

ӘЛ-ФАРАБИ АТЫНДАҒЫ ҚАЗАҚ ҰЛТТЫҚ УНИВЕРСИТЕТІ
КАЗАХСКИЙ НАЦИОНАЛЬНЫЙ УНИВЕРСИТЕТ ИМЕНИ АЛЬ-ФАРАБИ
AL-FARABI KAZAKH NATIONAL UNIVERSITY

ГЕОГРАФИЯ ЖӘНЕ ТАБИҒАТТЫ ПАЙДАЛАНУ ФАКУЛЬТЕТІ
ФАКУЛЬТЕТ ГЕОГРАФИИ И ПРИРОДОПОЛЬЗОВАНИЯ
FACULTY OF GEOGRAPHY AND ENVIRONMENTAL SCIENCES



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атты студенттер мен жас ғалымдардың
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МАТЕРИАЛДАРЫ

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международной научной конференции
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MATERIALS

International Scientific Conference
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«FARABI ALEMI»

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МАЗМҰНЫ/СОДЕРЖАНИЕ/CONTENT

ГЕОГРАФИЯ, ЖЕРГЕ ОРНАЛАСТЫРУ ЖӘНЕ КАДАСТРДЫҢ ӨЗЕКТІ МӘСЕЛЕЛЕРІ СЕКЦИЯСЫ СЕКЦИЯ АКТУАЛЬНЫЕ ВОПРОСЫ ГЕОГРАФИИ, ЗЕМЛЕУСТРОЙСТВА И КАДАСТРА SECTION ACTUAL ISSUES OF GEOGRAPHY, LAND MANAGEMENT AND CADASTRE

ГЕОГРАФИЯ ГЕОГРАФИЯ GEOGRAPHY

<i>Бекмухамбетов С.Д.</i> Солтүстік Қазақ жазығы көлдер жүйесінің қалыптасу ерекшеліктері.-----	12
<i>Бекиоинова Г.Т.</i> Қазақстан аумағындағы қауіпті геодинамикалық үдерістер.-----	13
<i>Жұматаева Ж.М.</i> Қазақстан Республикасындағы құбыр көлігінің дамуы мен экономикалық-географиялық мәселелері.-----	14
<i>Kadylbekov M.K.</i> Influence of Aktogay mining and processing complex on socio-economic development of Ayagoz district. -----	17
<i>Ковбашин Д.И.</i> Различия в природных и социально-экономических факторах хозяйствования индивидуальных и кооперативных фермерских хозяйств в Акмолинской области (Республика Казахстан).-----	21
<i>Өмірзақ Н.</i> Алматы қаласының геоэкологиялық мәселелерінің қазіргі жағдайы.-----	22
<i>Рашиева А.С.</i> Арыс қаласының жарылыстан кейінгі жағдайын жақсарту. -----	23
<i>Смагулов Е.Н.</i> Современное состояние и перспективы развития сельскохозяйственного землепользования в Акмолинской области.--	24
<i>Сиражитдинова М.К.</i> Использование космоснимков для решения проблем АПК Жананаркинского района Карагандинской области. -----	25
<i>Тынышжанов С.К.</i> Жерді арақашықтықтан зерделеу мәліметтері негізінде жер беті пішінінің деформациялауын зерттеу (Орлов кен орны мысалында).-----	26

ЖЕРГЕ ОРНАЛАСТЫРУ ЖӘНЕ КАДАСТР ЗЕМЛЕУСТРОЙСТВО И КАДАСТР LAND MANAGEMENT AND CADASTRE

<i>Бақтыгерей Н.</i> Жамбыл облысы Меркі ауданының ауыл шаруашылық алқаптарын агрохимиялық тұрғыдан зерттеу.-----	29
<i>Касымғалиев С.К.</i> Жердің агроэкологиялық мониторингі және топырақтың құнарлылығын басқару (Б.Қ.О. мысалында).-----	31
<i>Өмірзақ А.Қ.</i> Қазақстан Республикасында жер мониторингін жүргізу.-----	35

ГИДРОМЕТЕОРОЛОГИЯНЫҢ ЗАМАНАУИ МӘСЕЛЕЛЕРІ СЕКЦИЯСЫ СЕКЦИЯ СОВРЕМЕННЫЕ ПРОБЛЕМЫ ГИДРОМЕТЕОРОЛОГИИ SECTION MODERN PROBLEMS OF HYDROMETEOROLOGY

ГИДРОЛОГИЯ ГИДРОЛОГИЯ HYDROLOGY

<i>Абдырахманова Ж.А.</i> Балқаш көлінің минерализациясына болжам жасау.-----	39
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INFLUENCE OF AKTOGAY MINING AND PROCESSING COMPLEX ON SOCIO-ECONOMIC DEVELOPMENT OF AYAGOZ DISTRICT

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Industrial development is the most important task for the economy of Kazakhstan. In 2010, the course was taken to diversify the economy. In 2010-2014, the State program of forced industrial and innovative development was implemented. To date, the implementation of the second five-year plan of industrialization is being completed. In the State program of industrial and innovative development for 2015-2019, the emphasis was increased on priority sectors of the manufacturing industry. The Concept of a third five-year plan of industrialization for 2020-2024 is at the stage of adoption. Due to the accelerated development of industry, the impact assessment of enterprises on the environment and socio-economic environment is one of the most pressing issues in the framework of improving the living standards of the population.

Within the framework of the State program of forced industrial and innovative development in 2010-2014, 162 projects were implemented with a total investment of 6.5 trillion tenge. One of the "breakthrough projects" is the construction of the Aktogay mining and processing complex (MPC) in East Kazakhstan oblast.

Engineering development Aktogay mining and processing complex contributes:

- development of the country's mineral resource complex;
- increasing the potential of mining industry in Kazakhstan through introduction of new technologies that are used in the extraction and processing of ore, as well as in the production of the final product.

Aktogay is one of the largest undeveloped copper deposits in the world; it contains about 3.5 million tons of recoverable copper. At the current level of production, the resource base allows the mine to be operated for 50 years. In 2011, the Aktogay mining and processing complex (MPC) was launched by "Kazakhmys" company (since 2014 – "KAZ Minerals").

Aktogay mining and processing complex is a large mining and metallurgical company, which occupies the eleventh place in the world for copper smelting, producing 90 % of all copper in Kazakhstan. Aktogay by administrative division is located in the area of Ayagoz district of East Kazakhstan oblast.

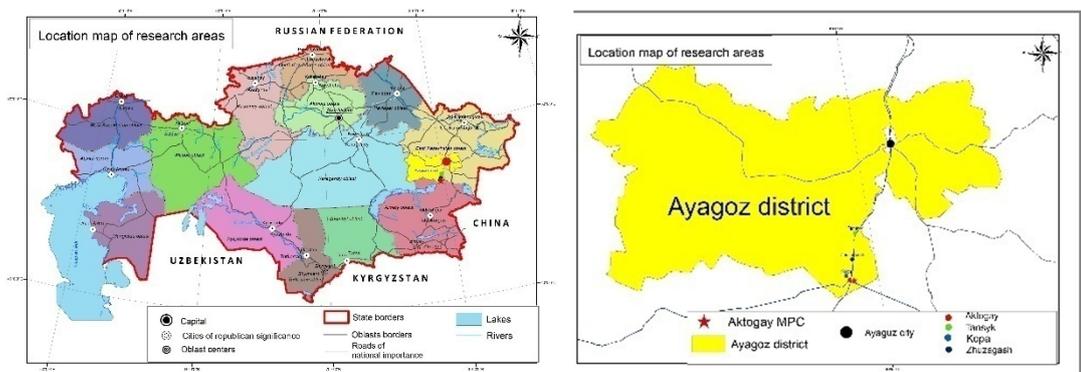


Figure 1 – Location map of research areas

The Aktogay ore body consists of a Deposit of oxidized ores lying above the sulfide deposits. The latter deposits also contain molybdenum as a passing component.

In the 1970s, new development prospects emerged for the Ayagoz district: a large copper Deposit was discovered 22 km from Aktogay. The resources of the Deposit were estimated at 1.7 billion tons, the total amount of copper in the ore is 5.8 million tons. However, due to high capital expenditures and low production and processing levels, the development of one of the largest deposits in the world was difficult.

In 2012, the copper mining company "KAZ Minerals" approved the development project of the Aktogay field. In December 2015, the production of copper cathode from oxide ore began at the Aktogay mining and processing complex (MPC). In 2017, a project was developed to expand production, which will double the capacity of sulfide ore processing.

The nearest localities of Ayagoz district from Aktogay MPC are: Aktogay village (7.5 K); zhuzagash railway station (12 km); Kopa village (13 km); Karakum (20 km). The distance to the administrative center of the district – Ayagoz-116 km.

Social components of impact assessment.

Impact assessment of production processes of planned activities or existing enterprises on the socio-economic environment is carried out in several stages. The process of determining the composition of components of the socio – economic environment (scoping) is the starting point in the overall process of impact assessment. In the structural plan, the components of two blocks are considered: the "Social sphere" block and the "Economic sphere" block, which reveal the socio-economic situation in the territory of the planned activity (table 1).

Labor resources and employment. According to state statistics bodies, as of January 1, 2018, the number of employed people in the East Kazakhstan oblast amounted to 679.0 thousand people (95.2% of the total economically active population

Over the period of 2009-2018, the labor market in both the Ayagoz district and the East Kazakhstan oblast, as well as in the Republic as a whole, has seen a decrease in the share of the economically active population. Over the past five years, the country and the East Kazakhstan oblast have seen a decrease in the level of the employed population, which indicates an aging population, when in the Ayagoz district there is a positive trend in the share of the employed population.

According to the Ayagoz district development Program for 2016-2020, in the Aktogay station in period from 2014 to 2018, the unemployment rate decreased by 0.3%. 688 additional jobs were created.

Also, since the launch of the mining and processing complex (MPC), the demand of “KAZ Minerals Aktogay” LLP for the workers and engineers of the complex amounted to 1,030 people. The company has a “Trainee” training program aimed at providing candidates with no work experience with the opportunity to start working in the company on the equipment of the enterprise through the acquisition of professional knowledge and skills. In 2018, 40 graduates of colleges and universities of the East Kazakhstan oblast have already studied under this program, and in 2019 – 238 graduates. According to the forecast data, due to the increase in jobs, the population of Aktogay station may increase to 9.5 thousand people.

The main indicator of the standard of living of Ayagoz’s population was and remains the state of agricultural production. In the region, 5 million hectares of land are occupied for agricultural production, which is the third indicator among the regions of the republic. Therefore, the largest number of people employed in 2018 in the Ayagoz district is in agriculture – 28.8%, industry – 8.2%, wholesale and retail trade – 21.1%. The minimum number of employees falls on activities related to the construction industry – 2.6% (table 3).

As we can see from table 3, in the structure of the employed population by types of economic activity in the dynamics of 2014-2018, there is an increase in the share of the employed population in industry by 6.8 % and trade by 13.5%, when the share of those employed in agriculture decreased by 13.6%.

The main problematic issues in the field of employment in Ayagoz district are:

- lack of permanent jobs in rural areas;
- high level of youth and female unemployment;
- high proportion of low-income citizens among the unemployed and self-employed;
- non-compliance of professional training with the needs of the labor market.

In general, the analysis of the situation on the labour market of the region shows a positive trend over the last 5 years: the constant growth of the employed population, increase in the number of employed unemployed, reducing unemployment, reducing the share of employed population in agriculture and increasing the share of employed population in industry and trade.

Income and standard of living. The main indicator of the population's standard of living is the amount of income received. The income of the population is directly related to wages. According to the Statistics Committee of the Ministry of national economy of the Republic of Kazakhstan, as of January 1, 2018, the average monthly salary of one employee in Ayagoz district was 158.9 thousand tenge, an increase of 51% compared to the same period in 2017 (table 5). This indicator is higher than the regional average (140.1 thousand tenge.) for 18.8 thousand tenge.

The income level in the district is higher than the regional average (140, 1 thousand tenge) by 18.8 thousand tenge and lower than the national average by 3.8 thousand tenge. As of January 1, 2018, workers employed in the field of industry – 158.9 thousand tenge, construction-134.2 thousand tenge, formed the highest salary in the Ayagoz district. The lowest level of remuneration was noted for employees engaged in professional, scientific and technical activities – 58.4 thousand tenge.

Public health. The morbidity of the population is one of the integral and visual indicators of the state of health of the population.

The impact of the work on human health can be carried out through two environments: the hydrosphere and the atmosphere.

The composition of emissions during work includes substances, mainly from working equipment.

The results of the calculation of emissions of pollutants into the atmosphere during work and analysis of their impact showed that their surface concentrations at the border of the sanitary protection zone, which is 500 m, do not exceed the maximum permissible concentrations.

The analysis of the primary morbidity of the population of the East Kazakhstan oblast for the period from 2009 to 2018 shows a decrease in the incidence rate by 1.2 times. At the same time, the morbidity rates of the region's population continue to be higher than in the Republic of Kazakhstan as a whole.

The level of primary morbidity of the population in the East Kazakhstan oblast during the period under review is higher than the national average (table 5).

During the period under review, both in the Ayagoz and East Kazakhstan oblast and throughout the country, there was a decrease in the number of hospitals, outpatient clinics, hospital beds and the provision of hospital beds for the population. Thus, in the Ayagoz district, the decrease in the number of health organizations was: health organizations by 2 units, hospital beds by 131 units. At the same time, the provision of hospital beds decreased from 49 in 2009 to 32 in 2018. In general, the provision of hospital beds per 10,000 people in the region is significantly lower than in the region (1.8 times) and the Republic (1.6 times).

With the decrease in health care organizations, it should be noted that in 2015, social investments of the company "KAZ Minerals " amounted to \$15.2 million, including sponsorship, assistance and donations for projects for the local population directly in the regions of production activities, as well as for projects at the national level. The main social projects of the Eastern region include financing the construction of a new Hematology center in the Semey city, road repairs in the Glubokiv district, delivery in operation of the Palace of culture to local authorities and the purchase of medical equipment for the East Kazakhstan oblast hospital in Ust-Kamenogorsk.

Demographic situation. The population of Ayagoz district as of January 1, 2019 was 72,695. In terms of population, the district occupies the 2nd place among the districts of the East Kazakhstan oblast. It should be noted that the population of Ayagoz district is 5.3% of the total population of the East Kazakhstan oblast, the area of the district occupies 17.5% of the territory of the region.

The population of Ayagoz district is exclusively rural and in 2019 amounted to 34,155 people, a decrease in comparison with 2018 (34,710 people) by 555 people.

Over the period of 2009-2018, the population of East Kazakhstan oblast decreased by 19.6 thousand people (1.4%), the number of residents of Ayagoz district decreased by 1.9 thousand people (2.5%).

The population of the region is formed by natural population movement and migration flow. Thus, for the period 2009-2018, the natural growth in the Ayagoz district averaged 14.29%, while the migration balance was negative (figure 2). Differentiation of the quality of life is the main reason for the negative value of migration balance in the regions of the Republic of Kazakhstan, due to the outflow of population from all oblasts to the major cities of Republican significance Nur-Sultan and Almaty.

Economic components of impact assessment.

To impact assess of the Aktogay mining and processing complex on the economic environment of the oblast, following indicators were selected:

- Economic development;
- Agriculture and land use;
- Transport network;
- Industry;

Economic development. Ayagoz district is located in the south-west of the East Kazakhstan oblast in Kazakhstan. In the economy of the district, mainly railway organizations, energy, heat supply, mining, agriculture, trade and utilities occupy the leading places.

The main indicator of the standard of living in the Ayagoz district was and remains the state of agricultural production.

A distinctive feature of animal husbandry is its diversified nature. Depending on the natural and climatic conditions and economic activity, the district successfully develops dairy and meat cattle breeding, fine wool and rough-wool sheep breeding, horse breeding.

The volume of gross agricultural output in January-February 2017 amounted to 15.9 billion tenge. The physical volume index compared to January-February 2016 was 104.4%.

Industry. The volume of industrial production in January-February 2017 amounted to 162.2 billion tenge, which is 9.1% higher than in January-February 2016. the Growth in the mining industry was 34.7%, in manufacturing-8.9%. At the same time, in electricity supply, gas supply, steam, and air conditioning, the physical volume of production decreased by 4.3%, in water supply, Sewerage system, control over the collection and distribution of waste – by 6.5%.

Based on the analysis of socio-economic components of the impact assessment, potentially significant impacts of the mining and processing complex were identified. Direct impacts in the socio-economic environment were identified:

- increase in the number of employed people in industry from 480 people in 2014 to 2681 people in 2018.
- training the local workforce;
- increase in the average monthly salary of one employee in the Ayagoz district;
- indirect job creation in other service areas;
- local skilled workers will be preferred when hiring staff;
- repair of automobile and railway tracks for comfortable movement of shift workers and the population as a whole;
- – there is no negative impact on the health of the population of MPC, since there is a decrease in the dynamics of primary morbidity of the population;
- the company's contributions to the budget of the East Kazakhstan oblast will help to improve the socio-economic situation in the region;
- in accordance with the state program of import substitution at all stages of the project, all necessary goods and services will be purchased mainly from local Kazakh suppliers. Preference will be given to the conclusion of contracts with enterprises of East Kazakhstan oblast (if they perform their work efficiently and at competitive prices).