# Floodgate reconstruction, Slovakia

### Year of issue

2025

### Summary

Originally implemented under the UNDP/GEF Tisza MSP, the measure rebuilt an existing floodgate at the confluence of a drying bypass channel and the Žiarovnický stream in the Senné depression (Bodrog basin). The gate enables gravity supply to the Senné fishponds NNR in dry periods and during floods, and reduces discharges to the Stretávka pumping station. It was financed by the Global Environment Facility and delivered by Global Water Partnership Slovakia with local authorities.

Since then, complementary works have expanded upkeep and control of the small-hydraulic network. A LIFE project for the Senné & Medzibodrožie SPAs restored water-level control via gates/sluices and dyke repairs, improving the hydrological regime around the ponds and Ostrovik meadows.

Most recently (2020–2023), SOS/BirdLife Slovakia repaired/maintained ~1.69 km of dikes and ~2.17 km of supply canals and improved the water regime across ~814 ha; managers now manipulate existing stavidla annually to sustain wetland habitats. These actions and targets are embedded in the 2022 Care Programme for the SPA.

### Photo Gallery




### Location

48.668, 22.0794

### Project

NWRM

### National ID

Slovakia_04

### Sector

Hydromorphology

### Installation Date

2009-12

### Implementation status

Completed

### Contact

Jovanka Ignjatovic

## Overview

### Location of the project

In the Senné depression (East Slovak Plain), within the Senné fishponds SPA/NNR area between the villages of Senné, Iňačovce, Blatná Polianka and Blatné Remety.

### Country

Slovakia

### NUTS2 Code

Východné Slovensko

### Sponge measures implemented in the case study

Wetland restoration and management

### Objectives

Increase the area temporarily flooded by 20%.
Rebuild and operate a floodgate at the confluence of a drying bypass channel with the Žiarovnický stream to supply the Senné wetlands (NNR/fishponds) in dry periods and during floods.
Reduce flood risk locally by decreasing discharges to the Stretávka pumping station and retain water on the designated floodplain/within the NNR (“make space for water”).
Contribute to the Bodrog basin flood-risk strategy by testing a small, quickly deliverable intervention as part of the UNDP/GEF Tisza MSP demo actions.

### Involved partners

| Authority type | Authority name | Authority role | Comments | Authority responsibility |
|---|---|---|---|---|
| NGO | Global Water Partnership Slovensko (GWPS) | Implementation | — | Supporting |
| Local water authority | Slovak Water Management enterprise (SVP) | Implementation | Involvement in the preparation of the strategy, cooperation in implementation of restoration activities | Supporting |
| Research institute / University | Slovak hdrometeorological Institute (SHMU) | Monitoring | Provision of data for drafting the strategy | Supporting |
| Local water authority | Municipalities in the Bodrog river Basin | Other | Beneficiaries of the project activities and particpants/active involvement when the strategy will be prepared. Public meetings with local people and frequent contacts with stakeholders | Supporting |
| Other | Daphne | Determination of design details of the measure | Proposals for measures of integrated landscape management, discussions with local stakeholders, especially farmers | Supporting |
| National water authority | Ministry of Environment | Financing | — | Supporting |

| Authority type | Authority name | Authority role | Comments | Authority responsibility |
|---|---|---|---|---|
| National water authority | Hydromelioration Authority | Implementation | — | Responsible |
| NGO | Slovak Bird Protection Society - SOVS | Other | Organising summer camps, brigades and other similar activities | Supporting |
| Farmers | Farmers and farmer associations | Implementation | Negotiations, definition of mutual profits. | Supporting |
| Research institute / University | UNDP | Monitoring | — | Supporting |

## Site Information

### Climate Zone

Cool temperate moist

### Precipitation

603.00 mm

### Temperature (°C)

9.00 °C

### Runoff coefficient

0.35

### Elevation range

100

### Slope range

2-5%

### Vegetation class

Permanent grasslands (TTP) dominate the SPA (≈66% of area), with extensive emergent wetland vegetation (reed and cattail stands) around/in the fishponds; wet meadows and macrophyte stands are key habitat elements.

### WFD Ecological status

Moderate

### WFD Chemical status

Failing to achieve good

### Water quality status

The quality of Čierna voda (and Laborec) in this area is reported as influenced by intensive agriculture and fertiliser use—i.e., nutrient pressure.

## Design and Implementation

### Project scale

Micro

### Project scale specifications

The measure is the reconstruction of a single floodgate at the confluence of a bypass channel and the Žiarovnický stream in the Senné depression, to control local wetland water levels and reduce discharges to the Stretávka pumping station.

### Project area

25100

### Area subject to Land use change or Management/Practice change (ha)

25100.00 ha

### Constraints

Missing harmonization of national strategies and unsatisfactory involvement of stakeholders and NGOs

### Favourable preconditions

There is a pumping station with 16m3/s capacity from a previous project

## Financing

### Total cost

45234.00 €

### Total cost information

Slovakian project site: Preparation of the strategy + Restoration of the original floodplains + Dissemination of project results + Project managements

### Costs investment

28720.00 €

### Costs investment information

Slovakian project site: Preparation of the strategy + Restoration of the original floodplain

### Costs capital

19745.00 €

### Costs capital information

Slovakian project site: Restoration of the original floodplains

### Economic costs other annual

46670.00 €

### Information on Economic costs other annual

Rest of the project:Hungarian(39490) and Ukranian(7180) sites; (TOTAL = 91904)

### Administrative annual costs

4667.00 €

### Financing authorities

| Authority name | Type of funding | Financing share |
|---|---|---|
| GWPS, GEF, SHMU | Other | — |
| Municipalities in Slovakia, City council of Uzhgorod | Local funds | — |
| VITUKI, SVP, EKOVIZIG | Private funds | 35.6 % |

### Compensations

Non

## Policy and Governance

### Policy description

Reduced area of natural floodplain, declining biodiversity; water quality-affected by point and diffuse sources of pollution (agriculture, chemical production, urban effluents); insufficient water management regarding flood prevention and protection; missing harmonization of national strategies on flood management and flood prevention within Bodrog river Basin.

### Land ownership

The fishpond system in the Senné depression was privatised in 2000, but theowner does not own many of the underlying plots; the area has many small landowners.

### Policy targets

Increase Water Storage

Pollutants Removal

### Part of a wider plan

Oui

### Wider plan

| Wider plan type | Wider plan focus | Name | Comments |
|---|---|---|---|
| National | Water | UNDP/GEF MSP project Component 1, activity 1(ii) | Component 1 of the Project: Making space for water in the Bodrog river Basin |
| National | Water | Program of Flood Protection Measures of the Slovak Republic until 2010 | The program has declared the restoration of original function of water courses and the improvement of aquatic and terrestrial environment, especially in lowland areas by a long-term flood protection plan oriented predominantly at water retention measures with the aim to decrease surface runoff and maximum discharges. |
| National | Water | National mitigation strategy and plan focused on flood management and flood prevention. | Each country (SK-HU-UA) within the Tisza catchment has developed it |

| Wider plan type | Wider plan focus | Name | Comments |
|---|---|---|---|
| National | Water | Related Iniciatives | Project "MOSES - Improvement of flood management in Slovakia and Ukraine"; Project UNDP/GEF"Integration of Ecosystem Management Principles and Practices into Land and Water Management of Laborec-Uh region"; Project LIFE "Conservation of Senne and Medzibodrozie SPAs in Slovakia". |

### Public consultation

Oui

### Consultation activities

| Activity stage | Activity type | Key issues | Comments |
|---|---|---|---|
| — | Common Meetings | — | Organised by the project |
| Design phase | Coordination meetings | Activities at national level | Organised by the project partners or participation of the project expert on the events at national level |
| Other | Dissemintaion activities | To achieve replication on national levels and to other basins | This activities included: meetings with international stakeholders, inforamation materials and interview for informing the media, articles for local newspapers and presentations about the results of the project at local and international meetings |

### Has contractual arrangements

Oui

### Contractual arrangements

| Arrangement type | Name | Role | Comments |
|---|---|---|---|
| Contractual agreement | Committes for transboundary water | Establish the bases of the transboundary cooperation. | Bilateral agreement between Slovakia and Hungary. Main force to arrange the flood prevention in Bodrog River Basin. |

| Arrangement type | Name | Role | Comments |
|---|---|---|---|
| Other | Towards a River Basin Management Plan for the Tisza River supporting sustainable development of the region | — | Memorandum of Understanding between the riparian ministries |
| Contractual agreement | Contracts | — | Signed by GWP and each partner on undertaking specific tasks |

# Impacts and Monitoring

## Monitoring System

### Monitoring requirements

Regular monitoring of key bird species and wetland habitats is required, with stable breeding-season water levels and data entered in national databases.

### Monitoring parameters

Counts of calling males/nesting pairs for target species (e.g., great bittern, ferruginous duck); extent and condition of habitats (reed/cattail stands, wet meadows); presence/pressure of predators; and management outcomes linked to water-level manipulation.

## Maintenance

### Maintenance requirements

Ongoing maintenance consists of repairing and operating sluices and dikes, revitalising canals, and managing vegetation (mowing/grazing) to sustain appropriate water levels.

## Impact Assessment Methodology

### Performance impact assessment method

Catchment outlet

### Performance impact estimation information

Quarterly reports, partly achieved at the end of the project, fully by year 1 after the end, applied to: strategy for mitigation of floods, change of land use and measures elaborated to reduce the effects of floods, to reflect the basin and habitat improved conditions (related to water regime and quality, agiculture, forestry, etc.)

## Socio-economic Impacts

### Direct benefits information

Formulation of the "Strategy for mitigation of floods for Bodrog River Basin countries" Creation of "rooms for water" improving the conditions of original floodplains and wetlands affected by current land uses and environmentally inappropriate flood protection measures.
The project team promoted agri-environment schemes (AES) throughout implementation, offering free advisory services; 33 land users attended AES training, and farmers in the area entered AES during the programming period.

### Ancillary benefits information

By the Strategy, a framework for effective creation of new temporary space for water during flood event swill be set up for each country. Replication on national levels and to other basins thanks to the dissemination of the project results.

## Biophysical impacts: Hydrology

### Information on increased water storage

Intervention reduces flood risks by decreasing of water discharge into Stretavka pumping station and simultaneously allows retention of water into NNR.
Subsequent works (2020–2023, LIFE IPORSEN) repaired/maintained ~1,690 m of dikes and ~2,170 m of supply canals, improving the water regime over ~814 ha (NNR + production ponds + Ostrovik meadow). Managers manipulate existing sluices annually to keep levels. A 600 m dike on Ostrovik now enables simulated inundation.

## Biophysical impacts: Biodiversity

### Improved biodiversity

Oui

### Information on improved biodiversity

The site maintains regular breeding of Great Bittern and Ferruginous Duck (typically 1–3 pairs/booming males; 10–30 individuals for ferruginous duck).
In 2023, a new breeding bird species for Slovakia (glossy ibis) was recorded at Senné; works are cited as improving conditions for rare waterbirds.

## Biophysical impacts: Others

### Ecosystem impact climate regulation

Not relevant for the specific application

# Lessons Learned

## Key lessons

A first, enduring lesson is about process: success depended on long-term, hands-on work with local stakeholders and on showing the practical advantages of alternatives; even small, well-chosen measures delivered noticeable improvements.

Design flexibility was essential. An intended reconstruction on the Cibavka channel had to be dropped after some farmers objected; the team pivoted to refurbish the floodgate at the main drainage channel/Žiarovnica confluence instead. That low-tech fix (by SVP in Dec 2009) came with an operational manual and still achieved the goals of supplying the reserve during dry periods and reducing discharges to the Stretávka pumping station.

Plan works around ecology. During the 2023 LIFE IPORSEN phase, dyke repairs and inlet-canal cleaning were scheduled after the breeding season to limit disturbance, with the expected benefit of improving the water regime across “over a thousand hectares” of wetlands while also protecting adjacent farmland from unwanted flooding.

Ownership and governance matter. The area mixes a state nature reserve, a privately operated fishpond complex (privatised in 2000), and many small landowners—creating real coordination challenges. The NWRM case flags fragmented ownership as a barrier, and the CHVÚ management plan documents the fishpond operator’s role and intensification since privatisation—underscoring the need to align nature protection, water management and aquaculture.

Make the most of existing infrastructure. The local melioration network—once built to drain wetlands—can be run “in reverse” to hold water, and modest gate/levee fixes plus channel cleaning can deliver catchment-scale ecological gains. Recent municipal micro-projects (e.g., “Čierna voda ožíva”: reconstructing a levee culvert to re-wet 1.9 ha by gravity) show how these small interventions can keep adding value.

Finally, continuity breeds impact. The 2009–2011 pilot (GEF/UNDP, ICPDR) set the template; subsequent LIFE IPORSEN works (2021–2023) and parallel cross-border “BirdTour” investments in visitor infrastructure built local support and helped sustain wetland management.

## Barriers

| Barrier type | Barrier role | Comments |
|---|---|---|
| Legal obligations / restrictions | Secondary barrier | In the bilateral agreements, the municipalities has limited involvement. |
| Lacking coordination between authorities | Secondary barrier | Difficult ownership situation due to the high number of small owners. |

## Drivers

| Driver type | Driver role | Comments |
|---|---|---|

| | | |
|---|---|---|
| Past flooding events | Main driver | Yearly in the Bodrog catchment area which have negative consequences on inhabitants. Most serious one was in 2004 when floods affected 75% of the area in Eastern lowlands, managed by Water Management enterprise and also inhabitants had to be evacuated. |
| Availability of subsidies | Secondary driver | Without the UNDP/GEF support, the coordination among the Bodrog River Basin countries and the national plans and their implementation on the local level would be very limited and thus the idea of flood prevention through the integrated land and water management would not be implemented. |

### Success factors

| Success factor type | Success factor role | Comments |
|---|---|---|
| Attitude of relevant stakeholders | Secondary factor | The measures can be done in a short period of time (within 12 months) |

### Transferability

Highly transferable to lowland wetlands with existing drainage canals: simple gate/levee repairs can restore seasonal retention and habitat. Success hinges on early stakeholder work and flexible design. Check legal water rights, ownership fragmentation, fishpond/operator interests, reliable inflow, and breeding-season timing; plan ongoing operation/maintenance and monitoring.

## Sources

### Sources


Bodrog demonstration Project - Component 2 - UNDP/GEF Tisza MSP - Making space for water in the Bodrog River Basin

Making space for Water in the Bodrog River Basin (SK-UA-HU)

Program starostlivosti o Chránené vtáčie územie Senianske rybníky na roky 2022–2051

Združenie obcí – Čierna Voda – Uh, Kanalizácia a ČOV – Zámer pre posudzovanie vplyvov na životné prostredie

Projekt: Čierna voda ožíva

Making Space for Water in the Bodrog River Basin. Final report