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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. In addition, the article describes the methodological basis for assessing the impact of anthropogenic and environmental factors on the quality of human capital. 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 specifying the concept of "environmental safety", it is difficult to talk about the mechanism for solving the problem. 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.

Key words: environmental safety, healthcare, human capital, environment, human resources, health potential, qualification potential.

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 [1].

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.

Comprehensive institutional analysis of the problem of human capital in the context of active improvement of environmental safety and the processes of modern society.

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.

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 [3]. 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" [4].

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 [5].

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 [6, 7].

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.

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".

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.

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.

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.

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.

According to the world health organization (WHO), this is a state of complete physical health, social and psychological well-being, not only the absence of physical defects but also diseases. 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.

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 (Figure 1).

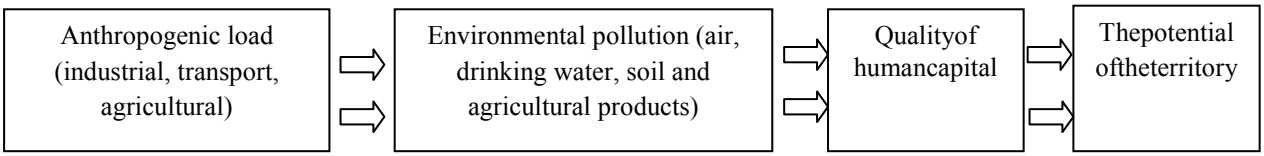

Figure 1 – Three-link chain of diagnostics of ecological tension and its impact on the quality of human capital

Note – Compiled by the authors.

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.

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 [7]:

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 [7].

In addition, according to who data (2017), as a result of environmental pollution, 1.7 million children die every year. An unhealthy environment causes more than one in every 4 deaths of children under five years of age. According to two new who reports, indoor and outdoor air pollution, environmental risks, unsafe water, lack of sanitation and poor hygiene claim the lives of 1.7 million children under the age of 5 every year. Environmental risks, unsafe drinking water, lack of sanitation and poor hygiene claim the lives of 1.7 million children under the age of five every year. The first report, "inheriting a sustainable world: an Atlas of children's health and the environment" ("inheriting a sustainable world: an Atlas of children's health and the environment"), suggests that the common causes of death in children aged 1 month to 5 years from diarrhea, malaria and pneumonia can be prevented by measures aimed at reducing environmental risks, such as access to safe water and clean cooking fuels. Second report: "don't desecrate mine future! Environmental impact on child health ("don't pollute my future! The impact of the environment on the health of child") 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) in 2016, 3 million people die each year as a result of environmental pollution.

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 [8].

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. 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.

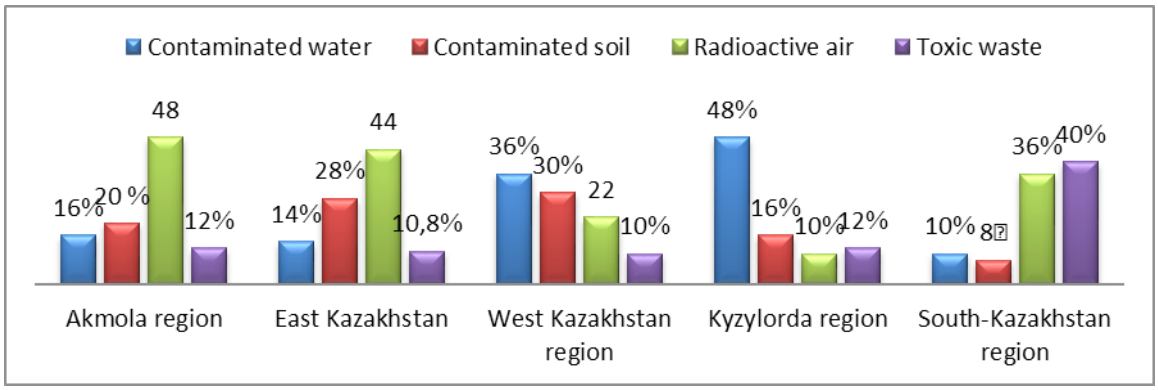

Figure 2 – The Main environmental factors affecting human health in the context of regions

Note – Compiled by the authors.

Who data were confirmed in our study, in particular by region, the following data were obtained: 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.

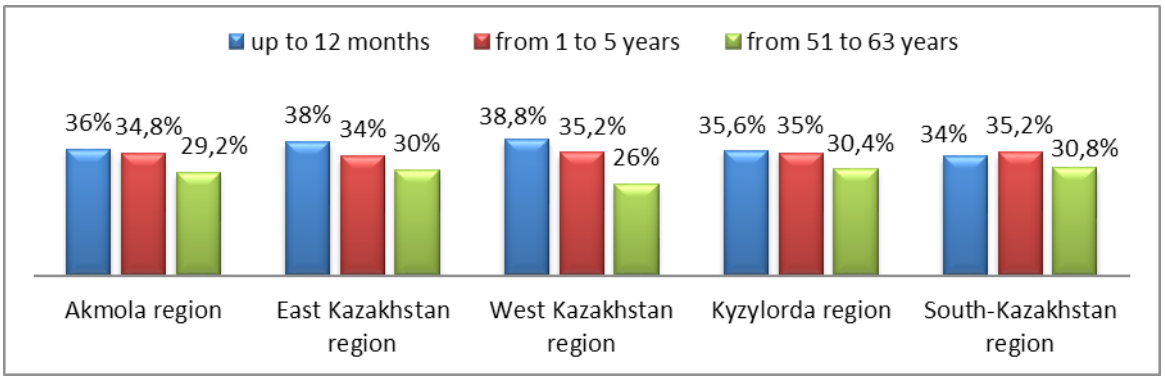

Figure 3 – Assessment of environmental-related diseases by age in the context of regions

Note – Compiled by the authors.

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: 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.

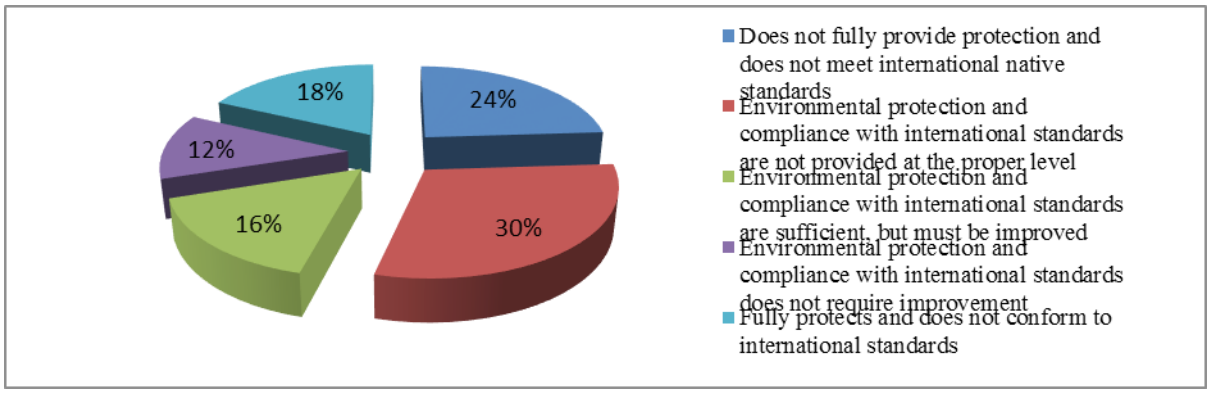

Figure 4 – Assessment of environmental legislation

Note – Compiled by the authors.

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.

The population of the country according to the statistics Committee of the Ministry of national economy of the Republic of Kazakhstan, as of October 1, 2017, was 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 [8].

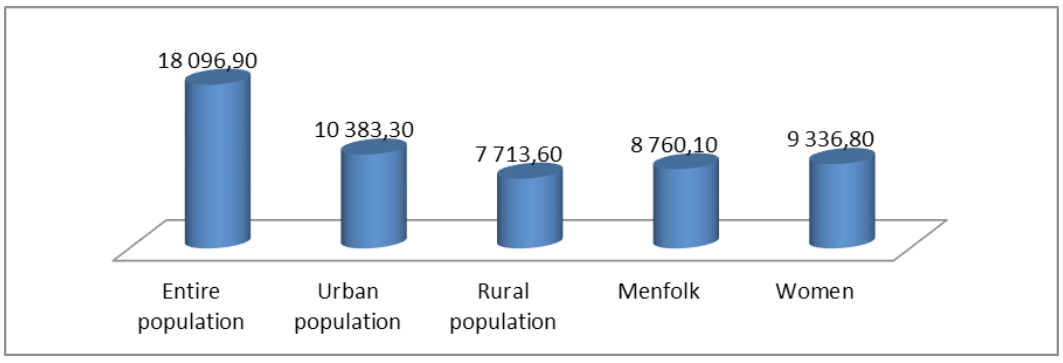

Figure 5 – Population in the Republic of Kazakhstan for 2018, thousand people

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.

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.

In accordance with the state program of health development 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.

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Аңдатпа

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 адами капиталдың сапасына антропогендік және экологиялық факторлардың әсерін бағалаудың әдіснамалық негіздері баяндалған. Аумақтардың экологиялық шиеленіс дәрежесіне диагностика жүргізуге, қоршаған орта жағдайының халық денсаулығына және жалпы адами капиталдың сапасына әсерін бағалауға мүмкіндік беретін талдамалы құралдар ұсынылған. Экологиялық қауіпсіздік мәселесі зерттеуді және «экологиялық қауіпсіздік» ұғымының мазмұны мен мазмұнын ашуды талап етеді. Қазіргі уақытта, экономикалық немесе басқа ғылыми әдебиеттерде бұл ұғымның нақты анықтамасы жоқ. «Экологиялық қауіпсіздік» түсінігін түсіндірместен мәселені шешу тетігі туралы айту қиын. Экологиялық қауіпсіздік пәнаралық білімнің саласы ретінде қазіргі ғылымды жүйелі ұйымдастыруда белгілі бір деңгейге ие. «Қазақстан Республикасының қоршаған ортаны қорғау туралы» Заңында «экологиялық қауіпсіздік» ұғымы табиғи ортаны және адамның өмірлік мүдделерін шаруашылық және өзге де қызметтің, табиғи және техногендік сипаттағы төтенше жағдайлар мен олардың зардаптарының ықтимал теріс әсерінен қорғаудың жай-күйі ретінде қарастырылады.

Тірек сөздер: экология, қауіпсіздік, денсаулық сақтау, адами капитал, қоршаған орта, адам ресурстары, денсаулық әлеуеті, біліктілік әлеуеті.

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, и поэтому экологическая безопасность является одним из основных компонентов национальной безопасности. Неблагоприятная экологическая обстановка существенно отражается на физическом развитии населения и приводит к появлению неблагоприятных факторов в состоянии здоровья, что отражается на формировании человеческого капитала. Кроме того, в статье изложены методологические основы оценки влияния антропогенных и экологических факторов на качество человеческого капитала. Проблема экологической безопасности требует исследования и раскрытия сущности и содержания понятия «экологическая безопасность». В настоящее время ни в экономической, ни в другой научной литературе нет четкого определения этого понятия. Без уточнения понятия «экологическая безопасность» сложно говорить о механизме решения поставленной проблемы. Экологическая безопасность как отрасль междисциплинарных знаний занимает определенный уровень в системной организации современной науки. В Законе «Об охране окружающей среды Республики Казахстан» понятие «экологическая безопасность» рассматривается как состояние защиты природной среды и жизненно важных интересов человека от возможного негативного воздействия хозяйственной и иной деятельности, чрезвычайных ситуаций природного и техногенного характера и их последствия.

Ключевые слова: экологическая безопасность, здравоохранение, человеческий капитал, окружающая среда, человеческие ресурсы, потенциал здоровья, потенциал квалификации.