

Case title:

**Transboundary: Making space for water in the Bodrog River Basin (#398)**

**1. Problems**

The International Commission for the Protection of the Danube River (ICPDR) has commissioned the Global Water Partnership Slovakia to lead a consortium to implement a project aimed for integrated flood protection. The project is a component of the UNDP/GEF financed initiative “Integrating multiple benefits of wetlands and floodplains into improved transboundary management for the Tisza River Basin” (hereafter referred to as “*UNDP/GEF Tisza MSP*”). Since April 2009 Global Water Partnership (GWP) Slovakia mobilized its partners from Hungary and Ukraine to implement the “*Making Space for Water in Bodrog River Basin*” project.

The main objective of the project was to mitigate consequences of floods through consistent and holistic management of flood risk in the countries of Bodrog river basin i.e., Ukraine, Slovakia and Hungary. A corporate “Strategy for mitigation of floods in countries of Bodrog River Basin” (hereafter referred to as “*Strategy*”) was developed and partnerships between national and local levels were created in order to implement practical and sustainable solutions for flood prevention.

The project activities considered the maintenance and/or restoration of floodplains by creating “space” for water during flood events, as well as measures to prevent and reduce damage to human health, the environment, cultural heritage and economic activities. The involvement of municipalities, river basin organizations, NGOs, farmers, spatial and urban planning authorities was crucial. Therefore the project activities focused on establishment of close cooperation with and among stakeholders involved.

**2. Decisions and Actions Taken**

Three main activities were carried out during the implementation of the project by the consortium partners from Hungary, Slovakia and Ukraine.

**2.1. Formulation of Strategy and provision of technical assistance**

An analytical report prepared formed a basis to discuss the Strategy for mitigation of floods in the Bodrog River Basin. This Strategy reviews the current situation in flood protection and sets the targets and the respective measures aiming among others to reduce damage risks and flood levels, increase awareness and improvement of flood forecast. The targets and measures are based on the regulation of land use and spatial planning, increase of retention and detention capacities, technical flood defenses, preventive actions, capacity building, awareness & preparedness raising, prevention and mitigation of water pollution due to floods.

**2.2. Pilot projects**

A concept was formulated by the project partners under the improvement of conditions of original floodplains and wetland activities for the pilot investments in each country of the Bodrog River Basin.

In **Ukraine**, Baranivtsi community (uniting 4 villages - Baranintsi, Barvinok, Pidgorb, Dovge Pole) was selected as a pilot area. The project area is located 12 km south of Uzhgorod from Slovak Republic border in the Bodrog River Basin and the total area is 50 km<sup>2</sup>. Therefore the management of water resources in such close vicinity with Slovak Republic has clear transboundary impacts.

Part of the community area belongs to Latorica River melioration system. It is a polder system in Ukraine where the Latorica River flows within the dikes with inter-dike space of 2-5 km. Its main

function is to slow down flood waves from Ukraine into Slovak Republic. There is a pumping station operating this polder which is one of the four pumping stations in the basin. It pumps water from system of channels into Latorica. Slatina (a small river) that causes local flooding of the area is pumped into Latorica. However, the Channel system can hardly operate efficiently due to sedimentation and over-growth of plants. In case of large amount of precipitation, the melioration system is over-filled and cannot accumulate all surface flow. The end result is flooding of households in Dovge Pole causing damage to property and worsening epidemiological situation in the area. Whenever this happens, the sewage systems in Dovge Pole too get flooded which leads to pollution of surface waters by biogenic substances. Once the polluted water reaches Latorica River, it results to transboundary pollution.

Prior to the cleaning of the Tova river bed within the Dovge Pole village, a feasibility study on "Flood protection of Tova River at the Territory of Baranintsi of Uzhgorod rayon" was done. The feasibility study was funded by Baranintsi community, a sum of 3,500\$ part of co-funding of UNDP-GEF project. The feasibility study envisaged Tova river bed for cleaning from plants and deepening. An Environmental Impact Assessment (EIA) was carried out in order to comply with the existing legislations and also in accordance with compatibility of the Water Framework Directive (WFD) requirements. The EIA study was also required to obtain a number of permits, for instance permits for tree cutting, for cleaning near the gas pipelines among others. Under the project activities an investigation for further possibility for establishment of polders at former agricultural lands for accumulation of flood waters in the Bodrog basin was also carried out.

In **Slovakia**, the pilot project site was located in Senné depression bisected by the Cierna Voda River, a tributary of the Laborec River (entering close to the confluence with the Uzh River). In the past, several measures were taken to protect this area from floods and draining inland waters which had critically impaired the original floodplain ecosystem functions (e.g. flood attenuation, nutrient reduction, pollution control, groundwater recharge, and fish spawning areas). The only remnants of the original ecosystems and refuge for migrating birds now occur along the fishponds at Iňačovce and Senné located in the middle of Senné depression (National Nature Reserve Sennianske ponds).

This is also an area that is classified as the National Nature Reserve (NNR). It has 213.31 ha and a buffer zone of 211.28 ha with a total fish pond area of about 700 ha. Within the NNR there are three bird islands which are important breeding sites. The intervention involved the reconstruction of existing floodgate in confluence of drying bypass channel with Žiarovnický stream. This allowed a passage to supply the wetlands with water during the dry period and to facilitate the elimination of flood impact in case of flood events.

In **Hungary**, a pilot area included Viss and Sarazsadany villages. These are the main floodplain areas of the river with a national protected area in its close vicinity. At the outskirts of Olaszliszka, Viss and Sárzásadány settlements there is a horse-shoe shaped oxbow called Viss-Oxbow on the left-hand side flood plain of the river. This oxbow was created by the river regulation works during the 1860s and was used to be filled up with fresh river water during flood events when water was higher than the edge of main river bed. The downstream mouth of the oxbow was not regulated and the flow was blocked. The plant and animal ecosystems were significantly affected during summer periods with little rainfall.

In order to ensure better quality of biotopes, there was a need to bring water during the floods into the oxbow and to retain the water there afterwards. This could be possible through the corner trunk main (Bodrogcorner trunk) located at the upper end of the Bodrog, which was connected with the oxbow through an engineering structure in the secondary flood protection level. The

trunk main had not been operational and was in bad conditions. To allow water into the oxbow, the trunk main needed renovation. For this purpose an engineering structure was built at the mouth of the oxbow to regulate the flow. Also existing but the out-of-operation sluice was renovated at the Bodrogcorner trunk conjunction.

### **2.3. Dissemination of results**

The project partners actively participated in the dissemination of project results providing information for possible replication at national levels and to other basins. These activities included:

- meetings with local and international stakeholders at workshops or seminars
- intensive work with media including the development of information materials, interview given to the media, publishing articles for local newspapers
- delivery of presentations about the processes and follow up results at local and international meetings.

### **3. Outcomes**

The project worked both at national and local level in order to ensure that national policies are transposed into practical solutions and on the other hand also ensure that local experiences in flood protection and value of habitats are mainstreamed into national policies. The project provided a combined approach of integrated flood management strategy and implementation of rehabilitation measures. In addition, the project fits to the EU directives, such as Water Framework Directive, Flood Directive and Habitats Directive, including the EU NATURA 2000.

As for the cross-border cooperation between Hungary, Slovakia and Ukraine, the project built three pillars of joint cooperation between the countries. Those were cooperation on the joint “Strategy”, presentations and meetings with local stakeholders and dissemination of project outcomes.

The Strategy hence reviews the current situation of flood protection and sets the targets and the respective measures aiming among others to reduce damage risks and flood levels, increasing awareness of floods and improvement of flood forecast. The targets and measures are based on the regulation of land use and spatial planning which are the increase of retention and detention capacities, technical flood defenses, preventive actions, capacity building, awareness & preparedness raising and prevention as well as mitigation of water pollution due to floods.

The engineering solutions were based on the appropriate and effective functioning of the flood prevention strategy. It consisted three steps: retaining, storing and draining.

Besides these benefits, the project tested whether mitigation of floods and protection based on environmental approaches would lead to less financial demand solutions. This was demonstrated in the pilot projects, as follows:

#### ***Pilot area – Hungary***

The ecosystem of the protected plant species, wetland plants and bird population was improved significantly in about 42 km<sup>2</sup> area of the Landscape-protection District in the future. The improved area is about 80% of the total territory Landscape Protection District, as water could be assured for the region during little rainfall and low water flow summers.

#### ***Pilot area – Slovakia***

The intervention ensured constant water supply to the wetlands during dry periods and this also facilitated the elimination of flood impact in case of flood events. The engineering constructions

mitigated impacts in the National Nature Reserve (NNR Sennianske ponds). At the same time this interventions reduced flood risks by decreasing water discharge into Stretavka pumping station and simultaneously allowed water retention in the NNR.

#### ***Pilot area – Ukraine***

The Tova river bed was cleaned in a 3 km total length. More so, potential places for flood retention polders at Baranintsi area have been define, thus, authorities are better prepared for flood waters coming to the territory of Slovakia and Hungary. A platform for new projects and further optimization and use of the area for flood protection purposes was created. The project enhanced the attention of the State administration of Zakarpatska and the general public. As a result, Uzhgorod regional authority invested 1 mill. UAH (app. 100,000 EUR) for further cleaning of the Tova river in 2010.

#### **4. Implementation of integrated approach**

The engineering constructions were intended to improve quantitative aspects of water management and had just implicit effect on water quality management aspects. Also, these pilot demonstration projects can serve as a good example of integration of the flood protection measures with nature protection, improvement of habitat conditions and biodiversity. Implementation of both interventions was possible to achieve owing to the close cooperation between the water managers and nature protection experts.

In Ukraine, the implementation of the project provided the first experience of public hearings and public involvement in water management planning. In addition, interventions contributed to liquidation of illegal solid waste dumps and illegal untreated wastewater releases.

International involvement helped people to feel responsible for their activities and the project demonstrated the significance of the ownership for each community involved.

#### **5. Lessons learned**

Due to recent experiences with floods and negative monetary impact on citizens, there was a high interest of communities to be involved in the project activities. However, it was still necessary to explain that flood protection measures can bring both economic benefits in the area and the environmental protection of unique ecosystems.

Better understanding of the proposed measures was reached by allowing discussions and giving time to local stakeholders. Early involvement of local stakeholders helped to find consensus among the partners. In addition, it was necessary to convince state authorities (those issuing permits for constructions) to understand an integrated approach of flood, land and water management.

It is observed that local communities are interested to utilize the outcomes of the project to increase the attractiveness of area for environmentally focused visitors. In Ukraine, the brochure elaborated was very helpful, since it provided an easy explanation of flood management to local inhabitants.

Public involvement in the project focused on flood protection together with a liquidation of illegal dump places and illegal untreated wastewater releases. It shows the significance of the ownership for the community and international intervention helping people to feel responsible for their land.

On the other hand, experiences from Slovakia showed problems regarding willingness of farmers to cooperate due to unclear ownership. Also, current agro-environment subsidies do not motivate

farmers to change arable land to grass land or wetlands. Despite this situation, the project objectives were achieved. Based on implemented examples, there was an agreement made with one farmer to change use of arable land into wet meadows. It improved the retention potential of the arable land. Demonstration projects show that there are available low-cost and effective solutions for flood prevention.

## **6. Replication**

All activities served as examples for the implementation of the national plans. The pilot project activities carried out focused on small scale restoration measures - a simple technical solution, restoring an old sluice and constructing a new one. The technical solution took into account the limited available financial source. The intervention utilized affordable conditions, which does not require big investments and complicated maintenance of water construction.

These examples from Ukraine, Slovakia and Hungary helped are regions to develop their own proposals for 3 other polders that will be submitted for international grants.

## **7. Contacts, references, organizations and people**

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