International Journal of Pedagogics
(ISSN – 2771-2281)
VOLUME 03 ISSUE 05 Pages: 16-20
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 6. 676)
OCLC – 1121105677
Publisher: Oscar Publishing Services

Journal Website: https://theusajournals.com/index.php/ijp

Research Article

THE IMPACT OF LAKE AYDAR-ARNASAY ON THE ENVIRONMENT

Submission Date: May 03, 2023, Accepted Date: May 08, 2023,
Published Date: May 13, 2023
Crossref doi: https://doi.org/10.37547/ijp/Volume03Issue05-04

Imomova Dilfuza Anorovna
Biology Candidate of Sciences, Jizzah State Pedagogical University, Uzbekistan

Mavlonov Khudargan
Doctor of biological sciences, professor of Jizzah State Pedagogical University, head of the department of physiological hygiene, Uzbekistan

ABSTRACT

Data on environmental problems caused by population changes, including water scarcity and its consequences, are presented. Also covered are the negative consequences of the problems associated with the emergence of the Aydar – Arnasoy lake system and the transformation of the lake system on the environment, flora and fauna. The decrease in water balance in the Aydar Arnasoy lake system has been analyzed in comparison with the consequences caused by the drying of the Aral Sea.

KEYWORDS

Population, drinking water, Aydar – Arnasoy lake system, medicinal and fodder plants, monitoring, comparative analysis, desertification, salinity, biodiversity, Islet, biocenosis.

INTRODUCTION

As a result of a sharp increase in the world's population, the demand for various essential goods is growing by the 21st century. This, in turn, leads to a sharp change in the environmental situation. As a result, this leads to significant changes in environmental factors that constantly affect living organisms. The vital activity of all living organisms is closely related to water. As for drinking water, 3/1 of the population of the earth's surface is provided with drinking water, while in our Republic the level of satisfaction of drinking water needs is 71.2%.

From the point of view of water supply, Uzbekistan is included in the list of countries with water scarcity. This will require greater enterprise and cost-effective use of water resources in Uzbekistan.

International Journal of Pedagogics
(ISSN – 2771-2281)
VOLUME 03 ISSUE 05 Pages: 16-20
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 6. 676)
OCLC – 1121105677
Crossref doi Google Scholar WorldCat MENDELEY
Publisher: Oscar Publishing Services

With a sharp increase in the world's population in the 21st century, the need for water for them, as for all sources in need, has increased even more. The main reasons for this were technical capabilities, a significant increase in the number of industrial enterprises allowed the use of reserve water sources for reasons such as the relief of places and numerous land allotments, and the amount of water extracted from rivers reached its peak. This led to increased assimilation of previously "empty" land plots in an intense picture. At the same time, as a result of the increase in the area of irrigated land and the use of various pesticides, mineral fertilizers and plant protection products in the cultivation of agricultural crops, the accumulation of their residual amounts in wastewater and groundwater exceeds the permissible norm.

In all republics of Central Asia, the problem of water shortage is complicated by the increase in the population, climate change, and the lack of a systematic approach to water conservation.

If we analyze the statistics, the shortage of clean drinking water in the regions of Central Asia leads to a drop in GDP by 11%. In the region, 80-90% of water resources are used in the agricultural sector. The total area of irrigated land by region is 7.695 million, and in Uzbekistan - 4.2 million. According to the European Environment Agency (2021), it is indicated that pollution of reservoirs in the Highlands is due to agricultural, industrial waste, insufficient filtration of used water in residential areas and its use for recycling. One of the areas approaching the global environmental problem of the water problem today is the Aidar-Arnasoy lake system.

In the last 40-45 years, lakes (172) have appeared in many plains as a result of the Amudarya and Syrdarya waters being taken to irrigation facilities and regulated. The largest of them are: Aydarkol, Sarikamish, Ayazkala, Todakol and others. Their total area is 63.60 km3, the total area of Aydarkol is 11.6 km3 (1).

Aydarkol is one of the type of anthropogenic lakes that appeared as a result of dumping excess water (21 billion cubic meters) from the Chordara reservoir in 1968-1969 into Arnasoy, Tuzkon Aydar shurkhok.

At the moment, one of the regions in our republic, where the natural ecological situation is in a critical situation, is the Aydar-Arnasoy lake ecosystem and its surroundings. One of the main reasons is climate change, i.e., excessive evaporation of water as a result of a decrease in precipitation, temperature rise, and the second is related to the excessive level of influence of anthropogenic factors.

The length of the Aydar-Arnasoy lake system water basin is more than 300 km, and the width has expanded to 40 km [2]. As a result of the relative decrease of the water level in recent years, the compositional structure of water and soil is changing.

The waters flowing through the collector ditches form the basis of the water balance section of the Aidar-Arnasoy lake system. In 1993-2019, the average degree of mineralization of all collector-sulfur waters was estimated at 4.3 g/dm3, and the annual change in the mineralization value is 2.6-6.5 g/dm3. In this case, the total amount of salts entering through collector installations during the year is 10.2 million tons.

In the Aydar-Arnasoy lake system, the water inflow is 2.5 km3, and the outflow is 4.4 km3, and a sharp decrease in water is observed. Mineralization has increased from 5.07 g/l to 8.59 g/l in the last 10 years due to water depletion. Another 1.9 km3 of water will be needed to maintain the lake level at the previous

International Journal of Pedagogics
(ISSN – 2771-2281)
VOLUME 03 ISSUE 05 Pages: 16-20
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 6. 676)
OCLC – 1121105677
Publisher: Oscar Publishing Services

245 meters. If the balance of water output and input is not ensured, the lake level will drop by an average of 30 cm per year. [4,5]. Among the sources of water flowing into the Aydar-Arnasoy lake system, the level of salinity is increasing due to the decrease in the amount of water in the Chordara reservoir. Due to this, in recent years, the side of the Republic of Kazakhstan has improved the possibility of releasing water from the Chordara reservoir to the Syrdarya. In order to collect excess water released from the Chordara reservoir, the Koksaroy reservoir was built near the city of Kyzylorda in the valley of the Syrdarya. As a result, the amount of water flowing from the Chordara reservoir into the Aydar-Arnasoy lake system has sharply decreased.

Groundwater level, m	**Soil types**	**Plant species**	**Natural geographic processes**
0,5	Brackish swampy	Chenopodium album L. Poppy Agriophyllum lateriflorum (Lam.) Moq	Groundwater subsidence, swamping, salinization, and sometimes sand-filled dry valleys develop
0,5-2,0	Meadow sorghum	Ajriq A.minus Fisch. et May, izen K.prostrata (L.) Schrad., Chughon Halothamnus glaucus (M.Bieb.) Botsch., Aeluropus litoralis (Gouan) Parl.	In place of the lake, there are transit zones composed of salt marshes covered with sand.
2,0-3,0	Typical sorghums	Halimodendron halodendron (Pall.) Voss., licorice Glycyrrhiza glabra L. Yellow-headed Senecio subdentatus Ldb.	Brackish, turbid, and salt marshes develop in areas where seepage
4,0-5,0	Residual saltwater	Halocnemum strobilaceum (Pall.) M.Bieb., Haloxylon aphyllum (Minkw.) Iljin.	Salt flats spread out on the undulating plains, and in some places sandy areas are formed.

International Journal of Pedagogics
(ISSN – 2771-2281)
VOLUME 03 ISSUE 05 Pages: 16-20
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 6. 676)
OCLC – 1121105677
Crossref doi Google Scholar WorldCat MENDELEY
Publisher: Oscar Publishing Services

6-8	Desert sandy soils	Fisheye Climacoptera brachiata (Pall.) Botsch., Black saxophone Haloxylon aphyllum (Minkw.) Iljin., , Juzgun C. leucocladum (Schrenk) Bunge	Under the influence of wind, the processes of deflation, transportation, accumulation and succession occur in the sands

Reducing the amount of water has very negative consequences in this area:

A sharp decrease in the number of medicinal and fodder plants in the Aydar-Arnasoy lake system;

- Reduction of raw material products for growers of medicinal and fodder plant products (farmers and farms, agroclusters) distributed in the Aydar-Arnasoy lakes system;
- Loss of biological diversity of medicinal and fodder plant species distributed in the Aydar-Arnasoy lake system;
- Changes in the chemical composition of medicinal and fodder plants distributed in the Aydar-Arnasoy lake system;
- negative impact on food safety;
- depending on the environmental changes in the region, various infectious diseases, diseases related to metabolic disorders, oncological diseases, and diabetes are the reason for the increase of diseases.

To prevent unpleasant situations:

- -planting and breeding (cultivation, introduction) of plant species resistant to drought, diseases, cold and heat;
- -regularly control the input-output balance and chemical composition of water;
- regularly study the dynamics of flora and fauna species in the area
- -to provide understanding and information on this issue within the framework of environmental protection science in schools, technical schools and universities;
- conducting propaganda and agitation among the population;
- organizing activities such as protecting your home, your territory and your country, i.e. instilling the sense of patriotism into the minds of young people.

The main reason for our presentation of these ideas is a comparative analysis of the problems associated with the drying up of the Aral Sea.

As a result of the drying up of the Aral Sea, a lifeless coating consisting of small salt and soil particles was formed in Orolqum, which appeared in its place. Depending on the seasons, when the wind blows, dust consisting of salt and soil particles rises into the air and spreads over long distances. According to some statistics, 250 kg of salt dust falls on each hectare of irrigated land in the Republic of Karakalpakstan, and up to 500 kg in some areas. From 15 million to 75 million tons of dust can rise from the dry bottom of the Aral Sea during a year. The width of salt dust storms is 40 km. to; 400 km long. spreads to Salty dust is blown by the wind tens or even hundreds of km from Orolkum. spread over a distance and rained down on natural meadows, crops in oases, gardens, cities and villages and had a negative impact on the ecological

International Journal of Pedagogics
(ISSN – 2771-2281)
VOLUME 03 ISSUE 05 Pages: 16-20
SJIF IMPACT FACTOR (2021: 5. 705) (2022: 5. 705) (2023: 6. 676)
OCLC – 1121105677
Publisher: Oscar Publishing Services

environment. Dust from the island even reached the glaciers on the peaks of the Tianshan and Pamir mountains, accelerating the melting of the glaciers there.

As a result of the drying up of the Aral Sea, as a result of the acceleration of desertification and salinization, in recent years, about 50,000 hectares of arable land has become unsuitable for agricultural use. Unfavorable environmental conditions lead to a sharp decrease in agricultural crops and livestock products. The main purpose of providing this information is that if the necessary measures are not taken, the reduction of the water balance in the Aydar Arnasoy lake system and the consequences caused by the formation of the Aral Sea will certainly occur in these areas.

REFERENCES

1. Ghodalov. Effect of Aydar-Arnasoy lake system on landscapes // G.f.f.d. (PhD) thesis submitted for the degree. 2009. p. 17-24.
2. G. Kadirov. Transformation of grassland vegetation cover of the Aydar-Arnasoy lake system. // Dissertation submitted for obtaining the degree of Candidate of Biological Sciences. 2008. -B. 24-27.
3. R. Kenjaev. Tragedy of the Aral Sea. 2019.
4. Imomova D.A., Imomova Sh.A. Aydar-Arnasoy lakes system, primary results of chemical element composition of some water and soil samples. // Oriental Journal Of Geography Sjif 2023: 6.60
5. Imomova D.A., Sherimbetov S.G., Danilova E.A. Amount of macro and micronutrients in soil samples around the Aydar-Arnasoy lake system. // Bulletin of Agrarian Science of Uzbekistan 1(85) 2021
6. Imomova D.A., Imomova Sh.A. Life forms of plants distributed in the Aydar-Arnasoy lake system. // Bulletin of Agrarian Science of Uzbekistan 2 (86) 2021
7. Opredelitel rastenii Sredney Azii. - Tashkent: Science, 1968–1993. T. II. - 1971. - 355 c. T. III. - 1972. – 268 c.