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Development of environmental projects at the level of public administration

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Abstract. The article is devoted to the issues of improving the ecological condition of territories. territorial development is a complex and multifaceted issue. One of the main priorities of territorial development today is the issue of ecology. Environmental problems are global in nature. However, their solution belongs to the competence not only of international environmental organizations, but, first of all, of central authorities at the state level and territorial communities at the local level. One of the effective methods of analysis of the ecological condition of the territory for further development of mechanisms for cleaning the environment is the Habitat method. The methodology is proposed by the UN and is actively implemented to analyze the ecological status of territories. The article analyzes some elements of the methodology of assessment of territories, gives an example of analysis of territorial development of one of the cities of Ukraine. Based on the analysis, an algorithm for assessing the ecological condition of the territory has been developed and ways to form environmental policy at the territorial level through the formation of effective mechanisms for public management of territorial development have been proposed.

1. Introduction

Environmental problems today are becoming global. Climate change is leading to natural disasters that negatively affect human life and health. According to the UN, it is predicted that an increase in the average temperature on the planet will change the living conditions of almost 20% of the world's population [1]. Not only temperature records and natural disasters caused by them are a significant problem. Changes in the level of the world's oceans as a result of melting glaciers will lead to flooding of areas that are currently actively used by humans. These areas are mainly tourist centers, as they are located on the coasts of the seas and oceans. For many countries, the tourism industry is one of the main for economic development. At the same time, the destruction of tourist infrastructure can lead not only to the forced relocation of the population to other territories, but also to the destruction of economic activity of countries whose GDP consists of more than half of income from tourism. Thus, global changes caused



by environmental problems have an impact not only on the environment, but also on human life and health by creating conditions for a comfortable life, doing business and health through clean air, access to clean drinking water, natural food and more [2].

Territorial management and public administration involves determining the priorities of territorial development. The basic priority for the development of territories should be issues of ecology and environmental protection, because they are global in nature and play a significant role in ensuring the livelihoods of the population. Therefore, the topic of the article is relevant and needs further development.

2. The Purpose and Objectives

The purpose of the article is to determine the algorithms for the implementation of environmental projects by assessing the ecological condition of the territory. To achieve this goal, the article defined and achieved the following objectives:

- definition of priorities of development of territories,
- introduction of the methodology of ecological assessment of territorial development,
- development of an algorithm for implementing mechanisms of public administration in the environmental policy of territorial development,
- determination of prospects for introduction of mechanisms of public management of ecological policy of territories.

3. Analysis of Recent Research and Publications

Issues of ecological development of territories have been considered in the works of many scientists, but it is appropriate to identify issues of public management of environmental policy, in particular: Oleksenko R., Kolokolchikova, I., Syzonenko, O. [3], Peter Bridgewater, Kyle Hemming [4], Edmund Ntom Udemba [5], Nesshöver Cet al [6]. However, this issue needs further research in connection with its development.

4. Presenting Main Material

Strategic development of territories is impossible without defining development priorities. It is advisable to consider the formation of priorities for territorial development in accordance with UN research and the Concept of Sustainable Development [8], which defined the global goals of sustainable development of mankind. Analyzing the Concept, the authors concluded that most of the goals either directly identify environmental issues or are closely related to them. Therefore, it is advisable to consider the environmental component as an element of sustainable development and the priority of territorial development.

Identify the main environmental problems by using the methodology of assessing the state of the territories of the UN Habitat, namely:

- assessment of availability of clean drinking water,
- assessment of the sanitary condition of the territory, garbage management,
- assessment of energy efficiency of territorial management.

These main priorities can be taken as a basis for the assessment of the territory, so we describe the example of the Kharkiv region ecological status according to the basic priorities.

The article analyzes the drinking water resources of Kharkiv region with an assessment of the state of access of the population to clean drinking water.

The water fund of the Kharkiv region includes rivers, lakes, swamps, ponds, reservoirs, canals, aqueducts, groundwater, water land fund. All watercourses and water bodies of Kharkiv region belong to basins of the Don and Dnipro rivers, covering 3/4 and 1/4 of the territory, respectively area and is of national importance [7].

The rivers of the region belong to the Eastern European type. They are characterized by pronounced spring floods, low summer and winter lows and relatively high runoff in autumn. The river network is very unevenly distributed throughout the territory. The density coefficient of the river network averages 0.179 km per 1 km² and decreases in the latitudinal direction from the northwestern part of the region

southward. There are 867 rivers flowing through the region, with a total length 6405 km. The vast majority are small rivers, among them - 172 rivers length of more than 10 km is the total length - 4665 km. Large and medium rivers, the length of which exceeds 150 km - a little. The main river region is the Seversky Donets with large tributaries Oskil, Uda, Mzha, Berek. There are 583 lakes in the region, including 36 lakes with a total area about 2.5 thousand hectares. Floodplain lakes are widespread: their size and shape and depth are very different and depend on the season and water content. As a rule, they all have river origin elongated shape and shallow depths, most of which are hydrologically connected to river and during the spring floods feed on its waters. The largest is the lake Lyman, which is located near the village of Lyman Zmiiv district. Lake used as a source of water supply of a large district power plant - Zmiiv GRES, and also serves as a natural water management base of the fishery created on it [8].

On the rivers are widespread artificial reservoirs - reservoirs and rates used for water supply, hydro-power, irrigation, fisheries and other economic needs. In total on area 57 reservoirs and 2538 ponds. Among them are such large ones reservoirs: Pechenegi on the river Seversky Donets, Chervonooskilske on the river Oskil, Krasnopavlivske on the Dnieper - Donbass canal. An important part Kharkiv water management system is a set of reservoirs that located in the northern part of the region - Travyanske, Murom, Vyalivske, Rohozyanske and Lozovenkivske reservoirs. They are formed for replenishment of river water in low water seasons and retention of spring waters to prevent the effects of catastrophic floods on the lower settlements, including the city of Kharkov [9].

Uneven distribution of water resources and formed distribution water-intensive sectors of the economy require overturning surface runoff between river basins. An important role in industrial drinking water supply of the Kharkiv industrial region plays a role Dnipro - Donbass canal. Water supply from the Dnipro - Donbass canal towards Kharkiv provides water supply to the cities of Kharkiv, Lozova, Pervomaisky and others settlements. Also water supply of drinking water of Kharkiv is carried out by water supply from the Kochetok water intake on the river Seversky Donets. Technological scheme of ensuring sanitary condition rivers involves the transfer of water from the river Seversky Donets near the village of Eshar in the river [7].

Udy and aqueduct from the Pechenegi reservoir in Kharkiv. Characteristics of groundwater. The territory of the Kharkiv region located within the Dnipro-Donetsk tectonic depression, which forms the main part of the great Dnipro-Donetsk artesian basin [8].

In the region, groundwater is found in all sedimentary complexes of Paleozoic, Mesozoic and Cenozoic age, but differ in terms of occurrence, circulation and discharge. Under hydrogeological conditions, groundwater is combined into two hydrogeological floors. The first floor is a zone of active water exchange in Meso-Cenozoic sediments. Aquifers have a hydraulic connection with the earth's surface and are discharged as springs in river valleys and gullies [3]. The aquifers of this floor are subject to the active influence of climatic and man-made factors, and are intensively drained by rivers and spring-beam system. They are often the main sources of drinking water in human settlements, and are also used for technical purposes and irrigation.

The lower hydrogeological floor is located in the area of difficult water exchange. The formation of water takes place under the interaction of various factors over a long period of sedimentation, which can reach hundreds of thousands of years. The waters of this complex are mostly brackish and salty. Thus, water resources are one of the main factors in the development and location of productive forces, they determine the standard of living and health of the population. The water supply of Kharkiv region with local water resources is three times lower than the average in Ukraine, but the underground aquifers of Kharkiv region contain significant resources of high quality water.

Thus, as a result of the analysis of the existing waterways in Kharkiv region, it can be determined that the number of water resources is insufficient for the city of millions people and the region. As the climate in the region is temperate, which is favorable for providing the population with drinking water and preventing the drying of water arteries on hot summer days, there are reservoirs for water conservation and stockpiling. However, the supply of water for household needs, although uninterrupted, requires significant technical efforts, because water is pumped over long distances of major rivers that

supply drinking water to the city and region. Thus, the issue of providing the population with drinking water and water for domestic needs is relevant.

In 2021, the Kharkiv region came in first place in the number of unauthorized landfills. This figure is quite high, because the problem of garbage disposal for Ukraine (especially large cities) is very relevant. A total of 11 authorized landfills in the Kharkiv region. The results of the analysis are presented on the map - Figure 1.

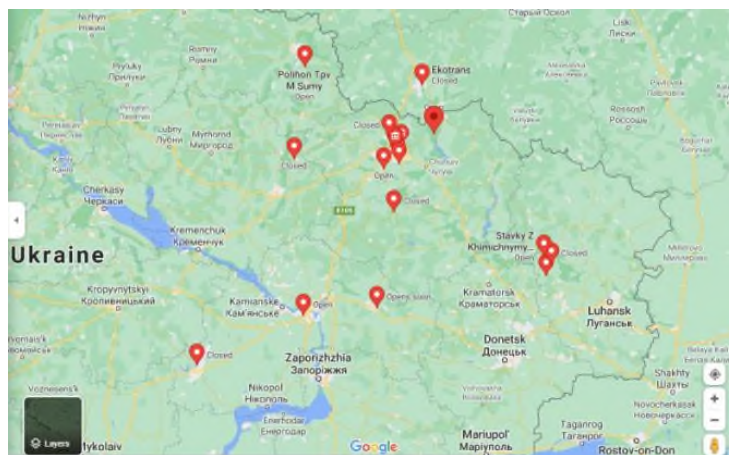


Figure 1. Map of official landfills of Kharkiv region.

However, they are almost full, and modern technologies are not used for waste disposal, storage or reuse. Garbage is taken to landfills, where it remains for years without processing or sorting. The ecological situation near the landfills is critical. Sanitary norms on the remoteness of the population in these areas are often not observed.

The next priority is to ensure energy efficiency. This issue is one of the key issues for local governments, as it relates not only to the environmental but also to the economic component of the issue of territorial development. It is advisable to determine the positions of different groups of stakeholders in the development of energy efficiency of the territories [4-6]:

- implementation of projects in the direction of reducing the energy consumption of buildings close to zero, primarily social buildings and modern industrial facilities, housing,
- advising the authorities at various levels and local communities on reducing energy consumption in various formats,
- creation of educational platforms in the direction of acquaintance with prospects of introduction of energy-efficient technologies of territories,
- search for partnership and financial support for energy efficiency projects,
- conducting energy audits of buildings and structures, energy audit
- ensuring environmental monitoring of heating systems, energy supply.
- providing a system of comprehensive training of energy auditors and energy managers for local governments and businesses,
- dissemination of energy efficient living principles among young people, development of innovative solutions for the energy sector.

The range of tasks of energy efficiency, problems of waste disposal and access to clean drinking water determine the relevance of environmental policy development at the level of individual territories.

Therefore, it is expedient to offer an algorithm for the implementation of public administration mechanisms in the direction of ensuring the environmental safety of territories, which can be presented in the form of the following scheme - Figure 2.

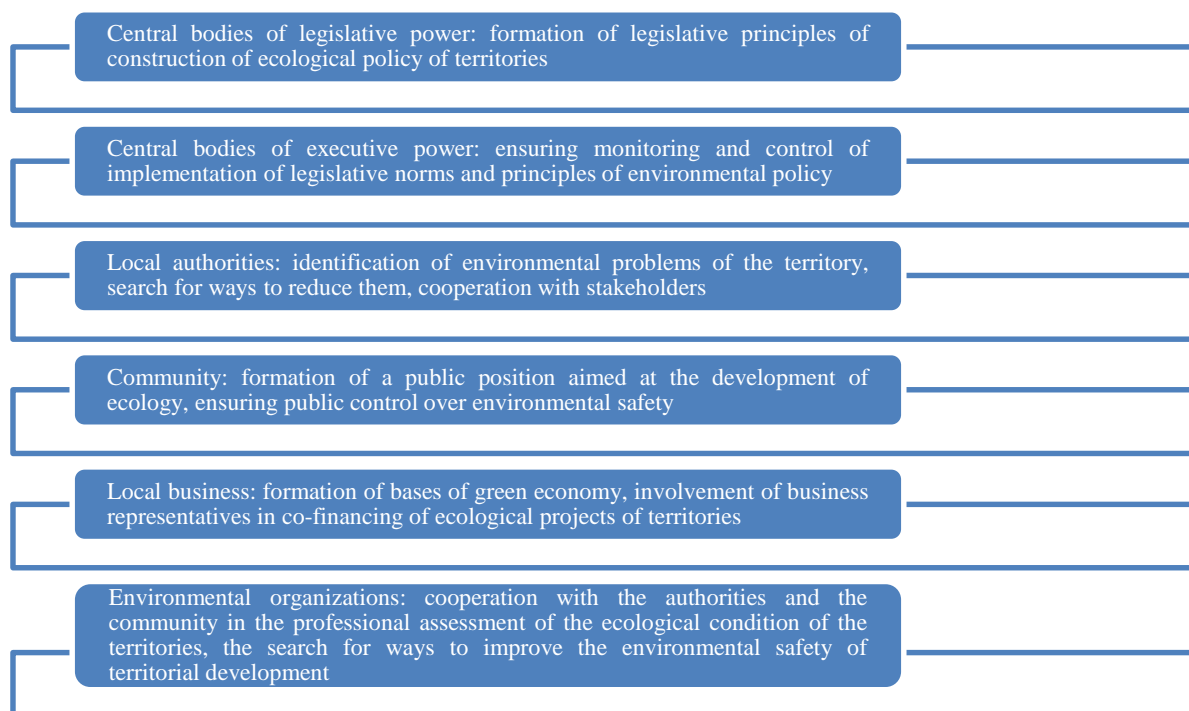


Figure 2. Algorithm of interaction of public authorities and stakeholders in the implementation of environmental projects of territorial development (developed by the authors).

Thus, as a result of the study, among the priorities of territorial development are identified: access to clean drinking water, recycling, energy efficiency. These aspects of environmental development can be achieved only by the joint efforts of public authorities, local governments, communities and environmental organizations, which is developed in the proposed algorithm for the implementation of public administration in the field of environmental policy.

5. Results

The result of the study is an algorithm of interaction between public authorities, local governments, communities and environmental organizations in the implementation of environmental policy projects as an element of territorial development management.

6. Discussion

The debatable issues that need further research are the definition of the powers of government and local self-government subject in the system of environmental policy. Defining the basic priorities of territories ecological development also allowed to outline the range of ecological organizations that have professional competencies to ensure the processes of solving environmental problems, which are the tasks of subsequent research by the team of authors.

7. Conclusions

As a result of the research, it was determined that environmental problems are global in nature. The development of man-made impact on the environment complicates environmental problems. Accordingly, solving the environmental problems of the territories in order to ensure their sustainable development is a topical and important issue. The analysis of ecological problems of territories in the context of the region made it possible to determine the main priorities of territorial development. Among them, the authors identified access to clean drinking water, energy efficiency and waste management. The regional analysis showed the high urgency of these problems, their environmental and economic components,

the impact of these problems on the integrated development of territories. As a result of the research the algorithm of interaction of public, private and public sector in the field of the decision of ecological problems of territories by realization of ecological projects of local character is offered.

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