Ethiopian International Journal of Multidisciplinary Research

pISSN:2349-5707 Volume:12,Issue 11,November-2025 eISSN:2349-5715

ANTHROPOGENIC MODIFICATION OF NATURAL LANDSCAPES IN SHERABAD DISTRICT

Abdumuminov Bakhodir Odinayevich

Faculty of Natural Sciences, Termez State University

PhD Lecturer of the Department of Geography,

Khushbokova Mehriniso Gulmurod qizi

Master's student in Geography

Abstract. This article highlights the main features of anthropogenic changes in the natural landscapes of the Sherabad district. It examines the natural landscapes of the basin and the factors contributing to their formation, as well as anthropogenic changes resulting from human economic activity. The study also addresses issues of maintaining the ecological integrity of landscapes and discusses measures for restoring agro-landscapes.

Keywords: natural landscapes, anthropogenic landscapes, cultural landscapes, agro-landscapes, urban landscape, industrial landscapes, degraded landscapes, ecological stabilization of landscapes.

Аннотация. В статье освещены основные черты антропогенных изменений природных ландшафтов Шерабадского района. Рассматриваются природные ландшафты бассейна и факторы их формирования, антропогенные изменения под влиянием хозяйственной деятельности человека. Обсуждались вопросы сохранения экологической чистоты ландшафтов и разработки мероприятий по оздоровлению агроландшафтов.

Ключевые слова: природные ландшафты, антропогенные ландшафты, культурные ландшафты, агроландшафты, городские ландшафты, промышленные ландшафты, деградированные ландшафты, экологическая стабилизация ландшафтов.

Introduction. In recent years, the increasing negative impact of human economic activity on landscapes has led to periodic changes in the natural environment. The growing influence of human economic activity on landscapes and their components has resulted in the disruption of "ecological stability" in landscapes. Additionally, man-made pollution of the natural environment (the production of large amounts of technological waste in various sectors of the national economy) is causing ecological contamination of natural landscapes. The rapid development of agricultural lands, expansion of irrigated areas, growth of the mining industry, increase in industrial waste production, and disruption of ecological stability in landscapes are leading to higher levels of ecosystem pollution.

Furthermore, the implementation of unplanned and haphazard projects in the creation of rural and urban landscapes is also contributing to the destruction of natural landscapes. Currently, the intensive use of landscapes for economic purposes has led to changes in the internal structure, dynamic and stable properties of geosystems, as well as alterations in the stable structure of landscapes. To maintain the balance between nature and society, it is necessary to rationally modify the landscape and its components. From this perspective, scientific research on landscape assessment and forecasting is currently relevant in landscape studies, aiming to reduce the

pISSN:2349-5707 Volume:12,Issue 11,November-2025 eISSN:2349-5715

negative impact of human economic activity on the natural environment and maintain the ecological stability of landscapes. During this research, mapping of anthropogenic landscapes and classification of agrolandscapes in the Sherabad district were carried out.

Materials and methods. To study the main features of anthropogenic changes in natural landscapes; - To analyze the geoecological consequences of anthropogenic changes; - To develop measures for preserving the dynamic and stable characteristics of landscapes and for landscape protection.

Main Part. The relationship between nature and society is not a systematic, structural, and balanced system, but these two systems have a tendency towards sustainable development. To radically change landscapes, it is not necessary to alter all their components; changing just one is sufficient to disrupt the balance of interaction in the system and lead to the formation of a new landscape. For example, the expansion of irrigated land for agricultural purposes, the development of industry and transport, infrastructure, tourism and recreation, irrigation systems, and the ever-increasing scale of water resource utilization,

The landscape shell is not a balanced system; rather, the landscape and its components possess the property of continuous development and change. Changes occurring in natural geographical conditions as a result of human economic activity are leading to the anthropogenization of landscapes. The landscape shell is not a stable system; landscapes transition from one state to another or modify their internal dynamic properties. This is reflected in the subordination of landscapes to natural geographical laws and the continuous development of the chain system.

In recent years, as a result of human economic activity, the process of transformation of natural landscapes into anthropogenic landscapes has accelerated. The Sherabad district of Surkhandarya region is no exception to this process. Population growth, the expansion of agricultural and livestock activities, and the development of industrial and transport infrastructure are leading to changes in landscapes. The degree, scale, and intensity of landscape changes under the influence of human economic activity vary. This is due, on the one hand, to the specific natural features of landscapes, and on the other hand, to the nature of human impact on the landscape. The natural properties of landscapes, i.e., the strength or weakness of their self-regulation and regeneration capabilities, and their resistance or susceptibility to the influence of external forces (including human economic activity), manifest differently in various landscapes.

At the same time, human activities are diverse. For example, humans impact landscapes differently under various conditions: mining has one type of impact, urban development another, and agriculture, animal husbandry, and forestry each have their own distinct effects.

L.I. Kurakova (1976) defines one of the most common features of landscapes as the chain-like transformation that occurs when one component is altered, leading to comprehensive changes in other components and the landscape as a whole. In the landscape system, a change in a single component affects the entire landscape. Among anthropogenic landscapes, we can also observe disturbed landscape types formed as a result of the negative impact of human economic activity. A striking example of this is the quarry basin in the Sherabad district. As a result of continuous extraction of gravel and sandstone from the area over the past 20-30 years, technogenic erosion is occurring in the region. Practical measures are required to prevent further erosion in the area. To reduce the negative consequences of exogenous impacts on this area, it would be advisable to fill the mine and restrict the movement of trucks. N.I. Akhtirtseva (1977) characterizes the degree of landscape transformation and the features of the anthropogenization process of landscapes, distinguishing five types of anthropogenic landscapes.

pISSN:2349-5707 Volume:12,Issue 11,November-2025 eISSN:2349-5715

1. Modified landscapes, where the structure of landscapes, despite being strongly altered by humans, resembles the structure of primary natural landscapes. For example: the process of transformation of mountain and foothill areas into cultural landscapes.

2. Renatured landscapes consist of anthropogenic landscapes that have returned to their previous internal natural equilibrium, taking on the appearance of original landscapes through the process of natural development.

This category comprises landscape types formed as a result of the restoration of natural grasses on formerly irrigated lands, the formation of natural biogeocenoses in abandoned fields, the return to natural conditions in quarries and stone extraction sites, and the reduction of pasture use. In the Gurungon and Kushtegirmon areas, semi-natural landscapes are forming due to the restoration of natural pastures, the regeneration of biogeocenoses in the old channels of the Sherabad River basin, and the natural erosion process and vegetation recovery in the Kizilkoya and Tortuvli quarries.

3. Transformed anthropogenic landscapes. This landscape type is characterized by qualitatively renewed vegetation cover and is divided into various groups. For example, field landscape groups formed on the site of plowed steppes or cleared forests, field landscape groups created in place of meadows or steppes, forest anthropogenic landscape groups established on former meadows or steppes, etc.

4. Pseudo-natural landscape group. These are types of anthropogenic landscapes formed under human influence, which have become self-regulating, stabilized, and difficult to distinguish from natural landscapes. For example, we can observe this in the filling of quarries and dumps.

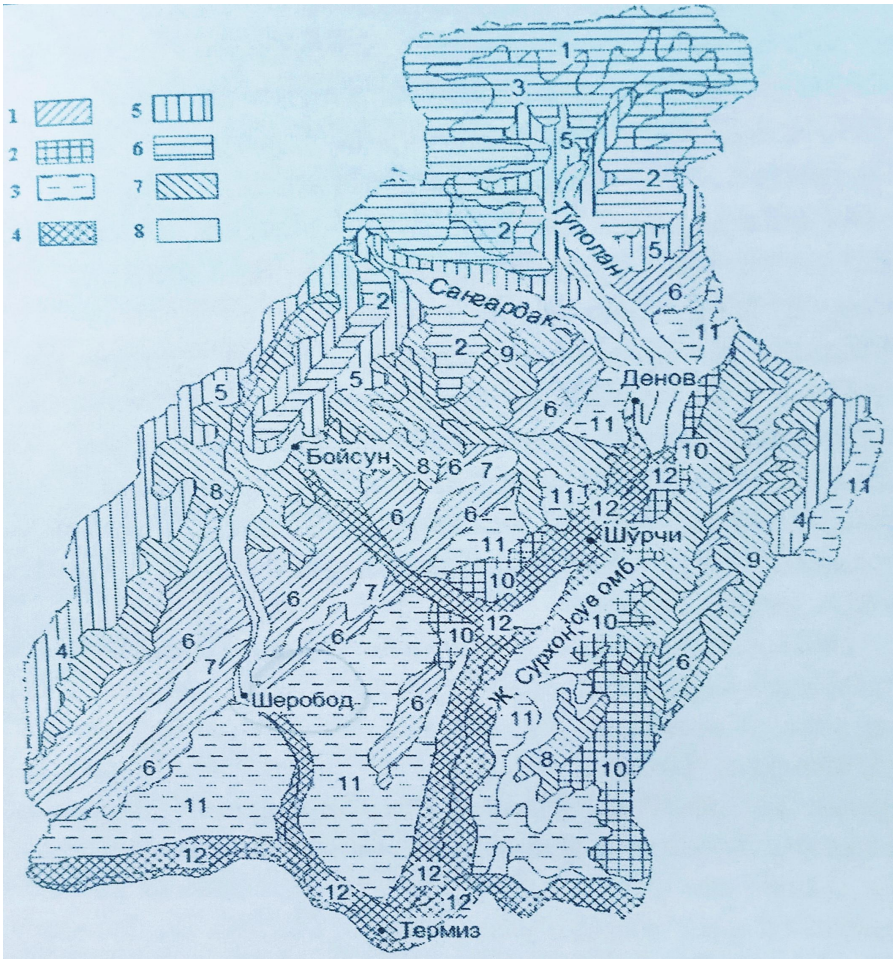
5. Anthropogenic landscapes, i.e., newly created landscapes. These are further divided into 4 groups (quarry-waste dump landscapes, residential landscapes, fortress landscapes, and water landscapes) (page 14). Factors that led to anthropogenic changes in the natural landscapes of the Sherabad district occurred as a result of human economic activity. Population growth is leading to the development of transport and infrastructure networks in the region and the expansion of the urban landscape. The natural pastures, meadow and steppe zones, and mountain and foothill zones of the Sherabad district are included in the group of unchanged landscapes. To radically change landscapes, it is not necessary to alter all their components; changing just one is sufficient, as it disrupts the balance of interaction in the system and leads to the formation of a new landscape. For example, the expansion of irrigated land for agricultural purposes and the development of population and transport have led to an increase in the scale of urban landscapes. The development of agrolandscapes for agricultural purposes is increasing due to the expansion of irrigated land areas and the cultivation of virgin lands. The growing human needs are causing changes in the natural system. Rational modification and protection of landscapes are becoming increasingly important. Natural landscapes, developing on the same geological foundation, under the same type of relief and climatic conditions, consist of a complex of unique natural combinations and major and minor relief types, forming a system of genetically identical complexes. Due to the complex relief structure of the Sherabad district, the differentiation of landscapes has led to the vertical zoning of natural complexes. The role of rocks and relief in the formation of the landscapes of the Sherabad district is unparalleled. The geological structure of the Sherabad district is very complex; a complex of sedimentary, igneous, and metamorphic rocks, formed from the Proterozoic era to the Quaternary period, is found in its territory. The mountainous part of the district is mainly composed of rocks from the Upper Paleozoic and Mesozoic periods, while the plain part is composed of Quaternary deposits. In the mountainous parts of the Sherabad Depression, Proterozoic and Paleozoic rocks are folded and fragmented by numerous fractures, while in the intermontane depressions, they are covered with a thick layer of

pISSN:2349-5707 Volume:12,Issue 11,November-2025 eISSN:2349-5715

Mesozoic and Cenozoic sedimentary rocks, composed of gneisses, crystalline schists, and dolomites.

Conclusions. The geological and geomorphological development of the Sherabad district is a natural result of endogenous and exogenous processes that occurred over long geological eras and periods. The Tian Shan epihercynian orogenic region occupies the mountainous parts of Uzbekistan. The Sherabad basin consists of tectonic structures of various sizes, the largest of which are anticlinal folded structures. We can observe that the current relief of the mountains and plains of the Sherabad district was formed during the Neogene and Quaternary periods. The present geomorphological appearance of the basin was shaped by denudation processes in the mountainous part and accumulation processes in the plains. Below, we will examine the map of the relief grouping of landscapes in the Sherabad district of the Surkhandarya region and describe the landscapes.

LANDSCAPE GROUPS BASED ON TERRAIN



Grouping by relief: 1 - high mountain landscapes (1,2,3), 2 - medium-altitude mountain landscapes (4,5),

3 - hilly foothill landscapes (6), 4 - low mountain landscapes (7,8,9), 5 - ridge and undulating alluvial-proluvial plain landscapes (11), 6 - flat alluvial-proluvial and alluvial plain landscapes, 7 - landscapes of lower terraces and corresponding alluvial fan plains (12).

Grouping by landscape types: 4. Areas with juniper forests on brown and sod-brown soils of moderately dissected medium-altitude mountain slopes; 6. Areas in the hilly foothills with typical sierozem soils where rang and kurbashi alternate with annual saltworts; 7. Areas in the

pISSN:2349-5707 Volume:12,Issue 11,November-2025 eISSN:2349-5715

low mountains with typical sierozem soils where saltwort and feather grass wormwood are distributed;

8. In low mountain gray soils, wormwood communities occur together with shrub groups; 11. Delta plains are predominantly found in areas with irrigated meadow soils.

These landscape types are considered landscape components that represent the dynamics of changes in the landscapes of the Sherabad basin.

We can observe that the current landscapes of the Sherabad basin are a result of neotectonic processes that occurred during the Quaternary period, shaping its geological and geomorphological structure. The mountainous areas are rising, while the plains are gradually subsiding. The formation of the present-day relief and landscapes of the Sherabad basin is the product of orogenic features that developed over long geological periods. Changes in the landscape state within geosystems require extended periods. The primary factor leading to the rapid anthropogenization of landscapes is human economic activity. A component in the landscape system maintains its stable properties until subjected to external influence. Changes in the landscape system due to natural processes occur relatively slowly. Landscape stability refers to the ability of landscapes to maintain their relatively stable characteristics despite internal and external forces.

The main anthropogenic factors altering natural landscapes in the Sherabad district include the expansion of irrigated agriculture, which has disrupted the hydrological regime through the construction of river and collector-drainage networks. Additionally, insufficient land reclamation systems have led to soil salinization and secondary waterlogging. Soil salinization is observed in large cultivated areas. The primary cause of salinization is the absence of a strict drainage and irrigation regime and a lack of territorial planning norms. In recent years, erosion processes have negatively impacted the foothills of the Babatag mountains, while landslides and gully formation have been observed around the Konibeshbulak basin. The degradation of vegetation cover in the lower and upper foothill zones has disrupted the natural structure of biocenoses. This process manifests as a consequence of irrational human economic activity directly affecting natural landscapes. The development of industry and infrastructure is also leading to an increase in anthropogenic landscapes in the region, further contributing to the anthropogenization of landscapes.

To protect the natural landscapes of the Sherabad Basin, it is necessary to implement the following measures:

- rational modification of natural landscapes and territorial planning of urban and rural landscapes;

- scientifically-based improvement of irrigation and drainage systems, as well as irrigation and sewerage networks;

- creation of landscape-reclamation maps;

- widespread implementation of agrotechnical and biological methods to combat soil erosion, effective measures against erosion and degradation processes, salinization, secondary salinization, and waterlogging;

- rational use of pastures and implementation of recultivation measures in the desert zone;

- implementation of aerospace monitoring and observation of landscape changes using GIS technologies;

pISSN:2349-5707 Volume:12,Issue 11,November-2025 eISSN:2349-5715

- creation of landscape maps reflecting dynamic and stable changes in the state of landscapes;

- geoecological monitoring of landscape changes;

- implementation of landscape assessment and forecasting work.

REFERENCES:

1. Landshaftshunoslik asoslari ma'ruzalar to'plami, Samarqand - 2015.

2. 2. To'raqulov S., Ergashev Sh. O'zbekistonning tabiiy landshaftlari. – Toshkent: Universitet, 2017.

3. K. Abdurahmonov. Geoekologiya asoslari. Toshkent: O'zbekiston milliy ensiklopediyasi, 2020.

4. Sherobod tumani ekologik boshqarmasi ma'lumotlari (2023–2024-yillar).

5. O'zbekiston Respublikasi Milliy atlasi I tom. Toshkent - 2014- yil.

6. Surxondaryo viloyati o'lkashunoslik atlasi, landshaft kartasi. Toshkent - 2016 yil.

7. Sherobod tumani kadastr agentligi boshqarmasi ma'lumotlari, 2024.

8. Xasanov Primjon Ashurovich, Xo'shboqova Mehriniso Gulmurod qizi.

Landshaftlar o'zgarishini geoekolgik monitoring qilish „Journal of new century innovations'' 2023