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### **Environmental security in the context of human capital formation**

**Abstract.** The article deals with the human capital formed under the influence of the health system (health potential), education (qualification potential), environmental safety. The unfavorable ecological state of the Republic poses a real threat to the health of the population, including children, and therefore environmental safety is one of the main components of national security. Adverse environmental conditions significantly affect the physical development of the population and leads to the development of adverse factors in health, which is expressed in the formation of human capital. The article also presents the methodological basis for assessing the impact of anthropogenic and environmental factors on the quality of human capital. The analytical tools to diagnose the degree of environmental stress areas, to assess the impact of the environment on human health and the quality of human capital in General. The natural and financial potential of increasing ecological safety of territories is investigated.

**Key words:** ecological safety, human capital, environment, human resources.

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**Introduction.** The adoption of the “Strategy of industrial – innovative development of the Republic of Kazakhstan for 2003-2015” aims to achieve sustainable development of the country through diversification of economic sectors, contributing to the departure from the raw materials orientation, preparation of conditions for transition to a service-technological economy in the long term. Financial investments planned in the context of this strategy in individual sectors and industrial enterprises assume their intended use, the end result of which should be an increase in labor productivity and profits and ultimately an increase in the well-being of citizens [4].

The economic and political stability of the country, its economic and national security are impossible without solving environmental problems, and above all - environmental security. In his activity, a person, as a rule, does not realize that he violates the objective laws and laws of the flow of natural processes, causes undesirable changes for himself and does not foresee their consequences. But if until some time the mechanisms of biosphere self-regulation compensated for the human impact on the environment, then a feature of the present stage of the planet’s development is that the production system and the scope of human activity have reached scales comparable to those of natural phenomena.

The problem of environmental safety requires research and disclosure of the essence and content of the concept of «environmental safety». Currently, neither in the economic nor in other scientific literature there is no clear definition of this concept. Without clarifying the concept of “environmental safety” it is difficult to talk about the mechanism for solving the problem posed.

Ecological safety, as a branch of interdisciplinary knowledge, occupies a certain level in the systemic organization of modern science. In the Law «On Environmental Protection» the concept of «environmental safety» is considered as a state of protection of the natural environment and vital human interests from the possible negative impact of economic and other activities, natural and man-made emergencies, and their consequences. Ecological safety is understood to mean the state of protection of the vital interests of an individual, society, and the environment from threats arising from natural and anthropogenic influences.

The subjects of environmental safety are the individual, society, state, biosphere. Among

the objects of environmental safety, there are vital interests of security subjects: law, material and spiritual needs of the individual, natural resources and the natural environment as the material basis of state and natural development. From the standpoint of a systematic approach, environmental safety is a combination of legislative, technical, medical, biological and other measures aimed at maintaining a balance between the biosphere and anthropogenic, as well as natural external loads. Thus, the concept of «environmental safety» has a multifaceted structure, which presents theoretical and methodological foundations, including the unity of theory and socio-legal practice, allowing to regulate, manage, predict, prevent, and in case of occurrence, eliminate the development of environmental emergencies [17].

The conceptual approach to ensuring environmental safety is logical and is explained by the global threat of environmental disasters, which put humanity, as a biological species, on the brink of survival. Unfortunately, Kazakhstan has not yet created the conceptual foundations of a system for ensuring environmental safety, and the state began to form separate theoretical, legal (legislative) elements only in the early 90s of the last centuries. Practice shows that the current administrative and legal mechanisms for ensuring environmental safety still do not meet international standards and increased public needs.

In this regard, scientists, politicians, lawyers are faced with the task of developing and implementing a scientifically based concept of environmental safety, and of further developing environmental legislation. An important structural element of the concept is the complex development of the conceptual apparatus and its components, such as “environmental safety”, “environmental safety threats”, “environmental safety”, etc. The development of a modern concept of environmental safety is based on the idea of preventing and compensating for harm caused to the environment, the environment, health and property of citizens through pollution, damage, destruction, damage, irrational use of natural resources, destruction natural ecological systems and other environmental consequences of unsustainable anthropogenic activities. From the point of view of a modern economic approach to the study of human behavior, human capital - a set of knowledge and skills used to meet the diverse needs of man and society as a whole - is a complex productive factor that has a key impact on economic development. Therefore, the modern economy is called the economy of effective human resources, which emphasizes the main, decisive role of human capital in the development of the modern state and society. Human capital determines how effectively the state develops. Competitive human resources become the most significant in comparison with raw material resources, instead of «raw economy» comes «knowledge economy». Therefore, one of the main trends of the modern world is increased competition for qualified and highly skilled human resources. This rivalry is carried out not only among developed, but also rapidly developing countries, both at the global and regional levels.

The quality of human capital in any country may change under the influence of both external (migration processes, integration projects, etc.) and internal factors (identification processes, economic development dynamics, urbanization, the nature of reforms carried out in the country, etc.). In this regard, for any state, the issue of effective human resource management is paramount and determines the degree of its competitiveness in the modern world. Thus, the key to the management of human capital is the person and his capabilities. At the same time, this process has two interrelated directions [9,21]. On the one hand, human capital management is directly related to the development of the socio-cultural sector, the creation of sustainable conditions acceptable for the evolution of language, culture, education, health care, and national identity. In other words, the state forms an effective habitat and intellectual activity for its citizens, providing conditions for a high-quality life and effective self-realization. On the other hand, each person, guided by the priorities of personal growth, realizes the need to invest in the development of his country, through the self-realization of each is carried out the progressive growth of the whole country. Thus, human capital management is a self-sustaining and self-replicating system, in which the

conditions created and investments in human capital lead to the formation of a new human quality, which in turn contributes to the development of a new quality of life [16].

Human capital today is the most important component that determines the market value of a modern company. Obviously, it is human capital that acts as the foundation of a company's knowledge capital. In the conditions of aggravating competition of Kazakhstan and foreign companies, the ability to properly assess, develop and effectively use the human capital already accumulated by Kazakhstan organizations to date to maintain and strengthen their positions in the market is important [10].

Human capital in the structure of the intellectual capital of a company is basic and decisive for the successful development of other components, therefore intellectual capital, or intangible assets, is an important component in business valuation [6].

**Objective:** comprehensive institutional analysis of the problem of human capital in the context of active improvement of environmental safety and the processes of modern society.

**Problem statement:** To achieve this goal, the article aims to solve the following tasks: analyze the key points of the evolution of scientific views on the place and role of human capital in the system of social production; to reveal the main causes and consequences of the environmental crisis as a global phenomenon of the modern economy; to identify the objective logic of the historical development of the relationship «man-nature» in the structure of the productive forces; identify and analyze instruments for implementing the state's environmental and economic policy; on the basis of the analysis of empirical materials to identify the contradictions and problems of greening production; reveal the concept of quality of life in the context of environmental issues of human capital.

**History:** Human capital in economics is analyzed as the ability of people to participate in the production process. These are skills and abilities that are created by individuals by investing time in their learning, education and other activities that make the individual more productive. By investing in human capital, people set aside their current income in the hope of increasing their future.

At present, the ecological component is becoming more and more definitive in the theory of human capital [5]. Thus, according to Shchetinin V., the human health fund includes a part of human capital, a part of which is natural, hereditary, and a part acquired as a result of the expenditure of effort and resources of a person and the whole society. Human health is 10% dependent on the health care system, 20% on environmental conditions, 20% on genetic factors. The main factor (50%) is a person's lifestyle. «All costs associated with maintaining a healthy lifestyle, as well as part of environmental costs (associated with maintaining normal human activity in the environment), it is advisable to include in the investment in a person» [8].

In modern economic research, the thesis that a new type of person is becoming the subject of today's economy is increasingly heard. To replace the «economic man» Adam Smith is obliged to come «environmental man.»

In the concept of «environmental man», it is important to abandon assessments from the standpoint of theories of economic growth based on economic indicators and not taking into account (or not fully taking into account) aspects of the quality of life. It is an improvement in the quality of human life that becomes, and the farther, the more definite, the final result of economic development.

Ecological person is a comprehensively developed personality, aware of the value of the surrounding natural world, its dependence on it and doing everything possible to restore the harmony of man and nature, prevent the destruction of nature and save it for future generations [10,11].

According to Yu.N.Pakhomov, the main features of an ecological person are:

- integrity of the worldview (a person considers himself as an element, a subsystem of the

whole, living according to the laws of the whole);

- syncretic consciousness and thinking (a person operate on data from different sciences, uses the experience, traditions and customs of the past, takes into account the realities of the present and the prospects for the future);

- freedom of thought and creativity (the ability to make bold conclusions and generalizations, to put forward revolutionary hypotheses);

- the activity of the individual, the desire for self-realization (active human activity in the social and natural worlds, self-knowledge);

- the need to live in unity and harmony with people and nature [20].

The most important attribute of an ecological person is “ecological consciousness”, which should determine the choice of technology options, construction of enterprises and the use of natural resources.

Three variants of ecological consciousness are possible: first, the recognition by people of the birthright and the absolute power of nature, and, consequently, of their subordination to the elements of nature; secondly, recognition of man as the «crown of creation» and his rights to the unlimited use of natural wealth; and finally, thirdly, the recognition of the fact that a man is only one of many - and not the best! - samples of «living» matter. «The world perception associated with the first option was an attribute of primitive culture and correlated with the consciousness of the mythological type. As for the second and third types of the relationship of man to nature, their main foci arose and developed at different ends of the known and to the ancient «civilized» world: one - in the Mediterranean and Europe, the other - in Asia. This was partly due to the natural and climatic conditions: where the habitat is more «uncompromising» in relation to man, he more readily recognized «Authority» [22,23].

O.O. Bendasyuk distinguishes five types of ecological consciousness: archaic, cosmological, anthropological, technological, socio-ionic. The technological type of ecological consciousness, formed by the twentieth century, is based on unshakable confidence in establishing full control over nature, the possibility of managing it, and using it as a resource for human activity [7].

The means of forming environmental awareness are all areas that work with individual and public consciousness, including the education system, the media, law, state-building, political activity, etc.

Of particular importance in this regard are: the creation of a system of environmental education, education and propaganda; greening the selection, placement and retraining of personnel; creating and maintaining the prestige of professional environmental activities; the use of social movements in solving environmental problems; prevention and resolution of conflicts arising on environmental grounds (environmental-psychological media service); professional response to emerging threats of extreme situations; socio-ecological and ecological-psychological rehabilitation of territories and citizens.

**Method of research.** Currently, the range of approaches and methods for assessing human capital from the point of view of environmental safety is quite wide. At the same time, both cost and natural estimates are used to determine its value. The article implements the approach to the study of the problem with the position of the dialectical method, system approach, as well as historical-genetic, structural-level and other methods of scientific knowledge.

The field of environmental safety assessment of human capital development is devoted to a fairly large number of works, both foreign and domestic scientists. However, the division into specific groups of approaches and methods as such still does not exist. Therefore, first consider the traditional approaches to assessing the value of human capital, and then highlight the most well-known and widely used in practice methods of determining the value of human resources, identifying in the study of their advantages and disadvantages.

**Results/discussion.** The element of sustainability consists of several types of capital that should be replenished for future generations. It's physical, and environmental capital –the state of the environment and irreversible changes in it, and the number of minerals of prirodni resources. Thus, environmental capital is the main element of the conceptual scheme of human development.

The original definition of ecological human may be based on the categories of «health», which consists of physical, mental, moral and intellectual health. In this case, the concept of the «ecological person» podrazumevaet a certain state of the body at the same time as fiziologicheskoi system, mind, and psyche.

The presence of all types is a source of human social activity, which is manifested as a result of the combination of professional and civic qualities. Social activity is also a qualitative characteristic of human environmental.

Thus, human health is one of the qualitative characteristics of human capital in modern conditions. In this context, health can be considered as the optimal physical and mental adaptation of the body to the environment, as a multi-level complex in a state of constant change. Improved health means increased activity in all areas of human activity, while deteriorating health leads to a reduction in the amount of potential activity and reduces the cost of human capital.

According to the world health organization (WHO), health is a state of complete physical, psychological and social well-being, not just the absence of disease and physical defects. Health –the natural capital of man, part of which is hereditary, part of the acquired as a result of the costs of the person and society.

Human capital in modern Kazakhstan is under threat due to the deterioration of General health and reduce the life of the working-age population. In this regard, the first place in the assessment of the state of human capital are the concepts of «quality of life», «healthy lifestyle», which are inseparable from the «healthy» state of the environment.

The state of the environment is characterized by a well-established and constantly improving statistical information system. In order to study the ecological well-being of the region and the impact of numerous factors on the state of the environment, the information basis of the work was not only the indicators of environmental statistics, but also other sources of information that allow to diagnose the causes of ecosystem disturbance.

Criteria for the level of environmental stress were selected typical for all municipal districts of the Republic, regardless of their geographical location, most clearly reflecting the impact of adverse environmental factors. Thus, on the basis of the system of indicators for each municipal formation of the Republic was built three-tier ecological chain: anthropogenic load – environmental pollution – human health (Fig. 1). At the same time, the work takes into account that the state of the environment is in close relationship with the potential of the municipalities of the Republic, that is, the possibility of preserving and restoring the ecosystem at the expense of its own natural resources, or through significant investments in environmental measures.

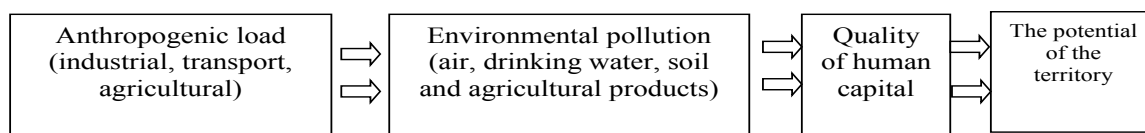


Figure 1- Three-link chain of diagnostics of ecological tension and its impact on the quality of human capital.

Note: compiled by the authors.

To identify the dynamics of human development and capital, for the analysis of social progress using the human development index. It is based on three indicators[12]:

1. life expectancy as a generalized expression of the health status of the population, which allows us to assess the real possibilities of labor potential;
2. educational level, which characterizes the amount of accumulated knowledge and skills;
3. the level of well-being of the adult population, which reveals the quality of life.

According to WHO, the «contribution» of the state of the environment (natural) to the health of each person is about 25-30%. In areas of environmental stress and environmental disasters, these figures are much higher.

There are the following medical and environmental factors affecting human health:

- direct influence of the environment (air, water, radiation, climatic conditions);
- indirect (industry, transport, agriculture) and indirect (policy, environment, health) impacts on human health.

The study of the effects of man-made accumulation of heavy metals and man-made pollution of the environment has now become extremely important for the health and safety of the population. The widespread contamination of the environment with heavy metals and their impact on health is generally well known. The results of the studies show the deterioration of environmental factors in large industrial cities, where there are huge emissions of harmful substances into the air. The danger of living in areas with high insolation, mineralization, water toxicity and violation of its structure, with pollution of phosphorus and chlorine containing pesticides, salts of heavy metals, defoliants is obvious to scientists and members of the public in different countries.

In this case, an important theoretical and practical importance is the establishment of regional patterns of influence on various functional indicators of the body of heavy metals, as well as the development of methodological foundations for the establishment of quantitative indicators. According to WHO (2015), according to the degree of danger of environmental impact, workers and the population among all pollutants of the 10 most dangerous chemicals in the first place are heavy metals – mercury, lead, copper, cadmium, arsenic, beryllium and zinc [13].

Also, according to WHO (2017), 1.7 million children die each year as a result of environmental pollution. More than one in every 4 deaths of children under 5 years of age is due to an unhealthy environment. According to two new WHO reports, environmental risks, such as indoor and outdoor air pollution, unsafe water, lack of sanitation and poor hygiene, claim the lives of 1.7 million children under the age of 5 each year. The first report «Inheriting a Sustainable World: Atlas on Children's Health and the Environment» («to inherit a sustainable world: the Atlas of children's health and the environment») suggests that common causes of death in children from 1 month to 5 years from diarrhoea, malaria and pneumonia – preventable through interventions aimed at reducing the risks associated with the environment, such as access to safe water and clean fuels for cooking. Second report «don't pollute my future! The impact of the environment on children's health» («don't pollute my future! The impact of the environment on the health of children») provides a comprehensive overview of the impact of the environment on the health of children testifying to the extent of this problem. According to the report «World health statistics» ([zdoroviedetey.ru/node/8338](http://zdoroviedetey.ru/node/8338)) in 2016, 3 million people die each year as a result of environmental pollution.

Of these, WHO estimates that in 2016, about 58% of premature deaths due to air pollution occurred as a result of coronary heart disease and stroke, 18% as a result of chronic obstructive pulmonary disease or acute lower respiratory infections, and 6% as a result of lung cancer.

Numerous studies in Kazakhstan confirm the dynamics of the growth of the relationship between ecology and human health: the leading factor determining the negative trends in health is the aggressive impact of the environment. In Kazakhstan, less than 30% of healthy children are born (i.e., only one in 1,000 is absolutely healthy), and their share is projected to decline to 15-20% by 2015. There is a growing trend in genetic diseases: the birth rate of morons in 1992. it was 17%, at a critical level of 18%, after which the process of degradation of the nation becomes

irreversible[19].

In Kazakhstan, there is a critical situation in the field of creation and safety of working conditions for the life and health of workers, prevention of professionally caused diseases, poisoning, injuries. Extremely unfavorable working conditions persist in many sectors of the economy. They are caused, first of all, by the imperfection of technological processes, high wear of fixed assets, machinery and equipment, low efficiency of sanitary equipment, inattention to the issues of ensuring working conditions in the workplace.

All this naturally takes the problem of medical and demographic situation beyond health care (as a branch of the national economy), raising it to the geopolitical level, giving it the importance of the subject of national security in all its components: political, economic and state.

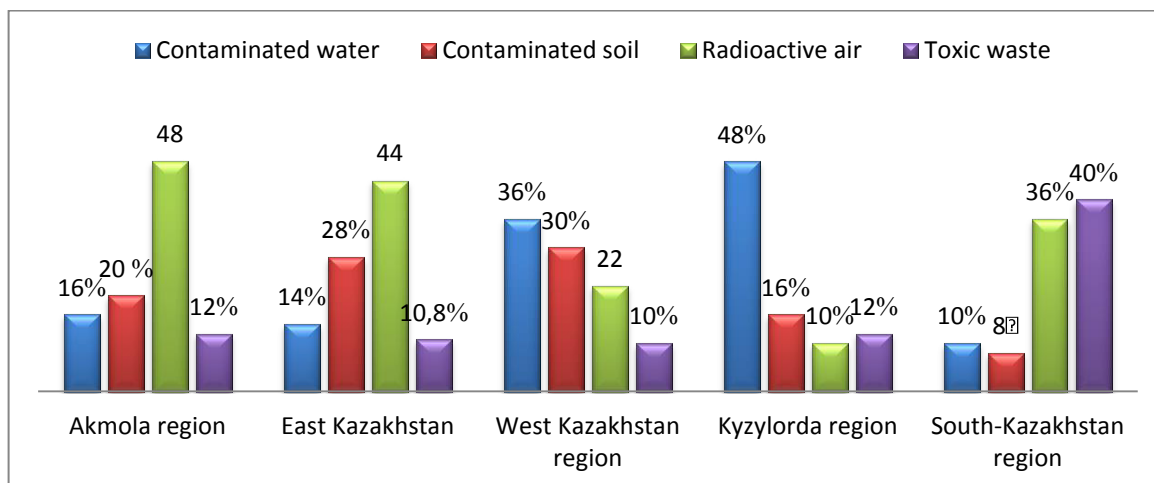


Figure 2 - the Main environmental factors affecting human health in the context of regions.  
Note: compiled by the authors

According to the world health organization (WHO), environmental risks cause the greatest damage to young children under five years of age, and the elderly aged 50-75 years, and more than 33% of children’s diseases at this age are caused by environmental exposure. Who data were confirmed in our study, in particular by region, the following data were obtained:

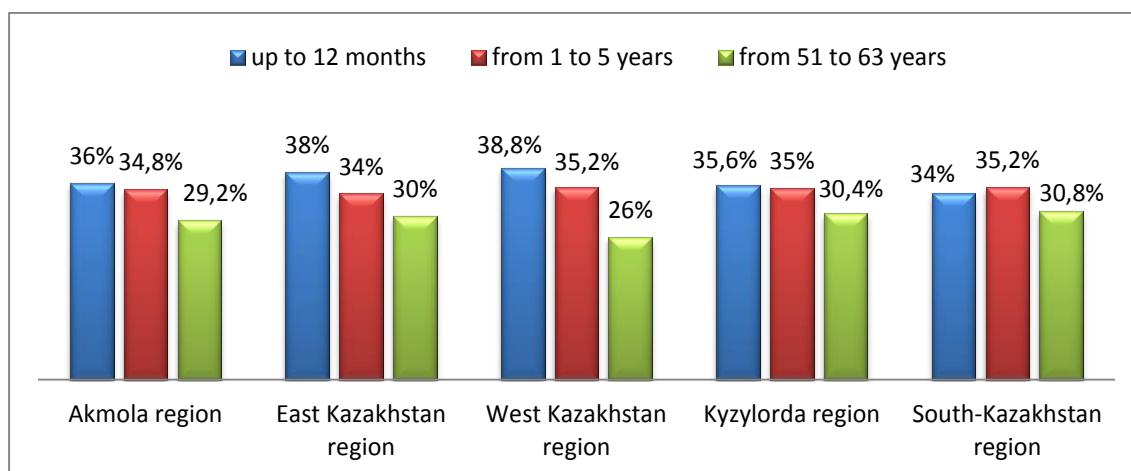


Figure 3 - Assessment of environmental-related diseases by age in the context of regions  
Note: compiled by the authors

Sociological research among specialists and representatives of state structures in all five regions (Akmola, East Kazakhstan, West Kazakhstan, Kyzylorda, South Kazakhstan region) was conducted in the following blocks: health, ecology and education. In the unit «ecology» was included in the main current problems in the protection of the environment. To the question on the assessment of legislation in the field of environmental protection (from environmental disasters, environmental pollution) and compliance with international standards of environmental safety, the answers by region were as follows:

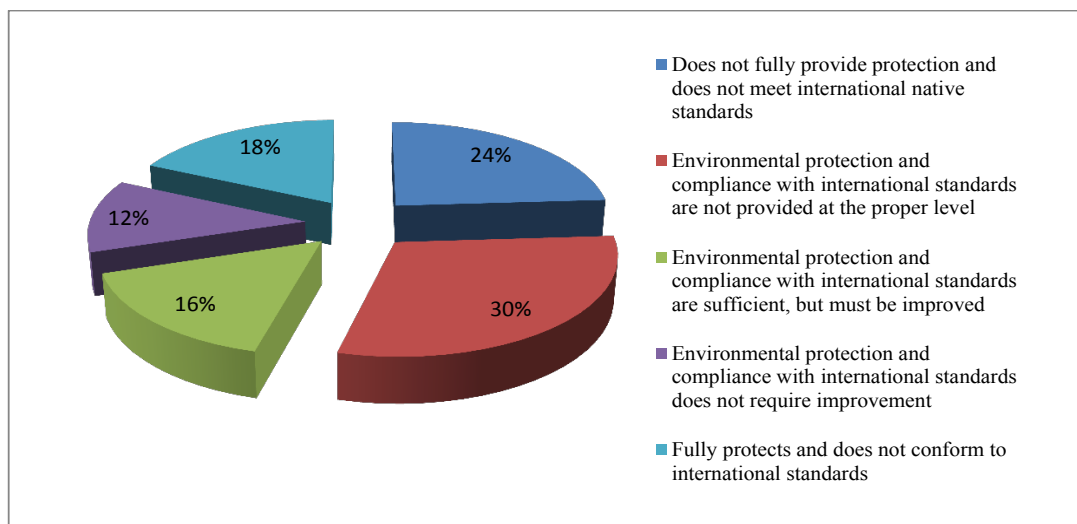


Figure 4 - Assessment of environmental legislation

Note: compiled by the authors

One of the health indicators of the younger generation is their anatomical and physiological characteristics. Many of the company's growth and its age-related changes has been well studied. Although, due to age characteristics, the child's body is most sensitive to environmental changes, it has not yet developed a sustainable adaptive response to the impact of various environmental factors, including anthropogenic ones. Consequently, the state of the child's body can be considered as one of the indicators of the state of the environment and the preservation of the health of the human population – as one of the most urgent problems of modern society. Unfavorable medical and demographic trends in the health of the population are observed:

- in reducing the total number of children;
- increase in infant and child mortality;
- a steady increase in morbidity rates associated with adverse changes against the background of socio-economic instability
- in the continuing deterioration of the environmental situation. High infant mortality, the level of which largely reflects the state of health of the population and the development of health care in the country, remains one of the urgent problems.

According to the statistics Committee of the Ministry of national economy of Kazakhstan, the population of the country as of October 1, 2017 amounted to 18 096.9 thousand people, including urban – 10 383.3 thousand people (57.4%), rural – 7 713.6 thousand people (42.6%). Compared to October 1, 2016, the population increased by 231.3 thousand people or 1.3%. But statistics showed that the number of births in this period amounted to 293.3 18 thousand people, which is 6.2% less than in the corresponding period of 2016[19].



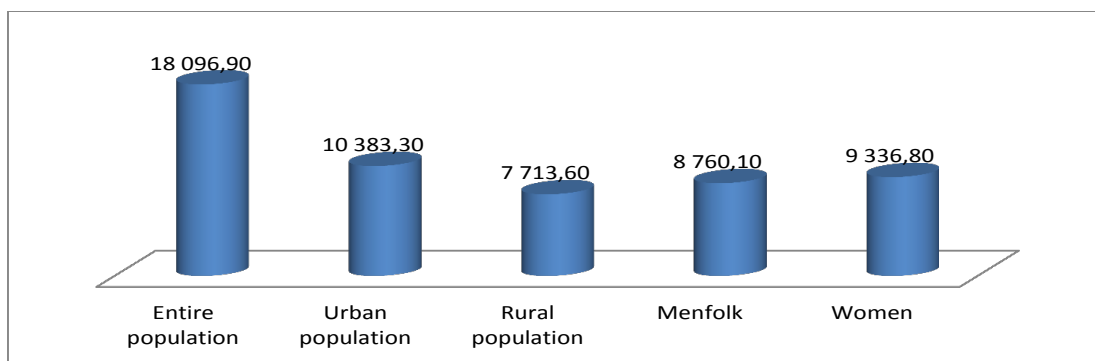


Figure 5 - Population in the Republic of Kazakhstan for 2018, thousand people.  
Note: compiled by the authors

Intensive air pollution emissions of the metallurgical industry has a significant negative impact on physical development, the level of functional stress of the Central nervous system of schoolchildren, affects the neuro-emotional activity. In particular, the depressing effect of unfavorable environmental conditions on the rate of passage of nerve impulses of the Central nervous system, the development of premature protective braking of the system, as well as a decrease in mental performance [14].

In Kazakhstan, among the zones of environmental stress, one of the special places is occupied by East Kazakhstan, Karaganda, Pavlodar, Kustanai, Aktobe regions, and from the cities - Almaty, Ust-Kamenogorsk, Semey, Ridder, Khromtau, Kentau and other main pollutants of surface waters were zinc and lead. The content of lead in the air basin significantly exceeded hygienic standards (MPC) in the cities of Ust-Kamenogorsk and Almaty. This poses a great danger to public health, as evidenced by the high rates of non-carcinogenic hazards. In the cities of Kazakhstan, the main contribution to air pollution is made by road transport. The largest emissions from vehicles are observed in the cities of Almaty, Karaganda, Pavlodar, Shymkent, Taraz, Ust-Kamenogorsk. The chemical composition of the atmosphere of large industrial regions and complexes contributes to the formation of acid precipitation, which is most often observed in the cities of Temirtau, Pavlodar, Balkhash, Aktyubinsk, Atyrau[18].

**Conclusion.** According to the State Health Development Program of the Republic of Kazakhstan “Densaulyk” for 2016–2020, one of the reasons for the low level of health of citizens of the country is the preservation of adverse environmental conditions, water consumption and nutrition. The main directions of the implementation of the state program: the development of public health, as the basis of public health.

The main functions are: raising public awareness and its involvement in measures to prevent and reduce the harmful effects of various environmental factors, unhealthy diet and behavioral risks [1].

Issues of ensuring environmental and hygienic safety in modern conditions are complex. When examining each individual problem, questions of a systematic approach to determining the ways in which a person’s factors affect one or another factor become important. Improving the environment is one of the main areas of social policy implementation. In order to achieve sanitary and ecological well-being of the population, progress should be made in reducing the impact of environmental pollution on human health. In this regard, it is impossible to ensure the absolute purity of the environment or the absolute security of a person from its factors. Negative aspects of one character or another will always exist in the external environment.

The question is how much the induced risks of one or another factor will be reduced in real terms and by real means.

Entering the new century, Kazakhstan, like most states, has faced the most serious environmental problems, and now their decision has been elevated to the rank of state policy. In “Strategy 2030” of the Republic of Kazakhstan “improving nutrition, environmental cleanliness and ecology” is one of the priorities, as well as the Message of the President of the Republic of Kazakhstan N.A. Nazarbayev (from 10.01.2018), is to improve the health of citizens of Kazakhstan to ensure sustainable socio-demographic development of the country and is aimed, including at strengthening preventive measures, targeted research, improving the diagnosis, treatment and rehabilitation of major socially significant diseases [2,3 ].

In accordance with the Concept on the transition of Kazakhstan to a “green economy”, it is necessary to educate among the general public a new eco-culture on environmental protection. It is necessary to form among the population a responsible and economical attitude towards the use of energy, water and other natural resources, to teach separate collection of household garbage for its further processing.

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### **Адами капиталды қалыптастыру контекстінде экологиялық қауіпсіздікті қамтамасыз ету**

**Андағна.** Мақалада Денсаулық сақтау жүйесі (денсаулық әлеуеті), білім беру (біліктілік әлеуеті), экологиялық қауіпсіздік әсерімен қалыптасатын адами капитал қарастырылады. Республиканың қолайсыз экологиялық жай-күйі халықтың, оның ішінде балалардың денсаулығына нақты қауіп төндіреді, сондықтан экологиялық қауіпсіздік ұлттық қауіпсіздіктің негізгі құрамдас бөліктерінің бірі болып табылады. Қолайсыз экологиялық жағдай халық организмінің физикалық дамуына елеулі әсер етеді және денсаулық жағдайында қолайсыз факторлардың дамуына әкеледі, бұл адам капиталын қалыптастырудан көрінеді. Сондай-ақ мақалада антропогендік және экологиялық факторлардың адами капиталдың сапасына әсерін бағалаудың әдіснамалық негіздері баяндалған. Аумақтардың экологиялық шиеленіс дәрежесіне диагностика жүргізуге, қоршаған орта жағдайының халық денсаулығына және жалпы адам капиталының сапасына әсерін бағалауға мүмкіндік беретін талдамалы құралдар ұсынылған. Аумақтардың экологиялық қауіпсіздігін арттырудың табиғи

және қаржылық әлеуеті зерттелген.

**Түйін сөздер:** экологиялық қауіпсіздік, адам капиталы, қоршаған орта, адам ресурстары.

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### **Обеспечение экологической безопасности в контексте формирования человеческого капитала**

**Аннотация.** В статье рассматривается человеческий капитал, формируемый под воздействием системы здравоохранения (потенциал здоровья), образования (потенциал квалификации), экологической безопасности. Неблагоприятное экологическое состояние республики представляет реальную угрозу здоровью населения, в том числе детей, следовательно, экологическая безопасность является одним из основных компонентов национальной безопасности. Неблагоприятная экологическая обстановка существенно отражается на физическом развитии организма населения и приводит к развитию неблагоприятных факторов в состоянии здоровья, что выражается в формировании человеческого капитала. Также в статье изложены методологические основы оценки влияния антропогенных и экологических факторов на качество человеческого капитала. Представлены аналитические инструменты, позволяющие провести диагностику степени экологической напряженности территорий, оценить влияние состояния окружающей среды на здоровье населения и качество человеческого капитала в целом. Изучен природный и финансовый потенциал повышения экологической безопасности территорий.

**Ключевые слова:** экологическая безопасность, человеческий капитал, окружающая среда, человеческие ресурсы.

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