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THE UNIQUENESS OF UZBEKISTAN'S DESERTS AND PREVENTING DESERTIFICATION

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Abstract: Today, the process of desertification is a global issue and a consequence of the disruption of the relationship between nature and humans, falling under the category of environmental problems. There are numerous causes of desertification, which stem from two main groups of factors: natural factors and anthropogenic (human) impacts on nature. Properly organizing phytomelioration activities plays a crucial role in improving the ecological status of rangelands and preventing the desertification process.

Keywords: desertification process, global problems, environmental problems, arid climate, natural factors, desert and semi-desert zones, focus of desertification, groundwater, ephemerals, ephemeraloids, succulents, psammophytes, halophytes, xerophyte, anthropogenic impact.

Today, the process of desertification is a global issue and a consequence of the disruption of the relationship between nature and humans, falling under the category of environmental problems.

The desertification process is characteristic of arid (dry) climate regions, which occupy nearly 30% of the Earth's land surface. Desertification is also occasionally observed in semi-humid climates. There are numerous causes of desertification, which stem from two main groups of factors: natural factors and anthropogenic impacts on nature. Among the natural factors, climate plays a leading role. Arid, climatic desert and semi-desert zones, in particular, serve as the main foci of desertification. This is because desert landscapes possess weak stability; they are highly vulnerable to external influences associated with drought and change rapidly.

The general characteristics inherent to desert landscapes include the following:

- In all deserts, the annual precipitation is extremely low, the rainy period is very short or poorly defined, and potential evaporation significantly exceeds the annual amount of precipitation;
- Surface runoff of local waters in deserts is either extremely short-lived or does not form at all. Groundwater is saline;
- The soil cover is very thin, resulting in the upward capillary movement and concentration of salt solutions at the surface;
- Vegetation is sparse, covering less than half of the ground surface;
- Desert plants typically possess a waxy coating (cuticle);
- Deserts are predominantly characterized by ephemerals, ephemeraloids, succulents, psammophytes, and halophytes;

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- Wildlife species are highly adapted to arid conditions;
- Agriculture in deserts can only be practiced through artificial irrigation;
- Desert soils are low in humus and contain high amounts of readily soluble salts. Consequently, solonchaks (saline soils) and carbonate-gypsum soils are widespread.

In the sparse vegetation cover of deserts, annual ephemerals and xerophytic shrubs play a primary role. Due to soil salinity, halophytes are widely distributed.

In rangelands, the process of desertification due to anthropogenic impacts occurs under the influence of the following factors:

- Overgrazing of livestock beyond the carrying capacity of the pastures;
- Degradation of plant cover;
- Failure to comply with agrotechnical rules during soil tillage, leading to water and wind erosion of the fertile topsoil;
- The use of shrubs and semi-shrubs as firewood in consolidated sandy deserts;
- Road construction, geological exploration, pipe-laying, and canal construction;
- The establishment of industrial enterprises and human settlements;
- The formation of solonchaks (salt flats) due to the drying up of water bodies;
- Secondary soil salinization resulting from improper land irrigation, among others.

Based on climatic characteristics and utilization, rangelands are divided into 4 types:

1. Shrub-ephemeral sandy desert rangelands;
2. Semi-shrub ephemeral desert rangelands;
3. Halophytic-herb solonchak rangelands;
4. Ephemeral-ephemeraloid semi-desert rangelands.

Properly organizing phytomelioration activities plays a crucial role in improving the ecological status of rangelands and preventing the desertification process. By establishing artificial phytocoenoses and maximizing their utilization, pasture productivity can be increased by 2 to 3 times. To achieve this, it is essential to study the ecological and biological characteristics of promising forage plant species selected as phytomeliorants.

The area of desert and semi-desert rangelands in our country amounts to 32 million hectares. However, in recent decades, pasture productivity has been declining due to the intensification of desertification processes in these areas.

At present, humanity stands at a stage where activities regarding the use of natural resources must be strictly regulated. In many instances of economic activity, humans have breached the ecological threshold of dynamic balance between natural resource consumption and their natural

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regeneration. In arid regions, restrictions must now be imposed on the use of freshwater, rangelands, and other resources. Having a clear understanding of these processes allows for the identification of the necessary measures to eliminate desertification, pinpointing its most dangerous zones, and proposing concrete action plans.

Optimizing the natural environment and implementing the ideas of rational nature management are among the most pressing problems at the current stage of scientific and technological progress. These problems, caused by an unprecedented increase in anthropogenic pressure on nature, have demonstrated that the further development of civilization can no longer rely on previous concepts of "subduing" nature. Instead, they highlight the vital need for a partnership between humans and nature within the public consciousness.

The fight against desertification will only be effective if it is based on a deep understanding of the interacting system of natural and socio-economic factors, and ultimately, on the socio-economic transformation strategies of the countries affected by desertification.

Depending on the interaction of natural and anthropogenic factors, as well as the natural-economic conditions of the region, one of these factors may dominate the development of the desertification process. Natural factors create the necessary preconditions for the development of desertification under specific conditions. However, the desertification process is predominantly anthropogenic in character and leads to serious socio-economic and political consequences.

Irrigated lands, which account for only 15% of our country's agricultural land, yield 95% of all agricultural production.

Currently, the primary goal and objectives of ongoing scientific research consist of identifying and fundamentally studying the nature, causes, driving factors, types, and distribution patterns of the desertification process occurring in our country's conditions, as well as developing a strategy to combat this process.

Today, in order to mitigate and combat desertification processes, it is advisable to implement the following scientific and practical measures first and foremost:

- Improving measures to combat wind and water erosion;
- Eliminating secondary salinization, as well as chemical and bacteriological pollution of lands in desert-oasis and desert-rangeland zones;
- Reclaiming biologically impoverished, degraded, and abandoned lands;
- Landscaping and greening human settlements located in desert-oasis and desert-rangeland zones, taking local natural conditions into account;
- Strengthening measures dedicated to raising the ecological awareness of the general public, especially administrative leaders and resource users.

From a scientific-theoretical perspective, it is necessary to carry out the following tasks regarding the study of the desertification process:

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- Conducting monitoring of the desertification process and managing operations based on its results;
- Improving the legal and regulatory frameworks for combating desertification;
- Scientifically analyzing the local, regional, and global nature and consequences of desertification processes, creating their cartographic representations, and developing conclusions and recommendations to combat desertification.

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