OPTAIN : Čechtický stream catchment [Czech Republic]

Year of issue

2025

Summary

The Cechticky stream catchment case study is located at the Central Bohemian Region of the Czech Republic. The catchment area is about 72 km², most of which is used as agricultural land (69%). Fifty nine percent of which is cropland. Čechtický stream catchment is a part of the Želivka river basin, which includes the Švihov drinking water reservoir. The reservoir is currently facing persistent problems with poor water quality linked to phosphorus, nitrogen and pesticide pollution. The area is also threatened by soil erosion in large fields as well as poor soil quality linked to dehumidification, soil compaction and increasing periods of drought. Tile drainage is common in the area and issues linked to technical failures, unintended runoff and poor quality are increasing.

OPTAIN aims to develop strategies and advanced tools for designing and evaluating the effectiveness of Natural Small Water Retention Measures taking into account the principles of their feasibility in small agricultural river basins in terms of increasing water accumulation and retention and improving water quality. Emphasis will be placed on measures on agricultural drainage systems in terms of possibility of their modernization, regulation, professional elimination.

Photo Gallery





Location

50.51159, 15.61694

Project

OPTAIN

National ID

CZ_06

Sector

Urban

Installation Date

2019

Contact

Research Institute for Soil and Water Conservation- Dr. Petr Fučík fucik.petr@vumop.cz

Overview

Country

Czechia

NUTS2 Code

Jihovýchod

Sponge measures implemented in the case study

Soakaways

Basins

Maintenance of forest cover in headwater areas

Involved partners

Authority type	Authority name	Authority role	Authority responsibility
Research institute / University	VUMOP (Research Institute for Soil and Water Conservation)	Determination of design details of the measure	Responsible
Farmers	Farmers and land owners	Implementation	Responsible
Other	State Land Office (Land Consolidation)	Initiation of the measure	Responsible

Site Information

Climate Zone

Cool temperate moist

Precipitation

700.00 mm

Temperature (°C)

9.10 °C

Evapotranspiration

519.00 mm

Runoff

90.70 mm

Elevation range

390 – 610 m a.s.l.

Slope range

6-12%

Soil type

Cambisols

Groundwater level

1.2-4.6 meters

Vegetation class

Arable land, Grassland, Forest.

Design and Implementation

Project scale

Meso

Project area

72 km2

Project area specifications

Land use change takes place in some designed and modelled NSWRMs. I.e. within Grassing of reacharge area and grassed waterways.

Policy and Governance

Policy targets

Erosion Control

Pollutants Removal

Requirement directive

Requirement directive	Specification
Water Framework Directive (WFD) 2000/60/EC	—
Other EU	Sustainable Use of Pesticides Directive – 2009/128/EC
Nitrate Directive (NiD) 91/676/EEC	—

Part of a wider plan

Yes

Public consultation

No

Has contractual arrangements

No

Impacts and Monitoring

Biophysical impacts: Water & Soil Quality

WFD ecological status obj quantity

Moderate - to - Poor

Lessons Learned

Barriers

Barrier type	Barrier role	Comments
Attitude of relevant stakeholders	Main barrier	Land user / land owner issues
Lacking financing sources	Main barrier	Measures maintenance costs