

# Ecology In the Modern World

**Kholova Shokhista Abdurashidovna**  
Bukhara engineering technological institute  
Bukhara city, Uzbekistan.

**Annotation:** This article is about ecology in the modern world. Today industrial ecology encompasses a very wide range of problems, moreover, problems of very different and no longer biological ones. Here it is more appropriate to talk about a number of environmental engineering disciplines: the ecology of the mining industry, the ecology of energy, the ecology of chemical industries, etc.

**Key words:** ecology, process, Industrial revolution, Agricultural activity, human activity, worldview, civilization.

## Introduction

Today the term "ecology" has begun to be used very widely, for a variety of reasons (on business and not on business). And this process, apparently, is irreversible. However, the excessive expansion of the concept of "ecology" and its inclusion in jargon is still unacceptable. So, for example, they say that the city has "bad ecology". The expression is meaningless, because ecology is a scientific discipline and it is one for all mankind. We can talk about a bad ecological situation, about unfavorable ecological conditions, about the fact that there are no qualified ecologists in the city, but not about a bad ecology. It's as ridiculous as saying that the city has bad arithmetic or algebra.

The term "ecology" originated within the framework of biology. Its author was a professor at Jena University E. Haeckel (1866). Ecology was originally considered as a part of biology that studies the interaction of living organisms, depending on the state of the environment. Later, the concept of "ecosystem" appeared in the West, and in the USSR - "biocenosis" and "biogeocenosis" (introduced by Academician V. N. Sukachev). These terms are almost identical.

So - originally the term "ecology" meant a discipline that studies the evolution of fixed ecosystems. Even now, in the courses of general ecology, the main place is occupied by problems mainly of a biological nature. And this is also not true, because it extremely narrows the content of the subject. Whereas life itself significantly expands the range of problems solved by ecology.

## Material and Methods.

**New problems.** The Industrial Revolution, which began in Europe in the 18th century, brought about significant changes in the relationship between nature and man. For the time being, man, like other living things, was a natural component of his ecosystem, fit into its circulation of substances and lived according to its laws.

Since the time of the Neolithic revolution, that is, since the time when agriculture was invented, and then cattle breeding, the relationship between man and Nature began to change qualitatively. Human agricultural activity gradually creates artificial ecosystems, the so-called agrocenoses, which live according to their own laws: to maintain them, they require constant purposeful human labor. They cannot exist without human intervention. Man extracts more and more minerals from the bowels of the earth. As a result of its activity, the nature of the circulation of substances in nature begins to change, the nature of the environment changes. As the population grows and the needs of man grow, the properties of his habitat change more and more.

At the same time, it seems to people that their activity is necessary in order to adapt to living conditions. But they do not notice, or do not want to notice that this adaptation is local in nature, which is by no means always, while improving the living conditions for themselves for a while, they at the same time improve them for the clan, tribe, village, city, and even for ourselves in the future. So, for example, throwing waste from your yard, you pollute someone else's, which ultimately turns out to be harmful for yourself. This happens not only in small things, but also in large ones.

The situation began to change rapidly with the onset of the industrial revolution. The main reasons for these changes were the extraction and use of hydrocarbon fuels - coal, oil, shale, gas. And then - mining in huge quantities of metals and other minerals. The circulation of substances in nature began to include substances stored by the former biospheres - those that were in sedimentary rocks and had already left the circulation. People began to talk about the appearance of these substances in the biosphere as about the pollution of water, air, soil. The intensity of the process of such pollution grew rapidly. Habitat conditions began to visibly change.

### **Industrial ecology and monitoring**

So, human activity changes the nature of the environment, and in most (not always, but in most) cases, these changes have a negative impact on a person. And it is not difficult to understand why: over millions of years, his body has adapted to quite certain living conditions. But at the same time, any activity - industrial, agricultural, recreational - is the source of human life, the basis of his existence. This means that a person will inevitably continue to change the characteristics of the environment. And then - look for ways to adapt to them.

Hence - one of the main modern practical areas of ecology: the creation of technologies that have the least impact on the environment. Technologies with this property are called environmentally friendly. Scientific (engineering) disciplines that deal with the principles of creating such technologies are collectively called engineering or industrial ecology.

As industry develops, as people begin to understand that they cannot exist in an environment created from their own garbage, the role of these disciplines is growing all the time, and almost every technical university now has departments of industrial ecology focused on those or other production.

Note that the less waste that pollutes the environment will be, the better we learn to use waste from one production as raw material for another. This is how the idea of "waste-free" production is born. Such industries, or rather, such production chains, solve another extremely important problem: they save those natural resources that people use in their production activities. After all, we live on a planet with a very limited amount of minerals. This must not be forgotten!

Today industrial ecology encompasses a very wide range of problems, moreover, problems of very different and no longer biological ones. It is more appropriate to talk about a number of environmental engineering disciplines: the ecology of the mining industry, the ecology of energy, the ecology of chemical production, etc. It may seem that the use of the word "ecology" in combination with these disciplines is not entirely legitimate. However, it is not. Such disciplines are very different in their specific content, but they are united by a common methodology and a common goal: to minimize the impact of industrial activity on the processes of circulation of substances in Nature and environmental pollution.

This most important area of activity is called environmental monitoring. The name is not entirely apt, since the word "monitoring" means measurement, observation. Of course, it is very important to learn how to measure certain characteristics of the environment, it is even more important to bring them into a system. But the most important thing is to understand what needs to be measured in the first place, and, of course, to develop and substantiate the MPC standards themselves. It is necessary to know how certain values of the parameters of the biosphere affect human health and his practical activity. And there are still a lot of unresolved issues. But the thread of Ariadne has already been outlined - human health. It is precisely this that is the final, Supreme Judge of all the activities of ecologists.

### **Results**

**Protection of Nature and ecology of civilization.** In all civilizations and all peoples, there has long been an idea of the need for a careful attitude towards Nature. Some - to a greater extent, others - to a lesser extent. But the fact that the land, rivers, forest and the animals that live in it are an enduring value, perhaps the main value that Nature possesses, man has long understood. And reserves appeared, probably long before the word "reserve" itself appeared. So, even Peter the Great, who cut down the entire forest in Zaonezhie for the construction of the fleet, forbade the ax to touch the forests that are in the vicinity of the Kivach waterfall.

For a long time, the main practical tasks of ecology were reduced precisely to environmental protection. But in the twentieth century, this traditional thrift, which, moreover, began to gradually fade

away under the pressure of the developing industry, was no longer enough. The degradation of Nature began to turn into a threat to the very life of society. This led to the emergence of special environmental laws, to the creation of a system of reserves like the famous Askania-Nova. Finally, a special science was born, studying the possibility of preserving relict areas of Nature and disappearing populations of certain living species. Gradually, people began to understand that only the wealth of Nature, a variety of living species ensure the life and future of man himself. Today this principle has become fundamental. Nature has lived without man for billions of years and can now live without him, but man cannot exist outside a full-fledged biosphere.

**Exploring your own home.** The exact translation of the Greek word "ecology" means the study of our own home, that is, the biosphere in which we live and of which we are a part. In order to solve the problems of human survival, you must first of all know your own home and learn to live in it! Live happily ever after! And the concept of "ecology", which was born and entered the language of science in the last century, it related only to one of the aspects of the life of the inhabitants of our common home. Classical (more precisely, biological) ecology is only a natural component of the discipline that we now call human ecology or modern ecology.

The initial meaning of any knowledge, any scientific discipline is to comprehend the laws of our own home, that is, that world, that environment on which our common destiny depends. From this point of view, the entire totality of sciences born of the human Reason is an integral part of a certain general science of how a person should live on Earth, by which he should be guided in his behavior in order not only to preserve himself, but also to ensure the future with his own children, grandchildren, their people and humanity as a whole. Ecology is a science directed to the future. And it is built on the principle that the values of the future are no less important than the values of the present. This is the science of how to transfer Nature, our common home to our children and grandchildren, so that they can live better and more conveniently than us! So that everything necessary for the life of people is preserved in it.

**Discussion.** Physicists, chemists, biologists, economists study many different phenomena. They study in order to understand the nature of the phenomenon itself. If you like, out of interest, because a person, solving a particular problem, at first simply seeks to understand how it is being solved. And only then he begins to think about what to adapt the wheel invented by him. Very rarely they think in advance about the application of the knowledge gained. Did anyone think of an atomic bomb at the birth of nuclear physics? Or did Faraday assume that his discovery would lead to the planet being covered by a network of power plants? And this detachment of the researcher from the goals of research has the deepest meaning. It is inherent in evolution itself, if you will, by the market mechanism. The main thing is to know, and then life itself will take away what a person needs. After all, the development of the living world is exactly the same: each mutation exists by itself, it is only the possibility of development, only "probing the paths" of possible development. And then the selection does its job: from the innumerable set of mutations it selects only those units that are useful for something. It is the same in science: how many unclaimed volumes of books and magazines containing the thoughts and discoveries of researchers are gathering dust in libraries. And one day, some of them may be needed.

**Biosphere and person in the biosphere.** The biosphere is a part of the upper shell of the Earth in which living matter exists or is capable of existing. It is customary to refer to the biosphere the atmosphere, the hydrosphere (seas, oceans, rivers and other bodies of water) and the upper part of the earth's firmament. The biosphere is not and has never been in a state of equilibrium. It receives energy from the Sun and, in turn, emits a certain amount of energy into space. These energies are of different properties (quality). The Earth receives short-wave radiation - light, which, transforming, heats the Earth. Long-wave thermal radiation escapes from the Earth into space. And the balance of these energies is not observed: the Earth emits slightly less energy into space than it receives from the Sun. This difference - small fractions of a percent - and assimilates the Earth, or rather, its biosphere, which all the time accumulates energy. This small amount of accumulated energy is enough to support all the grandiose processes of the planet's development. This energy turned out to be enough so that one day life flared up on the surface of our planet and the biosphere arose, so that in the process of the development of the biosphere a man appeared and Reason arose. So, the biosphere is a living developing system, a system open to space - the flows of its energy and matter.

And the first main, practically very important task of human ecology is to understand the mechanisms of development of the biosphere and the processes that take place in it.

These are the most complex processes of interaction between the atmosphere, ocean, and biota - processes are fundamentally nonequilibrium. The latter means that all the circuits of substances are not closed here: some material substance is continuously added, and something precipitates, forming over time huge strata of sedimentary rocks. And the planet itself is not an inert body. Its bowels constantly emit various gases into the atmosphere and the ocean, first of all - carbon dioxide and hydrogen. They are included in the circulation of substances in nature. Finally, man himself, as Vernadsky said, has a decisive influence on the structure of geochemical cycles - on the circulation of substances.

### **Conclusion.**

Humanity has approached a new milestone in its history, at which the spontaneous development of the productive forces, the uncontrolled growth of the population, the lack of discipline of individual behavior can put humanity, that is, the biological species homo sapiens, on the brink of destruction. We are faced with the problems of a new organization of life, a new organization of society, a new worldview. Now the phrase "ecological thinking" has appeared. It is intended, first of all, to remind us that we are children of the Earth, not its conquerors, namely children.

Everything returns to normal, and we should, like our distant Cro-Magnon ancestors, hunters of the pre-glacial period, again perceive ourselves as a part of the surrounding Nature. We must treat Nature like a mother, like our own home. But there is a huge fundamental difference between a person belonging to modern society and our pre-glacial ancestor: we have knowledge, and we are able to set ourselves development goals, we have the potential to follow these goals.

And the most reliable knowledge is most often what exactly causes deliberate harm. Therefore, the main task of scientific analysis, the main, but certainly not the only one, is to formulate a system of prohibitions. This was probably understood even during the Lower Paleolithic by our humanoid ancestors. Even then, various taboos began to arise. So we cannot do without this: a new system of prohibitions and recommendations should be developed - how to implement these prohibitions.

But immediately we are faced with more difficult situations when we have to think about the well-being of not only our own, but also of distant neighbors. An example of this is a river crossing several regions. Many people are already interested in its purity, and they are interested in very different ways. Inhabitants of the upper reaches are not very inclined to care about the condition of the river in its lower reaches. Therefore, in order to ensure a normal joint life for the population of the entire river basin, regulations are already required at the state, and sometimes at the interstate level.

Such a cardinal solution of agricultural problems is of particular importance, since they are directly related to a problem that, I am convinced, will inevitably have to be solved. It is about the population of the planet. Humanity is already faced with the need to strictly regulate the birth rate - in different parts of the Earth in different ways, but everywhere there is a restriction.

### **Acknowledgement**

Solving problems of this magnitude is available only to humanity as a whole. And this will require a change in the entire organization of the planetary community, in other words, a new civilization, a restructuring of the most important thing - those value systems that have been established for centuries.

The principle of the need to form a new civilization was declared by the International Green Cross, an organization whose creation was proclaimed in 1993 in the Japanese city of Kyoto. The main thesis is that a person should live in harmony with Nature.

### **References**

1. Akhatov A. G. Ecology and International Law = Ecology & International Law. - M.: AST-PRESS, 1996. -- 512 p. - Circulation 1000 copies. - ISBN 5-214-00225-4.
2. Budyko MI Global ecology. - M., 1972. - 327 p. Odum Y. Ecology. In 2 volumes - M.: Mir, 1986.
3. Odum Y. Fundamentals of Ecology / Per. from English - M., 1975. -- 740 p.
4. Pianca Eric. Evolutionary ecology. - M.: Mir, 1981. -- 399 p.

---

5. Shimkevich V. M., Ecology // Brockhaus and Efron Encyclopedic Dictionary: in 86 volumes (82 volumes and 4 additional). - SPb., 1890-1907.