PROLINE-CE

WORKPACKAGE T2, ACTIVITY T2.1

SET-UP OF PILOT-SPECIFIC MANAGEMENT PRACTICES

D.T2.1.5 SET-UP REPORT ABOUT ADAPTATION OF THE TRANSNATIONAL CONCEPT TO PILOT ACTION LEVEL

PILOT ACTION 1.1- Catchment area of the Vienna Water supply

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1. Introduction

The Deliverable DT2.1.5 "Set-up report about adaptation of the transnational concept to pilot action level" presents scheme for implementation of transnational concept, developed in T1, on the level of Pilot Action ***PA1.1 – Catchment area of the Vienna Water supply***.

GAPs and best management practices (hereinafter BMPs) on national level are presented in *D.T1.1.1 - Country report about the implementation of sustainable land use in drinking water recharge areas* and *D.T1.2.1 – Country-specific best management practice report*. Transnational concept is presented in two main T1 deliverables:

- *D.T1.1.2 Transnational Synthesis status quo report*, where strengths and deficiencies regarding land use and water management in drinking water recharge areas are presented on regional and national level and enhanced with EU level;

and

- *D.T1.2.2 Transnational best management practice report*, a synthesis of BMPs is presented on regional and national level and enhanced with EU level. This report provides also a structure for sustainable land use regarding drinking water supply issues.

National and transnational reports regarding sustainable land use in drinking water recharge areas and BMPs were the basis for interactive workshop discussion at national stakeholder meetings (D.T1.3.2 and O.T1.1), performed in each country (Pilot Action area). Outcomes of the national stakeholder meeting set guidelines for further work in Pilot Action. On the other hand, outcomes from national workshops were gathered in transnational report *D.T1.3.3 Lessons learnt at the national stakeholder workshops*, which includes also derivation of measure groups in relation to land use types management and proposal of mitigation of the water-related natural risks.

BMPs and measures for drinking water protection and management, which are derived from T1, will be reviewed and tested in Pilot Actions.

Review of main land use conflicts and BMPs on Pilot Action level has already been done in Pilot Action BMPs reports, which were a basis for *D.T2.1.2 Transnational case review of best management practices in pilot actions*.

Description of natural characteristics of Pilot Site is presented in *D.T.1.4 Descriptive documentation of pilot actions and related issues*.

The goal of this deliverable is to set-up activities in particular Pilot Action. In this report a scheme for activities in Pilot Action is presented.

2. Climate Change

Results of climate models will be used from the SEE project CC-WAterS, which lasted from 2009 – 2012. The modelling is based on the A1B emission scenario according to IPCC 2007. Following models were used and compared:

Regional Climate Model (RCM)	Global Climate Model (driving GCM)
Aladin	ARPEGE
PROMES	HadCM3Q0
RegCM	ECHAM5-r3

Simulations were done for the periods 2021-2050 and 2071-2100 with the reference period 1961-1990. The area for which the simulations were done (2900 km²) encompasses the catchments of Vienna water supply (1200km²) which are the Pilot Action Areas of PROLINE-CE.

Climate and climate change issues in Pilot Actions will be described in detail and discussed in the deliverable *D.T2.3.3 - PA reports about climate change issues in pilots*.

3. Implementation of best management practices

The main conflicts between management and operation of water supply (drinking water protection and management) and land use management

The main concurring land use activities besides water supply are mountain pasture, forestry and tourism. Since the detrimental impacts regarding groundwater concerning tourism are punctual impacts they are already solved and will not be part of this project.

Mountain pasture and forestry and their impacts on groundwater are in PROLINE-CE the main focus of investigation.

The (karstic and fractured) aquifers of the Vienna water supply are to more than 95% accountable for the drinking water supply of Vienna. The catchments are protected by law. The catchments have an area of some 1200km². About 350 km² are owned by the City of Vienna. So the possibilities of management are different for those areas which belong to Vienna and those where Vienna has just the right of an interested party.

An increased infiltration of contaminants is a potential hazards for the water supply of Vienna.

Application of BMPs to solve these conflicts for the purpose of assuring safe drinking water supply

According to the Water Frame Work Directive (WFD), the Groundwater Directive (GWD) and the Drinking Water Directive (DWD) and following the CIS-Guidelines 16 and 26 our goal is to improve the data base and the knowledge of the karst system. Our BMP's in the project PROLINE-CE are

therefore studies and investigations as essential basis for negotiating and managing concurring land use activities.

The implementation of the BMP's will be facilitated by the involvement of researchers from different fields.

Quality of the surface-runoff/infiltration model as the main output of our project activities will be tested by comparing the simulation with observed discharge data of the springs.

Implementation strategies (stakeholder involvement – local round tables etc.)

The results will be implemented in the GIS-system of Vienna Water and help to improve the (karstic) groundwater protection.

Testing of BMPs

The test of the quality of the surface-runoff/infiltration model will be tested with the comparison of the discharge of the springs.

Vienna Water has a long lasting tradition (>100 years) of cooperating and negotiating with other stakeholders in the area. Especially planned activities (forest and pasture management) and their assessment is essential part of the daily work of the staff of Vienna Water.

4. Modelling

A hydrological model (KAMPUS) will be applied at the Zeller Staritzen catchment (PAC1.1). By a spatially distributed rainfall-runoff model interaction of infiltration and surface runoff is simulated in the karstic area. Main goal is to represent temporal dynamics and spatial patterns of surface runoff generation at different events.

The hydrological model will be coupled with an existing distributed snow model, which provides the input into the model during snow accumulation and snow melt phases. Further input data are mapped polygons with similar hydrological properties (HRU's). The properties are assessed from existing data and additional field surveys. Additionally meteorological data from a dense monitoring network will be used.

Results will be the simulation of surface runoff subject to previous precipitation and soil moisture and hence the susceptibility of erosion and the simulation of spring discharge depending of the spatial and temporal resolution of (observed or simulated) precipitation.

It therefore helps to estimate the impact of land use activities on the groundwater quality and quantity which is an objective of PROLINE-CE.

5. Conclusions

In this report a scheme for Pilot Action activities, which will be performed in Pilot area, is presented.

Description of performance of pilot activities and first outlining of foreseeable solutions will be described more in detail *in D.T2.2.4. - Partner-specific interim pilot action progress report*. This preliminary report will be discussed and presented during TM4 and Project First Review in April 2018 (D.M.2.5).

Outcomes from the management actions examined in Pilot Actions, description of conducted activities and identified solutions for case-specific adaptations of management concepts will be described in *D.T2.2.2. - Partner-specific pilot action documentation*. In this report, also gaps between the revised best management practices and actual management practice will be outlined.