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Sustainability Of Oaken Landscapes And Dynamics

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ABSTRACT

The article is based on the multifactorial nature of the stability and dynamics of landscapes, especially the strong influence of human economic activity on the stability and dynamics of oasis landscapes.

KEYWORDS

Landscape, natural complexes, stability, geosystems, oasis landscapes, dynamics, change, development, groundwater, salinity.

INTRODUCTION

Currently, most of the work on the problems of sustainability research of natural complexes is mainly theoretical and methodological.

At present, there is no single interpretation of the concept of "landscape sustainability" in natural geography. Relatively brief views on this subject are AA Krauklis (1979), AI Isachenko (1979, 1980), VS Preobrazhensky (1983), Z.V. Dashkevich (1984), T.V. Zvonkova (1987).), D.L.Armand (1989), T.D.Aleksandrova (1989). This situation, i.e. the concept of 'landscape sustainability', is multifactorial and requires consideration of many aspects, in particular: 1) the quality of the landscape components and the interrelationships between them; 2) types and quality of anthropogenic impact; 3) the factor of the period of development of the landscape. So far, only its individual components have been

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studied in terms of landscape sustainability, and general indicators of sustainability have not been developed [Tinnison, 1986, p. 58].

THE MAIN RESULTS AND FINDINGS

Krauklis A.A. (1979) defined stability through three structural relationships - normative activity, post-disruption recovery, and irreversible change. [1.p. 85].

Исаченко И.Г. (1980) бузилишдан сўнг зудликда аввалги ҳолатини тиклашга қодир геотизимларни кўпроқ барқарор, деб ҳисоблайди (50-б.).

Preobrazhensky V.S. (1983) understand the stability of geosystems as follows. The stability of geosystems is: "the use of external influences without disturbances, that is, not a simple transition to another state, in which the system becomes a system in a different state" [13, p. 5].

Dashkevich Z.V. (1984) relates stability to the ability of geosystems to maintain their structure as a result of various influences in any given situation. "The return of a structure to its previous or near state after destruction, that is, the self-restoration of geosystems" (p. 212).

Zvonkova T.V. (1987) considers the stability potential of natural complexes to be related to their internal natural properties (morphogenetic diversity, self-cleaning ability, etc.) and external factors (spontaneous and emergency natural processes) (p. 123).

D.L. Armand (1989) divides all mechanisms of stability into four groups: 1) system keeper (stabilizer);

2) storage of types of activity (function); 3) the custodian of the structure (structure); 4) maintaining the direction of movement of the system (trajectory) (p. 82).

SG Pokrovsky (2001) returns to the existence of three types in determining the stability of geosystems: 1) physical; 2) chemical; 3) biological (p. 61).

We also found that T.D. Alexandrova et al. (1989), we understand that the stability of natural landscapes (p. 47) is the ability to maintain its structure even in external (natural and anthropogenic) interactions.

Drought and moderate elevation of the site, as well as a decrease in the stability of landscapes with a corresponding decrease in temperature, have been proven.

Geosystems in the desert region of Uzbekistan are characterized by low and instability in relation to anthropogenic impacts, which in turn is explained by the rapid variability of desert landscapes due to the impact of human activities. However, the structural-dynamic (dynamic) state of natural complexes, their tendency and gradual change, the morphological structure of landscapes, the degree of assimilation and other factors should be taken into account.

The stability of landscapes depends on the nature of the interrelationships, interdependencies, interactions of the component structure.

The stronger these ties are in natural-territorial complexes, the less stable it will be in economic activity. The stronger the connections between the components, the more it is proven that any external influences can cause the whole landscape to change quickly. As a result of overuse of water used for irrigation in the oases, soil salinization is observed in almost all places due to the constant proximity of groundwater to the surface. It is obvious that in the oases the soil (ground) - groundwater - soil "interconnection in the system" is very

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strong, which is able to transform the whole agro-complex.

The stability of a landscape is often related to the complexity of its structure: the more complex the structure, the higher the stability of the landscape, and vice versa. Also, because the structure of agrolandscapes is so simple, they are characterized by instability, which is explained by the disruption of the natural interaction between the components.

As a result of the development of protected lands, natural vegetation is eliminated first, then they become the object of deflation and desertification, new natural complexes are formed, new changes in the interaction between components occur and the stability of oasis landscapes is reduced.

The stability of landscapes often depends on the physicochemical properties of the soil and soil, which is a decisive factor in the field. Also, the delta geosystems of the desert region of Uzbekistan (lower Amudarya, Zarafshan, Kashkadarya, Sherabadarya, Sokh, etc.) and aeration zones of the alluvial-proluvial plains of Central Fergana contain large amounts of various water-soluble salts (100-600 t / ha). will be plastered in some places. As a result, the agrolandscapes in the oases are fully managed by man through the application of appropriate reclamation measures. Agrolandscapes are highly variable, if not adequately managed in the order of development, they are rapidly dominated by completely different properties in the tendency to salt accumulation, swamping and deflation in the soil, and the restoration of the initial state of development requires the use of complex natural-ameliorative measures.

Oasis landscapes, as noted above, are the result of human labor, but man did not create new landscape components, he only introduced new elements into the landscape (fields, gardens, canals, ditches, reservoirs, etc.). These new elements are affected by natural processes (erosion, erosion, etc.): they are unstable (unbearable) and unable to exist independently without the constant support of man (Isachenko, 1979, p. 165). However, due to various complex natural conditions, the period of intensity and existence (emergence) of human economic activity, the oases of the desert region of Uzbekistan differ in the nature of stability.

The soils of the oasis landscapes of the lower terraces of the Kashkadarya, Zarafshan and other rivers and the upper parts of the river deltas have a certain degree of stability in terms of the nature of the landscape conditions against salt accumulation.

Geosystems in the periphery of the delta plains of the Amudarya, Zarafshan, Kashkadarya and other rivers have their own geomorphological features, which are unstable due to the poor natural water permeability of the delta soil and the outflow of most of the moisture. This leads to rapid salt accumulation in the soil and a significant decrease in crop yields due to irrational use of water used for irrigation.

The stability of oasis landscapes requires the regular application of a complex set of engineering measures aimed at optimizing the water-salt composition of soils, hydrological processes and the prevention of soil-soil washing and deflation.

The study of landscape dynamics is one of the most complex issues of natural geography. Landscapes cannot exist without the action of other existing material systems. The dynamics of the development process are their constantly evolving characteristics. Dynamics is the movement of material bodies as a result of the force acting on it. There is a constant movement in the geosystems that make up the landscape: during the operation of geosystems

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(seasonal and year-to-year variables) or some other influencing factors (floods, etc.).

Emergency changes occur as a result of interactions between components. The concept of dynamics (and this is very important) also includes changes in landscapes that result from human influence (Sochava et al., 1974, pp. 7-8).

The basic concepts of experts on landscape dynamics are "Questions of Geography" (No. 121, 1982) and I.I. Mamay (1992), some of which we will focus on.

Dynamics, T.D.Alexandrova et al. (1989) noted that this is a step towards the development of geosystems. Although there is no dynamic change in the structures, there is a gradual preparation for this (p. 46).

Dynamics (Latin dynamis - force) is a branch of mechanics devoted to the study of the mechanical motion of the interactions of bodies in relation to each other (KE, 2nd ed., 1955, 14-J., P. 362).

After dynamic changes, continuous quantitative-evolutionary reconstruction takes place in natural complexes (Nikolaev, 1979, p. 44).

In our opinion, the most appropriate definition of the concept of dynamics was given by AG Isachenko (1979), who means not all changes in geographical complexes, but those that are in the old, usually cyclical motion and do not cause reconstruction in its structure (57-b.). According to A.G. Isachenko (1991), dynamics belongs to the landscape invariant, in which the state of temporal stability of the landscape is manifested as its structural elements. Therefore, the dynamics can be described differently as the change of the state of geosystems within an invariant, while the change of the invariant itself can be described as development (p. 217).

Landscape dynamics and development are strongly influenced by human economic activities. However, while humanity can alleviate or exacerbate its condition, it cannot detect or establish a rhythmic change. However, as a result of the intensity of external influences on the state of geosystems, there may be a trend of unusual adverse changes for humans.

In the oases of the desert region, the seasonal dynamics of landscapes occurs primarily in conjunction with rising groundwater levels. In summer, the high groundwater level is maintained during the growing season - from April to August, sometimes until September (in the Sariqamish delta of the Amudarya - Khorezm oasis, the groundwater level rises to 0.94 m). First there, in these places (spotted), then in late summer there is a mass salinization. In the fall, when irrigation of some agricultural crops stops, the groundwater level drops. The lowest level is observed from October to December. In the Bukhara-Karakul oasis, the difference in rise and fall (amplitude) is 1.30 and 1.80 m, the speed of rise and fall is 0.014 and 0.01 m / day, the average level is 2.49 m (Mavlonov, Ganiev, 1983, 88- 89-b.).

Groundwater levels rise again in the spring due to atmospheric precipitation, and fall again in May. In general, due to precipitation and saline washing, the salt goes to the bottom layer. Thus the reverse process is observed. The order of groundwater in the heights around the riverbed of the Lower Amudarya is slightly different. The amplitude of groundwater level fluctuations here is not very large - only 27 cm, and even during the general irrigation season, the groundwater level reaches 2.39-2.54 m, which is explained by the fact that this water is absorbed into the ground and provides a satisfactory flow to the intertidal lowlands.

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CONCLUSION

Summing up the above, we can emphasize the following: the dynamics of geosystems is manifested to a certain extent in the conditions of oases and has a rapid (intensive) nature. Landscape dynamics include soil salt regime, agroirrigation deposits, erosion of substances and other factors. Depending on the hydrogeological processes in the oases, the soil-soil salt regime is in positive and negative balance, ie salinization or salt accumulation occurs, but this is directly related to the natural water permeability of the soil and the degree of human groundwater management. In general, the change of landscapes in one direction or another (salinization and salt accumulation) is also a dynamic of geosystems.

We believe that in delta geosystems, the accumulation of new elements as a result of provard in their future development is observed. These include: a) accumulation of salt in the lower layers of the continuous soil (accumulation); b) the discharge of irrigation water and old walls (cotton) as fertilizer and the accumulation of various deposits in the soil due to other processes. This leads to a change in the mechanical composition of the soils. All this gradually complicates the development of agrolandscapes. As A.G. Isachenko (1991) rightly pointed out, at the heart of the trend of dynamic change lies the radical transformation of landscapes in the future (p. 223).

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