



CASE STUDY

Hungary: Ecological Restoration and Water System Development in the Protected Site and Floodplain Areas of Szigetköz

In 2011, the North-Transdanubian Water Directorate (EDUVIZIG) started a water infrastructure project entitled the “Ecological development of water supply system in the protected site and floodplain areas of Szigetköz”. This project shares valuable experience on restoring natural ecosystem while securing provision of drinking water and irrigation and enhancing flood protection.

Background

The largest inner delta area with an almost natural status left in the entire Upper Danube Valley rests in the Szigetköz Region, Hungary. The Danube’s natural landscape in this area was characterized by continuously changing dead branches and side arms, beds changing their location, deteriorating and building islands and alluvial cones. As a result, the ecological environment and human settlements of the area were consistently destabilized.

Entering into the Pannonian Plain the inclination of the Danube decreases, the flow gets slower and loses energy. The river is thus unable to carry on its alluvium and makes deposits. Water levels and flow intensity varied heavily throughout the year, to the extent where, some normally dried out river branches and their close-by villages were punctually inundated. Against this animated scene, riverbank vegetation had little success in trying to tie and stabilize these islands and river branches. This continuous change in the river environment has put considerable stress on the aquatic life and the water related fauna of the Szigetköz Region. Likewise, these natural processes have led to unfavorable conditions for the development of human activities such as fishing and agriculture.

After the river regularization villages moved to the side free from flood, the flow of the main branch gathered speed, therefore the bed became deeper and distant dead branches received fresh water less and less often and siltation began. At the end of the twentieth century, the river barrage at Gabčíkovo accelerated this process, and the Szigetköz began drying out. The water replenishment system emerged in 1995 tries to counteract this unfavorable change. The still traceable exuberance of plant and animal communities were shaped by the combined effects of several environmental factors. The profusion of species of communities associated with water is still enriched by the fact that species belonging both to Alpine and Pannonian flora can be found in the area. Until the last centuries the mostly impenetrable vegetation of flood plains often served as a resort or a place of refuge for quite a few plants which remained here after the ice-age. Fauna of Szigetköz is also very interesting.

Actions taken

The North-Transdanubian Water Directorate (EDUVIZIG) has received 6,255 million HUF (roughly 2 million EUR) in the framework of the New Széchenyi Plan (co-funded by the European Union) for the project entitled the “Ecological development of water supply system in the protected site and floodplain areas of Szigetköz”. The project, which started in 2011 and was complemented by middle of 2015, included both the planning process and the actual implementation, construction work. Public participation and stakeholder involvement was emphasized at every stage of the project. The main target of this initiative was to halt the processes leading to unfavorable ecological conditions, and ensure better environment for wildlife and people. The various interventions and actions of the project aimed at providing a solution to the followings: landscape rehabilitation, restoring ecological conditions for natural values, providing more water for agriculture purposes through irrigation, and improving conditions for fishing. Once the environmental and social assessments were completed, a plan with more than 35 concrete measures was developed. These were established according to environmental impact assessment legislation and participatory planning models. Actions taken included sediment dredging and building new side-arm closures for rural water management in the floodplains and constructing fish ladders and hydraulic structures such as gates in the protected site. The protected site was additionally supported with the reconstruction of a multi-purpose channel network through building various water level control facilities and water management structures. This system allowed the precious water supply of branches and wet meadows. The creation of such multi-purpose channel system also contributed to the development of the so-called green and blue infrastructure of the region, interlinking the side branch water system with the Moson-Danube.

Outcomes

Local stakeholders in the lower Szigetköz area demanded better water supply system. The lower Szigetköz area on the protected side received only a limited amount water through the upper section of Szigetköz. Due to the huge interest of local communities in the water management, the project had a strong communication and awareness raising component. There were regular meetings with the mayors of the concerned settlements, the project website was developed in order to provide information to local citizens, and public consultation meetings were regularly organised to implement a real participatory planning model. There were of course printed communication materials available including information boards at the various project locations.

As a result of the project activities the water level of the floodplain areas returns to the level of near-natural state best suited 1950s. The conditions for aquatic organisms improves due to the increasing water flow as well as the guaranteed interoperability of the side branches. The environmental circumstances improved especially for fish breeding and migration.

The project also contributed to the EU 2020 Biodiversity Strategy through the creation a blue and green infrastructure ensuring the connectivity of various water bodies. Before the project implementation a variety of wildlife sites and wetlands were at risk because of lack of water. Thanks to the developments in the floodplain the flood discharge also improved in the protected side while the protective function of dikes and embankments did not decreased. The conditions of fishing and angling, the qualitative and quantitative status of surface waters become more favorable. The local communities and villages will have

positive social and economic effects due to the improved opportunities of the aquatic tourism. The additional water also helps to enlarge the irrigated arable land, which is certainly a positive effect for the region's agricultural entrepreneurs.

Lessons Learned

The ecological restoration followed IWRM principles, as the project resulted in multi-purpose water functions: restoring the natural ecosystem, securing provision of drinking water and irrigation, and the enhancement of flood protection.

The regular and frequent personal contact between project partners and with local stakeholders are indispensable part of successful ecological restoration.

The involvement of project partners in the various actions taken in the project must be based on the competencies. Efforts should still be made as to include actors with limited competencies.

The project management team must be present in the project site and available for spontaneous meetings with the stakeholders and local communities. Trust can only be built if the local people feel the project team as part of them.

The project implementation requires certain level of flexibility as environmental and legislative circumstances might change during the project. Any changes in the project actions during the implementation must be based on a consensus between all stakeholders.

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Organisation

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Supporting Materials

[GWP Central and Eastern Europe](#)

[GWP Hungary](#)

[Project Website \(in Hungarian\)](#)

[EDUVIZIG Website \(in English\)](#)

[Hungary: Ecological Restoration and Water System Development in the Protected Site and Floodplain Areas of Szigetköz](#)

Related IWRM Tools

Basin Management Plans

Ecosystem Assessment

Nature Based Solutions

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