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Development Of Geotechsystems In The Adir's Of The Ferghana Valley And Their Consequences

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Abstract: This article examines in detail the development processes of geotechsystems of the hills of the Fergana Valley, focusing on their consequences for the resulting changes. The hills of the Fergana Valley have undergone a number of changes under the influence of various sectors of human economic activity, especially agriculture. They include changes in relief, reduction of humus in the soil, the formation of agroirrigation deposits, leaching of the soil layer, pollution of landscapes, the development of engineering geographical processes, and others.
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Key words: Adir landscapes, geotechsystems, development of geotechsystems, classification of geotechsystems, landscape modification, natural-man-made systems, anthropogenic landscapes, altered landscapes,

1. Introduction

The formation and development of geotechsystems is directly related to the development of science and technology and the rapid growth of the population, as well as the desire to use as much natural resources as possible and the development of the economy. As a result of the interaction of technology with nature and the appearance of an integrated natural-technical system, many geotechsystems systems have emerged and developed since the middle of the last century. This was a great impetus in meeting the needs of the population and the development of the economy. On the one hand, these issues, on the other hand, lead to a certain change in the natural environment and landscapes in those areas, the emergence and development of geotechsystems. This in turn requires a study of the development processes of geotechsystems and their consequences.

To date, the theoretical foundations of geotechsystems have been studied by several scientists. In this regard, A.E.Fersman, G.F.Khilmi (1966), V.S.Preobrazhensky (1965), I.P.Gerasimov (1967), L.F.Kunitsin (1970), V.I.Bulatov (1977), A.Yu. Reteyum, K.N. Dyakonov (1972), I.Yu. Dolgushin (1978), F.N. Milkov (1986) and others. In their works, they mainly tried to define the concept of geotextile, to classify geotechsystems as much as possible, to study their general aspects, and in some of them to reveal the features of geotechsystems in a particular area. However, the development processes of geotechsystems in all regions and their consequences have not been sufficiently studied. It also requires a continuous study of the development processes of geotechsystems and their consequences, as the population continues to grow and science and technology develop.

Most of the territory of the Fergana Valley consists of hill landscapes, and the natural conditions of these areas provide favorable conditions for the development of agriculture. As a result, the main part of these areas specializes in irrigated agriculture, on the basis of which many irrigated lands, canals, collectors, reservoirs and other geotechnical systems have emerged and begun to develop. As a result, the region lost its natural character and was replaced by a number of anthropogenic systems. In particular, Andijan Reservoir, Karkidon Reservoir, Chartak Reservoir, Eskier Reservoir, Kenkolsoy Reservoir, Olmasoy Reservoir, Sarvaksay Reservoir, Big Andijan Canal, Big Fergana Canal, Big Namangan Canal, North Fergana Canal, South Fergana Canal and others In addition, most of the major cities of the valley, the various factories and plants that formed on their basis, transport and railways, and the landscapes in which they are located, are also located in the foothills, where natural conditions are favorable.

2. Material and Methods

The formation and development of such geotechsystems, in turn, has its positive and negative effects. In particular, the South Fergana canal has a length of 162 km and provides water to 75.8 thousand hectares, the Big Andijan canal is 109 km long, the total irrigated area is 140.6 thousand hectares, the length of the Big Namangan canal is 135.3 thousand The Greater Fergana Canal is 270 km long in Uzbekistan and supplies water to 203.6 thousand hectares.

Of the reservoirs, the full volume of the Kosonsoy reservoir is 165.0 mln. m3, in Kosonsoy-Chust-Turakurgan districts 32 thousand hectares of new arable lands, the total water volume of the Chartak reservoir is 23 million m3, a total of 3207 hectares of arable lands, the total water volume of the Eskier reservoir is 20.0 mln. m3, a total of 2464 hectares of arable land, the total water volume of the Karasuv reservoir is 7.0 mln. m3, 1250 hectares of arable land, the total water volume of the Varzik reservoir is 18.0 mln. m3, which provides water to 2,428 hectares of arable land.

As a result, the valley has achieved high productivity in agriculture and has served as an important factor in meeting the needs of a large population. There are a number of views on the development of geotechsystems of the hills of the Fergana Valley and their consequences.

N.I. Akhtirtseva (1977) distinguishes five types of anthropogenic landscapes based on the directional characteristics of the process of anthropogenicization of all landscapes.

- Modified landscapes.
- Renated landscapes.
- Transformed anthropogenic landscapes.
- Landscapes as natural.
- Anthropogenic landscapes.

A.G.Isochenko (1991) in his classification of the impact of human activity on landscapes and its theoretical problems mainly reflected four groups of landscapes:

- conditionally unaltered (primitive) landscapes.
- weakly altered landscapes.
- damaged (strongly altered) landscapes.
- cultural landscapes.

According to D.L. Armand (1975) there are five types of landscapes that change under the influence of human activity:

- Almost completely modified landscapes.
- Strongly altered landscapes.
- Slightly altered landscapes.
- Weakly altered landscapes.
- Virtually unaltered landscapes.

3. Results

V.L. Kotelnikov (1950) divided landscapes into modified, weakly altered, moderately altered, strongly altered, and planally altered species.

According to IM Zabelin, anthropogenic landscapes themselves are further divided into two: natural anthropogenic and cultural landscapes.

According to AG Isachenko (1991), many modern landscapes have been altered as a result of irrational human activity and need to be transformed into cultural landscapes. One of the most key features of such landscapes should be accountability and cost-effectiveness.

The main goal of man is to develop the internal potential of the landscape, to activate natural processes and increase the efficiency of the landscape. To achieve this, the land is leveled, the soil is loosened to a certain thickness, fertilized, a certain crop is planted, watered, various pesticides against weeds and pests are used, the soil is washed away, the sap is drained, and so on. In this regard, it also causes various environmental problems.

The hills of the Fergana Valley have undergone a number of changes under the influence of various sectors of human economic activity, especially agriculture. They include changes in relief, reduction of humus in the soil, the formation of agroirrigation deposits, leaching of the soil layer, pollution of landscapes, the development of engineering geographical processes, and others.

4. Discussions

In the process of formation of geographical conditions in the hills of the Fergana Valley, the change of relief occurs in the following directions: quarry relief forms due to excavation of lands and construction of roads; irrigation constructions and secondary forms of irrigation ameliorative reliefs; specific relief forms as a result of the construction of gardens and vineyards in the form of terraces on the slopes; flattened relief forms have appeared in the areas intended for new irrigation.

1. The changing directions of soils were manifested in the reduction of humus, the conversion of culture soil, salinization, erosion and other manifestations.
2. Most of the natural-anthropogenic systems in the region are agro-landscapes. They consist of irrigated agriculture, lalmi farming, pastures and meadows.
3. Taking into account the changes in the geosystems of the hills of the Fergana Valley under the influence of man, O.T. Mirzamahmudov identified the following areas: Weakly changed, changed, moderately changed, strongly changed, extremely strongly changed landscape-ecological regions.
4. In particular, the geographical conditions of the weakly altered landscape-ecological zone are mainly created by pastoralism and climate, inland waters, relief.
5. The geographical conditions of the changed landscape-ecological region are created by human economic activity and inland waters, relief.
6. The geographical conditions of the moderately changed landscape-ecological region are formed by the relief, climate and economic activity of people.

7. Strongly changing landscape-ecological conditions are caused by anthropogenic influences and inland waters, waters are mainly grazing and climate, inland waters, relief.

8. The main role of human economic activity, climate, inland waters, relief in the formation of the conditions of the rapidly changing landscape-ecological region has been comprehensively substantiated.

9.

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