ETHIOPIAN INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 11, Nov-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

Development of mosh irrigation procedures in the conditions of Bukhara region

Jo'rayev Umid Anvarovich
Xayridinov Sardor Nutfullo o‘g‘li
Bukhara Institute of Natural Resources Management

Annotation: Undoubtedly, the decision also took into account the existing water problem in the Bukhara region, including the Uzbekistan SSR. The decision instructed the reconstruction of irrigation systems and the transition to new irrigation systems. After the Second World War, the Bukhara region became a major irrigation and melioration construction site. A large number of irrigation channels, a reservoir and a collector-drainage network were built.

Key words: irrigation systems, melioration, a water reservoir, water consumption, waterways.

Introduction: The construction of the Kamikasaba canal, Mirzamumin, North, West, South, North-Buxoro collector, Kattakurgan reservoir was completed, a water reservoir was built. The measures taken served to improve the water supply in the Bukhara region. In particular, it has been stipulated to improve the melioration condition of the landfon and to reclaim new land for 20 thousand hectares. However, the water reserve has to be created on account of the flow management of the Zarafshan River. But, in the impact of increasing water consumption in the high flow of the river, steam did not give the expected result for Bukhara region [1]. The situation was alarming and errors and omissions were considered by the relevant departments. The analysis showed that there were no specialists with sufficient qualifications to carry out work in the field of oblast irrigation and melioration, irrigation systems were not cleaned on time, and basically the lack of access to water, etc., was a hindrance [2]. This is due to the fact that water resources were wasted by the agricultural authorities, cotton fields were irrigated 1,2 times in the case of 20 June due to the lack of rational use of water. From 10 may to 20 July 1950, the Bukhara region received 4852,8 m3 /sec of water per day, which is 43,1 percent. Compared to the same period last year, the region received 7887,5 m3 /sec water per day or 67 percent of the planned. The decision to switch to new irrigation systems clearly demonstrated the existing water problem in the Bukhara region. Irrigation systems had become almost unusable. For example, such structures as Kharkhur, Duoba, Mokhonkul, which existed on the Zarafshan River, were in a state of emergency. These facilities required immediate transportation and manpower. Warn the leadership of the Bukhara region of the Ministry of water resources of the Republic that otherwise the amount of precipitation would be several times higher than the norm, eventually the rise in water levels of the river would incur a great loss of water inclusions [3]. The above example shows that even in the years when there is plenty of water, there is no possibility of equal and stable of water to the crop areas of the region. Cleaning of waterways, collectibles and ditch networks is not at the required level. In connection with the transition to new irrigation systems, water evaporation decreased, land salinity and swampiness were prevented, as well as irrigated lands were optimized. As a result of the optimization, the region of the region was merged into large plots with an irregular land fund from 5 to 25 hectares. In the conditions of generalization of the irrigation card, there was an opportunity to use the existing techniques efficiently and to develop irrigation farming [4]. The development of irrigation systems led to the improvement of the melioration condition of crop areas. In order to prevent salinity and waterlogging of the lower Zarafon Oasis, large collages were commissioned: Central Alat 16 km long Alat rayononida, Northern Bukhara 28 km long Gijduvan rayon, Nakib 20 km long Romitan rayon, Kattazaur 16,5 km long Kyzyltepa rayon, Khargush 23 km long Galaasiya rayon and others. The Bukhara region is characterized by arid and semi-arid climates, with high temperatures and limited rainfall. The scarcity of water resources poses a significant challenge for agriculture, necessitating the adoption of innovative irrigation techniques to maximize water efficiency and crop yield. Traditional irrigation methods may not suffice to meet the increasing

eISSN: 2349-5715 pISSN: 2349-5707
Volume: 10, Issue 11, Nov-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

demand for mosh production, prompting the need for a comprehensive approach to irrigation management. Understanding the environmental conditions of the Bukhara region is essential for developing effective irrigation procedures. The region is characterized by arid and semi-arid climates, with hot summers and limited precipitation. The scarcity of water resources emphasizes the need for efficient irrigation methods to maximize crop yield and ensure food security. Importance of Mosh Cultivation. Mosh, also known as barley in some regions, is a staple crop that has been cultivated for centuries. It serves as a crucial component of the local diet and contributes to the economy through its various applications, including animal feed and the production of traditional food products. The region is dominated by desert plant species. The total number of species is about a thousand. (4148 species are registered in Uzbekistan) and 580 species belonging to 55 families are found in the desert zone of the region. (Granitov). It should be noted that there are many endemic species among them. Local scientist A.L. Fayziev notes 173 species of native (endemic) plants typical of Central Asia in the region. Cultural species in the oases include their "companions" weeds, as well as fruit-bearing trees. In addition, mulberries planted in the year of silkworm breeding occupy large areas. It should be noted that cotton, melon, watermelon and additional tree species suitable for the hot, dry dusty weather of Bukhara in the single khanate are on the verge of extinction. The combination of the high salinity of the irrigation water and the generous application of fertilizers leads to a widespread soil salinization. Excessive leaching is supposed to reduce the top soil salinity, but as the drainage system is only covering a small portion of the irrigated areas and is in need of maintenance, this process only contributes to the ongoing salinization and the reduction of soil fertility and crop yields. This data-driven approach allows farmers to tailor irrigation schedules based on actual moisture levels in the soil, optimizing water use and avoiding over-irrigation. This precision agriculture technique contributes to resource efficiency and sustainability. When sandy desert soils are involved in irrigated agriculture, the grass is degraded and the genetic properties of these soils are lost. In fact, through the sands with a very small amount of material is assimilated. Complex special measures are required to prevent spreading and increase the productivity of these soils: these include tillage, planting of siderite crops, application of soil fertilizers and others. Sandy desert soils are saline or weakly saline. In irrigated soils, salinity is weak and increases to a moderate level. The nature and natural resources of the region have a long history of human exploitation. As mentioned above, the primitive "Bukhara people" settled in the lower reaches of the Zarafshan River (along the Mohandarya, Gujayli, Daryasay rivers) 6-7 thousand years ago and were engaged in hunting and fishing. They lived in dependence on natural conditions. Their transition to agricultural production began 3-3.5 thousand years ago. Now they are engaged in farming, sedentary livestock and handicrafts. It should be noted that instead of the original Bukhara and Korakul oases, 60,000 hectares of irrigated land were irrigated in the adjacent areas - Makhandarya valley, the foothills of Kashkadarya to Zarafshan, Echkiliksay, Varakhsha oasis (lower part of Vobkentdarya), at the same time, the use of desert pastures in various livestock activities is expanding. In later historical periods, the use of the nature of the region has repeatedly faced developments and crises [5]. Long-term irrigation causes groundwater levels to rise to 2-03m, leading to changes in the hydrological regime of sandy desert soils and their transition to desert meadow soils. (transformation). Irrigated shallow soils are widespread in the ancient alluvial plains. They are formed in conditions where the groundwater level is deeper than 5 m. According to the morphology of these soils, the effect of agricultural culture on them is short-lived, differing only in the cavity of the tillage layer, this layer is medium and light sandy, according to the mechanical composition. Depending on the level of salinity, meadow alluvial soils vary from weakly saline and saline washed to strongly saline, which depends on the reclamation conditions, as well as the fact that the lands are provided with a collector-drainage system. These soils are characterized by a variety of mechanical composition. Soils close to irrigation sources have a slightly lighter mechanical composition than soils far from them.

eISSN: 2349-5715 pISSN: 2349-5707

Volume: 10, Issue 11, Nov-2023 SJIF 2019: 4.702 2020: 4.737 2021: 5.071 2022: 4.919 2023: 6.980

Conclusion: Further advisable actions include the rehabilitation and extension of the drainage system, an increase of the irrigation efficiency, the improvement of the irrigation water quality and the consideration of more salt-tolerant crop types. High water tables of saline groundwater lead to a capillary rise of the salts into the upper soil layers and to water logging in the root zone, resulting in a reduction of the crop yields. In order to secure sufficiently high yields and regain the sustainability of the agriculture a better understanding of the groundwater dynamics and the spatial distribution of salinized areas, water logging and the salinization risk.

References:

1. Alihanov, B.B. (2008) About a Condition of Environment and Use of Natural Resources in Republic of Uzbekistan (The Retrospective Analysis for 1988-2007). National Report of the State Committee for Nature Protection of the Republic of Uzbekistan, Tashkent. (In Russian)
2. Abdullaev, I., Kazbekov, J., Manthritilake, H. and Jumaboev, K. (2009) Participatory Water Management at the Main Canal—A Case from South Ferghana Canal in Uzbekistan. Agricultural Water Management, 96, 317-329. http://dx.doi.org/10.1016/j.agwat.2008.08.013
3. Saito, L., Fayzieva, D., Rosen, M.R., Nishonov, B., Lamers, J. and Chandra, S. (2010) Using Stable Isotopes, Passive Organic Samplers and Modeling to Assess Environmental Security in Khorezm, Uzbekistan. Final Report, NATO Science for Peace Project No. 982159.
4. Crosa, G., Stefani, F., Bianchi, C. and Fumagalli, A. (2006) Water Security in Uzbekistan—Implication of Return Waters on the Amu Darya Water Quality.
5. Kulmatov, R. (2014) Problems of Sustainable Use and Management of Water and Land Resources in Uzbekistan. Journal of Water Resource and Protection, 6, 35-42. http://dx.doi.org/10.4236/jwarp.2014.61006