of farming, through the revival, taking into account new scientific, technological, managerial achievements ".

So, to eliminate barriers that prevent the unification of small agricultural producers, a new law “On Agricultural Cooperatives” was adopted.

Also, the law "On the production of organic products", which will create conditions for the development of the production of organic products.

Along with this, the accompanying Law includes amendments in the field of seed production, livestock breeding, state regulation of the agroindustrial complex, which will allow the agricultural farming company to use advanced breeding achievements, eliminating the time required for testing the variety, reducing administrative barriers and ensuring equal access for individuals and legal entities to the market of breeding products (material), transfer to self-regulation of breeding and breeding work.

In the field of veterinary medicine, the status of a country free from foot and mouth disease without vaccination in 9 regions of the republic (Akmola, Atyrau, Mangistau, Aktyubinsk, Pavlodar, Kostanay, Karaganda, North Kazakhstan and West Kazakhstan) was obtained, which allows domestic agricultural producers to freely export livestock products outside of Kazakhstan.

As part of the reform of agrarian science, a non-commercial joint-stock company, the National Agrarian Research and Education Center, has been established, the purpose of which is to ensure accelerated innovative development of the agrarian sector through training and retraining highly qualified specialists, developing and implementing research results, transferring efficient foreign technologies to the agro-industrial complex.

There are gaps in the solution of a number of issues directly related to the management of the development of the agrarian complex as an economic system in a market economy. In the area of managing the development of the agricultural sector, the processing of agricultural products is relevant and the issues of technical and technological re-equipment of production, the transition to international quality standards, in order to improve the quality of domestic products, expanding the range of food products remain paramount.

To do this, it is necessary to make adjustments to the strategic documents of state bodies in matters of technical regulation, trade, protection of competition, information, customs and border services. In order to increase the internal and expansion of the foreign market of domestic food and processing industries, in cooperation with the relevant authorities, it is necessary to take measures to:

- protection of the domestic market from hidden dumping of imported goods;
- strengthening control over compliance with legislation in the field of technical regulation;
- ensuring compliance with the requirements of the legislation in terms of the priority purchase of domestic food products;
- Improving the mechanism of access of domestic products to the shelves of retail chains;
- development of trade and logistics infrastructure;

- promotion of domestic products to foreign markets; development of related industries; awareness raising.

In order to improve solvency, reduce credit load and minimize the risks of bankruptcy of agribusiness entities, it is possible to take one-time financial recovery measures by restructuring, refinancing, and financing agribusiness entities to pay off existing debts.

CONCLUSION

Along with the current subsidies for resources and work in crop and livestock production, the Program contains a number of new tools to support the industry, such as financial rehabilitation, lower interest rates on loans and leasing, subsidies for guarantee costs and loan insurance. Among the new areas - investment subsidies, through which businessmen can reimburse part of their spending on investments in agriculture.

Thus, the development of the agrarian sector of the economy will significantly mitigate the impact of negative external factors of the global economic crisis on enterprises and organizations of the agro-industrial complex and will create an objective basis for food security, which is the main task of the state policy of the country.

УДК 631.153

К.М. Утепкалиева, Б.М. Дюсегалиева, А.Д. Мукашева, А.М. Калауов

Атырауский государственный университета имени Х.Досмухамедова

ҚАЗАҚСТАН ЭКОНОМИКАСЫНЫҢ АГРАРЛЫҚ СЕКТОРЫ

Аннотация. Авторлардың пікірінше, агроөнеркәсіп кешені ауыл шаруашылық өнімдерін өндірумен, оларды сақтаумен, өңдеумен және тұтынушыға жеткізумен айналысатын ұлттық экономиканың секторларының жиынтығы болып табылады. Агроөнеркәсіптік кешенді дамыту өндірісті неғұрлым ұтымды бөлуді, ресурстарды кешенді және тиімді пайдалануды, оның қызметінің түпкілікті нәтижелерін жетілдіруді және елдің азық-түлік қауіпсіздігін қамтамасыз етуге ықпал етеді. Дамыған елдерде агроөнеркәсіптік кешен жұмысшылардың айтарлықтай бөлігі, тіркелген және айналым капиталы, ЖІӨ саналады. Агроөнеркәсіптік кешен ауқымында, оның құрылымын жетілдіру және оның жұмыс істеу тиімділігі халықтың өмір сүру деңгейін көтеру және азық-түлік қауіпсіздігін қамтамасыз ету негізінен тәуелді. Қазақстанның экономикасы экономикалық қатынастардың жаһандануы, нарықтағы бәсекелестікті күшейту арқылы сипатталады. Отандық тәжірибе көрсеткендей, аграрлық сектордағы реформалар елеулі қиындықтармен жүзеге асырылады. Бұл, негізінен, ауылдық жерлердегі меншік нысандарын трансформациялау және нақты меншік иелерінің сыныптарын қалыптастырудың күрделі процестерімен, сондай-ақ олардың еркін нарықтық тетіктеріне бейімделуімен және сыртқы сауданы ырықтандырумен байланысты.

Түйін сөздер: экономика, ауыл шаруашылығы, өнімдер, бәсекелестік, мал шаруашылығы, өсімдік шаруашылығы, аграрлық сектор.

УДК 631.153

К.М. Утепкалиева, Б.М. Дюсегалиева, А.Д. Мукашева, А.М. Калауов

Атырауский государственный университета имени Х.Досмухамедова

АГРАРНЫЙ СЕКТОР ЭКОНОМИКИ КАЗАХСТАНА

Аннотация. По мнению авторов, аграрный сектор представляет собой совокупность отраслей национальной экономики, занятых производством сельскохозяйственной продукции, её хранением, переработкой и доведением до потребителя. Развитие аграрного сектора способствуют более рациональному размещению производства, комплексному и эффективному использованию ресурсов, улучшению конечных результатов его функционирования, обеспечению продовольственной безопасности страны. В развитых странах на АПК приходится значительная часть работников, основного и оборотного капитала, ВВП. Именно от масштабов АПК, совершенства его структуры и эффективности функционирования во многом зависят повышение уровня жизни населения и обеспечение продовольственной безопасности в целом. Экономика Казахстана

характеризуется глобализацией экономических отношений, повышением конкуренции на рынке. Отечественный опыт свидетельствует о том, что реформы в аграрном секторе осуществляются со значительными трудностями. В большей мере это связано со сложными процессами преобразования форм собственности на селе и формирования класса реальных собственников, а также их адаптации к рыночным механизмам свободного ценообразования и либерализации внешней торговли.

Ключевые слова: экономика, сельское хозяйство, продукция, конкуренция, животноводство, растениеводство, аграрный сектор.

Сведения об авторах:

Утепкалиева Кансулу Мусаевна - кандидат экономических наук, и.о. ассоциированного профессора, kaldenova@mail.ru, https://orcid.org/0000-0002-5230-0318 kansulu77@mail.ru;

Дюсегалиева Бакитнур Мухитовна - магистр экономических наук, преподаватель, Атырауского государственного университета имени Х.Досмухамедова, https://orcid.org/0000-0003-3786-1157;

Мукашева Акмарал Джумаевна - магистр экономических наук, старший преподаватель, Атырауского государственного университета имени Х.Досмухамедова- murat---79@mail.ru, https://orcid.org/0000-0002-4628-9167;

Калауов Асхат Муратович – магистрант, Атырауского государственного университета имени Х.Досмухамедова,zhmm1331@gmail.com - https://orcid.org/0000-0003-0218-4897

REFERENCES

[1] Nazarbayev N.A. The third modernization of Kazakhstan: global competitiveness / Message from the President of the Republic of Kazakhstan N.A. Nazarbayeva to the people of Kazakhstan / Yelorda, January 31, 2017 / Astana.

[2] Vdovenko A.V., Kiselev E.P. World Agriculture: Study Guide / Pacific State University / PNU / Khabarovsk 2010. P. 140. ISBN 978-5-7389-1657-1.

[3] Statistical information on the use of funds borrowed by KazAgro National Management Holding JSC from the National Fund of the Republic of Kazakhstan as of December 1, 2015.

[4] Strategy “Kazakhstan – 2050” New political course of the established state. Message of the President of the country to the people of Kazakhstan. Astana, December 14, 2012.

[5] The program of development of the agro-industrial complex of the country in the period up to 2020 (Agrobusiness - 2020).

[6] Sabirov R.K., Kurmasheva S.O. Profiles of the regional development of the agrarian sector. Proceedings of the National Academy of Sciences of the Republic of Kazakhstan. ISSN 2224-526X, a series of agricultural sciences. № 1 2018, p.52-56 site address http://agricultural.kz/index.php/en/arhiv. https://doi.org/10.32014/2018. 2224-526X.

[7] Law of the Republic of Kazakhstan “On state regulation of the development of the agroindustrial complex and rural territories” of July 8, 2005 No. 66-III ZRK (as amended on April 28, 2016 No. 506-V).

[8] Official website of the Ministry of Agriculture of the Republic of Kazakhstan www.minagri.gov.kz.

[9] State Program for the Development of the Agro-Industrial Complex in the Republic of Kazakhstan for 2013-2020 “Agribusiness 2020” www.minagri.gov.kz.

[10]The official Internet resource of the Ministry of National Economy of the Republic of Kazakhstan www.minplan.gov.kz.

[11]Sabirova R.K., Baimukhasheva, M.K., Utepkalieva, K.M., Dingaziyyeva, M.D., Sanaliyeva L.K., Tsatkhlanova, T.T. Intellectual potential of the Republic of Kazakhstan. Bulletin of the National Academy of Sciences of the Republic of Kazakhstan. " No. 3. 2018 P.192-197, ISSN 1991-3494 (in English) http://www.bulletin-science.kz/index.php/en/arhive. DOI https://doi.org/10.32014/2018.2518-1467.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.27**
Volume 1, Number 323 (2019), 165 – 169

UDC 338.46 (574)

Zh.B. Khamidullina, A.K. Ermekbaeva, S.B. Zhubanova

Atyrau State University named H. Dosmukhamedov
hamidzh@mail.ru, yer.ai79@mail.ru, s.zhubanova@asu.kz

INNOVATIVE APPROACH IN THE DEVELOPMENT OF THE KAZAKHSTAN ECONOMY

Abstract. According to the research, an innovative approach to the development of the Kazakhstan economy has very significant differences in the activity of economic entities, and this primarily depends not only on regional affiliation due to the heterogeneity of the innovation infrastructure of the regions, but also on the differences in the availability of scientific and technical, financial, labor and other resources. At the same time, the state of innovation activity is the most important indicator of the development of society and the economy in any state. However, in developed countries, innovation is an integral part of the state socio-economic policy, which is indicative of Kazakhstan, given the relevance and importance of innovation for socio-economic development, the issues of enhancing innovation are identified, according to the authors, as the most important priorities of the country's economic development.

Keywords: innovative activity, approach, share, development, products, business.

INTRODUCTION

"Innovations" can be described as "Innovations" is a kind of implemented innovation, which provides a qualitative increase in the efficiency of processes or any product that is demanded by the market. It is the result of human intellectual activity, his imagination, the creative process, discoveries and inventions. An example of innovation is the introduction to the market of products (goods and services) with new consumer properties or a qualitative increase in the efficiency of production systems.

Effective innovation activity is an indicator of the movement of the enterprise to the formation of competitive advantages, since it is the implementation of innovations in a rapidly changing external world and limited resources that determines the company's further development. Innovative activity is an important characteristic of management in the analysis of enterprise activity. The state of innovation is the most important indicator of the development of society and the economy in any state.

Innovative approaches to planning are now complementing traditional forms of national planning with strategic foresight. Strategic foresight builds the capacity to envisage various alternative futures; to consider them in planning and adopt early-warning mechanisms; and not to lose sight of opportunities and risks along the way. The Governments of Rwanda and Tonga have been working with UNDP's Global Policy Centre on Public Service Excellence in Singapore to make national strategies, policies and plans more sensitive to complexity and emergent risks by using foresight methodology.

MAIN PART

In developed countries, innovation policy is an integral part of the state socio-economic policy. Given the relevance and importance of innovation for socio-economic development, the issues of enhancing innovation and investment activity are identified as the most important priorities of the economic development of the Republic of Kazakhstan [1].

World experience shows that in developed countries, spending on research and development is constantly growing, reaching in many of them 2.5 -3.7% of GDP, while the share of the state in these expenditures is on average 25-34%. These countries primarily include Israel (4.86% of GDP), Finland (4.01%), Sweden (3.75%), Japan (3.42%) and Korea (3.37%).

World crises make humanity think about the paramount importance of nature: the exhaustibility of its resources and the huge "credit" that humanity has yet to pay.

Taking into account the current state of the economy, the innovation policy at the present stage of market reforms should contribute to the development of scientific and technical potential, the formation of modern technological structures in sectors of the economy, crowding out obsolete ways and improving the competitiveness of products. The defining feature of the transfer of research results for their development in production is the creation and development of a system of commercial forms of interaction between science and production.

Australia uses a collective innovation process involving several stages:

1. Technological challenge. A government agency declares a specific need that links the technological task and the provision of public services (the main function of the institution). These needs are formulated as a request for proposals and representatives of the business environment are invited to offer new solutions to the problems declared.

2. “Feasibility study” (feasibility study). The task is to justify the viability and economic feasibility of ideas. Selected representatives of small and medium businesses receive a grant for a feasibility study.

3. “Proof of concept” (proof of concept). The task is to develop a sample confirming the concept as the main method of the phase, which includes evaluating the feasibility study reports. At this stage, funding is being provided for research and development aimed at confirming the concept (developing a test sample), while the ultimate goal is to demonstrate the performance of the test sample in the environment (sphere) of government (in real terms).

4. “Market ready” (the task is to bring the solution to the market, mass production). At this stage, the company may receive further funding to bring the developed solution to the market [6].

Thus, on the basis of studying foreign experience in stimulating innovation through the use of public procurement tools, the following main conclusions can be made about the organization of activities to promote innovative solutions in the countries discussed above:

• the presence of a building designed to house dozens of small firms (this contributes to the formation of a large number of new small and medium-sized innovative enterprises that take full advantage of the system of collective services);

• a service system consisting of a complex and simple service recruited from firms that form the service sector necessary for the established composition of innovative enterprises.

• Achieving this goal is expected through the solution of such tasks as:

- to promote the generation of innovations in Kazakhstan;

- further development of leading innovation clusters;

- definition of the scenario for the development of promising technology areas;

- ensuring the strengthening of regional innovation systems;

- use the country's raw material potential to attract the latest technology and create high-tech industries.

The crucial importance of improving energy efficiency in enhancing energy security and addressing environmental and economic issues is emphasized everywhere. Global trends require more effective measures to curb growing dependence on energy imports.

Thus, in the development of a green economy, a clear combination and effective coordination of the following policies is needed: industrial policy, environmental policy, science and innovation policy.

In electric power industry, the innovation policy will focus on the creation and use of combined-cycle plants or gas turbine superstructures of steam power units for gaseous fuel power plants and highly efficient steam power units using the latest fuel combustion technologies (circulating boiling junction, circulating boiling layer under pressure) for solid fuel power plants, development cost-effective small and non-conventional energy, as well as solving the problem of the disposal of radioactive nuclear waste, obtaining environmentally friendly, high-quality energy from low-grade fuels, developing cost-effective power plants using renewable energy sources, and improving the efficiency of long-distance power transmission systems.

In the transport complex, the innovation policy will be focused on the renewal of the vehicle fleet, the modernization of the infrastructure, the use of advanced technologies, the improvement of the technical level of all types of transport. This applies to the renewal of railway rolling stock, sea, river and aircraft, vehicles, transshipment complexes, road machines and equipment, navigation systems.

In the metallurgical complex, the guideline is the creation of end-to-end technological production cycles that ensure maximum resource and energy saving at all stages, expansion of the range and improvement of the quality of metal products.

To eliminate the reasons that restrain innovation development, it is necessary to develop a policy of state intervention, taking into account the experience of foreign countries. At the same time, it is necessary to use the principles of coordination, coordination and motivation, allowing to coordinate the activities of all participants. The main instrument of innovation development should be state programs as complexes interrelated in terms of resources, timeframes, and implementers of activities that provide effective solutions to the most important scientific and technical problems in priority areas of economic development.

In order to support the development of innovation, the most optimal is the effective use of economic methods of stimulating R & D, a comprehensive study of which should be in the nature of public policy. Such a government policy implies the use of special tax incentives that encourage risky medium-term and long-term investments.

To make sure local production is competitive on price and quality against foreign-made rivals, we need to increasingly take measures to boost the competitiveness of production and to make it meet international standards of quality.

In order to define possible scenarios of Kazakhstan's economic development in the medium- and long-term perspective, a detailed analysis of Kazakhstan's membership of the WTO is considered. The attention of regions and companies themselves is focused on purposeful work to prepare the economy of each region WTO membership and to adapt the business structures to tough competition, introduce new technology and innovations for production of cutting edge, high tech goods.

The Strategy's effectiveness requires the existence of a potent mechanism of interaction with local executive authorities, business and research institutions. To achieve this, heads of regions and the mayors of Almaty and Astana should approve the regional Plans for Implementing the First Stage of the Strategy. Field seminars, conferences, presentations and meetings will play a critical role in keeping the public aware of the goals and objectives of the Strategy.

These measures will allow joint discussions of the course of implementing the Strategy, to make effective moves to improve the investment appeal of processing enterprises and to develop technology transfer. These topics will be covered by the mass media in the appropriate form.

Small and medium-sized businesses will be stimulated to start up-to-date production facilities and develop promising investment projects, while research institutions will receive a new impetus for invention and developments.

Therefore the first results of the first stage of applying the Strategy to real life are expected to be these: the deeper use of scientific achievements in boosting industry’s competitiveness, establishing methodology bases to monitor the measures for industrial and innovation development, and lowering the risks for foreign investors in the processing sector.

Local executive authorities must play the key role in implementing the Strategy's tasks. In turn, the government will create the necessary legal framework. Every real manufacturer and potential investor will be aware of the policy we conduct.

This is the working pattern the government sticks to when implementing the Strategy's preparation stage:

1. Study of the situation in sectors and marketing research to evaluate sectors' competitiveness.
2. Training and retraining of staff; nurturing managers of a new generation.
3. Ensuring sound operation of the established development institutions.
4. Creating an effective innovation infrastructure and developing a research and production system for the basic sectors of the economy.

We believe that institutional backing is a priority if you want to conduct any reforms.

A 400-employee Canadian division of a large American engineering company has developed and implemented project management processes for their small-scale and medium-scale projects. The company was already using a robust project management process for their large-scale projects. The objectives of this project were to reduce cost overruns and project delays, standardize practices to facilitate the integration of new managers, increase the level of customer satisfaction and to reduce risk-related

planning deviations. For this project, the engineering organization used the ISO/IEC 29110 standards developed specifically for very small entities, i.e. organizations, having up to 25 people. An analysis of the cost and the benefits of the implementation of small and medium scale project management processes was performed using the ISO economic benefits of standard methodology. The engineering enterprise estimated that, over a three-year timeframe, savings of about 780,000$ would be realized due to the implementation of project management processes using the ISO/IEC 29110 standard. Standards are sources of codified knowledge and studies have demonstrated the benefits of standards, such as product interoperability, increased productivity, market share gains, and improved interaction with stakeholders such as enterprises, government organizations and the public. Standards and associated technical documents could be considered as a form of technology transfer and, if the right standards are selected and used correctly they should have an economical impact in an organization.

Many advantages or benefits as well as disadvantages or costs have been reported regarding the use of voluntary standards. Table 1 lists a few of the advantages and disadvantages reported.

Table 1- Advantages and disadvantages of voluntary standards reported (adapted from Miotti, 2009; Land, 1997)

Advantages or Benefits	Disadvantages or Costs
• Promote innovation	• Difficult to understand
• Improve efficiency of an organization	• Cost of acquire standards
• Increase competitiveness	• Cost of standard implementation
• Facilitate the access to a wider market	• Cost of certification
• Clarify the rules of a market	• Require outside expertise to implement them
• Improve quality of products and services	• Conflicting standards
• Promote improvement of Processes	• High number of standards available
• Facilitate partnerships	• Describe only ‘what to be done’ not ‘how to do it’
• Improve the image, credibility of organizations	• Insufficient guidance to select and apply them
• Promote a uniform terminology	• Slow evolution of standard may impede innovation
• Regularly updated	• Difficult and costly to apply in small organizations
• Facilitate the selection of suppliers and partners	• Difficult to demonstrate ‘savings’
• Facilitate access to recognize knowledge	• Many producers of standards
• Facilitate access to investments and financing	• Perception that standards add unnecessary bureaucracy to an organization

The most recent study on the economic benefits of standardization (Miotti, 2009), performed by the French standardization organization AFNOR, showed that standardization made a significant contribution to growth of the French economy during the 1950-2007 period, i.e. 0.81% per year or almost 25% of GDP growth. The study was based on a survey of 1,790 French companies or organizations of all sizes and from all sectors of activity where 30% of respondents were from enterprises of less tan 20 employees, 47% from small and medium enterprises (i.e. 250 employees or less) and 23% from large companies (i.e. more than 250 employees). The contribution of standards to the French economy is in line with data illustrated in Table 2 for other countries, such as Germany and Australia.

CONCLUSION

New partnerships must be built. We must continually improve our processes to become more agile. We must be calculated risk-takers. We should openly share what works and what doesn’t.

Thus, world experience shows that the main tool is the reduction of corporate income tax, depending on the level of innovation receptivity that an enterprise has achieved. The higher the level of innovation susceptibility, the more tax breaks can be obtained. At the same time, the condition for obtaining benefits is mandatory successful commercialization of R & D results. A noticeable impact on the inflow of private investment in the sphere under consideration is also played by more universal macroeconomic regulation measures: bank interest rate, level of taxation of profits of industrial companies and citizens' incomes, the value of tax rate on securities transactions, etc.

УДК 338.46 (574)

Ж.Б. Хамидуллина, А.К. Ермекбаева, С.Б. Жубанова

Х. Досмұхамедов атындағы Атырау мемлекеттік университеті

ҚАЗАҚСТАННЫҢ ЭКОНОМИКАНЫҢ ДАМУЫНДАҒЫ ИННОВАЦИЯЛЫҚ БАҒАЛАУ

Аннотация. Зерттеулерге сәйкес, Қазақстан экономикасының дамуына инновациялық көзқарас шаруашылық субъектілерінің қызметінде айтарлықтай айырмашылықтар бар және бұл, ең алдымен, өңірлердің инновациялық инфрақұрылымының біркелкілігіне байланысты емес, сондай-ақ ғылыми-техникалық, қаржылық, және басқа ресурстар. Сонымен қатар инновациялық қызметтің жағдайы қоғамның және экономиканың дамуының маңызды көрсеткіші болып табылады. Дегенмен, дамыған елдерде инновация мемлекеттік әлеуметтік-экономикалық саясаттың ажырамас бөлігі болып табылады, ол Қазақстанның әлеуметтік-экономикалық дамуының инновацияның маңыздылығы мен маңыздылы-ғын ескере отырып, инновацияларды жетілдіру мәселелерін анықтайды, авторлардың пікірінше, елдің экономикалық дамуының маңызды басымдықтары.

Түйін сөздер: инновациялық қызмет, тәсіл, үлес, даму, өнімдер, бизнес.

УДК 338.46 (574)

Ж.Б. Хамидуллина, А.К. Ермекбаева, С.Б. Жубанова

Атырауского государственного университета имени Х.Досмухамедова

ИННОВАЦИОННЫЙ ПОДХОД В РАЗВИТИИ КАЗАХСТАНСКОЙ ЭКОНОМИКИ

Аннотация. Инновационный подход в развитии Казахстанской экономике согласно исследованию имеет весьма существенные различия в активности хозяйствующих субъектов и это прежде всего, зависит не только от региональной принадлежности из за неоднородности инновационной инфраструктуры регионов, а также с имеющимися различиями в обеспеченности последних научно-техническим и, финансовыми, трудовыми и иными ресурсами. При этом, состояние инновационной деятельности является важнейшим индикатором развития общества и экономики в любом государстве. Однако, в развитых странах инновации являются составной частью государственной социально-экономической политики, что является показательным для Казахстана, учитывая актуальность и важность инноваций для социально-экономического развития, вопросы активизации инновационной деятельности определены, по мнению авторов, как важнейшие приоритеты экономического развития страны.

Ключевые слова: инновационная активность, подход, доля, развитие, продукция, бизнес.

Сведения об авторах:

Хамидуллина Жанат Баймуратовна - Ст.преподаватель, Атырауский государственный университет имени Х.Досмухамедова, https://orcid.org/0000-0002-4928-1224;

Ермекбаева Айнур Конилкошевна - Магистр экономики, Атырауский государственный университет имени Х.Досмухамедова, https://orcid.org/0000-0001-9643-5292;

Жубанова Сауле Бауржановна - Ст.преподаватель, Атырауского государственного университета имени Х.Досмухамедова, https://orcid.org/0000-0002-7286-8904

REFERENCES

[1] Message of the President of the Republic of Kazakhstan to the people of Kazakhstan “Strategy“ Kazakhstan-2050 ”: a new political course of the established state” // www.akorda.kz/ru/page/page_poslanie-prezidenta-respubliki-

[2] Decree of the President of the Republic of Kazakhstan dated June 4, **2013**. No. 579 “On approval of the Concept of innovative development of the Republic of Kazakhstan until 2020”.

[3] The strategy of industrial-innovative development of the Republic of Kazakhstan until 2015. Astana. 2003.

[4] Zhansagimov A.E., Auezov G.B., Shamuratova N.B. Optimization of cost management in the enterprise during the global crisis. Proceedings of the National Academy of Sciences of the Republic of Kazakhstan, a series of social sciences and humanities, No. 5, 2016. Pp. 127-132 https://doi.org/10.32014/2018.2518-1629.

[5] Pokrovskaya V.V. Modern foreign experience in the development of public procurement // World Economy. - 2008. - № 3 (March). p. 31.

[6] Eskaliyeva A.Zh., Adietova E.M., Gabdulin N.I.. FORMATION OF HUMAN CAPITAL IN THE SOCIAL SPHERE IN THE CONDITIONS OF INNOVATIVE ECONOMY. Reports of NAS RK №6 2018г. http://reports-science.kz/index.php/en/archive**.** https://doi.org/10.32014/2018.2518-1483**.** ISSN 2518-1483 (Online), ISSN 2224-5227 (Print).

[7] Dzhaksybekov A. Innovative Strategy for Industrial Development in Kazakhstan: the First Phase http://www.investkz.com/en/journals/36/185.html

[8] Claude Y. Laporte. An Innovative Approach to the Development of Project Management Processes for Small-Scale Projects in a Large Engineering Company. https://www.igi-global.com/chapter/an-innovative-approach-to-the-development-of-project-management-processes-for-small-scale-projects-in-a-large-engineering-company/141764.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.28**
Volume 1, Number 323 (2019), 170 – 174

UDC 332.63

Z.M. Shaukerova, D.M. Aykupesheva

Kazakh Agrotechnical University named after S. Seifullin, Astana
5352189@mail.ru, *dina*.kz.72@maiI.ru

ASSESSMENT AND DISCLOSURE OF INFORMATION IN THE FINANCIAL REPORTING OF INVESTMENT PROPERTY

Abstract. At the present stage, the activities of organizations for the acquisition or creation of real estate objects with a view to their subsequent transfer to operating leases has become widespread. So the real estate market has become an attractive segment of business entities for investing free own funds. According to the authors, many enterprises seek to keep buildings and structures on the balance sheet, or land not used in the main activity of the company, that is, they seek to lease them. Companies can also invest in land or premises. With favorable market conditions, their value will increase, which will increase the capitalization of the business. Such assets are reflected in the balance sheet in accordance with IFRS as investment property and are accounted for separately from the company's fixed assets.

Keywords: assessment, disclosure of information, investment property, investment property, valuation, rent, financial statements.

International Financial Reporting Standard (IAS) 40. "Investment property" This standard is used in the recognition, evaluation and disclosure of information about investment property.

Among other things, this standard is applied for appraisal in the financial statements of a tenant of investment real estate held by him on a leasehold basis accounted for as a financial lease, as well as for appraisal in the financial statements of a lessor of investment real estate provided to a lessee for operating leases. This standard does not address issues regulated by the IAS 17 “Leases,” including:

(a) classification of a lease as financial or operating;

(b) recognition of income from the rental of investment real estate (see also IAS 18 “Revenue”);

(c) an estimate in the financial statements of a tenant of real estate held by him on a leasehold basis, which is accounted for as an operating lease;

(d) the valuation in the financial statements of the lessor of its net investment in financial leases;

(e) accounting for sale and leaseback transactions; and

(f) financial and operating lease disclosures.

This standard does not apply:

(a) biological assets related to agricultural activities (see IAS 41 “Agriculture”); and

(b) mineral rights and mineral reserves, such as oil, natural gas and similar non-renewable resources.

Book value is the amount in which an asset is recognized in the statement of financial position.

Cost is the amount of cash or cash equivalents paid or the fair value of another consideration transferred for the purpose of acquiring the asset at the time of its acquisition or construction, or, when applicable, the amount attributed to the asset upon initial recognition in accordance with specific requirements other IFRSs, such as IFRS 2 Share-based Payment.

The initial value of rights to real estate held on lease and classified as investment property should be determined in the same way as for financial leases in accordance with paragraph 20 of IFRS (IAS) 17, i.e. the asset should be recognized at the lowest of two values: fair the value of this property and the present value of the minimum rental payments. The equivalent amount should be recognized as a liability in accordance with the same clause.

Fair value is the price that would have been received from the sale of an asset or paid when transferring a liability in a normal transaction between market participants at the valuation date.

When deferring payment for investment property, the initial cost is defined as the equivalent of the price for immediate payment in cash. The difference between this amount and the total amount of payment is recognized as interest expense over the period of the deferral.

For these purposes, any premium paid for the lease is treated as part of the minimum lease payments and is therefore included in the initial cost of the asset, but excluded from the corresponding liability. If a property held on a leasehold basis is classified as investment property, then the object held at fair value are these rights, and not the property itself. Guidelines for estimating the fair value of real estate rights are set forth - for cases where the fair value model is used - in paragraphs 33-35, 40, 41, 48, 50 and 52 and in IFRS 13. These guidelines also apply to fair value measurements. when this value is used as initial for the purposes of initial recognition.

Formation of financial statements of a legal entity in accordance with IFRS is a serious competitive advantage and allows you to provide users with objective and complete information regarding the financial results for the reporting period. At present, the activities of companies related to the acquisition or creation of real estate objects with a view to their subsequent transfer to operating leases are widespread. The issues governing the accounting and reflection in the financial statements of this property are governed by IAS 40 Investment Property.

IAS 40 is used to recognize, measure and disclose information in statements of assets that are classified as investment property. The standard defines the scope of this standard and the standard governing the accounting treatment of a lease.

IAS 40 applies:

An estimate of the share of investment property that a company owns under a finance lease in the financial statements of a tenant;

To the assessment of investment property, which is provided to the lessee under operating lease terms, in the financial statements of the lessor.

IAS 40 does not address the issues covered in IAS 17 Leases, including:

- classification of leases for financial and operational;
- recognition of income from the lease of investment property;

assessment in the financial statements of a tenant of real estate owned by him, which is recorded as an operating lease;

- assessment in the financial statements of the lessor of its net investment in financial leases;
- accounting of sale and leaseback transactions;
- disclosure of information regarding financial and operating leases.

According to paragraph 16 of IAS 40 (IAS) 40 Investment Property, investment property should be recognized as an asset if and only if:

Future economic benefits associated with this investment property are likely to flow to the organization; and

The initial cost of this investment property is a reliable estimate. At the same time, the organization estimates, in accordance with this principle of recognition, all of its costs for investment property at the time of their occurrence. Such costs include initial costs for the purchase of investment property and costs subsequently incurred to supplement, replace, or maintain this property.

In accordance with paragraph 33 of IAS 40 Investment Property, after initial recognition, an organization that chooses a fair value model should measure all of its investment properties at fair value, unless it is impossible to determine the fair value of the property.

However, in accordance with paragraph 35 of IAS 40 (IAS) 40 “Investment Property”, the profit or loss from changes in the fair value of investment property shall be recognized in profit or loss for the period in which they arose.

Therefore, due to the fact that the costs of carrying out communications to the land plots are incurred for the addition of the property, such costs are included in the initial value of the investment property. At the same time, it should be remembered that regardless of the costs incurred to supplement the investment object, at the end of the reporting period, when choosing a fair value model, the profit or loss from changes in the fair value of such investment property is also subject to recognition in the profit or loss for the corresponding period.

Often, a company that chooses in its accounting policy after the initial recognition of investment real estate a fair-value accounting model due to the absence of an active market for similar objects does not have the ability to apply this accounting model, for example, with respect to an unfinished construction object.

What should the company do in this case in terms of investment property appraisal after initial recognition if it is impossible to reliably estimate the fair value?

In accordance with paragraph 33 of IAS 40 Investment Property, after initial recognition, an entity that chooses a fair value model should measure all its investment property at fair value, except as described below.

In exceptional circumstances, in accordance with paragraph 53 of IAS 40, it may be that when an entity first purchases investment property (or when existing property first becomes investment property due to a change in its use), there is clear evidence that the fair value of this investment property cannot be reliably assessed on an ongoing basis.

This situation occurs if and only if the market for comparable real estate is inactive and there are no alternative reliable fair value estimates (for example, based on discounted cash flow forecasts). If an organization concludes that the fair value of an investment property under construction cannot be reliably estimated, but it expects that the fair value of this property can be reliably estimated upon completion of construction, the organization should evaluate this investment property under construction at its original cost as long as its fair value will not be a reliable estimate, or construction will not be completed (depending on which of these events come earlier).

The disclosures in the financial statements that are required for investment property are shown below.

In accordance with paragraph 74 of IAS 40 Investment Property, an organization that holds investment property as an operating lease discloses information required from landlords in relation to its operating lease agreements. In doing so, the organization should disclose the following:

that she applies the fair value model

what does she use and under what circumstances does she use the classification and accounting of real estate held by her as an operating lease as investment real estate;

when the classification is difficult, the criteria used by the organization to distinguish investment property from owner-occupied property and property intended for sale in the ordinary course of business;

The extent to which the fair value of investment property (as measured or disclosed in the financial statements) is based on a valuation produced by an independent appraiser with recognized and relevant professional qualifications, as well as recent experience in real estate valuation in the same category and location as the investment valued the property. The absence of such an assessment shall be disclosed;

amounts recognized in profit or loss:

- rental income from investment property;
- direct operating expenses (including repair and maintenance) related to investment property that generated rental income during the period;
- direct operating expenses (including repair and maintenance) related to investment property that did not generate rental income during the period;
- the cumulative change in fair value recognized in profit or loss when selling investment property from an asset pool that uses the historical cost model to a pool that uses the fair value accounting model;
- the existence and magnitude of restrictions on the possibility of realizing investment property or transferring income and proceeds from its disposal; obligations under the contract for the acquisition, construction or development of investment property or repair, maintenance or improvement.

In practice, a company often acquires a business center building (investment property), a part of which is occupied by itself, and a part is leased for offices to various organizations. In this case, the question arises of determining the value of investment property in the case of applying the accounting model for actual costs, which can be answered on the basis of the IFRS standards below.

In accordance with paragraph 5 of IAS 40 Investment Property:

Investment property is real estate (land, or a building (or part of a building), or both) held (by the owner or tenant as a financial lease) in order to receive rental payments, or to gain value from the increase in value, or and other, but not for:

- use in the production or supply of goods or services or for administrative purposes;
- or sales in the ordinary course of business.

The owner-occupied property is the property held (by the owner or tenant under a financial lease) for use in the production or supply of goods, or the provision of services or for administrative purposes.

Investment property is held for rent, or for the purpose of capitalizing on gains, or both. Consequently, investment property generates cash flows largely independently of other assets held by the organization. This distinguishes investment property from the owner-occupied property. The production or supply of goods or the provision of services (or the use of real estate for administrative purposes) generates cash flows that relate not only to real estate, but also to other assets used in the production or supply process. At the same time, IAS 16 “Fixed Assets” applies to the owner-occupied property.

In accordance with paragraph 10 of IAS 40 Investment Property, in some cases, real estate includes a part that is withheld to receive rent or to benefit from a value increase, and another part that is held for the purpose of producing or supplying goods services for administrative purposes. At the same time, if these parts can be sold separately (or separately rented out financially), then the organization takes these parts into account separately. If these parts cannot be sold separately, then the corresponding real estate will be an investment property only if its part held for use in the production or supply of goods or services or for administrative purposes will be insignificant.

According to paragraph 20 of IAS 40 Investment Property, investment property must initially be measured at cost. Transaction costs should be included in this initial estimate. At the same time, the initial value of the acquired investment property includes the purchase price of it and any costs directly related to its acquisition. Directly related costs include, for example, payment of professional legal services, real estate transfer taxes and other transaction costs.

Thus, if the part occupied by the owner, that is, held for use in the production or supply of goods, or the provision of services or for administrative purposes, is insignificant, then all real estate will be investment real estate and in the cost model, it is recognized at cost. investment property, including the price of its purchase and any costs directly related to its acquisition.

УДК 332.63

З.М. Шаукерова, **Д.М. Айкупешева**

С.Сейфуллин атындағы Қазақ агротехникалық университеті, Астана

ИНВЕСТИЦИЯЛЫҚ МҮЛІКТІ ҚАРЖЫЛЫҚ ЕСЕПТІЛІКТІ АҚПАРАТТЫ БАҒАЛАУ ЖӘНЕ АШУ

Аннотация. Қазіргі кезеңде жылжымайтын мүлік объектілерін сатып алу немесе құру жөніндегі ұйымдардың қызметі операциялық жалға беруді кейінге қалдыру мақсатында кеңінен таралған. Осылайша, жылжымайтын мүлік нарығы жеке меншік қаражатты инвестициялау үшін кәсіпкерлік субъектілерінің тартымды сегменті болды. Авторлардың пікірінше, көптеген кәсіпорындар ғимараттар мен құрылыстарды теңгерімде сақтауға тырысады, немесе компанияның негізгі қызметінде пайдаланылмаған жерлерді, яғни оларды жалға алуға ұмтылады. Компаниялар жер учаскелеріне немесе үй-жайларға инвестиция сала алады. Қолайлы нарықтық жағдайлармен олардың құны артады, бұл бизнесті капиталдандыруды арттырады. Мұндай активтер ХҚЕС сәйкес инвестициялық активтер ретінде баланста көрсетіледі және компанияның негізгі құралдарынан бөлек есепке алынады.

Түйін сөздер: бағалау, ашып көрсету, инвестициялық жылжымайтын мүлік, инвестициялық жылжымайтын мүлік, бағалау, жалға беру, қаржылық есептілік.

УДК 332.63

З.М. Шаукерова, Д.М. Айкупешева

Казахского агротехнического университета имени С. Сейфуллина г.Астана

ОЦЕНКА И РАСКРЫТИЕ ИНФОРМАЦИИ В ФИНАНСОВОЙ ОТЧЕТНОСТИ ИНВЕСТИЦИОННОГО ИМУЩЕСТВА

Аннотация. На современном этапе деятельность организаций по приобретению или созданию объектов недвижимости с целью их последующей передачи в операционную аренду получила широкое распространение. Так рынок недвижимости стал привлекательным сегментом хозяйствующих субъектов для инвестирования свободных собственных средств. По мнению авторов, множество предприятия стремятся держать на балансе здания и сооружения или землю, не используемые в основной деятельности компании, то есть стремятся сдавать их в аренду. Компании также могут инвестировать средства в земельные участки или помещения. При благоприятной конъюнктуре на рынке их стоимость вырастет, что позволит увеличить капитализацию бизнеса. Такие активы отражаются в балансе в соответствии с МСФО как инвестиционная собственность и учитываются отдельно от основных средств компании.

Ключевые слова: оценка, раскрытие информации, инвестиционная собственность, инвестиционная недвижимость, оценка, аренда, финансовая отчетность.

Сведения об авторах:

Шаукерова Зина Макышевна - кандидат экономических наук, старший преподаватель кафедры учета и аудита Казахского агротехнического университета имени С.Сейфуллина г. Астана, 0000-0003-2464-5834

Айкупешева Дина Маликаждаровна – кандидат экономических наук, старший преподаватель кафедры менеджмента Казахского агротехнического университета имени С. Сейфуллина г.Астана, 0000-0002-7233-0493

REFERENCES

[1] Law of the Republic of Kazakhstan “On Accounting and Financial Reporting” dated February 28, 2007, No. 234-ПГЗРК.

[2] Selezneva N.N., Ionova A.F. Analysis of the financial statements of the organization. 3rd ed., Pererab. and add. - M .: UNITY-DANA, 2007.

[3] Sultanova B.B. Principles of accounting. - Almaty: Economy, 2009.-152c.

[4] Tashtanova N.N., Zhansagimova A.E., Zhenisova A.A. IFRS in Kazakhstan. // International University for Finance and Law, Kirov Branch, 2016, Kirov P.769-773 ISBN 978-5-91061-463-9 (In Russian)

[5] Sabirova R.K., Problems of the regional development of the agrarian sector of the national economy. Izvestiya of the Republic of Kazakhstan. ISSN 2224-526X series of agricultural sciences. № 1. 2018. p.52-56 (In English) https://doi.org/10.32014/2018.2224-5294. ISSN 2224-5294

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.29**
Volume 1, Number 323 (2019), 175 – 178

UDK 336.711:336.713:336.763

A.A. Ussipbekov[1], A.B. Alibekova[1], B.B. Doskalieva[1], A.B. Alibekova[2]

[1]JSC "Financial Academy"Astana, Kazakhstan;
[2]«Akmeshit» Humanitarian - technical institute
a.usipbekov@mail.ru; alibiekovaaiga87@mail.ru; doskalievab@mail.ru; aica81@mail.ru

THE MODERN CONDITION OF THE FINANCIAL MARKET OF KAZAKHSTAN

Abstract. The various segments of the financial market are closely interconnected, which is economically manifested and justified by the movement of financial flows and the desire to equalize the profitability of financial instruments of different segments. Analysis of financial indicators of the financial market, as a rule, is carried out from the position of a particular segment. The article analyzes the financial condition of the banking sector of Kazakhstan, as one of the segments of the financial market.

Keywords: financial market, financial regulator, banking sector, financial institutions, financial market segments, financial flow, financial instruments.

In the Message of the Head of State "New development opportunities in the conditions of the fourth industrial revolution" N.A. Nazarbayev pays great attention to the financial sector of Kazakhstan. The head of state pointed to the "reset" of the country's financial sector. This part of the Message is very specific and contains fundamentally important measures that are aimed at solving the problems of development of the financial sector of the country as a whole.

To increase the sustainability of the banking sector, the Address sets a number of tasks. First of all, they need to complete the cleaning of portfolios from "bad" loans. It also raises the question of the need to establish the responsibility of bank owners for the losses of these financial institutions - this is necessary to improve the quality of management, limit opportunities for abuse, and also in the context of the problem of reimbursing public funds spent on supporting banks. In this vein, it is proposed to consider withdrawing funds from banks by shareholders as a felony [1].

The head of state instructed the chairman of the National Bank to tighten control over the banking sector. This control should be tough, timely and effective, which should prevent new cases of abuse in banks, the consequences of which have to be overcome with massive infusions of public funds.

The banking market in Kazakhstan is changing. Several factors contribute to this: the political will of the country's top leadership, stricter regulation by the National Bank, new rules in IFRS 9 (international financial reporting standards), increased competition in the market, a shortage of qualified personnel, and much more. Numerous challenges faced by banks, divided them into, relatively speaking, the rich and the poor. If the former feel, then the latter have to survive.

As a result of the event held by the financial regulator, it can be noted that the cleaning went to the banking sector in favor - the total profit of the second-tier banks of the Republic of Kazakhstan amounted to more than 400 billion tenge by the autumn of 2018. This is the highest figure in recent years [2].

The assets of the Central Bank of Kazakhstan in August 2018 decreased by 0.5% (minus 133.1 billion tenge) and amounted to 24.1 trillion tenge. A month earlier, the indicator remained almost unchanged - only plus 0.05%, or 11.5 billion tenge. The last time a noticeable monthly increase was observed in June - immediately plus 3.2%, or 748.3 billion tenge, by May of the current year.

Over the year (August 2018 to the same month of 2017), the assets of the Middle East Bank of Kazakhstan increased by only 0.2% or 45.1 billion tenge. A year earlier, the volume of assets for the corresponding period showed a decline - minus 3% or 744.1 billion tenge (from 24.8 to 24.1 trillion tenge).

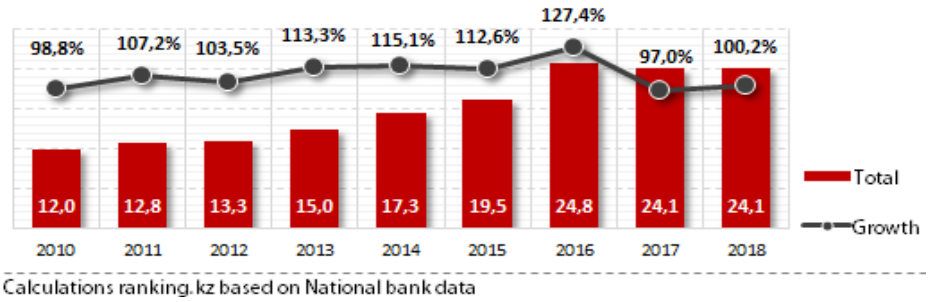


Figure 1 – Assets of STB RK, September 2018, trillion tenge

The profit of the Middle East Bank in January-August 2018 amounted to 418.6 billion tenge. - This is the highest figure for the same period since 2010, when profit amounted to 1.5 trillion. tg. A year earlier, in January-August, the banking sector of Kazakhstan in the aggregate suffered losses of 160.3 billion tenge. Such data leads ranking.kz. [3].

Of the 29 STBs operating in Kazakhstan in August (there are 28 banks at the moment), 26 received profits.

The average monthly profit of the RBO in the current year amounted to 52.3 billion tenge. The highest rate was in February - 90.3 billion tenge, the lowest in July - 47.6 billion tenge.

Profit for August amounted to 49.8 billion tenge, which is 4.6% more than in July.

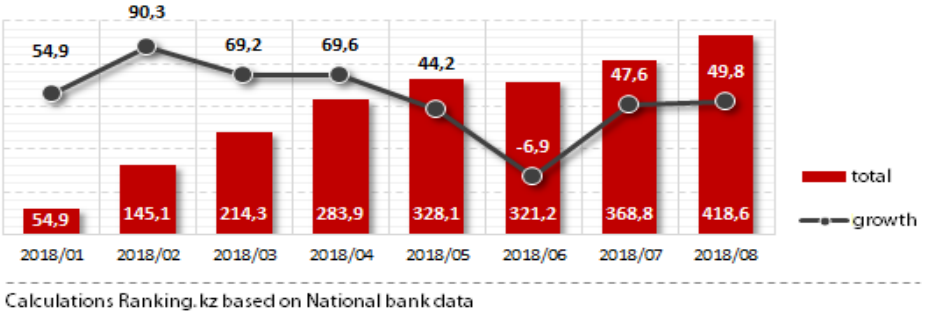


Figure 2 – Profit of STB RK, August 2018, billion tenge

The situation in the banking sector is changing. The credit market after a significant decline in 2017 actually stagnates. By September, the loan portfolio of the Middle East Bank of Kazakhstan amounted to 13.6 trillion tenge - by 1.2% less than a year earlier, and immediately by 13.2% less than in the same period of 2016.

However, the quality of loans has noticeably improved: by the end of the summer, loans with overdue payments amounted to only 13.1% of the portfolio, while the most dangerous loans with overdue over 90 days amounted to only 8.2%. For comparison, a year earlier, the figures were 18.8% and 12.8%, respectively.

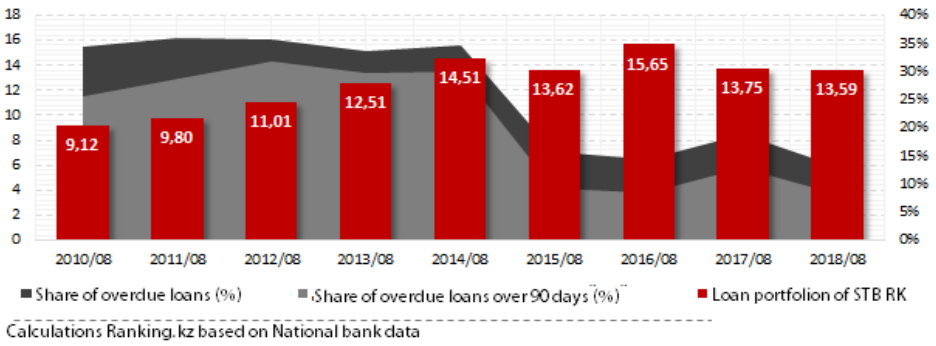


Figure 3 –Loan portfolio of STB RK, trillion tenge

Against the background of the reduction in the number of banks and stagnation in lending, the competition of STB for reliable customers-borrowers is growing in the market. One of the tools to attract Kazakhstan people who have already proven themselves to be conscientious payers of loans is the system of refinancing loans. Refinancing is also beneficial to the lenders themselves, because it allows them to choose more favorable conditions for Bank loans.

Treasurers of quasi-state companies traditionally prefer not to risk and place deposits at a low interest rate actually in a single Bank. In turn, bankers also do not risk and are invested in the notes of the national Bank. Thus, it turns out a trivial cycle of public money in the country, the flows from which only a relatively small amount fall into the real economy.

The landscape of the country's banking sector has changed significantly this year. Tighter regulation has led to the withdrawal of insolvent players from the market. As a result, today there are actually 28 banks in Kazakhstan. We found out how small players developed in the first half of the year under the conditions of continuing turbulence.

In late August, lost a banking license and will be forcibly liquidated Eximbank and Qazaq Banki. In mid-September, the same fate befell the Bank of Astana. The head of the national Bank assured that as soon as the court decision comes out and the verdict comes into force, the depositors of these banks will return all the money [4].

However, it is necessary to pay tribute that improvement for some banks passes successfully. According to the national Bank, the level of NPL (non-performing loans) in the loan portfolios of banks for the first half decreased from 9.3% to 8.8%. From the General list of banks participating in the recovery program, the three managed to improve their performance. Thus, the share of NPL has decreased since the beginning of the year In the Bank CenterCredit, ATF Bank and Eurasian Bank.

Assessing the results of the first seven months, such medium-sized banks as AsiaCredit Bank, Alfa-Bank, Nurbank, Altyn Bank, HomeCredit Bank, the dynamics of the transition of standard loans to the category of problem ones remains at the same level, acceptable according to the requirements of the regulator. In these banks, the NPL level varies from 0.44 to 8.18% [5].

Large financial institutions can count on the support of the state, which is confirmed by recent statements on the redemption of agricultural loans by the Fund of problem loans from Tsesnabank in the amount of 450 billion tenge. Although after that, the Bank had some problems. Well, medium and small banks have to rely only on themselves. At the same time, to reduce the share of problem loans in the portfolio of STB, the regulator provides for the possibility of creating special companies to manage doubtful assets, which, unlike banks, have the right to sell, lease, transfer to trust management, etc.For example, in August this year, the national Bank issued a permit to AsiaCredit Bank to create LLP "organization for managing stressful assets of the Bank". Purchase of doubtful assets by this company from the Bank, as well as quality management of these assets, will allow the company to receive revenues that will be used to repay problem loans and, accordingly, to improve the quality of the loan portfolio [6].

Despite the fact that small players did not fall under the rehabilitation program, they continue to successfully develop, create reserves and maintain liquidity ratios at the required level. As of July 1, the average k1 in the market was 16.5%, while the minimum should be 7.5%.

One of the important indicators, such as the current liquidity ratio, k4, the regulator requires banks to maintain at a level no lower than 0.3%. At AsiaCredit Bank, this figure is 0.715, which exceeds the required level of fin. regulator more than 2 times. In VTB, Tengri, Nurbank, the indicator is in the range from 0.575 to 1.047.

This year at least five small banks were downgraded to CCC. Although some financial institutions downgrades were not so catastrophic. Recently, the international rating agency S & P downgraded the Tengri Bank's long-term credit rating from B + to B, the national scale rating from kzBBB to kzBB + and placed the ratings on the CreditWatch list. Other players managed to keep the ratings at the same level, for example, in summer this agency confirmed the long-term and short-term credit ratings of AsiaCreditBank at the level of “B- / B” [7].

Futurologists and bankers predict that financial institutions of the future will be more like IT companies or financial ecosystems than classic banks. In Kazakhstan, there is already such an example - Kaspi Bank, which remains the market leader, thanks to the created online service and the development of online products. On the other hand, there are “invisible” for customers technologies associated with the

issuance of electronic money and the processing of such payments. Thanks to them, customers can make payments through e-wallets and Internet portals [8].

In this segment, which year already, AsiaCredit Bank remains the leader, occupying a quarter of the market in terms of the issue of electronic money. The Bank is also the leader in the number of payment systems for which electronic money is issued. To understand the scale of such operations, it is worth remembering that only last year the republic issued electronic money worth 331.6 billion tenge.

Thus, today, Kazakhstani banks are creating services that are on the verge of financial services and technologies, are involved in the issuance of electronic money, thereby stimulating the development of non-cash and online payments. All this leads to the fact that banking services are becoming more affordable, cheaper and more comfortable for customers.

А.А. Усипбеков [1], А.Б. Алибекова [1], Б.Б. Доскалиева [1], А.Б. Әлібекова [2]

[1]"Қаржы академиясы" АҚ Астана, Қазақстан;
[2]«Ақмешіт» гуманитарлық-техникалық институты

ҚАЗАҚСТАННЫҢ ҚАРЖЫ НАРЫҒЫНЫҢ ҚАЗІРГІ ЖАҒДАЙЫ

Аннотация: Қаржы нарығының әртүрлі сегменттері өзара тығыз байланысқан, ол қаржы ағымдарының қозғалысымен экономикалық тұрғыдан көрініс табады және әртүрлі сегменттердің қаржылық құралдарының табыстылығын теңестіруге ұмтылады. Қаржы нарығының қаржылық көрсеткіштерін талдау ереже бойынша нақты бір сегмент тұрғысынан жүргізіледі. Мақалада қаржы нарығының бір құраушысы Қазақстанның банк секторына қаржылық талдау жүргізілген.

Түйін сөздер: қаржы нарығы, қаржыны реттеуші, банктік сектор, қаржы институттары, қаржы нарығының сегменттері, қаржылық ағым, қаржылық құралдар.

А.А. Усипбеков[1], А.Б. Алибекова[1], Б.Б. Доскалиева[1], А.Б. Алибекова[2]

[1]АО"Финансовая академия" Астана, Казахстан;
[2]Гуманитарно-технический институт «Акмешит»

СОВРЕМЕННОЕ СОСТОЯНИЕ ФИНАНСОВОГО РЫНКА КАЗАХСТАНА

Аннотация: Различные сегменты финансового рынка тесно связаны между собой, что экономически проявляется и обосновывается движением финансовых потоков и стремлением к уравниванию доходности финансовых инструментов разных сегментов. Анализ финансовых показателей финансового рынка, как правило, проводится с позиции какого-либо конкретного сегмента. В статье анализируется финансовое состояние банковского сектора Казахстана, как одного из сегментов финансового рынка.

Ключевые слова: финансовый рынок, финрегулятор, банковский сектор, фининституты, сегменты финансового рынка, финансовый поток, финансовые инструменты.

REFERENCES

[1] Message of the President of the Republic of Kazakhstan N. Nazarbayev to the people of Kazakhstan “New development opportunities in the conditions of the fourth industrial revolution” dated January 10, 2018

[2] Quarterly report of the National Bank of the Republic of Kazakhstan https://nationalbank.kz/?switch=russian

[3] Profit of STB RK. January-August 2018. ranking.kz. October 18, 2018 http://ranking.kz/ru/a/infopovody/ot-kolichestva-k-kachestvu

[4] D. Akishev. National Bank: deprivation of licenses of three banks does not bear risks for other Radio Azattyқ, September, 2018.https://rus.azattyq.org/a/29512294.html

[5] Banking market: between recovery and liquidation. Business portal Kapital.kz. September 24, 2018 https://kapital.kz/finance/72293/ bankovskij-rynok-mezhdu-ozdorovleniem-i-likvidaciej.html

[6] Financial stability. Poll of banks on the credit market. October, 2018. https://nationalbank.kz/?docid=650&switch=russian

[7] Kazakhstan banks rating – 2018. Forbes Kazahstan. Official site of National Bank of Kazakhstan https://forbes.kz/leader/reyting_bankov_kazahstana_2018_1532941613/

[8] Richard Henderson, “Wealth Managers Play ‘Robo Advisers’ at Their Own Game,” Wall Street Journal, March 30, 2017.

REPORTS OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
ISSN 2224-5227 **https://doi.org/10.32014/2019.2518-1483.30**
Volume 1, Number 323 (2019), 179 – 184

UDC 349.2

A.Z. Issayeva[1], B.Zh. Aitimov[2]

[1]ZhansugurovZhetysu State University, Taldykorgan, Kazakhstan;
[2]ZhansugurovZhetysu State University, PhD,Taldykorgan, Kazakhstan
ayim_09@mail.ru, bola_30081978@mail.ru

SOME ISSUES OF THE PROCEDURAL PECULIARITIES OF REVIEWING CIVIL CASES ON LABOR DISPUTES IN COURTS OF APPEAL

Abstract. A review of labor disputesby the appeals instanceof court rulings may results in their cancellation if there are grounds. Investigating a number of civil cases, the authors believe that a formal violation of procedural rules should not cause a review of court rulings. Highlighting the classification of the grounds to cancel the court decisions on labor cases, critically evaluating the position of the Supreme Court of the Republic of Kazakhstan regarding the value of the correct distribution of the burden of proof, the authors substantiate the possibility of assessing such procedural violation as conditional. The authors believe that the court's disregard for the significance of evidentiary presumptions will lead to wrong decision.

Keywords: civil procedure, labor disputes, appeal, suability, jurisdiction, court costs, burden of proof.

The procedural peculiarities of legal proceedings in the cases arising from labor relations primarilyrelate to the time of proceedings, court costs, suability, jurisdiction and the burden of proof. They represent special procedural rules, and their violation may be the subject of consideration by court of appeal.

Taking into account changes in the appeal system, procedural violations in civil proceedings may be unconditional, conditional and formal. Unconditional violations result in cancellation of the decision in any case, formal ones cannot become a basis for cancellation, and conditional violations are the basis for review if they became or could become the reason for making the wrong decision (Article 427 of the Civil Procedure Code of the Republic of Kazakhstan) [1].

Thus, for practical purposes the procedural features can be divided depending on whether their violation leads to the review of the court decision or not.

1. The term of consideration of cases regarding the employment reinstatement is reduced to one month (Part 2 of Article 183 of the Civil Procedure Code of the Republic of Kazakhstan). The violation of terms does not affect the outcome of the case and therefore, does not cause the review of the court's decision, but may be a basis for awarding compensation, as well as making a private definitionby the court of appeal.

2. The court costs. The employees who apply to the courtwith a claim are exempt from court costs (Article 106 of the Civil Procedure Code of the Republic of Kazakhstan). It follows that even if the claim of the employee-plaintiffwas denied, it is impossible to recover the court costs from him, whereas for the employee- defendant there are no special rules for the distribution of court costs [2, p.20].

Having clarified that the court of appeal might change the allocation of court costs when reviewing the decision of the lower court, the Supreme Court of the Republic of Kazakhstan did not touch the issue of errors in the costs allocation. At the same time, it appears that an incorrect allocation of court costs may result in a review of the judicial act, since the higher court will be forced to change the operative part of the decision of the court of first instance.

For example, the courts sometimes charge the expenses of a representative's serviceswronglyfrom the employee-plaintiff, who was denied his claims. Considering a similar case in the order of supervision (according to the old rules), the Supreme Court of the Republic of Kazakhstan noted that such violation is

significant, and therefore it results in the cancellation of the decision regarding the recovery of court costs. There are also examples of the wrong refusal to recover court costs from the employee- defendant, and this leads to the cancellation of decisions in this part.

The Supreme Court of the Republic of Kazakhstan also clarified that the unreasonable exemption from state duty is a formal violation. At the same time, the exemption of the plaintiff from the payment of the state duty results in its recovery from the defendantif the plaintiff's claims are satisfied (part 1 of Article 116 of the Civil Procedure Code of the Republic of Kazakhstan). Therefore, the unreasonable exemptionof the plaintiff fromthe duty, whose claim is satisfied, will lead to theimproperallocation of court costs, and results in the cancellation of decision. If in the same situation the court refuses the claim, then the duty of the defendant is not charged. It seems that only in the latter case, when the interests of the defendant are not affected, the exemption from the state duty can be qualified as a formal violation.

3. The jurisdiction of labor disputes can be territorial or tribal. Let us consider each of them.

3.1. Territorial jurisdiction. According to the general rule, labor disputes are considered by the court at the location of the defendant. The jurisdiction of the plaintiff's choice is used only for victims of criminal or administrative prosecution (part 8 of Article 30 of the Civil Procedure Code of the Republic of Kazakhstan).

The courts are often mistaken in determining the territorial jurisdiction and accept applications regarding the recovery of salary at the place of residence of the plaintiff, and the Supreme Court of the Republic of Kazakhstan indicates that this fact cannot be allowed [3, p.88]. The rule of part 8, Article 30 of the Civil Procedure Code of the Republic of Kazakhstan was also recognized the rule that does not violate the constitutional rights of citizens and does not impede the appeal to the court.

The issue of the consequences of breaking the rules of jurisdiction is the subject of doctrinal disputes, which are also caused by the fact that the explanations of the Supreme Court of the Republic of Kazakhstan differ from the positions of the Constitutional Council of the Republic of Kazakhstan.

Therefore, based on the acts of the Constitutional Council of the Republic of Kazakhstan, there is the position according to which any violation of the jurisdiction rules is the unconditional basis for the cancellation of court decision [4, p.104-107].

For example, according to the definition of the Constitutional Council of the Republic of Kazakhstan, it is necessary to cancel the decision of the lower court, which was made with the violation of the jurisdiction rules, and to transfer the case to the authorized court. This definition is based on other positions of the Constitutional Council of the Republic of Kazakhstan which state that violation of the jurisdiction rules is a "significant (fundamental) violation" and that the absence of such basisamong the standards of procedural law for cancellation of court decision as an error in jurisdiction, does not exclude the possibility of cancellationon this basis due to direct application.

Meanwhile, the last legal position allows ignoring the content of Article 427 Civil Procedure Code of the Republic of Kazakhstan and bringing down thefurther research to political and legal analysis.

As L.A.Terekhova notes, "fetishization" of the jurisdiction rules is unacceptable, since while defending the right to the legal court in accordance with Article 13 of the Constitution of the Republic of Kazakhstan, the right to judicial protection is diminished (part 2 of Article 13 of the Constitution of the Republic of Kazakhstan), and due to the fact that "judicial protection itself is a priority, not the court that implemented it", the violation of the jurisdictionrules may not be the unconditional basis for review [5, p.10-13].

We agree with the thesis concerning the priority significance of judicial protection and note that if the court decision is cancelledbecause of the violations of the jurisdiction rules, the denial of justice does not occur. Such person will receive judicial protection, but after his case is considered againin the legal court.

In this regard, the opinion of L.A. Gros is of great interest [6, p.5-8]. She notes that if the decision is substantively correct, after the case is transferred to the proper court, itwill make an identical decision.Therefore, from the point of view of the person whose rights were protected in court, it looks like a little delayed judicial protection of his rights. The author also states that since the court controls the observance of jurisdiction, the state should be responsible for the harm caused by illegal actions (inaction) of the court. Taking into account the above mentioned, the author concludes that the unconditional cancellation of correct decision that is taken in violation of jurisdiction, can be justified only when judicial acts that have not entered into legal force are appealed (i.e. only on appeal).

At the same time, it should be noted that the problem of the delay in judicial protection also occurs during the appeal, since the entryof court decision into force is postponed until the end of appeal consideration by the court (Article 240 of the Civil Procedure Code of the Republic of Kazakhstan). According to the author,it turns out that the delay is justifiedat the time of the appeal, and the further delay is not justified, and may even results in the responsibility of the state for the damage caused.

Moreover, if the possible losses are obvious, the plaintiff can ask the court to execute the decision immediately (Article 244 of the Civil Procedure Code of the Republic of Kazakhstan), while the court's decision on employment reinstatement is initially executed immediately (Article 236 Civil Procedure Code of the Republic of Kazakhstan). So, the problem of delay in obtaining legal protection can be solved.

However, the importance of the entry of court decision into force should not be underestimated due to the principle of legal certainty or resjudicata [7]. Therefore, the grounds for the cancellation of valid decision must be sufficient so that the axiological value of resjudicata become more significant, whichparticularly is taken into account in the law wordingsregarding the importance of violations for cassation appeal (Article 434 of the Civil Procedure Code of the Republic of Kazakhstan). If the appeal does not touch this principle, the grounds for review in this order may be less significant. However, this does not allow giving a definite reply regarding the significance of the jurisdiction for the appeal.

The purpose of determining the importance of jurisdiction seems to be the starting point for reasoning. E.V. Vaskovsky wrote that "the assignment of the activity of homogeneous courts to certain parts of the territory is mainly the convenience of the litigants and is done in their private interest" [8, p.487].

Thus, the territorial jurisdiction at the location of the defendant (or the so-called natural jurisdiction) is established to protect against potential abuse by potential plaintiffs [9, p.46-65]. Such rule is a subjective right, and therefore, its implementation depends on the manifestation of the initiative. Moreover, the plaintiff can change the jurisdiction of his choice, if there are grounds for that (Article 30 of the Civil Procedure Code of the Republic of Kazakhstan).

Taking into account theabove mentioned, the explanation of the Supreme Court of the RK that the violation of territorial jurisdiction rules is the ground to cancel court decision seems to be reasonable if the petition for lack of jurisdiction is stated in the court of first instance, or there is no objective opportunity to make such petition. If such petition is not submitted, the party is considered to agree to a change of jurisdiction.

On the one hand, this approach takes into account the importance of the right to the legal court (part 2 of Article 13 of the Constitution of the Republic of Kazakhstan), and on the other hand, it reflects the specific goals of establishing territorial jurisdiction [10].

3.2. The situation with tribal jurisdiction is somewhat different. The regional courts consider all labor disputes, with the exception of applications for the issue of court orderswithin the jurisdiction of the world judges, as well as the cases within the jurisdiction of regional courts related to state secrets, and the cases on recognition of the strike as illegal.

Taking into account the fact that a court order cannot be appealed, the violations of jurisdiction established for world judges will not be investigated.

It is interesting to note that the Civil ProcedureCodeof Lithuaniafrom February 28, 2008recognizes the violations of the tribunal jurisdiction rules "absolute basis for invalidity" of the decision [11]. As it will be shown below, this issue is not solved definitely in Kazakhstan.

It seems that the solution to the problem of tribal jurisdiction also lies in the goals of its establishment, which are significantly different from the goals of territorial jurisdiction. As E.V. Vaskovskywrote: "the distinction between the categories of cases givenfor conducting various courts ... iscaused by the public and legal considerations regarding the best organization of judicial authority".

In particular, the purpose of establishing cases within the jurisdiction of regional courts involving the state secrets is the need to study classified documents, it is impossible to make reasonable decisionwithout them.

For example, the regional courtssometimes take up proceedings for dismissalsimproperly due the termination of admission to state secrets (clause 19, part 1, Article 52 of the LC RK) [12]. Considering

one of these cases in cassation, the Supreme Court of the Republic of Kazakhstan noted that since the consideration of the case was related to the investigation of classified documentation (job descriptions, acts regulating secrecy, etc.), the regional court violated the rules of tribal jurisdiction, therefore, the decision is subject to cancellation, and the case is transferred to jurisdiction to the regional court.

Such procedural violation results inmaking the wrong decision, which in accordance with part 3 of Article 427 of Civil Procedure Code of the Republic of Kazakhstan is the ground to cancel the court decision.

Also, the jurisdiction of the courts includes theproceedings for recognizing a strike illegal (Article 26 of the Civil Procedure Code of the Republic of Kazakhstan). The violation of this rule does not directly limit the collection and evaluation of evidence. Therefore, if this violation was not stated in the court of first instance, then, in accordance with the position of the Supreme Court of the Republic of Kazakhstan, similar decision should remain valid.

However, if we consider the violation of the jurisdictionrules as a separately taken conditional procedural violation, then its existence does not result in making wrong decision. If the judge of the regional court cannot understand the case due to lack of qualification, then other violations committed by him led to judicial error. If the same judge does not make any other significant violations, then the decision made is correct in essence, and therefore it cannot be cancelled for formal reasons. It does not matter in which court the case was considered. Thus, separately taken violation of the rules of jurisdiction of cases regarding the recognition of the strike as illegal bythe regional court should not causethe review of the court decision.

There is also an opinion that violation of the rules of tribal jurisdiction is an unconditional basis for cancellation, since the decision was made by the illegal court [13, p.209-215]. However, chapter 3 of the Civil Procedure Code of the Republic of Kazakhstan says that the members of the court are a judge or a board of judges, but not a court. The Supreme Court of the Republic of Kazakhstan holds the similar positions, emphasizing that the illegalmembers of the court relates to the judge's characteristics (whether he has the authority, whether there is no reason to disqualify him, or whether he participates in the case for the first time). Consequently, the case may be considered legally, but with violation of the jurisdiction rules.

4. The jurisdiction of labor disputes to courts of general jurisdiction is provided by Article 23 of CPC RK.

G.A. Zhilinstates that the consequences of violation of court jurisdiction and suability are the same, since jurisdiction in the constitutional legal meaning is the same suability [14, p.35]. This statement also means that the higher court must not only cancel the decision, but also pass it on jurisdiction.

5. The burden of proof in most labor cases is distributed according to special rules [15, p.51]. They are not confirmed legally,however, the courts have developed similar rulesbased on the special features of labor relations [16, p.70].

In particular, in cases of employment reinstatement upon dismissal on the initiative of the employer, the defendant is obliged to prove the legality of dismissal, but not the plaintiff (clauses 13, 24, 26, 28, 30, 31 of Resolutions of the Plenary session of the Supreme Court of the Republic of Kazakhstan dated October 6, 2017 No.9 "On some issues of the application of lawby courts in labor disputes resolution"). It should be noted that the Supreme Court of the Republic of Kazakhstan does not consider the improper distribution of the burden of proof as a procedural violation that could lead to making wrong decision. The Supreme Court only clarified the possibility of presenting new evidence, if not all the circumstances relevant to the case were proved in the court of first instance, because of the improper distribution of the burden of proof as well. Therefore, the burden of proof is assessed only in accordance with the clause 2, part 1 of Article 427 of CPC RK.

If the improper distribution of the burden of proof leads to the fact that these circumstances are notdetermined, this is the ground to cancel the court decision. However, this approach does not seem to be completely correct. Actually, if there is enough evidence to substantiate the conclusions of the court, the fact who presents the evidence does not play a significant role. But if the proof is difficult, the court should be guided by evidentiary presumptions and their wrong definition can result in the wrong court decision.

For example, the employee appeals to the court challenging the dismissal on the initiative of the employer. The court mistakenly imposes the obligation to prove the illegality of the dismissal on the plaintiff. As it happens, of all the documents the employee has onlya labor contract [17, p.101]. In accordance with part 1 of Article 73 of the Civil Procedure Code of the Republic of Kazakhstan, the court offers the parties to submit additional evidence, but the employee has nothing more to provide, and the employer ignores the requirement of the courtintentionally. Since the employee did not submit evidence concerning the illegality of the dismissal, the court denies the claim. In this case (in accordance with the established court practice)the correct distribution of the burden of proof would lead to the satisfaction of the claim, since the employer's inaction would be qualified as the absence of evidence of the dismissallegality, i.e. as determination of the fact of its illegality. Therefore, the violation of the rules of evidence results in making wrong decision.

Thus, the position of the Supreme Court of the Republic of Kazakhstan is subject to criticism as ignoring the significance of evidentiary presumptions.

УДК 349.2

А.Ж.Исаева[1], Б.Ж.Айтимов[2]

[1] І.Жансүгіров атындағы Жетісу мемлекеттік университеті, Талдықорған, Қазақстан
[2] І.Жансүгіров атындағы Жетісу мемлекеттік университеті, Талдықорған, Қазақстан

АПЕЛЛЯЦИЯЛЫҚ САТЫ СОТТАРЫНДА ЕҢБЕК ДАУЛАРЫ БОЙЫНША АЗАМАТТЫҚ ІСТЕРДІ ҚАЙТА ҚАРАУДАҒЫ ПРОЦЕССУАЛДЫҚ ЕРЕКШЕЛІКТЕРІНІҢ КЕЙБІР МӘСЕЛЕЛЕРІ

Аннотация. Апелляциялық сатыдағы соттардың еңбек даулары бойынша сот қаулыларын қайта қарауы негіздер болған жағдайларда олардың күшін жоюға әкеп соғуы мүмкін. Авторлар бір қатар азаматтық істерді зерттей отырып, процессуалдық нормаларды формальды түрде бұзу сот қаулыларын қайта қарауға әкеп соқпауы тиіс деп санайды. Еңбек істері бойынша сот қаулыларын жою үшін негіздерді жіктеуді бөліп көрсете отырып, дәлелдеу уақытын дұрыс бөлу мәніне қатысты ҚР Жоғарғы Сотының ұстанымын сыни бағалай отырып, авторлар мұндай іс жүргізушілік бұзушылықтарды шартты ретінде бағалау мүмкіндігін негіздейді. Авторлар дәлелдемелік презумпциялардың мәнін соттың елемеуі дұрыс емес шешім қабылдауға әкеледі деп санайды.

Түйін сөздер: азаматтық процесс, еңбек даулары, апелляция, соттылығы, ведомстволық, сот шығындары, дәлелдеу уақыты.

УДК 349.2

А.Ж.Исаева[1], Б.Ж.Айтимов[2]

[1] Жетысуский государственный университет имени Ильяса Жансугурова, Талдыкорган, Казахстан;
[2] Жетысуский государственный университет имени Ильяса Жансугурова, Талдыкорган, Казахстан

НЕКОТОРЫЕ ВОПРОСЫ ПРОЦЕССУАЛЬНЫХ ОСОБЕННОСТЕЙ ПЕРЕСМОТРА ГРАЖДАНСКИХ ДЕЛ ПО ТРУДОВЫМ СПОРАМВ СУДАХ АПЕЛЛЯЦИОННОЙ ИНСТАНЦИИ

Аннотация. Пересмотр судами апелляционной инстанции судебных постановлений по трудовым спорам может привести к их отмене в случаях наличия оснований. Авторы, исследуя ряд гражданских дел, считают, что формальное нарушение процессуальных норм не должно повлечь пересмотра судебных постановлений. Выделивклассификацию оснований для отмены судебных постановлений по трудовым делам, критически оценивая позицию Верховного Суда РК в отношении значения правильного распределения бремени доказывания, авторы обосновывают возможность оценки такого процессуального нарушения как условное. Авторы считают, что игнорирование судом значения доказательственных презумпций, приводет к принятию неправильного решения.

Ключевые слова: гражданский процесс, трудовые споры, апелляция, подсудность, подведомственность, судебные расходы, бремя доказывания.

REFERENCES

[1] Civil Procedure Code of the Republic of Kazakhstan dated October 31, **2005**. No.377-V3RK // http://adilet.zan.kz/rus/docs/K1500000377.

[2]Regulatory resolution of the Supreme Court dated December 22, **2017**. No.14 "On amendments and additions to the regulatory resolution of the Supreme Court of the Republic of Kazakhstan dated December 25, 2006 No.9"On application of the law on court costs in civil casesby the courts of the Republic of Kazakhstan" //Bulletin of the Supreme Court of the Republic of Kazakhstan, 2018. No.2 Article 20.

[3]RegulatoryresolutionoftheSupremeCourtdated October 6, 2017 No.9"On some issues of application of law in resolving labor disputes by the courts" //Bulletin of the Supreme Court of the Republic of Kazakhstan. **2017**. No.10 P.88.

[4]GaliyevM.S.On the issue of legal consequences of violation of the right to a legal court //Contemporary law. 2014, No.4, P. 104-107.

[5]TerekhovaL. Fetishization of rules of jurisdiction in civil proceedings //Arbitration and civil proceedings. **2009**. No 6, P. 10–13.

[6]GrosL.A.On the significance of proper definition of the jurisdiction of civil case//Arbitration and civil proceedings. **2010**. No.3, P. 5–8.

[7]The principle resjudicata means the prohibition to revise a judicial act that has entered into legal force without extraordinary reasons.See: KisselyovA. Constitutional grounds for cancellation of court decisions in the cassation instance. 2014 // Reference system "ConsultantPlus".

[8]Vaskovsky E.V. The course of the civil proceeding. M.: Publishing HouseBrothers Bashmakovs, 1913. P. 487.

[9]ThisphraseissuggestedbyA.R. Sultanovafterthepre-revolutionary lawyer K.I. Malyshev.See: A.R. Sultanov.Is jurisdiction a subjective right to review a case in court in accordance with established jurisdiction or a court guarantee arbitrarily established by the legislator?//Bulletin of the civil proceeding. 2013. No.6. P. 46–65.

[10]Constitution of the Republic of Kazakhstan of August 30, 1995 http://adilet.zan.kz/rus/docs/K950001000.

[11]Verification of court rulings in civil proceedings in the EU and CIS countries /edited by E.A.Borissova. The 2nd edition, revised and enlarged. M.: Norma: Infra-M, 2012.

[12]Labor Code of the Republic of Kazakhstan of November 23, **2015**. No. 414-V3RK. // http://adilet.zan.kz/rus/docs/K1500000414.

[13]GaliakbarovaG.G. Peculiarities of the legislative formation of the institution for individual labor disputes in the Republic of Kazakhstan //Bulletinof Kazakh National University.Legal series.**2015**. No.1 (73). P.209-215.

[14]ZhilinG.A. Jurisdiction and suability of labor disputes //Deskbookforjudgesonlabourdisputes: tutorialbook /editedbyS.P.Mavrin.M.: Prospect, **2011**. P. 35-38.

[15]BuyanovaM.O.Individual labor disputes: procedural issues of legal regulation // Law. JournalofHigherSchoolofEconomics. **2014**. No.2. P. 51.

[16]TreushnikovM.K.Judicial evidence.M.: Gorodets, **1997**. P. 70.

[17]Nurgaliyeva E.N., YermagambetovaZh.B.Individual labor disputes. Almaty, **2004**. P.101.

МАЗМҰНЫ

СОДЕРЖАНИЕ

CONTENTS

Publication Ethics and Publication Malpractice
in the journals of the National Academy of Sciences of the Republic of Kazakhstan

For information on Ethics in publishing and Ethical guidelines for journal publication see http://www.elsevier.com/publishingethics and http://www.elsevier.com/journal-authors/ethics.

Submission of an article to the National Academy of Sciences of the Republic of Kazakhstan implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis or as an electronic preprint, see http://www.elsevier.com/postingpolicy), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. In particular, translations into English of papers already published in another language are not accepted.

No other forms of scientific misconduct are allowed, such as plagiarism, falsification, fraudulent data, incorrect interpretation of other works, incorrect citations, etc. The National Academy of Sciences of the Republic of Kazakhstan follows the Code of Conduct of the Committee on Publication Ethics (COPE), and follows the COPE Flowcharts for Resolving Cases of Suspected Misconduct (http://publicationethics.org/files/u2/New_Code.pdf). To verify originality, your article may be checked by the originality detection service Cross Check http://www.elsevier.com/editors/plagdetect.

The authors are obliged to participate in peer review process and be ready to provide corrections, clarifications, retractions and apologies when needed. All authors of a paper should have significantly contributed to the research.

The reviewers should provide objective judgments and should point out relevant published works which are not yet cited. Reviewed articles should be treated confidentially. The reviewers will be chosen in such a way that there is no conflict of interests with respect to the research, the authors and/or the research funders.

The editors have complete responsibility and authority to reject or accept a paper, and they will only accept a paper when reasonably certain. They will preserve anonymity of reviewers and promote publication of corrections, clarifications, retractions and apologies when needed. The acceptance of a paper automatically implies the copyright transfer to the National Academy of sciences of the Republic of Kazakhstan.

The Editorial Board of the National Academy of sciences of the Republic of Kazakhstan will monitor and safeguard publishing ethics.

Правила оформления статьи для публикации в журнале смотреть на сайте:

www:nauka-nanrk.kz

ISSN 2518-1483 (Online), ISSN 2224-5227 (Print)

http://reports-science.kz/index.php/en/archive

Редакторы *М. С. Ахметова, Т.А. Апендиев, Д.С. Аленов*
Верстка на компьютере *А.М. Кульгинбаевой*

Подписано в печать 07.02.2019.
Формат 60x881/8. Бумага офсетная. Печать – ризограф.
10,5 п.л. Тираж 500. Заказ 1.