

## WAYS TO OPTIMIZE AND STABILIZE THE ECOLOGICAL SITUATION IN THE ZARAFSHAN VALLEY

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**Annotation:** This article analyzes the causes of environmental problems in the Zarafshan valley and describes the need to ensure environmental sustainability by identifying the necessary reclamation measures to address them. Instructions are given.

**Keywords:** Phytomelioration, irrigation, reclamation, degradation, soil and water erosion

**Аннотация:** В статье анализируются причины экологических проблем в Зарафшанской долине, описывается необходимость обеспечения экологической устойчивости путем определения необходимых мелиоративных мер для их решения, даются инструкции.

**Ключевые слова:** фитомелиорация, орошение, мелиорация, деградация, почвенная и водная эрозия.

There are various landscape types in the Zarafshan valley, including the oasis landscape. Given that the oasis has developed agriculture since ancient times, it occupies a large part of mainly cultivated soils. Population growth in recent years has led to a steady increase in demand for natural resources, leading to a disproportionate relationship between nature and society. The deteriorating ecological situation in the valley landscapes is causing environmental problems. Analyzing the ecological situation in the Zarafshan valley and identifying changes in the landscape is one of the most important tasks today.

In our research work, the scientific analysis of the negative processes occurring in the valley is to develop the necessary measures to optimize the ecological situation and to identify reclamation measures to ensure the ecological sustainability of the landscape. To do this, it is important to identify ways to implement reclamation measures by analyzing the causes of landscape change, taking into account climatic conditions. The task of our work is to assess, monitor and identify measures to eliminate the degradation of rivers and streams in the oasis.

One of the main issues is the development of road maps for the implementation of reclamation measures to ensure environmental sustainability through the optimization of the ecological condition of the oasis landscapes. Addressing this is not only an urgent task today, but also a guarantee of environmental sustainability, as well as an important role in solving geo-ecological problems in the region.

In recent years, the disturbance of the ecological balance in the foothills of the mountains is due to the fact that more and more plants are being cut down without permission, and floods occur on a large

scale. The disruption of the flora, one of the links in the natural chain, has caused serious damage to other peoples and, consequently, to the ecological balance. This has not only aggravated the ecological situation, but also damaged all natural resources, including soil erosion on mountain slopes, a sharp decline in pastures and rare forests and orchards, and the loss of wildlife. several tens and hundreds of times the depth of the earth's crust is causing climate change and other natural conditions and resources that are favorable to many people. These adverse events continue to this day, and the failure to restore the disturbed balance has led to catastrophic disturbances in many places, i.e., environmental stress, which has exacerbated the degradation process in plants and soils, resulting in desertification. leading to an increase. The aggravation of the ecological situation is mainly due to the continuous felling of tugai forests along the rivers, the continuous grazing of sheep in irrigated areas, and the mass felling of semi-shrubs, shrubs and wormwood as fuel.

Dense reedbeds and giant groves in the Zarafshan steppe are severely affected by firewood harvesting, cattle grazing, rainfall, and so on. Due to the several-fold decrease in their area, adverse events such as salinization, erosion and flooding are taking place in the valleys. The following table describes the level of erosion of oasis soils in the example of Samarkand region.

#### The state of soil erosion in the Zarafshan oasis

(On the example of Samarkand region)

№	Districts	Eroded areas	Including	
			Wind erosion	Water erosion
1	Samarqand	1440	210	1990
2	Bulung'ur	14980	12710	2270
3	Jomboy	10310	9319	991
4	Payariq	15382	11334	3047
5	Nurobod	21410	2031	1100
6	Pastdarg'om	3638	2219	1419
7	Narpay	940	300	640
8	Paxtachi	2718	-	2718
9	Ishtixon	2771	1419	925

The following table shows the erosion of irrigated lands in the Zarafshan oasis. It is important to carry out phytomeliorative measures, taking into account the fact that soil erosion occurs under the influence of water and wind. When 70% of the land is covered with vegetation, the erosion rate is reduced by 30%. This means that it is important to preserve vegetation, restore protected areas, prevent wind and water erosion, and help stabilize the environment.

Rising groundwater levels in the oasis, mistakes in irrigation of agricultural crops and discharge of wastewater and sewage into the river have led to the mineralization of river water, and increasing mineralization in the lower reaches of the river. shown in the table below

**Zarafshan river water mineralization rate**

<b>Regions</b>	<b>The degree minerlization</b>
Ravotxo'ja	280-300
Samarqand	500-550
Xatirchi	700-850
Navoiy	1000-1100
Buxoro	1300-1500

One of the main factors influencing the ecological condition of the oasis is related to the water used for irrigation. The main water resources of the oasis are the Zarafshan River and its tributaries. The use of water for irrigation leads to an increase in the salinity of the soil. It is necessary to carry out reclamation measures, taking into account the hydrogeological condition of the waters, as it is expedient to wash the soil salinity.

The increase in arable land on the shores of the Zarafshan Valley has had a devastating effect on the ecological condition of the region, and in some areas the situation has been devastating, leading to irreparable damage to the ecosystem. This situation needs to be addressed based on the results of scientifically based historical research, otherwise it could lead to a number of other problems.

Determining the causes of environmental degradation of the oasis is one of the most pressing issues today, as well as a scientific assessment of it and the development of measures to eliminate it in a timely manner. To do this, a comprehensive study of the landscape components of the valley area is necessary to identify changes in them, to divide them into groups according to the degree of change, to take administrative action against the heads of organizations responsible for some of the causes of change we count. It is necessary and urgent to assess the ecological condition of the oasis and take measures to improve it. Identify the causes of environmental problems Geographically assess the causes of each change on the spot comparative, comparative and cartographic Evaluation using methods, the main factor in solving the problem quickly and efficiently is the urgent use of valley water and soil resources, which can be done through the restoration of vegetation cover, resulting in the restoration of the valley ecosystem it is necessary to ensure biodiversity by creating a balance in the layer of fauna and flora.

By analyzing environmental problems and monitoring their causes, it is possible to ensure environmental sustainability in the oasis by implementing the necessary phytomeliorative, hydroameliorative, irrigation and reclamation works to prevent and eliminate environmental hazards. Socio-environmental problems can be solved by ensuring environmental sustainability in the oasis, which in turn is important in addressing public health and food security issues.

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