

PROLINE-CE

WORKPACKAGE T4, ACTIVITY T4.3

DRIFLU CHARTA AND RELEVANT FOLLOW-UP ACTIVITIES

D.T4.3.3 SETUP OF RELEVANT FOLLOW-UP ACTIVITIES

WP T4 - ADVANCEMENT: STRATEGIC POSITIONING AND COMMITMENT

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1. Introduction

At the end of the project many works, different surveys and consultations with relevant stakeholders were conducted. As also stated during the Final Conference in Vienna (03. / 04.6.2019) the most important aim of such INTERREG-project are the follow-up activities derived from the gained experiences of the project and their implementation.

Within Work Package (WP) T1 the actual land use management practices and driving forces leading to an intensive analysis of existing gaps and challenges were surveyed by each partner country. Several common Best Management Practices (BMPs) for each land use category respectively vegetation cover were developed. The most important and relevant BMPs were then selected and partially tested in the pilot areas with a strong stakeholder involvement.

The implementation of these BMPs requires adaptation of existing land use and flood/drought management practices and the adaptation of policy guidelines. Tailored to each partner country, respective “Courses of Action on national level” were developed - according to the selected and most important land uses - in terms of drinking water protection in those countries.

Within these national “Courses of Action” each partner country had to point out necessary further steps, which are necessary to meet the objectives of the proposed BMPs in the future.

Finally, the most important transnational issues related to future drinking water protection were summarized within the main output of PROLINE-CE: the so-called DriFLU (Drinking Water/Floods/Land use)-Charta, a joint declaration act, which was signed by notable representatives of each partner country during the Final Conference in Vienna. Most of these issues were also underlined as very important by the panellists and experts coming from different field of actions and thus emphasize the common potential opportunities for joint action in the future.



2. Existing shortcomings and challenges

Within Work Package (WP) T1 evaluation of land use and flood/droughts impacts on drinking water resources was conducted in each participating country by means of a SWOT (Strength, Weakness, Opportunity, Threat) analysis and DPSIR (Driver, Pressure, State, Impact, Response) approach.

Agriculture has been identified as the land use type that causes the most significant pressures on water quality and quantity, mainly because of unregulated application of pesticides and fertilizers or manure and increasing water abstraction for irrigation during dry vegetation periods. Intensive grazing (close to dolines, swallow holes and streams) and manuring on grassland or pastures threaten the quality of drinking water resources. Urban areas with sealed surfaces and insufficient sewage systems, as well as poor forest management (clear-cut application, coniferous monocultures, heavy harvesting machinery) pose a serious risk from the aspects of water protection and defence against hazardous effects of floods.

Vertical and horizontal compliance of legislative documents on all hierarchy levels in each partner country has to be improved, in order to be upgraded to a transnational level. Already existing EU regulations and policies should be completely integrated in the respective national legislation framework. Furthermore, continuous multi-sectoral liaison is essential, as well as the implementation of transparency and equality policies which will allow all relevant stakeholders (e.g. land users) to be engaged in the decision-making processes. Pivotal factor is the education of broader public or land users whose role in carrying out the sustainable, resource-friendly practices and measures is equally important as are the expert ones. Lastly, all Project Partner countries should implement stricter repercussions for bad management practices and upgrade their monitoring to be more up-to-date with the water status. The results should have media coverage in order to promote responsible water management.

During intensive stakeholder involvement processes following general remarks were made:

- low level of public awareness and often the lack of education of some water users (e.g. farmers);
- local communities are not adequately involved in development of drinking water protection plans - plans are presented to the community as a finished work and little discussion is allowed to find more appropriate site-specific solutions;
- public funds for the implementation of water-friendly land management practices are usually inadequate;
- a problem that might be the hardest to solve is controlling irregular and harmful behaviour of individuals, especially in drinking water protection zones (=DWPZ) (waste dumping, illegal gravel excavations, etc.) - controls are inadequate, punishments are usually very lenient while good management practices are usually not stimulated or rewarded.



Many countries find it hard to define a balance between overprotection and development - overprotection might impede development, while rapid development with no regard to protection of drinking water resources might affect sustainable development and deplete resources.



3. Necessary steps for further future efforts

Since all the project partners pointed out the need for constructive dialogue among the various involved sectors, it is important to continue the communication and offer opportunities for the exchange of information and best management practices. Best management practices - using efficient and good examples of problem-specific solutions that have strong scientific basis and have been tested and proven in real scenarios - should be implemented. There is also a need to increase public awareness and change people's behaviour towards the environment, to offer opportunities for the exchange of information and management practices and stimulate two-way communication between the general public and authorities. Positive effect could be achieved by thematic media releases, promotional campaigns and workshops of this kind. The first step in the right direction was the involvement of stakeholders (e.g. land users and owners, public water suppliers, researchers) and their input in relevant topics which creates an avalanche of actions.

In order to achieve positive progress of management that is adaptable, along with legislation which is in accordance with the present day and future challenges, systematic and long-term approach should be fostered, as well as transnational dissemination of experiences and best management practices.

Furthermore, many countries experience diverse issues with poor implementation of the existing legislation. Even though it should be dealt with on a national level, the first step is bringing and syncing the regulations on the EU plane in order to have a uniform base on which to build upon.

Based on the experiences gained during pilot action activities with intensive stakeholder involvement each participating country developed a specific "Course of Action on national level" (Output T.4.2) delineating different necessary steps for the future according to the selected land uses/vegetation covers:

- Adaptation of existing land use management practices
- Adaptation of existing flood/drought management practices
- Adaptation of policy guidelines

3.1. Adaptation of existing land use management practices

Forests:

- Avoidance of the clear-cut technique within DWPZ (AT)
- Limitation of forest road constructions within DWPZ (AT)
- Foster old, huge and vital tree individuals (AT)
- Implementation of ecological hunting practices for forest ecologically sustainable wild ungulate densities (AT)



Grassland/Pastures:

- Placing of water troughs for cattle more frequently, avoiding concentrations of cattle as well as concrete basements for the troughs and their surroundings (AT)
- Fencing of dolines and sinkholes in order to keep cattle in distance from karstic features and continuously maintenance for providing sustained functionality (AT)
- Grazing management for cattle on alpine pastures: Strategic planning process based on detailed knowledge about the pasture quality and strategic placing / spacing of fences (AT)

Agriculture:

- Redefinition of time ban of fertilizers and manure application (SI)
- Adequate plant production and use of pesticides/manure considering climate change (HU)

Urban Areas, Transport/Industrial units, Energy production:

- Engagement in recycling, reusing and reducing waste activities should be encouraged on a consumer level: applications for smartphones which educate and help citizens with separate waste disposal and recycling or allow them to report illegally disposed waste, damaged waste infrastructure etc. (HR)
- Extension of sewage and purification network towards green and innovative methods (Natural waste water treatment systems) (HR)

3.2. Adaptation of existing flood/drought management practices

Forests:

- Avoidance of the clear-cut technique within DWPZ (AT)
- Limitation of forest road constructions within DWPZ (AT)
- Foster old, huge and vital tree individuals (AT)
- Implementation of ecological hunting practices for forest ecologically sustainable wild ungulate densities (AT)
- Close to streams (brooks or rivers) logging residues should be removed in order to reduce the danger of driftwood formation during floods (SI)



Urban Areas, Transport/Industrial units, Energy production:

- Collection of torrential water in wider channels, small retention ponds managed according to hydrological / hydraulic model (SI)
- Collection and treatment of road rainwater discharge, particularly within DWPZ (SI)

Vegetation:

- Maintenance of the vegetation along watercourses and on inundation plains should be better defined and implemented (SI)

General water management:

- Assessing risks for individual wells and potential measures for their protection during high water/flood events to ensure drinking water supply: levee-reinforcement, levee-heightening, levee side slope protection, flood protection works reconstruction, building of new flood protection works, improving access of flood protection works (HU)
- Establishment of groundwater level monitoring network in Imotsko polje and South Dalmatia to prevent field flooding, reconstruct the existing irrigation infrastructure and produce environmental impact studies (HR)
- Prevention of land use change should be included in designated sensitive areas (e.g. prevention of agricultural land spread on the account of Proložko Blato wetland areas): regulate and expand the infrastructure coupled with cleaning and maintenance, encourage cultivation of annual plants or vineyards, establishment of protective forests on a small scale where possible (HR)

3.3. Adaptation of policy guidelines

Forests:

- Setting up of contracts with forest owners according to facilitated BMP application (e.g. Directive GWP¹ in Waidhofen/Ybbs) and respective PES (Payments for Ecosystem Services)² (AT)

¹ “Guideline for securing the Water Protection functionality of the forest ecosystems within the Drinking Water Protection Zone” defining all relevant BMPs for the watershed, resolved by the city council of Waidhofen/Ybbs in May 2018

² PES schemes are defined within the GWP (for Best Management Practices, which go beyond the level of the national/regional legal frame)



- The guidelines for DWPZ should define the creation of natural and stable forest stands with native tree species as necessary management practice (e.g. according to Forest Hydrotope Model³) (AT)
- Forest Policy should develop more awareness with regard to all forest owners and stakeholders towards the need to protect old growth forests and tree individuals (AT)
- Clear compliance to the Hunting Acts of the Federal States enforcing mandatory enhanced hunting rates (AT)
- The regional and local forest authorities have to be forced to act according to the Provincial Hunting Acts. In severe cases persecution of a trial in the specific court should be possible. (AT)
- Forestry subsidies and encouraging foresters to facilitate regeneration dynamics within their forests for preventing aging of forests (SI)

Grassland/Pastures:

- After information campaigns for the alpine pasture staff, the set-up of specific contracts and PES should be carried out to overcome lacking monetary resources for respective construction works of water troughs for cattle and for adequate grazing management (AT)
- Guidelines for farmers about proper manure storage and regular monitoring through responsible authorities considering climate change issues (HU)

Agriculture:

- Determination of rules concerning time ban on fertilizers and manure application (SI)
- Existing agrometeorological predictions according to the weather forecasts have to become usual practice for the determination of exact date of fertilizing period (SI)
- Financial incentives for farmers (e.g. reduced application of pesticides, fertilisers and manure) and related information campaigns considering climate change (National Agro-Environmental Programme) (HU)
- Guidelines for agricultural practices in riparian areas (HU)

Urban Areas, Transport/Industrial units, Energy production:

³ Koeck, R., Hochbichler, E. (2012). Das Wald-Hydrotop-Modell als WSMS-Werkzeug im Quellenschongebiet der Stadt Waidhofen/Ybbs. Report in the course of the CC-WaterS project: <https://www.bmnt.gv.at> - search for: "ccwaters"



- Policy and regulation measures should address necessity for gradual multi-use improvements of existing drainage systems (SI)
- Strategic development of new policy framework addressing complex climate change adaptation process (SI)
- Adaptation of road management policy for road rainwater to run through separate system and not through public sewage system (SI)
- Upgrade on the Decree on the emission of substances (e.g. limitation of salinity of road water run-off) in the discharge of meteoric water from public roads (SI)
- Inspections and penalties for illegal waste dumping (HR)

General water management:

- Strategic and integral catchment-oriented source water protection concepts and planning for DWPZ - Fostering the coordination of different sectors and levels (AT, SI)
- Development of water management plans and water efficiency programmes - considering climate change issues; vulnerability and risk assessment mapping (AT)
- Adaptation/Revision of spatial plans of municipalities with (potential) DWPZ determination and adoption of Decree on the water protection area for this aquifer (SI)
- Strict implementation and inspection of DWPZ restrictions and strict penalties in case of misdemeanours (SI, HR, PL)
- Establishing responsibilities and competences for setting up the register of point and diffuse sources of potential pollution on flood areas and amendment of existing Decree on conditions and limitations for constructions and activities on flood risk areas (SI)
- Flood risk map as an adaptation of evaluation of parcels should be included in municipal spatial planning (SI)
- Establishment of more effective control/inspection; ban on legalization of constructions/buildings on flood areas must be incorporated into existing legislation (SI)
- Local authorities should incorporate CC Adaptation Strategy 2040-2070 and Action Plan 2019-2023 for adaptation and resilience for CC in local plans and strategies: rationalization of water consumption and water re-use wherever possible, promoting alternative sources of water, spatial planning measures for mitigation of flood effects in flood prone areas, monitoring and modelling projections, improvements in legal regulations, construction and revitalization of accumulation structures, green retention and green roofs (HR)
- Continuous resource allocation for maintenance and improvement of the Drought Observatory/ Steering Committee and Drought Early Warning System (DEWS): incentives and investments for water scarcity prevention; improvement of operational procedures,



- interoperability, organization and coordination among local structures and the Observatory; support of the implementation of the Water Management Plan (IT)
- Performing Regional and Urban Adaptation Plans that, following EU Directive, explicitly account for CC issue (IT)
 - Continuous resource allocation for maintenance and improvement of the Flood Forecast Centre and Flood Early Warning System (FEWS): multi risk emergency plans, increase awareness of flood damage on drinking water supply systems, shifting economic resources from emergency to prevention actions, promoting empowered synergies between central warning offices and local actions (IT)
 - Catchment modelling/ecological and hydrological modelling should be included in policy guidelines and local land use management plans as important tool for water management to simulate impact of land use and potential pollution sources on water which could be used in risk analysis of drinking water source, thus being a basis for establishing DWPZ (PL, DE)
 - Establishing multi-aspect and improved (e.g. more frequently, better spatial resolution) monitoring network of water environment and providing incentives for water suppliers/water authorities (PL, DE)

4. Potential opportunities for joint action

Partly, drinking water protection is already an integrated part of some land-use management practices, but its implementation and realisation lags behind. The main objective of PROLINE-CE was therefore the creation of guidelines and recommendations for the implementation of sustainable land use and flood/drought management, leading to an improved protection of drinking water resources.

While most of these proposed practices and recommendations call for relevant adaptation processes of existing strategies or policies in each country, some of them were already accepted and could partially be implemented in the pilot areas by municipalities or water suppliers during project lifetime.

At the end of the project a commonly agreed paper - the so-called “DriFLU Charta” - was developed determining the most important tasks towards an optimized and effective land use and flood / drought management with efficient organizational structures regarding drinking water protection and considering also climate change issues. These main statements were also underlined by the experts and panellists during the Final Conference coming from different field of actions (flood risk management, agriculture, water management & soil protection, spatial planning, forestry, water supply, ICPDR):

- Development and implementation of stricter rules (especially for agriculture) with strong control/monitoring mechanisms



- Education systems for land users and public water management administrations as well as respective awareness raising activities for involved stakeholders and decision makers (e.g. GOWARE tool)
- Cooperation among different sectors/levels and involvement of stakeholders (also the general public) - fostered i.a. through Water Framework Directive and Floods Directive
- Spread of the main results of PROLINE-CE to stakeholders and decision-makers (also on EU-level) and integration into future River basin and Flood risk management plans and other EU governance instruments/strategies or platforms (e.g. ICPDR)
- Adoption of PES (Payments for the provision of Ecosystem Services) schemes (e.g. adaptation of Rural Development Programme): If we continue to wait, the price will become higher and higher in order to maintain the ecological value of ecosystems. Contrary to other ecosystem services the social aspects (e.g. influences of forest on humans' happiness) have no indicators and therefore cannot be valued
- Integrated river basin/catchment-oriented planning to coordinate land use and integrative flood risk management (cross-sectoral benefits by reducing flood risks with increasing ecological state)
- Interdisciplinary and cross-sectoral research considering unknown impacts of land use or uncertain changes (e.g. through climate change) with knowledge transfer to other countries/involved stakeholders for integration into future planning procedures to determine potential conflicts due to the precautionary principle, which is very important regarding drinking water protection.