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STUDY
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Working together for sustainable development

Danube Delta

Vulnerability of the Danube Delta (Moldova, Romania, Ukraine) to climate change including scenarios and forecasts of climate change

More than 450,000

OF PEOPLE ARE LIVING IN PRIDUNAVJE AND THEIR LIVES AND WELFARE CAN BE AFFECTED BY CLIMATE CHANGE

"A consensus has emerged in our scientific community that global warming is no longer merely a theory but a reality, a crisis with truly global implications for planet Earth and all of us who share it."

Leonardo DiCaprio

Climate change is one of the biggest threats to human development and nature all over the world. It will have catastrophic effects such as sea level rise, droughts, floods, storms and heat waves. These will impact some of the world's poorest and most vulnerable people, disrupting food production, and threatening vitally important species, habitats and ecosystems.

Danube Delta is not an exception. In the last 10 years natural disasters became more and more frequent. Some highest water levels in the Danube river over last 100 years were recorded in last decade. Likely consequences of climate change - frequent floods, long periods of drought, deteriorating water quality, and declining fish reserves - jeopardize the welfare of the communities living in the Danube region. Let's not forget that these changes will also have a significant impact on the unique biodiversity of the Delta.

To prevent the depression of this valuable ecoregion, climate change adaptation and mitigation must be in a great focus not only for local communities, but for regional and national authorities, businesses and organizations.

Climate Change Vulnerability Assessment Study

To be able to adapt the region to the impacts of the climate change, we need first to find out what these impacts could be. In 2011-2012 a detailed Climate change vulnerability assessment study was conducted by scientists and environmental NGO leaders in the Danube Delta sub-basin. It included biological, environmental and socio-economic aspects. Results of the study are presented in the report "Vulnerability of the Danube Delta (Moldova, Romania Ukraine) to climate changes". The document contains background information about the region, analysis of the historic trends and forecast of climate change impacts. GIS database complements the report visualizing the data. Results of the study will become the basis for the trans-boundary Climate Change Adaptation Strategy and Action Plan.

The Danube Delta under threat: what to expect?

The average annual air temperature will increase by 1-1.5 °C by 2050. These will lead to more hot days and shorter snow cover period. Extreme weather events such as severe droughts and heat waves, floods, windspouts, showers, storms, hail will happen more often. Though Danube runoff will decrease by 5%, small rivers will have 5-25% less water, especially in summer. In the worse case the Black sea the level will rise up to 0,5 m by 2050.

Impact on water and ecosystems

Water resources: increase of the water temperature by up to 2°C, low water level, bad exchange processes in Danube lakes, worse water quality, algae blooms in lakes and coastal waters in summer, disappearance of small rivers.

Danube delta ecosystems: fast coastal erosion, sea water intrusion into the wetlands, high vulnerability of reedbeds, lakes, lagoons and salt marshes.

Flora: tidal events will favour salt-loving species and suppress fresh-water flora, disappearance of rare species because of ecosystems fragmentation and habitat change, floristically poor reed communities on vast areas, spread of invasive species.

Fauna. Better wintering conditions for the most mammals, welfare of amphibians and reptilians, shift of bird migration time and worse nesting conditions, fish mortality events and less fish production in lakes, spread of invasive species.

Impact on life and economy

Human health: increase in cardio-vascular and respiratory diseases; potential outbreaks of water- and vector-borne diseases.

Agricultural activities: reduced crop yields due to water scarcity, damage to crops by cold spells, floods and fires, erosion and reduced fertility of soil, diseases of animals, possibilities for cultivating second crops and new warm-loving drought-resistant crops.

Water management: higher water demand in the industry sector and for domestic use, lower quality of drinking water, water scarcity in some regions.

Fishing and fish: decline of fish breeding places, bad water quality impacting spawning.

Reed harvesting and forestry: more often wild fires, decrease of quality of roofing reed.

Energy and transport: low flow can affect navigation, better conditions for wind, solar and biomass energy production.

The Danube Delta adaptive capacity: is there hope?

WETLANDS RESTORATION WILL HELP TO ADAPT THE DANUBE DELTA REGION TO THE CHANGING CLIMATE CONDITIONS.

Danube Delta is one of the least modified deltas in Europe. Its treasures are nurtured in the protected areas under careful management. Wetland areas that have been modified by human activities have high restoration potential. The combination of these factors presents unique opportunity for ecosystem-based adaptation to climate change.

From the economic point of view the situation is a bit more complicated. High unemployment rate, a lot of socially disadvantaged people, low average income, and old dysfunctional infrastructure impede the development of agriculture, fishery and other sectors.

Institutional conditions are favorable for successful adaptation: there is of bilateral Romanian-Ukrainian Danube Delta Biosphere Reserve and basin-wide platforms bringing together key stakeholders and users of natural resources.

If there is political will, the region will be able to prepare to upcoming change and minimize the risks.

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Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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