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# IMPACT OF ENVIRONMENTAL POLLUTION ON SOIL ENTOMOFAUNA ON THE EXAMPLE OF THE CITIES OF FERGANA AND KUVASAY

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***Annotation****: This article discusses the intensive use of natural resources, the use of environmentally hazardous biotechnologies for products in which it is impossible to use the production of substances that are not part of the natural cycle, the use of environmentally hazardous biotechnologies. Impact of chemicals on the environment and measures to reduce the impact of chemicals on the environment. Compliance with the maximum permissible conditions of human life.*

***Keywords:*** *Whole material being, specific aspects, anthropogenic hazards, energy sources, technosphere, technogenic factors, intensive use of natural resources, soil entomofauna, territorial and local currents, process that destroys the component, production standards.*

Man and his environment in the process of life constantly interact with each other. It should be borne in mind that the division of the environment into industrial, domestic and natural spheres is very conditional. One and the same factor, depending on specific conditions, can be domestic, natural or industrial. The result of human interaction with the environment can vary over a very wide range: from positive to catastrophic, accompanied by the death of people and the destruction of habitat components.

Today, we must face the question of measures to reduce the impact of chemicals on the environment. Nature is a source that satisfies the material and spiritual needs of people. Nature is an integral material being. Nature and society form two parts of a holistic being, closely related to each other. In addition to the general features of man and the environment, there are specific aspects.

Everything necessary for human life - food, clothing, building materials, etc. - is obtained from nature. Uzbekistan also entered the new millennium among many developed countries with a number of socio-economic, demographic and environmental problems on a global scale.

All living and non-living things can be a source of danger, and all living and non-living things can also be endangered. Hazards do not have a selective property; when they occur, they negatively affect the entire material environment surrounding them. A person, the natural environment, and material values are exposed to the influence of dangers. Sources or carriers of hazards are natural processes and phenomena, man-made environment and human actions. Hazards are realized in the form of flows of energy, matter and information; they exist in space and time.

Intensive use of natural resources, the use of environmentally hazardous biotechnologies for products in which it is impossible to use the production of substances that are not part of the natural cycle, the use of environmentally hazardous biotechnologies have led to an imbalance between energy sources and the state of the environment during human activities.

Ecological tension, along with a qualitatively new character, is taking on catastrophic

proportions. Under such conditions, the relationship between the organism and the external environment becomes more complicated and aggravated. In the 90s of the last century, many industrial enterprises were built on the territory of Uzbekistan. For example, toxic industrial waste is emitted into the environment by the Karavulbazar oil refinery, the Mubarek gas condensate plant, the Navoi nitrogen plant, the Navoi mining and smelting plant, the Jizzakh battery plant, and so on.

Unfortunately, the negative impact on humans and the environment is not limited to natural hazards. A person, solving the problems of his material support, continuously affects the environment with his activities and products of activity (technical means, industrial and household waste, etc.), generating anthropogenic hazards in the environment. The more active the transformative activity of a person, the higher the level and number of anthropogenic hazards affecting both the environment and the person himself. Despite the fact that negative factors affecting a person are present in all spheres of his life, the main one, in terms of the presence of dangerous and harmful factors, is the sphere of production. [1]

Among man-made changes in the environment in which organisms live, its pollution with industrial and domestic waste leads to much more destructive complications.

A much greater danger is posed by toxic substances of a different nature. Pollutants in the form of a mixture of techno-substances or natural nature disrupt the cycles of migration and energy conversion of chemical elements and have an adverse effect on the integral functioning of the ecosystem.

In the biosphere, territorial and local currents arise and the cycle of chemical compounds is formed. Identification of the composition of outgoing waste from industrial enterprises, the study of their harmful aspects and the development of optimal methods for the disposal of waste, as well as the prospects for their rational use, have become one of the topical issues.[1,2]

Our goal was to study the impact of chemical waste on the soil, as well as the impact on the entomofauna of the soils of the territory of industrial zones in the vicinity of the cities of Fergana and Kuvasay.

A number of large industrial enterprises operate in the Fergana region, examples of which are the Ferghana Oil Refinery, Farg’onaazot JSC in the city of Fergana, and Kuvasaycement JSC in the city of Kuvasay.

Today, these enterprises are among the largest industrial enterprises in the structure of production and demand for agricultural products. There is a significant growth and development in all sectors and areas, the chemical industry began its formation on the basis of modern equipment and technologies. For example, during the years of independence, a magnesium chlorate defoliant production workshop began operating at Farg'onaazot, which meets environmental international standards. Also, workshops for the production of ammonium nitrate and concentrated nitric acid were completed and put into operation.

The Ferghana Oil Refinery is one of the leading enterprises in the region that produces fuels and lubricants.

The main activity of Kuvasaycement OJSC is the production of Portland cement M-400 D 0 and with a mineral additive M - 400 D 20, sulfate-resistant Portland cement M - 400 DO; M - 400 D 10 and M - 500, grouting Portland cement, gypsum binder, binder containing lime, corrugated asbestos-cement sheets, ceramic tiles.

These enterprises are the leading and largest

Suppliers of building materials, fuels and lubricants, as well as fertilizers and other high quality chemical products to the market of Uzbekistan and the Central Asian region, improving the quality of products, providing advanced production technology.[3,4,5]

The above industrial enterprises not only produce products, but also emit waste into the environment, which has a negative impact on the nature and the amount of waste released into the environment is increasing every year.[6] It is known that various chemical substances are produced at the enterprises of the chemical industry, namely acids, alkalis, salts, mineral fertilizers, polymers, synthetic fibers and other types of products. The chemical industry is divided into several sectors depending on the product produced, the raw materials used, as well as the technological processes. A distinctive feature of the chemical industry is that enterprises in this area work in close connection with each other.

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Soil pollution sets off a chain reaction. It affects soil biodiversity, reduces the reserves of soil organic matter and its filtering capacity. Pollution with chemical waste affects the fauna and microfauna of the soil, the number of ticks and wingless insects decreases, as well as their migration from areas of high impact. For example, the number of insects within a radius of 3 kilometers of industrial zones is much less than 6 - 7 kilometers. [7,8]

*Soil organisms are essential for the decomposition of soil organic matter, any reduction in diversity or abundance can adversely affect the ability of plants to absorb nutrients from the soil.*

Everyday flows of matter, energy and information in the technosphere exceed the threshold values. Threshold or maximum allowable values are established from the condition of maintaining the functional and structural integrity of a person and the natural environment. Compliance with the maximum allowable values of flows creates safe conditions for human life in the living space and eliminates the negative impact on the natural environment.

Sources of man-made hazards are elements of the technosphere. Hazards arise when there are defects and other malfunctions in technical systems, when technical systems are used incorrectly, and also due to the presence of waste that accompanies the operation of technical systems.[9,10]

The release of waste, emissions into the atmosphere, runoff into the hydrosphere, and the entry of solid substances onto the earth's surface are accompanied by the formation of harmful effects on the entomofauna of the soils of industrial zones.

Intensive use of natural resources, the use of environmentally hazardous biotechnologies for products in which it is impossible to use the production of substances that are not part of the natural cycle, the use of environmentally hazardous biotechnologies have led to an imbalance between energy sources and the state of the environment during human activities.

Man and the environment, being in continuous material, energy and information exchange, form a permanent spatial system. Technogenic hazards do not act selectively, they negatively affect all components of the system at the same time if they are in the zone of influence of hazards. Technogenic hazards worsen people's health, lead to material losses and degradation of

representatives of flora and fauna.

Protection of soils and organisms living in it from chemical influences is achieved by increasing the distance between the source of danger and the object of protection, the application of protection measures. A wide and growing range of technogenic hazards, the lack of natural defense mechanisms against them, all this requires a person to acquire skills in detecting hazards and applying protective equipment.[11]

The impact of harmful technogenic factors can be completely eliminated by a person by improving the sources of hazards and the use of protective equipment, the impact of natural hazards can be limited by prevention and protection measures.

The existence of technogenic hazards and their high significance in the modern world are due to the insufficient attention of a person to the problem of technogenic safety, the propensity to take risks and neglect the danger. This is largely due to the limited knowledge of a person about the world of dangers and the negative consequences of their manifestation.[12,13]

In principle, the impact of harmful technogenic factors can be completely eliminated by man, but the development of the chemical industry, the widespread use of chemicals, industrial waste, and an increase in the production of chemical products lead to a high level of environmental poisoning. However, the development of society, the solution of the problem of human needs cannot be imagined without the science of chemistry, and it is also impossible to abandon the use of chemical compounds in economic activity. Therefore, we will need to focus all our attention on their rational use, taking into account the norms of their production.

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