Use of landscapes near Tudakul reservoir eficiently

Istat Mirzoeva[1,2*] and *Mavjuda* Ergasheva[1]

[1]Bukhara State University, 210117 Bukhara, Republic of Uzbekistan,
[2]Bukhara State Pedagogical Institute, Bukhara, Republic of Uzbekistan

Abstract. Following article deals with the natural geographical features of the Tudakul reservoir area, including the reservoir and its surroundings. They are sand-gravel-gypsum, brackish, sandy-sandy, porous sandstone (Buermana Plateau), waterside and ponds - forest, recreational and touristic, oasis, water landscapes. They were studied and relevant conclusions and recommendations were developed.

1 Introduction

Each region has its own natural geographical feature. Human being tries to use nature, taking into account the natural possibilities of the area on order to live in harmony with nature and to use its possibilities effectively.

In this study, we have shown the use of natural resources of the Tudakul reservoir landscape and their rational organization that is very complex and actual problem. It is very important to study the landscapes located in the lower part of the Zarafshan River, especially the desert, and develop scientific recommendations for their effective use.

One of the most urgent issues in landscape science is their classification, in other words their arrangement and grouping. This is primarily of practical importance. Through the classification, quality indicators and ecological features of landscapes are determined, which in turn is necessary for their development.

The current landscape around the Tudakul reservoir has endured a long period of time and various geographical conditions, and it has preserved the natural conditions of the past in its memory. In turn, these inherited characteristics are considered important factors that determine the stability, bioproductivity, ecological qualities of current landscapes, in short, their economic and social potential. In this sense, K.K. Markov (1986) noted that "For geography, the past of the earth's surface is the key to its present landscape". The present landscapes are the successors of the past landscapes. Philosophically speaking, today is the negation of the past and at the same time its continuation.

In the conducted research work, the landscape surrounding the reservoir is divided into types. The studies show importances to assess the current state and predict its future development.

* Corresponding author: rustambek852107@gmail.com

2 Literature review

Many researchers have expressed their opinions on the classification of landscapes, proposing different taxonomic units. Famous landscape scientist A.G. Isachenkov suggests a system of units as landscape type (zone) - landscape subtype - (subzone - southern taiga) - landscape class (mountain plain) - landscape subclass high mountain, low mountain - landscape type (folded rocky) (1991).

The well-known natural geographer landscape scientist N.A. Kogay from Uzbekistan recommends the following taxonomic units: Landscape classes - (mountain and plain) - groups of landscapes (automorph - hydromorph - semi-hydromorph) - types of landscapes (desert, desert - steppe - dry steppe, forest meadow - steppe - meadow - steppe, finally glacial - nival) - generation of landscapes (low mountain desert landscapes) - landscape types (mixed "saksovul" fields on barren soils) (1982). [8]

The classification principles and units mentioned above differ from the taxonomic units used in such sciences as soil geography, geobotany, desert science, which are related to geography. Secondly, it does not have a philosophical basis and does not meet the requirements of the law of the transformation of quantity into quality in philosophy. Terms such as "site type", "urochisha", and facies, which are mentioned as morphological parts of landscapes, are not understandable to representatives of science geography, and finally, they are not compatible with the terms used in relative sciences. [7]

Proponents of typological interpretation E.M. Mirzaev, N.A. Kogay, V.M. Chupakhin, A.E. Fedina and a number of others are Georgian, Azerbaijani, Ukrainian, and Siberian geographers. Active supporters of typological interpretation are the well-known natural geographer N.A. Gvozdetsky (1979, p. 131).

Taking into account the above classification, I.K. Nazarov, Kh.R. Toshov (2008) developed the basic principles of desert landscape classification and recommended a new typological taxonomic level and system of units.

3 Research methodology

Tudakul reservoir and its adjacent areas administratively belong to Kyziltepa district of Navai region, only the south-western border of the region looks at Bukhara district of Bukhara region, the corridor from "Uchlik" water distributor to "Khojkab shurkhok", from Khojkab lowland to Shahrud water distributor belongs to Kogon district. From a natural geographical point of view, the area is located within the Lower Zarafshan district, in other words, it occupies the south-eastern edge of the Zarafshan natural geographical district. (It is surrounded by the Amu-Bukhara watercourse from the south-west. The border goes along the southwestern part of the "Khojkab shurkhog", Ahbori Vali hill to the border of the Bukhara oasis. In the north-west, the border is surrounded by the Bukhara oasis, from the northeast the border conditionally passed through the Kharkhor branch of the Amu-Bukhara watercourse and the Urtachul oasis). [13]

This artificial lake was built for the purpose of providing drinking water to the people of Bukhara region and to the people of Bukhara region. Later, water-related infrastructures and recreation centers for the residents of Navai and Bukhara regions were established around the water reservoirs. In the south-eastern part of the reservoirs, thanks to the commissioning of the Amu-Bukhara watercourse (1975), a newly developed settlement - Urtachul oasis was established. Currently, this area is becoming one of the "hot spots" of life, where natural resources are being intensively exploited near the borders of Navai and Bukhara regions. The Tudakul reservoir is located at the foot of the westernmost part of Zirabulok-Ziyovuddin mountains and has a slope and undulating topography. Topographically, this area is 4 - 8 - 12 - 40 meters above the surface of the Bukhara oasis, and has a flat and dome-shaped

undulating surface relief. It rises towards the east, that is, towards the foothills of the Ziyavuddin mountains. Absolute heights are 260 - 280 meters in the foothills of the Urtachul oasis, and 242 - 255 meters on the Tudakul plateau surrounding the Tudakul reservoir. [14]. The climate of this region is in the hydrothermally hot zone, with annual positive temperatures of around 4400 - 4900 degrees. Absolutely dry by natural moisture, that is, the hydrothermal regime is less than 0.11. Winters are very mild and the winter months are mildly cold. Relative humidity is around 65% in January and around 20% in July. The total amount of radiation from the sun is around 150-160 k/cal. The annual air temperature is +14 degrees. Due to the location of this area in the desert zone, there is a lack of natural moisture. The annual precipitation is around 125 mm, and there is a tension in their annual distribution. The main part of atmospheric precipitation falls on spring and winter months. In general, the spring is capricious, the summer is long, dry, scorchingly hot, the bright autumn is short and unstable, the winter is warm, sometimes very frosty, and unstable. Winds blow mostly from the north. North-east winds are in the second place. Average wind speed is 3.7 m/sec. Their average speed increases in July-August - 4.5-4.6 m/sec. In general, the average speed of winds in the Kuyimozor-Tudakul region is somewhat higher than in the southern and central parts of the region. [12].

Soil is the main object of farming and is the main and main means of agricultural production.

As the level of agricultural intensification increases, the culture of using the soil also increases. In the conditions of intensive farming, the productivity of the soil should also increase as the production of products increases with the expenditure of additional labor and funds. Without knowing the composition and properties of the soil, it is impossible to use it wisely and effectively, to maintain and increase its productivity.

The terrain around Tudakul reservoir is flat undulating, covered with gypsophite vegetation. Partak or singren, white jangal, carrack, frankincense are leading. Analysis of the soil section from the area:

0 - 15 cm - porous, porous layer. 1 - 2 cm surface rough, loess-like rocks, dry, brown, with small flow coarse, alluvial layer.

15 - 30 gypsum gravel layers. From the top to the bottom, the gypsum formed thin fiber pieces. It gets denser towards the back. Pebbles are 2.0 - 2.5 cm in diameter, the color type is from black to pearl white, the size of the pebbles below is 4 - 7 cm.

At 135 - 185 cm, the gravel decreases rapidly, it is reddish, brown loess, salty siltstone, dry, waters are deep.

Lands with this metological foundation make up the main area of Kuyimozor plateau. These layers also cover the western shore of the Tudakul reservoir and (goes to the “Uchlik” water distribution district) reddish-brown soils are scattered in such layered lands. These belong to the class of automorphic soils. The soil structure is usually clay, after a layer of 20-30 cm, a plaster layer begins. But their density is different from the wet capacity areas. It has a series of disadvantages for mastering. First, the terrain is undulating, irrigation makes things difficult; secondly, gypsum layers are well coagulation in water, forming pockets, small erosion pits.

In the topographical lowlands, salt marshes are scattered. They usually form large small areas like islands. The largest is the “Khojkab shurkhog” . This salty land consists of mud layers and it is dangerous to walk on it as you can drown. Light gray soils are typical for the slopes of the Buermana mountain plateau and the Urtachul region. They are usually yellowish-gray, composed of loess, prolluvial rocks. The amount of humus is around 1.5 - 2.0%. In the middle desert oasis, irrigated light gray soils are scattered. The lands with a direct metological foundation of the region make up the main area of the Kuyimozor plateau. These layers also cover the western coast of the Tudakul reservoir and (goes to the “Uchlik” water distribution district) in such layered lands, reddish-brown soils are scattered. These

belong to the class of automorphic soils. The soil structure is usually clay, after a layer of 20-30 cm, a plaster layer begins. But their density is different from the wet capacity areas. It has a number of disadvantages for development, the terrain is undulating, irrigation makes things difficult.

Crops such as cotton, wheat, barley, oats, flax, sunflower, corn, sorghum, rye, millet, mash, black sorghum, sorghum, mint, reed, sorghum, wheat, and wild plants such as “partak”, “yavshan”, “itgunafsha”, “suvarang”, “saksovul” grow.

There are ephemeral and ephemeroid plants around the Tudakul reservoir. They begin their vegetation (growth) period in early spring and complete their full development cycle in April-May. Plants belonging to this species are important for sheep in the spring season as a blue fodder rich in various vitamins and proteins (in the form of carotene), and in the summer months as dry fodder.

Herbaceous plants. These are plants with a well-developed root system, adapted to use water in deeper layers of the earth. They are valuable and nutritious fodder for sheep.

Shrubs and semi-shrubs. The root system is strong, and the leaves are weakly developed plants, adapted to use water in the deep layers of the soil (“saksovul”, “juzgun”, “shuvoq” and others).

Salty plants. The root system is weak, and the leaves are strongly developed, and they are plants that store a lot of salt.

Color (“qorabosh”-Poa bulbosa) is an ephemeroid, the main fodder for sheep during spring. It begins its vegetation in early spring, and in favorable conditions, in autumn, and ends in April-May. When the soil fertility is high, its productivity reaches 3-4 centners of dry mass from 1 hectare. It has high nutritional value during the growing season. Carex pahustulis is an ephemeroid plant that grows well in sandy soils and reaches a height of 10-20 cm. The vegetation period begins at the end of February and ends in May.

Poa bulbosa. Ephemeroid is a plant belonging to the cereal family. The growing season begins in early spring and ends in May. Ephemeroid is a plant belonging to the cereal family. The growing season begins in early spring and ends in May.

Bromus tectorum. Annual, belongs to the cereal family. The growing season is mainly from mid-February to April-May, and in favorable conditions it also blooms in autumn.

“Arpaghon” (Eremopyrum buonapartis). Ephemeral, a plant belonging to the cereal family. Vegetation begins in autumn or early spring and ends in late April. According to information, barley is not inferior to leguminous plants in terms of nutrition.

Rough-stemmed plants, “karrak” (Cousinia resinosa). It is a large, thorny plant belonging to the complexaceae family, reaching a height of up to 75 cm. Vegetation begins in early spring and ends in early summer.

“Yantok” (Alchagi Pseudoalchagi). A perennial plant belonging to the legume family. This plant begins its growth period in April and ripens in October. It is well eaten by sheep and camels during winter. The succulent plants “balikkuz” (Klemocoptera lanata). An annual plant that grows in saline areas.

After passing through the moat from “Khojkab shurkhok”, the forest landscape begins, located 219 meters above sea level. On the roadside we meet white “saksovul” and cycads.

Also, plants such as ephemeral-shrubs and “juzgun”-“saksovul” grow and develop well in Tudakul - Urtachol region and can be widely used for feeding livestock. Effective use of the above-mentioned nutritious plants, their reproduction and protection will allow to increase the productivity of the available pastures in the region, and this is one of the promising ways to develop pastoralism. [12]

In the past, few people lived in Tudakul region, only a small number of shepherds lived and raised livestock. Wild animals such as wolves, foxes, rabbits and gazelles lived around the Tudakul reservoir, and it should be noted that the four sides of the reservoir consist of mountains, groves, and ditches, which are important factors that allow wild animals to

survive here. The fauna of the Tudakul reservoir consists of 31 species of fish belonging to 7 families.

Tudakul is a comfortable and unique place for pheasants, mallards, ducks and various other birds in its groves and around water. Urtachul is the habitat of birds such as sparrow, “sofiturgai”, “chugurchuk”, “zargaldok”, “kizilishton”, “larkushkar” and “khakka”. Reptiles such as lizards, turtles, tax snakes, water snakes, forest snakes, earthworms, hedgehogs live here. [11]

The current landscapes of Tudakul have survived a long time and various geographical conditions, and have preserved the natural conditions of the past periods in their memories. In turn, these inherited characteristics are considered important factors that determine the stability, bioproductivity, ecological qualities of current landscapes, in short, their economic and social potential. In this sense, K.K. Markov (1986) noted that: "For geography, the past of the earth's surface is the key to its present landscape". The present landscapes are the successors of the past landscapes. Philosophically speaking, today is the negation of the past and at the same time its continuation.

Many researchers have expressed their opinions on the classification of landscapes, proposing different taxonomic units. The main factor that determines the geosystem of the landscape zone is the uneven distribution of heat and moisture, in other words, their interaction. Desert zone is also a product of this law. Zoning is a law of natural geographical laws, in this space all abiotic, biotic, even economic social processes take place in accordance with this law. [8]

The main factor determining the class of landscapes is the morphotectonic (geomorphological) structure of the area and related processes. Tudakul reservoir and its surroundings belong to the plain class of landscapes.

Sand-gravel-gypsum-gravel landscape type occupies the western and southwestern shores of the Tudakul reservoir. The relief is sharply undulating in the lands adjacent to the south-western shore of the Tudakul reservoir. Kadir Shaykh Hill (255 m) and "Uchlik" water distribution relief elevation is relatively sharp 60 - 70 m. These areas are covered by alluvial deposits of sand and gravel, but are highly gypsum. The amount of gypsum in the soil around Kadir Sheikh Hill reaches 60-90%. The soil is very compacted and develops in automorphic conditions, therefore tree-shrub plants such as sugarcane, “cherkaze”, “saksovul” are not found naturally. Most gypsophilic species are led by “Khiva singreni”, “vatak”, “iris”, “karrak”, “isirik”, “chakhich”, ephemeroid,“yaltyrbosh”, tulip, “konkirbosh”, “karabosh” and “arpagon” are common. In the lowlands of the undulating relief, the “yantak”s are found in the form of islands. It changes depending on the physiological condition of the bushes, productivity, level of leek water and salinity. Nowadays, the bioproductivity of such landscapes has decreased due to anthropogenic influence. In many areas that have become unsuitable for livestock, sand and gravel mining is still ongoing. In particular, the lands near the Bukhara oasis have become abandoned. Household waste was dumped in some places. So, the landscape needs phytomelation and strict protection. In this regard, it is appropriate to use phytomeliorates such as black “saksovul”, “shuvok izen”, and “vatak”. [1]

“Shurhok” (salty) landscapes are one of the geosystems typical for the desert zone. "Shurkhoks are a product of the desert zone," wrote E.P. Korovin and D.N. Kashkarov in 1934. Indeed, the saline landscapes, can be said to be a derivative of the desert zone. In this zone, there are types, subtypes and different morphological forms of conifers.

There are two types of salt marshes around the Tudakul reservoir. The first is residual salt marshes - they form the upper layers of gravel on the hills in front of the Khojkab cemetery. Due to erosion, these layers have formed natural openings in many places. Such layers are widespread at the foot of the Buermana mountain and in the lands adjacent to the Urtachul oasis of the Tudakul reservoir. Saline soil - runoff dissolved due to atmospheric precipitation has formed saline island areas in the lowlands. Such lands usually have no bare vegetation,

and golfites such as “saleros”, “sarsazan” and others are found. The second main type of brackish land is lowland, which is common in areas where leek water is close to the surface and protrudes from it. The largest of the soil salinity is the “Khojkab shurhok”, located at the western part of Tudakul, its area is around 220 - 250 hectares. Flowing water is highly saline. Salty seepage water coming in due to filtration settles here, that is, accumulates, and due to their evaporation, salts crystallize and cover the top of the salt pan.

The surroundings of the salty land, where the Kuyimozor watercourse was passed through the eastern edge of the land and marshes with ponds and are the habitat of birds living by the water. This place is included in the list of "the most important ornithological regions of Uzbekistan". In the future, it is advisable to use this spring for balneological purposes. First of all, it has a historical basis. In recent years, local residents and patients have used this area as salt mud. That is, from June 21 to July 21 (in the period of "hot water") it is customary to "fall into the salt". Nowadays, no one uses this salt mud. In the future, it will be appropriate to organize a modern salt mud sanatorium in front of Kuyimozor watercourse. First, these lands will be prosperous and under control. Secondly, new opportunities will be created to restore public health.

Agro-landscapes of the oasis. These landscapes - is a pre-mountain plain, sloping towards the Tudakul lowland, located between the Tudakul reservoir and “Kuktogh” (the westernmost edge of the Ziyovuddin mountains). The absolute height is 220 - 300 m in the upper part and decreases to 220 m in the vicinity of Tudakul reservoirs. In ancient times, Urtachul (located between Malik and Karnab deserts) was the homeland of cattle herders. The pastures are fertile, especially “kangirbosh”, “yaltyrbosh”, “karabos, “isirik”, “vatak”, “singren”, “chakhich”, (sugarcane) are well grown. The territory was completely supplied with water from wells, and around each well there were cellars, huts, cellars, and finally, shepherds' houses. [15]

Landscapes of recreational importance - the southwestern coast of the Tudakul reservoir has favorable opportunities for recreational resources. Firstly, a pleasant breeze blows from the north-east during the summer. Secondly, a very shallow sandy and pebbly beach is perfect for bathing and relaxing. In addition, there are high opportunities for viewing natural landscapes. "Zarnitsa" recreation center belonging to the Navai Mountain Metallurgical Combine was first established in this area for recreation purposes. The resort operates mostly in the warm season of the year. Modern cottages and cabins have been built inside the resort. In addition, about 2 hectares of orchards and vineyards have been established, and a 200 m wide swimming area has been established. The Bukhara recreation area is located in the southern part of the resort area. Buildings, green corridors, and beach bathing areas have been created by organizations of the Bukhara region. In front of the beach, there is a garden with fruit trees, and on its western side, cottages, paved walkways, and necessary infrastructure have been built. In addition, a "rest zone for railwaymen" was established on the northern bank of the reservoir near the Kogon-Tashkent railway. The zone covers an area of about 1 hectare, surrounded by concrete walls. [16]

Effective use of the existing tourist potential of the areas around the water basin, creation of favorable conditions for business entities, establishment of international general seasonal resorts, hotel complexes, cultural-health, trade-entertainment and other tourism infrastructure facilities, effective use of existing resources and additional jobs In order to create, ensure the ecological stability of the area, and also to increase the flow of domestic and foreign tourists. It is planned to establish a tourist-recreational zone "Tudakul" on 90 hectares of land in the reserve fund of the Kyziltepa district administration.

Hotel complexes with a total value of 390.0 billion soums, cultural-sanitary, trade-entertainment and other tourism infrastructure, with the ability to serve 7,000 tourists at the same time on an area of 90 hectares after the establishment of the "Tudakul" tourist-recreational zone facilities are established.

Among them: 6 hotels with a project cost of 53.0 billion soums, 2 treatment and wellness centers with a project cost of 58.0 billion soums, 15 catering establishments with a project cost of 30.0 billion soums, project cost of 38.0 billion soums, 25 commercial and household service facilities, 4 saunas and swimming pools with a project value of 52.0 billion soums, 10 sports grounds, 2 children's playgrounds, 80 camping sites, 20 glamping sites, 5 recration parks and indoor swimming pools, 1 golf course and bowling alley, 15 parking lots, an amphitheater, horse and camel rides, toilets and restrooms, and balloon fields will be organized. As a result of the implementation of the projects, 1550 new job places will be created. [18]

Desert landscapes have unique recreational opportunities compared to other zonal landscape types. We can observe that people's living conditions, outlook on recreation are changing and improving. Economic well-being and the associated spiritual maturity determine the need for recreation. As the level of social life increases, the desire to relax and spend leisure time meaningfully increases too.

In the desert zone, since long time ago, among the people living in oases and cities (cultural zone), there are sayings: "Let's go out to the desert", "let's go to taste fried lamb", "let's go on a pilgrimage to Hazor Nur". In fact, in the spring months, it is possible to observe that 20-30 people from the villagers gather together in a bus or a big truck to go for a walk, rest or visit for a day or two.

In recent years, non-traditional types of world tourism: ecotourism, historical-architectural, archeological, ethnographic, religious, agrotourism, tourism of extraordinary events are rapidly gaining popularity. It should be noted that ecotourism is one of the most flourishing directions for the Republic of Uzbekistan. As desert, hill, mountain landscapes, tangible and intangible heritages created by human power, that is embodied in our republic, have a unique ecotourism content. In this regard, opportunities related to desert ecotourism have a special perspective. Desert and desert landscapes occupying 70% of the territory of our republic are the natural, economic and social foundation of ecotourism. To organize and develop the ecotourism market, first of all, it is necessary to thoroughly study the ecological features and possibilities of each region. Because, it is impossible to effectively organize the ecotourism market without knowing the ecological, natural and social basis of the region.

Akhbori-Vali ("Agzun city") shrine. Anyone who sees the expression "Agzun city" naturally thinks that "Agzun city was also in Bukhara". Yes, it was the city of Agzun. More precisely, the Kokhandiz or Agzun castle covered an area of about 70-80 hectares, and there was a high wall, and inside there were a wall, a ditch, a ditch, a pond, a stone well, and shops. The location of the Agzun fortress is in the Kuyimozor desert, adjacent to the current Tudakul water cellar of the Kogon district, and today this place is known as Khoja Qabul Akhbori Vali. Agzun fortress was located near Zarafshan river. It is possible to say that a tributary of the muddy river divided the ancient city in two. That is, he entered the city from the northern part and passed through the southern gate. The city, which was always provided with this, expanded its wings and grew larger. Animal husbandry, farming, crafts, and hunting culture are widely developed here. The fate of turning into a ruin due to lack of water also befell the city of Agzun. Since the tributary of the Zarafshan River did not flow through the middle of the city, the inhabitants of the fortress moved outside, to places near the flowing water, and began to live. The people of the villages of Orgun, Katta Orgun, Siyozbolo, Siyozpayon, Rabotmetan in Kogon district are today's descendants of the people who came down from the ancient fortress "Agzun" and formed a village. The names of the villages testify to this. [11]

In conclusion, we want to say that, as famous Russian geologist V.V. Dokuchaev (1846-1903) noted, all human activities, customs, clothing, daily living environment, housing, food and drinks, even pets are the same. They are closely related to the nature of the place and zonal characteristics.

Desert regions are a unique natural geographical unit. Their most important feature is the extremely low precipitation and very high possible decomposition. Therefore, these regions are distinguished among other types of landscape with water scarcity. Generally, in desert regions, settlements are scattered and small economic sectors are extensively developed. Due to their demographic and economic potential and vulnerability, deserts are often interpreted as "empty lands".

In the conditions of Uzbekistan, low residual mountains in desert regions and small oases in areas with relatively better water supply are clearly visible in the form of green islands on the natural and economic-social map. At the same time, these areas also have unique flora and fauna, recreation and tourism resources.

Today, the demand for recreational resources is increasing. The high standard of living and culture of the population, as well as the demographic growth, increase the demand for rest. It is known that most of the territory of our republic, including the large oases that are crowded with people and located in the desert zone. But the natural recreation resources of this area are somewhat limited compared to hill, mountain and pasture regions. Especially in the warm period of the year, that is, when the demand for recreation resources increases, the opportunities for recreation in the desert zone are more naturally limited. Factors such as sunny days, hot, dusty, dry air, and limited water resources create recreational inconveniences in this area.

Currently, around the Tudakul reservoir 2 large resorts (Meridian and Silk Road Family Resort) with a total of 20.2 billion soums are launched. [18]

Type of watery landscapes. Tudakul used to consist of lowlands with ponds. They came from Karshi (Karnob) desert once upon a time. It is a depression formed due to the erosion activity of the Suvkayti River. In addition, this depression is located at the lowland of Kuktogh (711), and has a tectonic basis. Its place corresponds to the Choydaroz fold, which is located between the Kogon and Ziyovuddin uplift zones. Tudakul basin and its foothills are covered with saline gypsum alluvial deposits. Nowadays, it has been determined that 40 million tons of salt are present in the bowl-shaped bottom of the reservoir in an area of 200 km. After the basin was converted into a reservoir, the soluble salts present in the water were flushed out of the oases through irrigation systems. It should be noted that, in addition to the Tudakul reservoirs, there are the 1st, 2nd turn sections of the Amu-Bukhara watercourse, as well as the Urtachul, Shahrud, Kuyimozor watercourses that receive water from them, as well as several ponds (around the Khojkab lagoon). It is necessary to think of ways to arrange such watery landscapes, to rationally organize orchards growing on the waterside of canals.

Waterside and ponded forest landscape types. These landscape types are found in areas with distinct insular hydromorphic conditions:

1. In the southeastern part of the Tudakul reservoir, on the shallow shores of the lake.

2. The foundry is located in the south-western part of the reservoir, at the lower part of the artificial dam.

3. The Kuyimozor reservoir of the Zarafshan river (now this reservoir is directed to Tudakul) exists in the valley. Near Kuyimozor railway station, the width of the valley reaches 1.5 - 2.0 km. In the lower part of this valley, there is a thick forest. The middle part is full of pond plants, common reeds, lux, sorghum. They are the leading plants in the surroundings. Due to its close proximity to human settlements, especially for livestock, and low water-related bioproductivity, waterside birds are rarely found here. The forest, which has been impoverished due to anthropogenic factors, and has a limited type of vegetation.

4. In the southern foothills of Khojkab salt marshes, there are groves with ponds in the area of fishing farms.

5. Groves of trees have been formed along the Amu-Bukhara highway (turns 1-2). On the banks of the water, in the groves of 8 - 12 m wide trees, “turongil”, “poplar” (2 types), willow, cypress, mat reed, “yulgin”, common reed formed a thick wall. These are reminiscent of real

groves, and they grow disordered in different physiological states. They are sometimes burned during the winter. It is advisable to plant woody trees as much as possible to organize such orchards. [7,17]

4 Analysis and results

The science of landscape science has both theoretical and practical importance in effective organization of local landscapes and protection of its natural resources. The landscapes of this area are divided into the following landscape units according to the classification recommended by N.A. Kogay (1982), I.K. Nazarov, Kh.R. Toshov (2008):

a) The territory belongs to the class of plains of the desert zone;

b) It belongs to the subclass of high plains according to geomorphological - hypsometric characteristics;

c) It can be divided into the following types of landscape according to its meteo-ecological characteristics:

* sand-gravel-gypsum landscape type
* type of saline landscapes
* sandy - type of sandy landscapes
* separately expressed porous sandstone landscape type (Buermana Plateau)
* Waterside and ponded - forest landscape type
* Recreational and tourist landscape type
* Oasis landscape type
* Type of watery landscapes

The eight landscape types mentioned above have specific landscape ecological characteristics. [8,15]

5 Conclusion/reccomemdations

Construction raw material, sand and gravel, which has an alluvial basis, is being mined from the Kuyimozor and Tudakul plateaus surrounding the reservoir. That is why dug up, deep abandoned lands occupy large areas. So, until 1965, this area consisted of only desert and salty pastures. Now, it is increasingly becoming a focus of life. In the future, it is advisable to implement the following measures for effective use the natural resources of the Kuyimozor, Tudakul reservoirs and the landscapes adjacent to them:

a) Firstly, due to the excess of anthropogenic load, the pasture resources of the landscape are impoverished. Therefore, it is necessary to carry out phytomelioration works in the area.

b) Secondly, it is necessary to limit the development of the Kuyimozor plateau for the purposes of irrigated agriculture. It is extremely inconvenient to master gypsum layers. It consumes a lot of water. Suffocation and erosion processes are ineffective.

c) Thirdly, the conversion of abandoned pits created by the mining of sand and gravel on the plateau into landfills should be strictly prohibited. It is necessary to implement phytomelioration works and strengthen protection measures through agrotechnical and agrobiological activities on abandoned lands.

Based on the results of our research, the following conclusions and recommendations appeared:

a) In order to effectively use salt marsh landscapes, it is desirable to establish a salt mud balneological resort on the banks of Kuyimozor watercourse (in the area where fishermen's houses are located), especially in Khojkab. First of all, it is located at a convenient distance from the city dwellers. Secondly, salt mud therapy is one of the popular, traditional healing methods and useful.

b) It is necessary to take measures to enrich the Podautov and Uchkum areas with plants, which are located near the south-eastern shores of the Tudakul reservoir. Many pastures have turned into incense groves, and they should be enriched with useful plants such as “shuvok”, black “saksovul” and “singren”.

c) Separately expressed plateaus include the Buermana plateau consists of loess, gypsum, and finally neogene sandstones. Fragmented by stream erosion, but poor in vegetation cover. The productivity of earthworms is very low. Plateau pastures are affected by water and wind erosion and need phytomelioration.

d) It is necessary to take measures to reduce the area of waterside and orchards as much as possible. Cause of a large amount of fresh water evaporates and transpires from these areas. For this reason, the utilization rate of the Tudakul reservoir is low. It is advisable to establish a reserve on the south-eastern shore of the Tudakul reservoir for birds living near the water, especially those included in the "Red Book") recreational and tourist landscapes are located on the south-western shore of the Tudakul reservoir. A special attention should be paid to landscaping works.

In addition, land reclamation condition is getting worse every year. It is necessary to strictly prevent the drainage of ditch water from Urtachul to Tudakul. Creation of necessary conditions for living and working of the population in the middle desert is the need of the hour, especially the establishment of infrastructures such as provision of clean drinking water and gas.

When the above measures are implemented, the effectiveness of the landscapes of the Tudakul reservoir will increase and our country will be prosperous.

References

1. L.A. Alibekov, Izv.Uzbek geogr.about. 17, 7-12 (1991)
2. Z.M. Akramov, Problems of economic development of desert and mountain-foothill territories. (T., Uzbekistan 1974)
3. A.G. Babaev, Devastation can be prevented from stopping the problems of desert development. 1, 3-8 (1991)
4. S.K. Gorelov, A.P. Zhumashev, L.S. Mokrushina, Zaunguz Karakum. (M.1989)
5. P. Gulyamov, Zoning of the near–oasis cavity of deserts of the Middle and Lower reaches of the Zarafshan River by physico-geogric processes. The issue of natural zoning of Uzbekistan. (Tashkent, Fan, 1966)
6. A.P. Zhumashev, Ecological and geographical conditions and types of deserts of Central Asia. (Ashgabat, 1990)
7. Sh.S. Zokirov, Anthropogen va amali landscape artist.-Toshkent, "University" 1998.67 b.
8. Zokirov Sh.S. Kichikududlar geografiyasi. (Uzbekiston University, 1999)
9. I.E. Mirzoeva, davdakul suvaldining G. tabiy geographical character. Geographical researcher: Innovationi ideylar and rebojlanish Jubollari. AI-the people of science-Amalia conference materialary.Tashkent. B. 98-101 (2023)
10. I.E. Mirzoeva, davdakul suv omboring recration to enable fruitful geographical development. The modern geographical researcher: theory, operations, innovations.The people of science-Amalia conference materialari. Samarkand, B.276-280. (2023)
11. Narshakhy. Bukhara tarikhi. Heritage. Tashkent (Kamalak, 1991, 385)
12. I.K. Nazarov, Uzbek geogra. Izv. voda-i, 17, 12-18 (1991)

13. I.K. Nazarov, M.I. Prosorova, Changes in phytocenoses of deltas and the lowering of the Zarafshan River during the operation of the Amu - Bukhara Canal. Fast.doc. Vses. nauch-Tech. owl x.
14. I.K. Nazarov, I.G. Allaerov, Bukhara geographical location. (Bukhara 1994)
15. I. K. Nazaraov, H.R. Tashev, typological landscape designer classifier baziy tamoylari. The geography of Uzbekistan is a collection of news . 32-zhild Tashkent, 18-20 betlar (2008)
16. M.K. Ergasheva, I. Mirzayeva, A. N. Nematova, Davlatova and Kuimozora suv omborling recreationize opportunities for the development of geographical development. Geography of Uzbekistan: nature, population, government. Mausorli iszalar and yeslarning of science-Amalia conference materialary. (Tashkent, 2013)
17. M.K. Ergasheva, G.B. Bakhromova, G.S. Kholikova, Duldak-Kuimozor, Samaritan recursed on the territory of the Ministry of Internal Affairs. Uzbekistan-environment kilishning dolzarb governorate is a parable. Republic of Science-Amalia conference materialary. Samarkand, 170-171 (2013)
18. National Encyclopedia of Uzbekistan. Volume II. (Tashkent, komuslar Bosch edition. 1997)
19. R. Kuldoshev, et al., E3S Web of Conferences 371, 05069 (2023)
20. A. Hamroyev, H. Jumayeva, E3S Web of Conferences **420**, 10007 (2023)