

## ENVIRONMENTAL PROBLEMS OF INDUSTRIAL POLLUTION OF ENVIRONMENT

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**Abstract.** Anthropogenic changes in the environment can lead to a deterioration of public health, increase in losses in the economy and destabilize the society and the state, reducing the possibility of nature to support human life. The problem now is rather waste production; such a chain of production determines another important task: to save those natural resources that people use for their productive activities. The biosphere is enriched with various elements which influence the metabolism of both, plants and animals.

**Keywords:** biosphere, industrial pollution, ecology, environment

### Introduction

The beginning of the article deals with the human impact on humans and the environment, further the following issues are described: biosphere and greening of agriculture, the trend of ecological crisis is addressed.

### Materials and methods

The subject of the present paper is man-made environmental problems of pollution of the biosphere, the noosphere, the environment and life safety of mankind. The basis for the work is the works of Sukhorukova S.M.

Anthropogenic changes in the environment can lead to a deterioration of public health, the increase in losses in the economy and destabilize the society and the state, reducing the possibility of nature to support human life. "Greening" of the legislative and executive power is especially important because the primary goal – to make great eco-friendly production, and conversely, any neglect of unprofitable environmental regulations.

The problem now is rather waste production; such a chain of production determines another important task: to save those natural resources that people use for their productive activities. The challenge now is to develop a comprehensive, unified system for the protection of the biosphere and it is already on its base to a more reasonable differentiated approach to rational use of individual resources.

No less acute in Russia is the problem of utilization of products, processing and recycling of thermoplastic polyolefins class. The continued growth of the production leads to an increase in domestic waste and industrial consumption.

Therefore, the primary task is to make eco-friendly production profitable. Thus, the concept of ecological safety of the natural areas of personality, society and state are closely linked to local, regional and global scales.

Efficiency of the modern agriculture substantially depends on usage of mineral and organic fertilizers.

In our country manufacture of mineral fertilizers in the XXI century began to extend considerably. The growth of the use of fertilizers and their role in increasing crops is proved also by the evidence and international experience. The need to apply fertilizers for increasing productivity causes contamination of soil and surface water, nutrients and fibres.

Agriculture is such a branch of economy, in which production is most closely connected to the nature; however, technical development and translation process of this sphere of human activity on an industrial basis have resulted in many adverse changes in the environment. The major factors of approaching ecological catastrophe are already well-known: pollution of air, ground and fresh waters, desertification, accumulation in the atmosphere of the gases which give a hotbed effect, acid rains, and violation of the ozone cloud protecting from space radiation. The biosphere is enriched with various elements which influence the metabolism of both, plants and animals. Antibiotics and pesticides, when get into animals, will penetrate also into our organism, mainly with meat and vegetables. Mineral

fertilizers poison our life in another way. Washed away by rains, they flow down in the rivers, causing eutrofication – grassing of waters. The rivers turn to a dead green swill.

If ballast compounds are freely soluble, they are washed away from the ground and act on superficial and underground waters polluting them. If they are slightly soluble, they accumulate in the ground and when achieving a certain concentration, act in plants and further on trophic circuits in organisms of animals and people. The contents of ballast substances can sometimes reach toxic levels and become the reason of violations of human health. The toxic level can be reached also by the content of biogenic elements in the ground, especially by nitrogen in the form of nitrates that has already repeatedly served as the reason for getting poisoned by agricultural products.

Today all reasonable people realize that it is impossible to introduce substances and technologies that are dangerous to health into the environment without taking into account all the consequences because air, water and the ground make dialectic whole.

In the history of biological development of the planet and social development of the society three basic stages are distinguished:

- pre-biological when the determining law of development was the law of preservation and transformation of substance and energy;
- developments of organic chemistry, where biological processes are determining the development of the planet and the interaction between organic and non-organic nature submits to the law of the exchange of substance, energy and information;
- history of the human society when there is a new form of the exchange- material production.

With all the variety of modern political systems and social economic structures they keep, perhaps, a unity in the main thing: they remain as consumer societies, exhausting and polluting the area of life, biosphere and forming a technocrat person. The technology creates the nature and the person on the image and similarity. The mechanical system of technology is called to subordinate and to exploit the environment more intensively, and the resources of biosphere, as it is well-known, are quite limited, while the power and opportunities of technical equipment grow practically boundlessly. Hence, the modern technical civilization differs from the previous ones only by the fact that it has unique opportunities to destroy biosphere: either in a few minutes (nuclear war), or in several decades (continuation of economic expansion).

The principal causes of biosphere pollution are rough violations of scientifically proved technology of fertiliser transportation, storage and application into the soil. More often the biogenic elements contained in fertilizers apply to the environment:

- by transportation from a factory up to a field;
- due to washout of fertilizers from the surface of fields into rivers, lakes, seas and washing away by the structure of the ground up to subsoil waters;
- in the process of water and wind soil erosion;
- due to accumulation of superfluous amounts of fertilizers in the soil structure due to overdose or non-uniform application or to uncontrolled use of waste products of various industries as mineral fertilizers.

The structure and assortment of phosphates constantly change depending on the requirements of agriculture. In the total volume of release of phosphoric fertilizers the share of concentrated and complex forms grows constantly.

Besides of nitric and phosphoric fertilizers the modern agriculture uses a wide assortment of potash fertilizers the deliveries of which reach 12 million tons per year. Potassium plays an important and diverse role in plant vital functions, however, the majority of potash fertilizers contain ballast substances, not only polluting the soil, but also in the certain quantities being harmful to plants.

Pollution of biosphere when using waste products of animal industries in agriculture occurs because of the lack of technology of their processing and application into the ground. The following is attributed to such lacks:

1. lack of the equipment for usage of litter-free manure in irrigation of cattle-breeding drains and liquid fraction, absence of pipeline transport, field dung-yards;

2. insufficient use of covering materials (straw and peat), imperfection of systems dung removal, that in 1.5 – 2.0 times reduces the output of organic fertilizers and causes annual losses of dozen million tons of liquid organic components of manure;
3. the majority of farms lacking the equipment for waste composting, dung-yards and platforms for waste composting, that reduces the quantity and quality composts on the manure basis;
4. wide use of fresh, unrotten manure, that raises the contamination of crops and danger of pollution of the soil by pathogens and helminths;
5. absence of adequate technical equipment for application of the organic fertilizers, insufficient use of dung-sprays and, as a consequence, non-uniform application of manure and composts;
6. when designing cattle-breeding complexes, violation of the ratio of the number of animals and the fertilized areas (2 – 3 conditional heads of large horned livestock per 1 hectare), that conducts to superfluous application of manure in arable ground and, as a consequence, to environmental contamination.

Transition to steady development of the agrarian sector is necessary. The major principle of development of the agrarian and industrial complex should be greening all stages of the development of agriculture, attention to the natural features of the ground resources functioning. And then, according to this principle, with orientation to it, it is necessary to carry out actions for mechanization, chemicalization, soil improvement, for introduction of scientific and technical progress achievements. In this connection it is necessary to create the corresponding system of market regulators (privileges, credits, taxes and so forth) to encourage the change of priorities in distribution of resources, capital investments in the agrarian and industrial complex to strengthen the nature protection role of expenses.

The major direction in the decision of the problem of steady development of agriculture and all agrarian and industrial complex is maintenance of the simple and expanded reproduction of natural fertility of soils.

Agriculture creates greater influence on the natural environment than any other branch of national economy. The reason of it is that agriculture demands huge areas. In the result, landscapes of the whole continent change. Most strongly the natural environment is influenced by agriculture. The factors of the influence are as follows: bringing of natural vegetation to farmland, ploughing up of the grounds; processing of the ground, especially with application of non-utilizable ploughing; application of mineral fertilizers and pesticides; land reclamation.

And the strongest influence on the ground is by:

- destruction of soil ecosystems;
- loss of humus;
- destruction of the structure and condensation of soils;
- water and wind erosion of soils.

It is possible to attribute the general violations caused by agricultural activity:

- pollution of superficial waters (rivers, lakes, seas) and degradation of water ecosystems in case of eutrofication, pollution of subsoil waters;
- destruction of woods and degradation of wood ecosystems (deforesting);
- violation of the water mode in significant territories (in case of drainage or irrigation);
- desertification as a result of complex violation of soils and vegetative cover;
- destruction of natural places for dwelling of many kinds of live organisms and as a consequence – extinction and disappearance of rare and other kinds.

Agriculture is such a branch of economy, in which manufacture is most closely connected to the nature, however, technical development and translation process of this sphere of human activity on the industrial basis have resulted in many adverse changes in the environment. The major factors of approaching to ecological accident are already well-known: pollution of air, ground, fresh waters; desertification, accumulation in the atmosphere of the gases that give the hotbed effect, acid rains, violation of the ozone cloud, which protects from space radiation. The biosphere is enriched with various elements, which influence the metabolism of both, plants and animals. Antibiotics and pesticides, getting to animals, will penetrate as well into our organism, mainly with meat and vegetables.

Intensively developing chemicalization in agriculture can be estimated from two inconsistent positions: as economically profitable and as ecologically dangerous to the environment and the humanity.

Therefore, now mineral fertilizers become a major factor of productivity growth. The so-called “green revolution” in the advanced countries, where chemical fertilizers are applied, has led to sharp increase of productivity of crops, but has had also negative consequences.

The nature does not bear radical intrusions. Especially delicate attitude is demanded by the soil. Using high genetic potential of plants (new grades) and increasing the power of technological means, we frequently overlook that the fertility of soils has the limits.

Greening of the economy of the agrarian and industrial complex first of all should prevent the negative influence of technological processes on biogeological and physical and chemical condition of the environment. Besides, it is expedient to reconsider the developed technological processes rendering damage to the environment. The basic purposes to which we aspire when greening the economy, is reduction of man-caused loadings, maintenance of natural potential by self-restoration and the mode of natural processes in the nature, reduction of losses, integrated approach of extraction of useful components, use of waste products as secondary resources. A serious problem of ecology for processors of agricultural production is recycling of waste products.

With the account of the noospheric conception it is accepted necessary and possible to carry out the transition to the model of steady development. The overall objective of the concept of steady development will be to keep the nature and its riches not only for today's generations, but also for our descendants. Transition to steady development is the objective requirement of time. It is caused by that the crisis condition of the society accompanied with slump in production, decrease on the consumption level of the population, occurrence of the disastrous zones, all these require to search for essentially new decisions that socially economic development should be formed on the principles of ideas of stability.

As generalized, the concept of transition of the Russian Federation onto the model of steady development should start with successive realization of the ideas: greening economic activities and solving the sharpest social problems; preservation of biosphere and formation of the noosphere; increasing of the role of cultural values.

The basis of the concept is the idea of steady and dynamically balanced development of the triad: economy, nature and society.

From the philosophical point of view the environmental problem is a particular case of a more general problem of “artificial” and “natural”. The problems demanding the decision of the specified problem are:

- analysis of dependence of ecologically focused and ecologically non-focused opinions from certain understanding of moral values;
- management of human behaviour according to moral values;
- analysis of modern lines of life transformation.

It is possible to attribute the following to the reasons of appearing of environmental problems:

- limitation of natural resources of the Earth. Due to human activity, losses of oxygen make approximately 10 – 12 billion tons per year. Shortage of such natural resources as minerals, power, ground ones and stocks of fresh water is felt;
- imperfection of technological processes of modern manufacture, big amounts of waste products;
- our ecological illiteracy, economic infantilism and negligent carelessness.

Today it is necessary to approach all elements of the environment with responsibility of the zealous owner, combining the experience of the previous generations with the latest achievements of science and technology.

To solve environmental problems, we need an all-uniting idea, which could rally all layers of the society, political parties and public organizations of Russia, in the name of its revival and the world community – in the name of preservation of the life on the Earth.

Greening of technologies, economy of power and other resources, recycling of waste products, ecological education - these measures allow the technically advanced states to soften the ecological situation. But it is hardly possible to improve it considerably, to meet the general ecological crisis of the modern technical civilization in such a way.

### **Conclusions**

1. Consideration is being given to the subject of anthropogenic impact on the environment, which is an extremely important issue. The article highlights issues related to the biosphere, globalization, and security strategy of human activity.
2. The modern problems of ecological agriculture help solve issues related to sustainable development of economic, social, cultural and other values.

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