

WATER RESOURCES OF UKRAINE: ENVIRONMENTAL CHALLENGES AND THE DISASTER OF THE KAKHOVKA HYDROELECTRIC PLANT

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Water resources in Ukraine play a key role in the country's economy and life. Unfortunately, however, these resources face numerous environmental challenges that affect the natural environment, social sphere and economy. One of the main problems is the construction and destruction of hydroelectric power plants, in particular the Kakhovka HPP.

The Kakhovka reservoir is one of the largest reservoirs in the Dnipro River cascade system. The idea to build the reservoir originated in Soviet times, in the 1930s, and was intended to create a powerful reservoir for irrigation of agricultural land and regulation of river waters in Ukraine. Construction of the reservoir began in 1950 and lasted several years (Lebid, 2023).

The Kakhovka HPP was designed to generate electricity and provide drinking water to the southeastern part of Ukraine. It also provided navigation on the Dnipro River. However, along with the positive aspects, there were also negative aspects.

However, in addition to the positive aspects of the construction of the hydroelectric power plant, we cannot ignore its negative aspects. If we analyse the impact of this construction on nature, it is worth noting that huge areas were flooded and ecological systems were lost. Numerous ecosystems were negatively affected and destroyed. The social consequences are also worth noting. For example, thousands of residents from 90 villages had to leave their homes forever. People took their property and livestock. Resettlement to 1,063 specially built houses was voluntary and compulsory. Agricultural land that was flooded could no longer be used for agriculture, leading to loss of production and reduced availability of agricultural products on the market. This affected the food security and economic development of the region (Kakhovka Dam).

On 24 February 2022, the power plant was seized by Russian troops and has been controlled by the occupation forces ever since. However, at dawn on 6 June 2023, it became known that the dam of the Kakhovka HPP had been partially destroyed, leading to catastrophic consequences.

The Ministry of Agrarian Policy and Food of Ukraine reported that approximately 10,000 hectares of agricultural land on the right bank of the Dnipro River were at risk of flooding, and that the number could be several times higher on the left bank. The dam's destruction has had a significant impact on the region's ecology and has caused damage to plants and animals. The situation has also become critical for irrigation systems in different regions of Ukraine (Significant damage to the agriculture of Ukraine was caused by the destruction of the Kakhovska hydro electric station by the russians, 2023).

This disaster underscores the importance of preserving and planning for the sustainability of water infrastructure and the natural environment in line with overall strategies and measures to minimise the potential impact of conflicts and natural disasters. The development of alternative energy sources and efficient energy-saving

technologies is a key element in reducing pressure on water resources and maintaining ecological balance in the region.

Thus, the environmental problems of water resources in Ukraine require serious attention and solutions, as well as the search for sustainable development and preservation of the country's natural resources.

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