Landscape revitalisation program in Slovakia

Year of issue

2025

Summary

The national Landscape Revitalisation and Integrated River Basin Management Program (2010) aimed to curb ecosystem degradation and flood/drought risk by retaining rain where it falls, especially in damaged parts of the landscape. It deployed many small water-retention elements across 488 municipalities, restoring landscape storage via basins, ponds and similar measures. Early phases created ~7,700 seasonal jobs with about €43 million invested; the programme was adopted by Government Resolution 744/2010.

Following a change of government in 2012, the national programme was wound down; only ~4% of planned funds were disbursed and monitoring was not established in time. Yet many structures remained in place. In the Košice region alone, ~250,000 m³ of green/retention works were completed in 2010–2012, and the approach continues there under a region-wide Restoration Programme approved in 2021 with a 2021–2030 horizon. The Ministry of Agriculture is also preparing a ‘Climate Fund for Soil’ to support such measures.

Photo Gallery



Location

49.16722, 20.1311

Project

NWRM

National ID

Slovakia_02

Sector

Hydromorphology

Installation Date

2012-03

Implementation status

Completed

Contact

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Overview

Location of the project

Multi-site, nationwide across Slovakia. 488 villages and towns from all regions. Early roll-out started in 24 municipalities in the basins of the Ondava, Torysa, Hornád, Váh and Kysuca rivers.

Sponge measures implemented in the case study

Check dams

Peak flow control structures

Ponds and scrapes

Objectives

Retain 250 million m³ of rainwater in the landscape by building distributed water-retention systems (“cyclic retention capacity”), to mitigate floods and droughts and support ecosystem recovery.
Activate 23 pilot municipalities first, then scale up nationwide.
Engage ~95% of Slovakia’s territory in flood-prevention actions through landscape revitalisation and better land-use practices.
Create jobs: ~300 initially; ≥5,000 jobs by 2011 (conditional on ~€33.5 m allocation).
Improve governance and maintenance of small streams/melioration, and establish a system for upkeep of new retention structures, as part of integrated river-basin management.

Involved partners

Authority type	Authority name	Authority role	Authority responsibility

Regional / sub-national water authority	Government Plenipotentiary for Self-Government and Integrated River Basin Management and Landscape	Implementation	Responsible
NGO	People and Water NGO	Implementation	Responsible
National water authority	Central office of Labour	Other	Supporting

Site Information

Climate Zone

Cool temperate moist

Precipitation

649.00 mm

Temperature (°C)

10.00 °C

Runoff coefficient

0.85

Elevation range

up to 2500 m

Vegetation class

There is no single predominant class because the programme spans forests, agricultural land and settlements (multi-site). The Košice regional follow-up explicitly targets forests, agricultural land and cities; at national scale, forests and agricultural areas are the dominant land covers.

WFD Ecological status

Unknown

WFD Chemical status

Unknown

Design and Implementation

Project scale

Large

Project scale specifications

National, multi-site programme spanning 488 municipalities across all regions of Slovakia; the NWRM entry lists the application scale as “Country.” It was launched under Government Resolution 744/2010, confirming its nationwide scope.

Project area

1700

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

1700.00 ha

Basis of design

Torrential rains in spring and summer.

Principles

Use of soft hydraulics.

Financing

Total cost

43080000.00 €

Total cost information

Government budget allocations & disbursements (2011): €26.31 m, of which €17.55 m to the 1st implementation project (190 municipalities), €8.04 m to the 2nd (354 municipalities), €0.495 m transferred to the Ministry of Agriculture, plus minor programme/admin items. For 2012, €10 m was allocated (incl. €9.6 m intended for a 3rd project and small amounts for control/monitoring capacity).

Financing authorities

Authority name	Type of funding	Comments	Financing share
European Union	EU-funds: Cohesion and regional development funds	€18 m European Social Fund	57 %
Slovak Republic Government	National funds	€24 m state budget	43 %

Compensations

No

Policy and Governance

Policy description

Due to the farming methods in the territory, the landscape's ability to hold water was substantially weakened, contributing to increase risks of landscape overheating, local and regional climate changes, floods and droughts, soil water erosion, pond silting, permanents soil degradation, disruption of ecosystems, etc.

Land ownership

Mixed ownership. Works could be built on municipal land or on land of another owner/manager, provided the municipality secured the owner’s consent.

Policy targets

Increase Water Storage

Runoff control

Erosion Control

Part of a wider plan

Yes

Wider plan

Wider plan type	Wider plan focus	Name	Comments
National	Water	Integrated River Basin Management	Adopted by the Slovak Republic Government on 27 August 2010
National	Other	Act of Employment Services	In cooperation with the Central Office of Labor, Social Affairs and Family to help with the high unemployment rate that especially consists of young people and the long-term unemployed.

Public consultation

Yes

Consultation activities

Activity stage	Activity type	Comments
Design phase	Workshops	Hundred of workshop with mayors in different regions of Slovakia and meetings with representatives of local public administration authorities.

Has contractual arrangements

No

Impacts and Monitoring

Monitoring System

Monitoring requirements

No formal hydrological monitoring was established for the national programme; Košice plans monitoring through 2030 but reports a current funding gap for gauges and related measurements.

Monitoring parameters

The national programme lists no measured parameters because monitoring never started; subsequent administrative inspections verified the existence/functionality of structures rather than hydrological or water-quality metrics. For Košice, the case study specifies the need for gauging stations to evaluate catchment restoration but doesn’t enumerate parameters (e.g., flow, levels) beyond this intent. In short: parameters not specified in sources; evidence refers to inspections/oversight and planned—but unfunded—instrumented monitoring.

Maintenance

Maintenance requirements

In 2011, municipalities signed grant contracts committing to control, maintain and service the built retention/flood-protection works for 20 years. Routine post-storm checks and cleaning of ditches/culverts to keep works functional.

Impact Assessment Methodology

Performance impact assessment method

Catchment outlet

Performance impact estimation information

N/A info

Socio-economic Impacts

Direct benefits information

7700 seasonal jobs during the three first implementation projects

Ancillary benefits

500000

Ancillary benefits information

The measures helped to reduce damage and costs that may have been incurred by preventive and rescue investment work during torrential rains in spring and summer.Positive influence on 500 to 1000 municipalities located lower in the river basins because the reduction of flooding risks and drought risks down the watercourse. Enhance the life in the place of water retention.

Biophysical impacts: Hydrology

Information on retained water

In Košice region, the national programme completed 250,000 m³ of GI/rainwater-harvesting works (2010–2012). NGO estimates suggest ~12 million m³ of retained rainwater benefitted municipalities there since 2010. Local example: Jarovnice municipality planned 30,000 m³ but reports ~42,000 m³ of measures built (cost ≈ €3/m³).

Information on increased water storage

The measures helped the villages to diminish flooding risks of torrential rains in 2011 and the retained water was gradually released over the period of extreme drought the affected Slovakia in the second half of the same year.

Information on runoff reduction

The power of rainwater runoff helps to keep the country to be vital

Information on increased infiltration

There is a better infiltration due to increase of time in water storage

Ecosystem water supply

1

Biophysical impacts: Biodiversity

Improved biodiversity

Yes

Information on improved biodiversity

The measure protect nature and strengthen biodiversity

Biophysical impacts: Water & Soil Quality

Water quality overall improvements

Positive impact-WQ improvement

Ecosystem erosion control

Yes

Biophysical impacts: Others

Ecosystem impact climate regulation

No information available

Information on ecosystem impact climate regulation

No measured cooling reported for 2010–2012. The Košice programme expects average −0.7 °C (region) and −1.3 °C (cities) after full implementation; Sušnik et al. 2022 (regional modelling across DE-CZ-SK) also finds WRMs can increase water availability and cool landscapes, but these are modelled potentials, not site monitoring.

Lessons Learned

Key lessons

The case shows that rapid, cost-effective landscape restoration is feasible and that “a big amount of small measures” can add up to meaningful change at catchment scale - an approach presented as a fundamental response to climate change, ecosystem degradation, floods and droughts, with international recognition.
Yet programme continuity matters as much as design. The national roll-out ended early after a change in government; only about 4% of the allocated funds were ultimately used and monitoring was halted before it began. Future nationwide schemes need governance and budget safeguards that outlast political cycles.
Build monitoring in from day one. The Košice regional follow-up (2021–2030) explicitly includes research and monitoring but notes current funding gaps for gauging stations - evidence that instrumentation and data management must be budgeted and scheduled alongside works, not after.
Local stewardship is crucial. Municipalities were implementers and, per grant contracts, must keep the small retention works functional for 20 years after completion; routine post-storm checks and cleaning are part of staying power. This underscores the value of simple designs that communities can maintain.
Quality control and permitting need special attention when deploying tens of thousands of micro-structures. Public debate and inspections in 2013–2014 highlighted concerns and led to financing being stopped at national level; clear technical standards and oversight are essential to maintain safety and credibility.
Finally, scale itself is a management challenge. The NWRM record notes that the “huge amount of small measures for such a big project” was a barrier - future programmes should plan for the administrative load (landowner consents, supervision, documentation) as part of the core design.

Barriers

Barrier type	Barrier role	Comments
Other	Main barrier	Huge amount of small measures for such a big project
Lacking financing sources	Main barrier	At national-programme level (2010–2012), funding was suspended before any monitoring was put in place. In the Košice regional programme (2021–2030), projects are “to be implemented and monitored,” but the region currently lacks funding for monitoring and gauging stations. District environmental offices did conduct inventory/inspection campaigns of the earlier works, initiated by the Ministry of Environment. Water & Land Restoration Advisory Boards were created to supervise project completion with possible support from scientific institutions and municipalities.

Drivers

Driver type	Driver role	Comments
Organisation committed to it	Main driver	NGO People and Water

Driver type	Driver role	Comments
Other	Secondary driver	Competition between the stakeholders who will invent something original that is better, more effective and of a higher added value.

Success factors

Success factor type	Success factor role	Comments
Communication activities	Secondary factor	Hundred of workshop with mayors in different regions of Slovakia and meetings with representatives of local public administration authorities.
Attitude of decision makers	Secondary factor	—
Existing staff and consultant knowledge	Secondary factor	The experience gained in the first implementation project help to make better the next ones with a big difference.

Transferability

Highly transferable to regions with rural/forest–agricultural mosaics and small catchments, where many small measures can add up. Success hinges on stable governance, landowner consent and permits, clear technical standards, and budgeting O&M plus monitoring (gauges) from day one; also plan for the admin load of thousands of micro-works and address safety/legality concerns around check-dams.

Sources

Sources

"After us, the desert and the deluge"

Costs and benefits of landscape-based water retention measures as nature-based solutions to mitigating climate impacts in eastern Germany, Czech Republic, and Slovakia

Program revitalizácie krajiny a integrovaného manažmentu povodí SR odštartoval v 23 obciach

Hádky o hrádzky

Ak chcú bojovať proti povodniam, musia načrieť do vlastných pokladníc

Hrádzky skončili, povodne má zastaviť betón

Program revitalizácie krajiny a integrovaného manažmentu povodí Slovenskej republiky 2011

Landscape and watershed Recovery Programme for the Košice Region of Slovakia (Climate-ADAPT case study)