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LANDSCAPE AND THEIR SUSTAINABILITY

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Abstract: The article considers the issues of the landscape and its structure, landscape analysis during design work, the sustainability of natural complexes and their accounting in economic activities, changes in natural complexes as a result of human activity.

Key words: landscape, landscape analysis, design work, natural complexes, human activity, nature change, anthropogenic landscapes, natural conditions.

INTRODUCTION

The components that form the natural environment are inextricably linked. The study of natural complexes that connect regions with similar natural conditions is of great scientific and practical importance. The study of the variability, development, concentration of natural resources of such complexes opens up wide opportunities for their effective use in the national economy. Accounting for these properties is extremely important in agriculture. Each natural complex has a certain degree of stability.

Landscape and its structure. The word "landscape" in German means "landscape". Today, in geography, the concept of landscape is used both in a broad and narrow sense.

In a broad sense, landscape is understood as a natural-territorial complex, for example, the taiga zone, swamps, deserts.

In a narrow sense, a landscape is a specific area separated by natural boundaries. The landscape is a natural-territorial complex, which is characterized by a structure that is homogeneous and integral in origin, as well as its flora and fauna, geological structure, relief, climate and soil.

Typically, landscapes are divided into natural and anthropogenic. Natural landscape means a landscape that has developed or is being formed under the influence of natural factors, which has not been influenced by human activity. A typical example of such landscapes are juniper groves in the biosphere of the Chatkal Reserve. The anthropogenic landscape is formed under the influence of natural and artificial factors.

All components of nature and landscapes are to some extent affected by human activity, which is only intensifying under the conditions of the scientific and technological revolution. Although these landscapes are under the influence of human economic activity, they retain their natural features and obey the law of nature.

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Anthropogenic landscapes are divided into the following types: agricultural or agrolandscapes (crop land, gardens, pastures); water or hydrogen landscapes (canals, ponds, reservoirs); urban or residential landscapes (cities, villages); industrial landscapes (factories, mines, waste dumps, airfields, roads).

The combination of several terrains of a certain region forms a landscape. For example, the desert landscape consists of sandy, clayey, rocky and takyr areas.

Consequently, the landscape is a set of localities, and the locality is a set of tracts, which, in turn, consist of facies.

Landscape is a natural complex, which is characterized by a structure that is homogeneous and integral in its origin, as well as its flora and fauna, geological structure, relief, climate and soil.

Landscape analysis during design work. Currently, when placing town-planning, hydrotechnical, industrial and other structures, the method of landscape analysis is used. Landscape analysis contributes to the correct placement of engineering structures in places that are least affected by negative natural phenomena.

Landscape analysis implies a set of methods used in the study of the properties and structural features of landscapes, the history of their formation, as well as the processes taking place in this process.

Landscape analysis includes the study and mapping of two components of the landscape: natural and anthropogenic. Landscape analysis is the basis for assessing and predicting changes in natural conditions and resources.

This method is used in the study of natural conditions and resources in order to develop and irrigate new lands, as well as in the placement of an irrigation network and drainage canals, in the design of industrial enterprises and in urban planning.

Landscape analysis is carried out in the following sequence.

First, the landscape map of the region under study is analyzed, the type of landscape (natural, anthropogenic) is determined. Then, according to the map, the type of relief, soil, vegetation cover, irrigated and non-irrigated lands, meadows, river terraces, location of industrial enterprises and hydraulic structures are determined. An analysis of the location of engineering structures on the relief is carried out. For example, rice fields are located in floodplains, cotton fields - on the upper terraces, pastures - in deserts or foothill areas.

The landscape analysis necessary for the design of irrigation drainage systems contributes to their optimal placement on the terrain: the irrigation network is on a hill, and the drainage systems, on the contrary, are in a lowland. Since underground (ground) waters in lowlands are usually located quite close to the surface of the earth, when laying collector-drainage networks through the above areas, the level of groundwater quickly decreases, and thus soil salinization is prevented.

When placing industrial enterprises, it is necessary to take into account many factors: the products manufactured by this enterprise, the type of hazardous waste emitted by it into the environment. Enterprises characterized by a large amount of harmful atmospheric emissions are designed taking into account the relief, wind rose, location of settlements and other important factors. In order to quickly dissipate harmful atmospheric emissions, it is advisable to place such enterprises on higher ground.

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Stability of natural complexes and their accounting in economic activity. Each natural complex is characterized by a certain stability. The stability of natural and natural-anthropogenic complexes is understood as their ability to preserve their structure, regardless of the influence of external factors. In the absence of external influence, landscapes return to their original state after some time. For example, in the absence of agricultural work, rain-fed lands restore their natural state in a short period.

Sustainable anthropogenic landscapes are those landscapes that, under certain conditions, are able to fulfill their socio-economic role. An example of this is the ability of anthropogenic landscapes to maintain fertility despite the impact of various natural factors (drought, mudflows, floods, polluted air, salinization, polluted water, etc.).

The stability of landscapes directly depends on the interaction, correspondence and movement of their constituent components. For example, in sandy deserts, the relationship between the components is insignificant, therefore, as a result of the influence of external factors, the structure of the local landscape can change rapidly. Raising livestock in such an area leads to a sharp change in the vegetation cover, and this, in turn, leads to a change in the structure of the landscape as a whole.

In the foothill areas, in the presence of lush vegetation, there is a strong relationship between vegetation and soil. Due to the stability of the foothill areas, mudflows and landslides are practically not formed here, they are not subject to erosion. With the disappearance of the vegetation cover, a sharp violation of stability occurs, which manifests itself in various adverse natural phenomena.

This, in the process of economic activity, it is necessary to take into account the stability of natural complexes.

In areas of irrigated agriculture, soil fertility is inextricably linked with the stability of the landscape. The landscapes at the foot of the mountains are also distinguished by their stability. In such an area, groundwater is located very deep, as a result of which soil salinization is practically not observed. As a result of improper irrigation, ravines and cliffs can form on the slopes of the mountains.

The economic activity of man is the most important factor influencing the formation of nature. In the process of its development, a person not only adapted to the surrounding conditions, but also learned to influence it. All the constituent parts of nature are closely interconnected, and a change in only one of them inevitably affects the state of others.

Therefore, since a person influences natural complexes, he must take into account and predict the possible consequences of his activity.

During the construction of large reservoirs, the landscape undergoes complex changes: the level of groundwater rises, an increase in humidity leads to the formation of swamps, the climate, soil composition and vegetation cover change. In the course of studying the consequences of such human activity, it was found that, together with the construction of one large reservoir, it is much more profitable and safer to build a system of several smaller interconnected reservoirs.

Today, the anthropogenic landscape is widespread on our planet. It is divided into cultural and disturbed.

The cultural landscape is created as a result of the conscious and purposeful economic activity of a person and is maintained in order to meet his needs. This type of landscape includes gardens, cultivated land, cities, reservoirs, recreation areas, etc.

The disturbed landscape is formed as a result of unreasonable impact on nature. Ravines in crop fields, swamps near reservoirs, landslides in mineral extraction and processing sites, subsidence and waste dumps are examples of a disturbed landscape, and restoration work requires large material costs. To date, the above landscapes are being restored again and used for economic purposes. For example, in the USA such places are turned into pastures, in Ukraine they are used for agriculture, and in Germany for recreational purposes.

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