EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 06, June, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

CURRENT STATUS OF LAND DEGRADATION IN UZBEKISTAN

Khujamkulova Khosiyat Ishbayevna
"Tashkent Institute of Irrigation and Agricultural Mechanization Engineers", National Research University, Associate Professor of the Department of "Economy", Faculty of "Economy"
+998 97 403 21 50
E-mail: khosiyatxujamkulova@icloud.com

Maksumkhanova Azizahon Mukadirovna
"Tashkent Institute of Irrigation and Agricultural Mechanization Engineers", National Research University, Candidate of Economic Sciences, Associate Professor of the Department of "Economy", Faculty of "Economy"
+998 99 141 25 25
E-mail: maxsumxonovaazizaxon@gmail.com

Abstract
In Uzbekistan, consistent efforts are being made across all sectors, including the rational use and conservation of land resources, enhancing soil fertility, and achieving high yields from agricultural crops. At the same time, it is essential to protect irrigated lands and improve their reclamation and ecological conditions through agricultural engineering, agro-reclamation, and other relevant measures. Increasing the efficiency of land resource use and addressing negative processes that reduce productivity—such as soil salinization, humus depletion, waterlogging, pollution, soil erosion, gypsum formation, desertification, and the spread of sand and weeds—remain urgent challenges that require timely solutions. Therefore, one of the urgent tasks today is to create favorable conditions for public-private partnership projects aimed at increasing the efficiency of agricultural land use. These projects should focus on maximizing land productivity potential, restoring degraded irrigated lands, improving land reclamation conditions, and integrating modern technologies in irrigation and reclamation activities.

Keywords: Degredation, Agricultural crops, Agricultural production, Agro-reclamation, Humus depletion, Waterlogging, Soil erosion, Gypsum formation, Desertification.

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 06, June, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

Introduction

In our country, consistent work is being carried out in all areas, including rational use and conservation of land resources, increasing soil fertility, and obtaining high yields from agricultural crops. At the same time, it is necessary to protect irrigated lands, improve their reclamation and ecological condition through the use of agricultural engineering, agro-reclamation and other measures, increase the efficiency of land resource use, and eliminate negative processes that harm their productivity, including soil salinization, humus depletion, waterlogging, pollution, soil erosion, gypsum formation, desertification, desertification, sand and weed invasion, which are among the problems that are waiting for a solution today.

According to the national report, as of 01.01.2021, the land fund of the republic is 20761.6 thousand hectares of land intended for agriculture, including 4210.1 thousand hectares of irrigated arable land. Within the framework of state programs, large-scale irrigation and land reclamation works are being carried out to increase the productivity of irrigated arable land, improve the land reclamation condition and water supply, as well as measures to return degraded irrigated lands to use. These lands are used to grow food for the needs of the population and raw materials necessary for the economic sectors. As a result, in 2008-2018 alone, more than 1.7 million hectares of irrigated land were provided with water, and the land reclamation condition of 2.5 million hectares of land was improved.

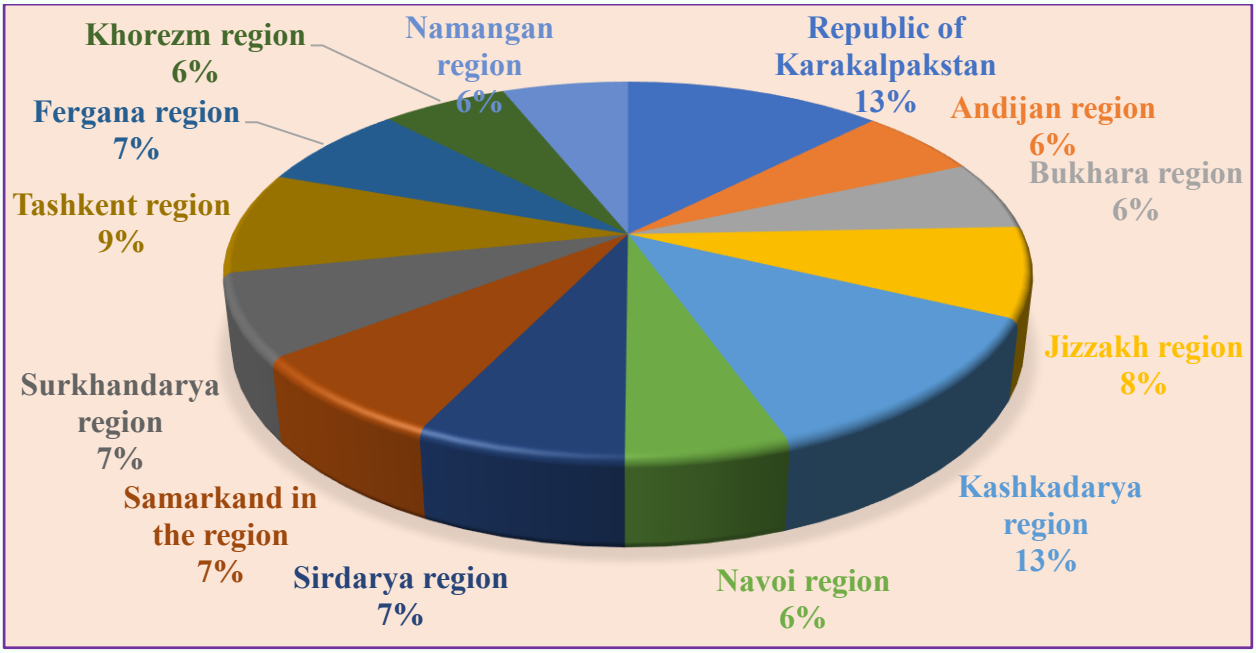

Figure 1. Irrigated land areas by republic share in regions, (%) [1]

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 06, June, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

The data in Figure 1 below shows that As of January 2021, the total irrigated area of the republic's arable land was distributed by region as follows: in the Republic of Karakalpakstan - 414.8 thousand hectares (13%), in the Andijan region - 199.3 thousand hectares (6%), in the Bukhara region - 199.5 thousand hectares (13%). hectares (6%), in Jizzakh region – 259.2 thousand hectares (8%), in Kashkadarya region – 415.7 thousand hectares (13%), in Navoi region – 185.8 thousand hectares (6%), in Samarkand in the region - 246.1 thousand hectares (8%), in the Surkhandarya region - 237.5 thousand hectares (7%), in the Tashkent region - 293.8 thousand hectares (9%), in the Fergana region - 246.8 thousand hectares (8%) and in the Khorezm region - 202.8 thousand hectares (6%).

The concept of irrigated lands as productive lands is given in Article 45 of the Land Code, according to which irrigated lands include lands intended for permanent or temporary agricultural use and irrigation, lands connected to an irrigation network and capable of providing these lands with water resources for irrigation. These lands are national wealth, the main means of agricultural production and ensure the country's food security. As of January 1, 2021, their distribution by land type is presented in Figure 2 below.

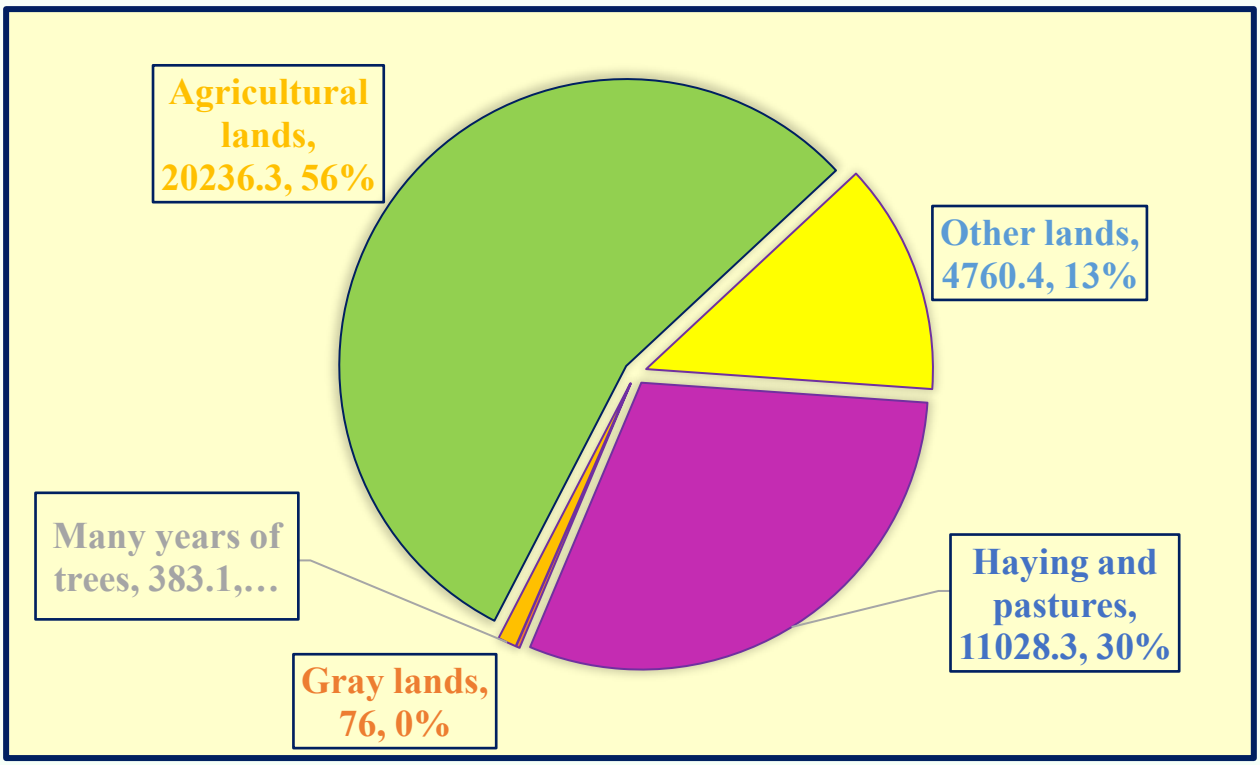

Figure 2. Distribution of irrigated land in agriculture by land types, thousand ha [2]

However, as a result of global climate change, periodic water shortages in recent years and the fact that most of the cultivated land irrigated by internal irrigation networks has become unusable have led to a deterioration in the condition of the land. This has led to land reclamation and

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 06, June, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

abandonment over the years. As a result of land reclamation and other changes in the republic and in the Samarkand region, which is considered the object of scientific research, over the years, it is no exaggeration to say that "the gradual implementation of the restoration and introduction into use of abandoned lands and degraded irrigated lands, the introduction of water-saving technologies and the effective use of groundwater reserves, and the reconstruction of internal irrigation networks will serve to change the current situation for the better" [3].

The fertility of irrigated saline soils depends on the characteristics of the soil-forming rocks, soil types, irrigation periods, salinity levels, and the complex of agrotechnical and land reclamation measures carried out on them. As is known, irrigated saline soils in our republic are found in various horizontal-latitudinal zones: southern (Surkhandarya, Kashkadarya, Bukhara regions), central (many districts of the Fergana Valley, some districts of Mirzachul, Jizzakh, Samarkand regions) and northern (Khorezm, Republic of Karakalpakstan).

Irrigated soils are divided into 4 main groups depending on the level of salinity - non-saline, low salinity, medium salinity, strong salinity. The degree of salinity is mainly determined by the salinity of the soil. For soils with chloride-sulphate salinity, the amount of salts was observed to be in the amounts given in the table below.

It is known from sources that the main primary sources of soluble salts in water, which occupy a large area without groundwater flow in Central Asia, are:

1. Processes of weathering of rocks and minerals and deposition of these salt compounds into ground water using surface and underground water.
2. Processes of migration and migration of salts from salty sedimentary rocks of ancient marine deposits [4].

The development of irrigation from saline sedimentary rocks leads to the formation of underground groundwater, which is formed from the deposition of salts on the surface of the soil and the formation of salinity . As a result of the evaporation of these waters, the upper layer of the soil is constantly becoming saline. The meliorative state of the soils in the areas from the highest part of each geomorphological region to the lower riverbeds has a different appearance. In hot and dry climates, the rise of salts through capillaries from mineralized groundwater located close to the surface of the earth is widespread. They largely depend on the natural conditions of the site: climate, the location of the land and its slope, lithological structure, water-physical properties of the soil and especially hydrogeological conditions, i.e. the depth and movement of groundwater and others [5]. Based on the conditions mentioned above, the irrigated areas of Samarkand region are divided into several hydrogeological regions (zones):

- absorption zone of ground water to upper and lower layers;
- a zone of groundwater seepage (in the form of springs) to the surface of the earth
- dispersal and cairn zones.

The first region (zone) – Urgut, Tailak and Samarkand districts consist of foothills 2,0 мwith slopes and high annual rainfall (500-). In these areas, well-permeable layers of small stones, gravel, and sand 600 ммare located close to the surface (1.5-). Groundwater is shallow,

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 06, June, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

30 мlocated at a depth of 10 or less below the surface, and is distinguished by its extremely high velocity (about a hundred meters per day) [6]. The magnitude of the slope in soil layers and groundwater is due to the high permeability of soils and subsoils. Due to the high level of groundwater flow and the fact that salinization does not occur in these areas, all water is drained into the lower hydrogeological zone and washed away. Therefore, the lands of the first zone are considered suitable for land reclamation and are not prone to salinization and waterlogging.

The second region (zone) - Bulung'ur and Jomboy districts (land The zone of groundwater seepage to the surface) begins at the lower, lower boundaries and occupies relatively small areas in the lower third zone. Groundwater encounters heavy layers in its path and is compressed by them. The upper fine-grained layer of soil, thick silt and heavy These waters can rise close to the surface (0.5- 2,0 м) or seep out, and despite their slow flow (10 m/day), there is a flow of groundwater and the level of freshness is preserved and the soils are almost not saline, the process of swamping may occur.

Third region (zone) in the lower parts of – Due to the low use of reclamation measures or their complete absence, salinization of irrigated soils in the Kattakurgan, Ishtikhan and Payarik districts can occur mainly in the evaporation zone of groundwater of the third zone. The weakening of groundwater movement and the increase in the level of mineralization (1.5- 2,0 г.l. and (more than that) can lead to salinization processes in soils.

The fourth zone (zone) - the land reclamation condition of the lands can be different. From this point of view, the areas of the Samarkand region belonging to this zone are formed by large plains with a width of 0.0001-0.001 with a small slope of the land surface. In areas with shallow groundwater (on the banks of the Zarafshan, Karadarya and Akdarya rivers), the barren lands are not saline, but some places are swampy. In areas with mineralized groundwater (located relatively close to the surface - up to 1.5-2.5 m and with a slow flow, for example, the left bank of the Zarafshan), the barren lands are saline and require reclamation measures. Groundwater is saline (mineralized) and located close to the surface. Their natural underground flow is very slow (poorly expressed) or completely absent. Due to this combination of natural conditions, a large amount of saline groundwater is spent on evaporation.

Implementation of irrigation and land reclamation measures to restore degraded irrigated lands and bring them into use requires large capital investments, lack of attention to the issue of attracting direct investments, including public-private partnerships, resulting in the abandonment of agricultural lands, resource and production of regions Mistakes such as unreasonable use of export potential are occurring, which, in turn, ensure the country's food security and the export sector these goals. the limited amount of budget funds allocated for this has a negative effect on increasing its potential.

Also, one of the urgent tasks today is to create favorable conditions for the implementation of public-private partnership projects related to increasing the efficiency of agricultural land use,

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 01, Issue 06, June, 2025
brightmindpublishing.com
ISSN (E): 3061-6972

achieving maximum land productivity potential, restoring land productivity, restoring degraded irrigated lands, improving the land reclamation condition, and using modern technologies in irrigation and land reclamation activities.

REFERENCES:

1. Cadastral Agency under the Ministry of Economy and Finance of the Republic of Uzbekistan State Cadastre Chamber Land Fund Data on Land Resources. As of January 1, 2021
2. National report on land resources of the State Cadastral Chamber of the Cadastre Agency under the Ministry of Economy and Finance of the Republic of Uzbekistan. As of January 1, 2021
3. Decree of the President of the Republic of Uzbekistan No. PF-5742 "On measures for the effective use of land and water resources in agriculture" dated June 17, 2019. Tashkent - 2019. Lex.uz
4. O.K. Komilov. Proposals and recommendations for the reclamation of saline soils. Monograph - Tashkent - 1985.
5. R.K. Kuziev, V.E. Sektimenko. Soils of Uzbekistan. Monograph-Tashkent-2009.
6. G.M. Konobaeva. Recommendations on the treatment of irrigated soils of Samarkand vakho. Recommendation-1996