

CHANGES IN THE ZARAFSHAN RIVER'S LANDSCAPE AS A RESULT OF ANTHROPOGENIC IMPACT

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Abstract: This thesis analyzes the ecological and geographical changes that have occurred in the Zarafshan Basin. The main attention is paid to anthropogenic factors that have arisen under the influence of human activity, namely, industry, agriculture, mismanagement of land resources, expansion of irrigation systems, and increased population density. The article provides an analysis of the degradation, desertification processes, depletion of water resources, and reduction of biodiversity in the Zarafshan River basin and its environment based on scientific observations and statistical data.

Keywords: Anthropogenic, basin, landscape, degradation, desert, desert, oasis, shifting cultivation, arid, hydrotechnical construction.

Anthropogenic landscapes are found in all geographical zones, in mountainous regions, and they arise in different zonal conditions. Each zone has its own spectrum of anthropogenic landscapes. For example, for the arid zone, such anthropogenic landscapes as oasis-urban, oasis-rural, oasis-agricultural, irrigated, oasis-humid, and spring-type agriculture are characteristic.

In his scientific research, scientist A. Abdulkasimov stated that the main factors in the formation of oasis landscapes in deserts and semi-deserts are: water (irrigated lands) and human labor, and that the oasis landscape is a complex of anthropogenic landscapes formed under the influence of human economic activity and managed by it, covered with agrobiocenoses, with widely developed irrigated and dry farming, with various zonalizations.

In fact, landscapes are formed and develop under the influence of many and various factors. They play different roles in the formation of different qualities and characteristics in landscapes. If a certain type of factor is considered significant in the formation of landscapes, then other types of factors may be significant in their stratification or development, and another group of factors may be significant in the change of landscapes. From this point of view, the anthropogenic factor is considered the main force in the transformation of natural landscapes into anthropogenic landscapes. Therefore, it would be more accurate to call landscapes that have changed under the influence of human activities anthropogenic landscapes, rather than anthropogenic landscapes.

Landscape changes under the influence of anthropogenic factors occur not only as a result of changes in one or another component, but also due to the exchange of matter and energy between components, as well as between morphological parts of landscapes. As a result, changes in vertical and horizontal connectivity in landscapes ultimately lead to changes in the structure of landscapes. Oasis landscapes are formed mainly under the influence of irrigated agriculture and hydraulic structures (canals, ditches, reservoirs), where natural landscapes change under the influence of anthropogenic factors. As a result of water supply through irrigation systems, the plant world develops in desert and semi-desert areas, and green oases are formed.

Main factors: Irrigation: The distribution of water through canals, ditches and other hydraulic structures allows for the establishment of agriculture in arid regions and the development of plant life.

Anthropogenic impact: As a result of active human intervention in nature (construction of reservoirs, expansion of irrigation networks), natural relief and landscape forms change, and oases are formed.

Desert and semi-desert climate: Irrigation systems are a necessary condition for the formation of oasis landscapes in arid (arid) climate conditions.

Development of oasis landscapes: Water distribution to the desert: Water is taken from rivers and distributed to desert areas through canals.

Vegetation development: As a result of the water supply, crops and green spaces appear instead of desert plants.

Landscape change: Man-made landscape forms such as irrigation networks, ditches, roads, and settlements appear, which leads to the transformation of the natural desert landscape into an anthropogenic landscape.

It is worth noting that in the Bronze Age, the impact of man on natural landscape complexes shifted from a quantitative indicator to a qualitative one. That is, in areas occupied by irrigated agriculture, natural vegetation was replaced by cultivated crops-agrolandscapes, agroirrigation deposits began to form on irrigated soils, and anthropogenic ravines formed on slopes as a result of irrigation erosion. However, anthropogenic landscapes that emerged in the first half of the Upper Holocene, especially their oasis landscape types, had a local character. Primitive people of the Bronze Age were also engaged in fine arts specific to their time and culture. On the rocky rocks in the Ellisoy valley of the Koratepa mountain, located 20 km south of Samarkand, and on the rocks in the Karakasmoksoy valley of the Gobdin mountain, scenes of primitive hunters hunting wild animals are depicted. More than 50 images have been found. The rocks depict horsemen, various animals, including goats, camels and others. Archaeologists attribute these images to the Bronze and Iron Ages. The second half of the Upper Holocene corresponds to the Iron Age for archaeologists. By this time, iron dominates the material culture and tools of the population, and the process of forming a class society and large states begins. Starting from the first millennium BC, that is, from the time when iron dominates the culture of the population, the development of productive forces accelerates, technical means grow, and man begins to use it on a wider scale, having studied the laws of nature. At the same time, during this period, a new stage of man's profound influence on the landscape complexes of the Zarafshan Basin begins. During this period, a number of urban-selit landscapes were built in the valley part of the Zarafshan basin, on the banks of streams at the northern foothills of the Zarafshan mountain range, and north of the Yangirabot fortress in the Khatirchi district. These are cities such as Afrosiyob, Kafirkala, Choldortepa, Kuldortepa, Ishtikhan, Rabinjon, Dabusiya, Kushaniya, and Khojakurgan. Currently, these ancient cities are anthropogenic mounds that have been severely eroded and turned into ruins, and they exist in the form of abandoned silicate landscapes.

As a result, anthropogenic oasis landscapes have developed steadily, forming a wide continuous strip from the eastern to the western part of the Zarafshan Basin. In the latest period, the efforts of the population living in the Zarafshan Basin to fully utilize and radically change various natural landscape complexes have created a number of the most pressing

problems, such as geoecological, nature conservation, and forecasting negative and positive changes in regional and local natural conditions under the influence of anthropogenic factors. This situation, in turn, requires every landscape geographer to pay serious attention to the comprehensive study of the oasis landscapes of Uzbekistan, to a detailed study of the resulting geoecological situations, to their protection, and to map them on the basis of geographical information at various scales.

In conclusion, it should be said that oasis landscapes differ from natural landscapes in terms of their origin and formation, forming their own independent anthropogenic genetic series, such as lithogenic, hydrogenic, proluvial, alluvial, karst, aeolian, glacial landscapes. Oasis landscapes, like natural landscapes, are distinguished by the complexity of their structural structure and the diversity of morphological units, which serve as a specific geographical object in landscape typological mapping and are studied as anthropogenic landscapes. At the same time, oasis landscapes differ from adjacent natural desert and semi-desert landscapes in the clear expression of their morphological structure, microclimatic features, structural dynamic state, strong transformation of their components, the prevalence of agro-irrigation deposits, and the variability of the surface and groundwater regime under the influence of anthropogenic factors.

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