TECHNOGENIC EFFECTS ON THE LITHOSPHERE AND ITS ECOLOGICAL CONSEQUENCES

Yarboboev Tulkin Nurboboevich
Karshi institute of engineering and economics, Uzbekistan

Kosimova Karima Yodgor kiz
Karshi institute of engineering and economics, Uzbekistan

ABSTRACT

The results of anthropogenic impacts on the most important components of the lithosphere, accompanying numerous production processes, including the extraction of raw materials, production of construction materials, etc., are considered. The main directions of assessment of technogenic impacts on the lithosphere and their environmental consequences are given.

Keywords: ecology, geology, resources, lithosphere, anthropogenic emissions, technology, energy, nature.

ТЕХНОГЕННЫЕ ВОЗДЕЙСТВИЕ НА ЛИТОСФЕРУ И ЕГО ЭКОЛОГИЧЕСКИЕ ПОСЛЕДСТВИЯ

Ярбобоев Тулкин Нурбобоевич
Каршинский инженерно-экономический институт, Узбекистан

Косимова Карима Ёдгор қизи
Каршинский инженерно-экономический институт, Узбекистан

АННОТАЦИЯ

Рассмотрены результаты техногенных воздействий на важнейшие компоненты литосферы, сопровождающих многочисленные производственные процессы, в том числе добычу сырья, производство строительных материалов и т.д. Приведены основные направления оценки техногенных воздействий на литосферу и их экологических последствий.

Ключевые слова: экология, геология, ресурсы, литосфера, техногенные выбросы, технология, энергия, природа.

ATMOSFERAGA TEXNOGEN TA'SIRLAR VA ULARNING EKOLOGIK OQIBATLARI

Yarboboyev Tulqin Nurboboyevich
Qarshi muhandislik-iqtisodiyot instituti, O'zbekiston

Qosimova Karima Yodgor qizi
Qarshi muhandislik-iqtisodiyot instituti, O'zbekiston

ANNOTATSIYA

Maqolada aksariyat ishlab chiqarish bilan birga boradigan jarayonlar, shu jumladan xom ashyo qazib olish, qurilish materiallari ishlab chiqarish va boshqalarning litosferaga texnogen ta'siri va ularning oqibatlari ko'rib chiqilgan. Litosferaga texnogen ta'sirlarni va ularning ekologik oqibatlarini baholashning asosiy yo'nalishlari keltirilgan.

Kalit so'zlar: ekologiya, geologiya, resurslar, litosfera, texnogen, chiqindilar, texnika, energiya, tabiat.

The modern stage of the world economy is characterized by an increase in the scale of use of natural resources, a sharp complication of the process of interaction between nature and society, and an acceleration and expansion of the scope of occurrence of specific natural-anthropogenic processes due to the man-made influence on nature.

The production of all kinds of extractable resources in the world is constantly increasing. According to estimates, if current rates of mineral extraction are maintained, most mineral resources will be exhausted in the next 50-100 years. Resource-saving technology consists in the production and sale of final products that consume the least amount of substances and energy at all stages of the production cycle (from extraction to "distribution" sectors) and have the least impact on natural ecosystems and people. This is primarily expressed in energy efficiency - the ratio between the energy consumed and the useful product obtained at these costs.

It is impossible to imagine the development of any society without the active consumption of natural resources that ensure scientific and technical progress and social well-being. Currently, a model of society based on the use of significant amounts of energy and mineral resources and converting high-quality energy into low-quality energy at high speed, and resources into waste and polluting components is characteristic. In the concept of sustainable development of the world adopted by many developed countries, special attention is paid to rational use of energy and recirculation of substances, extraction of mineral resources with minimal loss and enrichment, secondary use of non-renewable resources, reduction of energy consumption and losses. In this model of the future society at all levels (local, regional, global), the limit of environmental sustainability should not be exceeded. At the same time, it is necessary to take into account information about the environmental impact when "entering" it to limit resource losses and prevent pollution. For example, it is much easier and cheaper to prevent contaminants from entering groundwater, which serves as a source of drinking water, than to try to clean up contaminated water.

Reducing waste decomposition time is also one of the ways to save resources. The most durable environmental pollutants are plastics (according to some data, the most easily degradable types of plastic require at least 100 years to complete this process) [1, 5, 6, 7].

With the help of technology, it is known that the human population has achieved a high level of dominance over its habitat. From this point of view, technical objects and technologies are understood as means of economic activity of people, on the one hand, they help people adapt to nature, and on the other hand, they adapt nature to people's needs.

Mediation functions of the technique can be presented in the following form:

- as a means of using natural resources (mining and processing, agriculture, water facilities, etc.);

- as a means of managing nature (irrigation and drainage systems, means of technical soil reclamation, means of agricultural chemicalization, etc.);

- as a means of protection against unfavorable natural processes (anti-landslide and flood protection structures, etc.).

Some technical objects act only as consumers of geological space, that is, the space in which they are located. These include industrial complexes, residential and administrative buildings, coolers, cooling basins, etc. [2].

In all cases, to a greater or lesser degree, there is a change in the place of residence as a result of the operation of technical facilities. The concept of environment-changing activity of technology is being used more and more. It can be considered in terms of its influence on the material and energy balance of the lithosphere, and consequently on the ecological functions of the latter. At the same time, it is necessary to distinguish between purposeful (inevitable) and unexpected effects of technology, which arise when construction and operation technology are not followed. In terms of intended effects, there are six groups of technical objects that perform reversible or irreversible effects:

○ reducing the resource potential of geological bodies: quarries, oil wells, water intakes, etc.;

○ increasing the resource potential of geological bodies: irrigation systems, means of technical land reclamation, etc.;

○ reduction of tension of the geophysical-geochemical background: deactivation systems, treatment facilities, etc.;

○ increasing the tension of the geophysical-geochemical background: agricultural chemicals, landfills, heating networks, power transmission networks, etc.;

○ reducing the geodynamic potential of geological bodies: coastal protection structures, counterbanks, etc.;

○ increasing the geodynamic potential: digging roads and railways, etc.

This system does not take into account that almost all technical devices occupy a certain volume and thereby reduce the resources of the free, unexploited environment of the lithosphere. But even without this, their man-made impact on the ecosystem is obvious.

Man-made impacts mean the nature, mechanism, duration and speed of the impact on the natural environment, including the lithosphere and biosphere, caused by human production and economic activity. It should be noted that the man-made impact is a product of civilization, its uniqueness and scale have been formed and changed simultaneously with the development of society, and at the current stage, it has increased to the maximum level, creating real conditions for the ecological crisis.

Assessment of man-made impacts on the lithosphere and their environmental consequences can be done in different directions: by types of production activities; on the set and nature of effects on a certain component of the lithosphere (rocks, relief, underground water, etc.); the nature of man-made processes, their genetic nature.

The first direction is characterized by the direct dependence of the nature and intensity of man-made influence on the features of the functional direction of the production object, on the production characteristics of the source of influence. But in practice, in particular, on the border of urbanized and mining production areas, the effects of individual sources, according to the rule, are added to each other, aggregate and change their type. This makes it very difficult to assess the environmental consequences of individual objects, because it is necessary to deal with the synergism of man-made effects and their consequences.

The second direction is mainly focused on the analysis of any geological component of the lithotechnical system. This does not allow a direct full answer to the question of anthropogenic influences on the lithosphere, although it is indirectly related.

The third direction avoids the difficulties noted in the first two approaches and allows to assess the ecological consequences of man-made effects according to their genetic nature. This approach was implemented in the process of developing the classification of man-made effects [3, 4].

The main taxonomic unit of this classification is the classes distinguished by the nature (mechanism) of man-made influence: physical, physico-chemical, chemical and biological. As part of the first, subclasses are divided according to certain physical fields (heat, radiation, electromagnetic, etc.). The types of influence are divided on the basis of "direct" and "inverse" actions (for example, growth - decrease, accumulation - erosion, heating-cooling, etc.), according to the specific man-made effect associated with a certain group of impact sources (for example, landfills, landfills, mines, thermal power plants, GRES, etc.)

The content of the above-mentioned classification and the opinions expressed to it show a wide range of man-made effects on the ecological functions of the lithosphere and biota and a wide range of their ecological consequences. The latter leads to deterioration of living conditions, increase in morbidity and forced migration of the population, degradation of natural biocenoses, decrease and loss of the quality of geological resources, depletion of mineral resources. It is clear that it is time to strengthen environmental control over the destructive forms of man-made impacts and their consequences.

In conclusion, it should be noted that the evaluation of the ecological consequences of man-made changes of the lithosphere is mainly related to the study of the changes in the ecologically important parameters of the geological sub-systems of lithotechnical systems. The laws of these changes are determined by the relationship between technical and geological components. The higher the level of change of ecologically important geological parameters, the higher the level of ecological danger of lithotechnical systems.

Industrial and domestic waste is one of the global problems of the current state of human-nature relations. Man-made civilization stands on a dangerous threshold, the crossing of which threatens the existence of man on earth as a part of nature. Therefore, humanity faces the task of optimizing man-made changes in natural systems. At the initial stage of creating environmentally friendly technologies, especially low-waste production, waste from one production should serve as raw material for another. The main principles of such technologies should be raw material processing and energy saving, closed water and gas circulation systems, rational cooperation, waste minimization and elimination of uncontrolled waste. All of these require large sums of money and are currently only available to a few industrialized countries.

REFERENCES:

1. Михайлов Ю.В, Коворова В.В., Морозов В.Н. Горнопромышленная экология. Учеб. пособие - М.: Издательский центр «Академия», 2011. -336 с.

2. Ретеюм А. Ю., Долгушин И. Ю. Геотехнические системы // Природа, техника, геотехнические системы. М., 1978. С. 47-69.

3. Трофимов В.Т., Королев В.А., А.С. Герасимова. Классификация техногеннқх воздействий на геологическую среду // Геоэкология. 1995 №6.

4. Трофимов В.Т., Зилинг Д.Г., Аверкина Т.И. Теория и методология экологической геологии. М.: МГУ, 1997. 368 с.

5. Ярбобоев Т.Н., Комилов Б.А., Қосимова К.Ё. Геологик-қидирув ишлари билан боғлиқ экологик муаммолар // EURASIAN JOURNAL OF ACADEMIC RESEARCH. OOO «Innovative Academy RSC». Volume 2 Issue 5, May 2022. P. 353-357.

6. Ярбобоев Т.Н., Қосимова К.Ё. Og'ir neft va tabiiy bitum qazib chiqarishning ekologik muammolari // "INTERNATIONAL CONFERENCE ON LEARNING AND TEACHING 2022/2" Tashkent 2022. P. 60-67.

7. Ярбобоев Т.Н., Қосимова К. Тоғ-кончилик саноатининг экологик муаммолари // TA'LIM FIDOYILARI Respublika ilmiy-uslubiy jurnali. Iyul 2022 1-qism. 57-64 b.