

## CONSTRUCTION OF KOSHTEPA CANAL, FUTURE ECOLOGICAL CHANGES, GEODESY AND MAPS OF THE AREA

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**Abstract:** *In this article, the construction of the KòshTEpa canal, the future map of the area of future soil degradation and groundwater level, including its influence on soil salinity, changes in agriculture in the first years and changes in future agricultural yields, water in the lower reaches of Amudarya volume impact and other information is summarized.*

**Key words:** *hydrological, climate change, Afghan wind, groundwater, anthropogenic changes, biodiversity, soil quality, erosion, salinity, degradation, cartographic, territorial division*

**Аннотация:** *В данной статье рассматривается строительство канала Коштепа, будущая карта зоны будущей деградации почв и уровня грунтовых вод, включая ее влияние на засоление почв, изменения в сельском хозяйстве в первые годы и изменения будущих урожаев сельскохозяйственных культур, Обобщены объемные воздействия воды в низовьях Амударьи и другие сведения.*

**Ключевые слова:** *гидрология, изменение климата, афганский ветер, подземные воды, антропогенные изменения, биоразнообразие, качество почвы, эрозия, засоление, деградация, картографическое, территориальное деление.*

**Annotasiya:** *Ushbu maqolada QòshTEpa kanali qurilishi, kelajakdagi tuproq degradatsiyasi va yer osti suvlari sathi shu jumladan uning tuproq shòrlanishiga ta'siri hududining kelajakdagi xaritasi, qishloq ho'jaligiga bò'ladigan òzgarishlarning dastlabki yillarda va kelajakdagi qishloq hòjaligi hosiliga bòladigan òzgarishlari, Amudaryoning quyi oqimidagi suv hajmiga tasiri va boshqa ma'lumotlarni òzida jamlangan.*

**Kalit so'zlar:** *gidrologik, iqlimiy òzgarish, afgon shamoli, yer osti suvlari, antropogen òzgarishlar, bioxilmaxillik, tuproq bal boniteti, eroziya, sho'rlanish, degradatsiyasi, kartografik, hududiy bo'linishi.*

### INTRODUCTION

The impact of the giant project under construction by the successful government in Afghanistan, which will draw at least 10 billion cubic meters of water from the Amudarya Reservoir upon completion, on the current irrigation system of Central Asia and Uzbekistan Koshtepa canal is very important due to the great pressure on the secret and the current water deficit, including in this article a scientific approach to the construction of the Koshtepa canal and the way to spend a huge amount of water resources due to its possible



shortcomings. It will be opened, as a result of which, due to the water shortage in other parts of the Amudarya, there may be a huge water shortage in the countries in the lower region of the Amudarya, such as Turkmenistan and Uzbekistan. The impact of this project on the agro-industry and agriculture in the area, and in addition, changes in the groundwater in the Afghan lands and the evaporation of excess water from the area may affect the microclimate of the mountains located further east.

**Research and maps** during the construction of the canal in the area, hydrological and microclimatic changes are observed (after September 2022). Springs are expected to be formed, which in turn will affect biodiversity, soil quality, erosion, salinity, soil degradation. A new artificial lake began to form, the area of this lake was 19.5 square kilometers on November 5, 20.6 square kilometers on November 15, and 23.8 square kilometers on September 25. In turn, it means evaporation of excess water from the region and the migration of moisture to the east through the western winds, and it leads to a change in the amount of precipitation in the eastern region. It even affects the Afghan wind in the summer months. From a cartographic point of view, these changes are described as follows.



**1. The situation before the release of water. 2. After releasing the water.**

In December 2023, it was reported that there was a big splash in the Koshtepa canal, and the pictures taken by the Sentinel-2 satellite showed that a nine-kilometer long water area (reservoir) had appeared on the bank of the canal.

### Map of the future change of the area

It is estimated that the construction of the canal will begin in March 2022. The initiative is intended to turn 550,000 hectares of desert into suitable land for agriculture. From the photos provided, it can be seen that more than 100 km of canals were dug from April 2022 to February 2023. In March 2022, the Taliban began building a canal to divert Amudarya water in northern Afghanistan. According to the plan, the canal should be 285 km long and 100 m wide. According to the Taliban, 550,000 hectares of desert land will be turned into arable land through the construction of the canal. The construction of the channel consists of three stages:

- The first stage — construction of the 108 km long section of the canal to Davlatabad district;
- Second stage — construction of the 117 km long section passing through Juzjan and Faryab regions;
- The third stage is the distribution of sub-channels along the cultivated land.

The first part of the canal is 108 km long, and this part starts from Amudarya and goes to Davlatabad district. The construction of the first part took 1.5 years. The full completion of the canal is planned for 2028, and the construction cost is estimated at 7 billion Afghani, i.e. 92 million US dollars.

The policy of using Amudarya waters between the four republics of the former USSR, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, was created during the Soviet era. Since this distribution belonged to the USSR, the interests of Afghanistan were not reflected in it. In 1992, a regional agreement on the use of Amudarya waters was concluded in Almaty, and the right of Afghanistan to use the waters of the river was not mentioned in this agreement. Even when the construction of the canal begins in 2022, Afghanistan has not yet joined any regional or international agreements on the use of transboundary river waters. Also, Uzbekistan, Turkmenistan and Kazakhstan joined the UN Water Convention of 1992, but Afghanistan did not join this agreement either. Uzbekistan, located in the lower part of the river, expressed its reaction due to the serious negative impact of the construction of the canal on the country's agriculture. In 2023, the authorities of Uzbekistan held talks with the Taliban regarding this situation, but no official agreement was reached. On September 15, 2023, the President of Uzbekistan Shavkat Mirziyoyev expressed his opinion on the construction of the Koshtepa Canal at the next meeting of the Council of the Heads of the Founding States of the International Fund for Saving the Island, which was held in Tajikistan. In his response, Shavkat Mirziyoyev pointed out that the commissioning of the Koshtepa canal will fundamentally change the order and balance of water use in Central Asia.

**Impacts in the lower reaches of the Amudarya:** As a result of the reduction of water, the annual deficit in the irrigation system exceeds 10 billion cubic meters, as a result, it leads to the failure of crops that require a lot of water in agriculture, including cotton and rice, and even in drought years, there may be problems in the supply of drinking water for

the population. In the territory of Uzbekistan, this process can be much easier, but it will be a big obstacle for the state of Turkmenistan, whose main water needs depend on the Amudarya, and its agricultural industry.

**Conclusions and suggestions:** In order to evenly distribute the water reserves of the Amudarya, it is necessary to conclude an interstate agreement, to concrete the canals that receive water from the river, including the Koshtepa canal. Water-saving technologies are not sufficiently provided in any country that receives water from the river, and the irrigation systems are old. Due to this, water can be saved by adequate water management using electronic systems.

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