

ГЕОГРАФИЧЕСКИЕ НАУКИ

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AFFORESTATION OF ARID MOUNTAINS IS AN IMPORTANT FACTOR IN THE FIGHT AGAINST DESERTIFICATION IN UZBEKISTAN

Annotation. The article outlines the most effective methods in combating desertification in the conditions of arid mountains of Uzbekistan. Their essence is the transformation of the nature of river basins by complicating their landscape structure i.e. the creation of man-made complexes of small size. These complexes are formed by creating artificial forms and reliefs in the form of terraces and dam dams and thanks to the artificial groupings of vegetation.

Keywords: *Flushing of fine earth, bare slopes, developed physical weathering, artificial landforms, artificial vegetation groups, combating desertification*

Desertification is a complex physical and geographical process, caused and accelerated by both natural and anthropogenic factors. It leads to a reduction in the quantity and quality of renewal of natural resources. This, in turn, causes a decrease in the ecological potential of arid ecosystems (landscapes) and a deterioration in people's living conditions. Thus, desertification is also a socio-economic process, a process of destruction of social, economic, and sometimes political stability in the region, covered by desertification.

As you know, in June 1994 the UN Convention to Combat Desertification was adopted. Much has been done over the years, but a number of problems remain unresolved, which hinders the improvement of the environment in arid regions. In this regard, the period from January 20 South to December 20201 was declared by the UN General Assembly as the UN Decade dedicated to deserts and the fight against desertification. Its purpose is to facilitate the implementation of measures to protect arid lands. To achieve this goal in Uzbekistan and neighboring countries, it is necessary, first of all, to significantly improve understanding of the causes of desertification. The fact is, that in the Aral Sea basin the economic load on water and land resources is growing rapidly. At the same time, changes in the regime of atmospheric humidification due to global climate changes were observed. The interests of decision-making on combating desertification require the development of a scientific justification in which a specific role in the development of the process under consideration of climatic and socio-economic factors should be determined.

This article is the first attempt where scientifically substantiated the possibility of improving the natural environment of the arid mountains of Uzbekistan.

Arid mountains The Aral basin is mainly used as year-round grazing - the main and very ancient type of

land use in the mountains and foothills of Uzbekistan. An important factor in the conversion of the vegetation cover of the mountains of Uzbekistan is grazing and overgrazing. For a long time, the neighborhood of mountains and foothills made it possible to successfully use the nomadic pasture method of grazing, carried out by seasonal migrations of herds in adverse mountain seasons to the plain and vice versa.

The modern forest cover of the mountains of Uzbekistan is very low. The forested area is only about 1%. However, scientific experts explain the treelessness of the mountains of Uzbekistan to centuries-old, unlimited deforestation for economic needs. There is numerous historical evidence of past widespread forests in the mountains of Uzbekistan (p.25).

Therefore, in the mountains of Uzbekistan, runoff and, accordingly, flushing of fine earth are highly developed. Observations in the Natkal mountain reclamation station found that sometimes up to 90% of precipitation flows from the slopes. In total, 81% of all mountain soils.

Currently, the ecological condition of the mountainous landscapes of Uzbekistan is largely determined by the widespread occurrence of steep rocky and rocky, often bare, slopes with a strong development of physical weathering of rocks.

Summarizing the numerous data on the hydrological role of forests, they came to the conclusion that the forest cover of the territory should be at least 10 - 15%. In this case, it is necessary to take into account the location of forests within the catchment area.

Therefore, at present, in the conditions of Uzbekistan, for the sustainable improvement of pastures of mountains and foothills, the most effective is the forest reclamation carried out in the basins of small rivers and periodically operating watercourses.

Observations found that afforestation of catchments contributes to a sharp increase in annual runoff modules, equalization of expenditures during periods of various durations - from long-term to daily.

The erosion rate due to afforestation can be reduced to 100 times or more. In mountainous regions, the dependence of the surface washout (erosion) on the density of the stand is observed (Fig. 1).

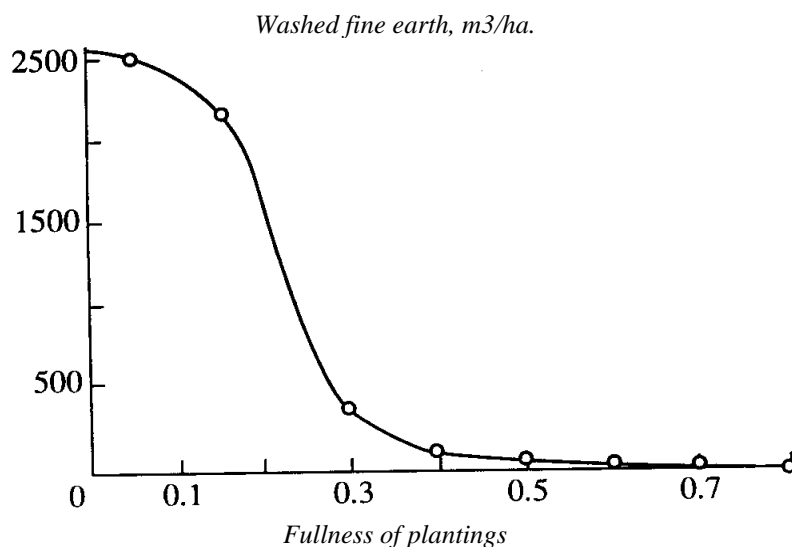


Fig.1. Dependence of soil washout on the density of juniper stands on the northern slope of the Turkestan ridge.

The water protection and water regulating role of forests is due to a 2–3% decrease in air temperature, an increase in relative humidity by 5–6%, a decrease in wind speed by 1.2–2 times, an increase in the moisture capacity of the soil, and infiltration ability of the soil; a noticeable increase in pound water flow. Observations in the experimental farms of the Academy of Sciences of Kyrgyzstan found that mountain forests increase the total amount of precipitation, as they contribute to the loss of condensation moisture. It has been established that every 10% of forest cover in the windward part of

the mountain slopes causes up to 10% of additional summer rainfall, mainly due to condensation of air vapor. (Matveev. 1985).

Thus, from a geographical and environmental point of view, the reclamation transformation of the nature of river basins is to complicate their landscape structure due to the formation of small-sized anthropogenic complexes. These complexes are formed due to the creation of artificial relief forms in the form of terraces and dam dams and due to the artificial groupings of vegetation (Fig. 2)

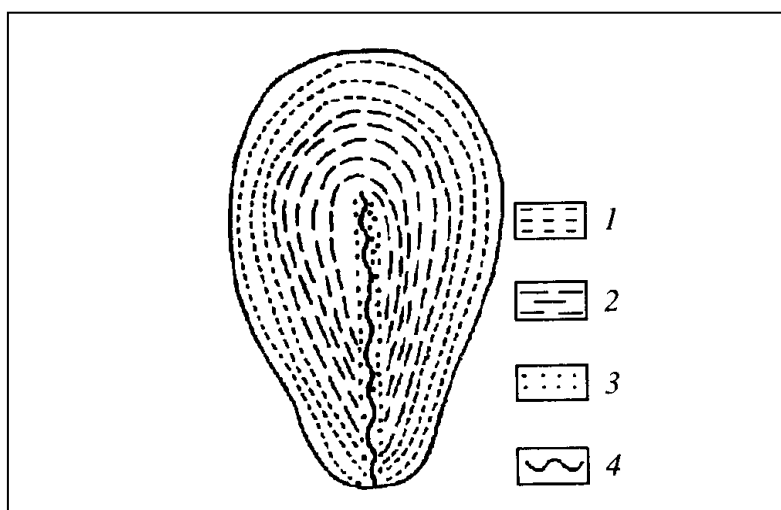


Fig 2. Zoning of a simple drainage basin.

1-step terrace with landings; 2-crested terraces with landings; 3-dams and dams with landings
4-channel of the river.

Hillside terracing includes construction:

1) ridge terraces, consisting of gently sloping shafts, which are arranged horizontally in rows and are used for planting crops;

2) stepped terraces arranged on steep slopes in the form of continuous or intermittent strips and used for planting perennial crops, including grapes and walnut trees;

3) ditch terraces of various profiles (trapezoidal, triangular, irregular section) for protective afforestation.

Without touching the technical side of the issue, we note that so far, terracing has been carried out mainly on separate sections of the slopes and was limited to any one way of modifying the relief. Now it is necessary to solve the problem of terracing the entire catchment with differentiated selection of techniques - the creation of stepped terraces of varying widths in the upper part of the slopes and ridge-shaped terraces in the lower part of the slopes and ridge-shaped terraces in the lower part of the slopes. In the channel and on the floodplain of sairs, it is advisable to install dams and dams that reduce the speed of water flow and prevent erosion.

In mountain gardening, numerous varieties of walnut, pistachio, almond, apple, pear, hawthorn, cherry plum, cherry, apricot, sea buckthorn, goosberry, acacia, etc., as well as some introduced species, are used. Orchards and vineyards are placed on slopes with a steepness of no more than 25 ° C.

The contour organization of the catchment space provides an increase in biological productivity and the associated improvement in runoff regulation. Great effect is given to the cessation of random cattle grazing and the transition to pasture rotation.

The larger and more complex the drainage basin, the more varied the methods of agroforestry should be, the richer the spectrum of species of planted plants should be.

The main areas of the foothills (Western parts of the Turkestan, Zarafshan and Gissar ranges) of Uzbekistan are used mainly for pasture. However, the low productivity of natural pastures, large fluctuations in the yield of grasses over the years and seasons of the year, depending on weather conditions, often create a very tense situation in the forage balance of livestock. Long-term studies of the Institute of Astrakhan breeding in the foothills of the Zarafshan, Urkestan and Gissar ranges have shown that it is possible to significantly increase the productivity of natural pastures by crops of fodder plants and crops such as

black

saxaul (*Haloxylon aphyllum*), isen (*Kochiaprostrata*), Chagon (*Aelleniasubaphylla*), Circassian, teresken, etc.

Among these plants, the most promising is black saxaul. Experiments have shown that with an annual amount of precipitation in the range of 100-200 mm, it is possible to grow black saxaul protective strips. For example, in the foothills of the western part of the Zarafshan ridge, forest bands from black saxaul, which have reached 4 m in 8 years, contribute to an increase in relative humidity, create mild microclimatic conditions to increase pasture productivity by 25%. Even in a lean year, the feed mass of the ephemera was 14-18% higher than in an open pasture. Thickets of saxaul bands have brought to themselves a peculiar ethnological fauna, avifauna, etc. And thus, creating a new type of biocenosis in the desert and semi-desert foothills.

Despite the obvious effectiveness of mountain agroforestry, "horses of orchards, vineyards and forests grow in Central Asia at an extremely slow pace. Under existing trends, one cannot talk about achieving the required forest cover standards even by the end of the 21st century. A review of the relationship to agroforestry is needed. For a radical change in the situation, it is important to fully consider and economically correctly evaluate the environment-forming functions of the mountains.

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GEOCHEMICAL FACTOR OF DESERTIFICATION

Abstract. The article discusses the natural types of landscape salinization in Central Asia. There are two types of salt accumulation – continental and Delta. In this work, based on the well-known geographical scheme of academician B. B. Polynov, the processes of continental type salinization of landscapes are described in detail. Further, the mechanisms of salinization of the Delite landscapes of the Bukhara and Karakul oases are covered in more detail. The author connects the formation of Delta landscapes and their geochemical features with tectonic structures on the basis of actual materials.

Keywords: *Natural types of landscape salinization, continental, deltaic, geomorphological schemes, climate, aridity, migration of chemical elements*