



BMNT/Alexander Haiden



PRO/LINE/UP

Efficient Practices of Land Use Management
Integrating Water Resources Protection and
Non-structural Flood Mitigation Experiences

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NEWSLETTER OF THE PROLINE-CE PROJECT

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PROLINE-CE is now coming to the finalisation phase and a lot of surveys, analysis and testing within the different pilot areas were conducted. Based on the outcomes of these activities and on experiences gained during the implementation phase the most effective and efficient Best Management Practices for optimized drinking water protection and flood/drought risk mitigation were selected and evaluated accordingly.

This comprehensive analysis built the basis for a new and innovative Decision Support Tool GOWARE, abbreviation of "Guide towards Optimal Water Regime". GOWARE is devoted at proposing a common methodology for integrated water protection management and enhancing the operative Best Management Practices implementation. Its purpose is to favour sustainable land use and mitigate the impacts of flood/drought events in the participating regions beyond project lifetime. Due to the specific structure of this tool it can be used by stakeholders coming from different levels of management and of various professional backgrounds ranging from policy and decision makers to local operators, like water suppliers, farmers or foresters.

Furthermore, a joint declaration act - the DriFLU Charta, abbreviation of Drinking Water/Floods/Land use - was developed. The purpose of this document is to raise the awareness of the most important topics concerning the protection of drinking water resources and the mitigation of flood and drought impacts on water resources used for water supply. Despite uncertain prognoses, also climate change issues are considered. Serving as a statement of intent, the DriFLU Charta supports the preparation of common policies and actions for drinking water protection in the Central Europe programme area, according to the main outcomes of PROLINE-CE.



IMPLEMENTATION IN PILOT AREAS

MAIN OUTCOMES

During the implementation of PROLINE-CE project, it became evident that there are many Best Management Practices for drinking water protection and flood protection, which already exist, but still, there are problems with their implementation. This is why Selected Best Management Practices, developed in Work Package T1, were tested and discussed during intensive stakeholder involvement processes through workshops and individual dialogues in the pilot areas. Thus, stakeholders' opinions about selected Best Management Practices were acquired. In most cases, stakeholders are supporting the proposed practices, but often they are not in the position to achieve changes in the system.

Where lacks were identified, possibilities of improvement and implementation were assessed. Furthermore, the main problems, pressures and gaps and the related heterogeneous measures and practices for land use management and drinking water protection were reviewed.

14 out of 41 BMPs could be implemented, most of them (9) referring to general water management and forest land use. On the other hand, some Best Management Practices are very complex and require system change or even policy change, which are long lasting procedures.

The relevant Best Management practices (BMPs) selected for particular pilot action represent the management actions that were considered to solve the problems given through the existing GAPS.

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IMPLEMENTATION IN PILOT AREAS



In drinking water management, BMPs offer solutions on how to manage the pressure on drinking water sources

- quantity caused by anthropogenic pressure and pipeline leakage and
- quality caused by human activities in the recharge area (establishment of drinking water protection zones).

In the Italian, Slovenian and Croatian pilot sites, also climate change was considered.

BMPs related to flood management solve the deterioration in both water quality and quantity. The most important measure proposed is hydrological/ hydraulic modelling.

In agricultural areas, BMPs mainly propose monitoring and education regarding the improper use of pesticides and/or fertilizers and improper manure storage.

BMPs generated from GAPs identified in urban areas address issues like water quality deterioration due to insufficiency or lack of sewage systems and wastewater treatments, illegal waste disposal, waste disposal which does not meet environmental standards and unarranged road rainwater discharge.

BMPs assigned to forest land use mostly derive from (excessive) anthropogenic activities like clear-cutting, forest road construction, hunting or conifer tree plantations. They have to deal with the consequences such as increased surface runoff and decrease of groundwater quality and quantity.

All BMPs in alpine pastures address sustainable grazing management for cattle on karstic alpine pastures to prevent erosion processes and groundwater pollution.



IMPLEMENTATION IN PILOT AREAS

According to the outcomes of the different Pilot Actions, an Action Plan for achieving best functional patterns of land use was lined out. It contains solutions and recommendations for the adaptation of Best Management Practices as well as possibilities for their implementation resp. implementation strategies (procedures). Due to the revision of best land use management practices an improvement of existing management practices, strategies and policy guidelines in the respective regions should be possible

The practical applicability during and after project implementation is guaranteed because the various stakeholders' needs that were previously identified during interactive workshops. As pilot actions cover manifold issues and conflicts between land uses, water supply and water protection needs, they can be applied also in other areas in order to generate similar results.

Moreover, while the implementation of Best Management Practices is nowadays limited by economic, administrative, social acceptance or governance issues, it became evident that it is crucial to continue the stakeholder dialogues in order to help them to implement these practices into their daily work and/or policy guidelines. Hence, further activities have to focus on the implementation on national (guidelines issued by state agencies) and local levels (e.g. by public water supplier, municipality). Therefore it is crucial that Best Management Practices for drinking water protection and flood mitigation are in concordance with all stakeholders (linked to all land use activities) in the recharge area of the drinking water source.





TRANSNATIONAL GUIDE TOWARDS AN OPTIMAL WATER REGIME

Within Work Package T3, a comprehensive and commonly agreed tool for the identification and implementation of the most suitable Best Management Practices was developed: a Transnational Guide towards an Optimal WATER REGime (GOWARE) as a Decision Support Tool (DST) for different types of stakeholders to permit them the proper selection of the best solution available: how can an integrated water management improve drinking water protection and flood risk mitigation;

In a first step, best Management Practices were ranked according to specific requirements and constraints (their relevance in respect to water protection functionality, cost and time of the implementation, multi-functionality and their robustness in terms of sustainability). Then, they were evaluated according to an Analytic Hierarchy Process (AHP) - a Multi-Criteria Decision Analysis (MCDA) tool - prioritizing the most suitable practices. In this perspective, this tool aims at supporting experts and stakeholders at different levels of management and of various professional backgrounds such as ecologists, hydrogeologists, foresters, urban planners, researchers, policy and decision makers as well as local water suppliers and farmers to avoid mistakes, serving above all as pre-defined check-list standardizing the decision-making process itself.

The tool can work off-line (as Excel-based tool) or on-line (as Web-tool) and it is suitable for single users or within physical workshops or meeting activities.

Furthermore, potential synergies between the concepts of Ecosystem Services (ESs) and Public Services (PSs) were surveyed, pointing out overlappings and peculiarities that sustain the hydrologic services. Such services encompass the benefits to people, which are produced by the terrestrial ecosystem (forest, agricultural, grassland, and wetland) effects on freshwater resources. Considering the purposes of PROLINE-CE, the following hydrologic services are relevant: improvement of water supply, securing water quality and flood risk mitigation.

Potential measures and possibilities of funding ESs compliant with flood/drought management and for protection of drinking water resources were collected and analyzed as well, in order to provide a catalogue of available funding measures in the Central-Europe region. The analysis of different Payments for Ecosystem Services (PES) schemes applied at national levels revealed that the most common ones are either public or government based. This means that governmental agencies and other public institutions provide direct payments and subsidies to landowners in order to steer and manage their land in ways that will generate or enhance ecosystem services. Furthermore, the primary sources of public incentives for ESs management are complemented by EU funds, in some cases, by national and regional financing mechanisms also incorporating private sector funding.



DriFLU (" Drinking water/Floods/Land use") Charta

Based on the main outcomes of the previous working steps within PROLINE-CE, the partnership formulated a paper which will be signed between all participating project partners during the Final Conference in Vienna (4th June 2019). The signature by notable representatives of each partner country emphasizes the determination for necessary further activities for an optimized and more effective land use and flood / drought management under the challenges of climate change.

This DriFLU Charta demonstrates not only the most necessary steps for saving drinking water in the involved Central Europe countries, but provides also important inputs for different EU guidelines and strategies (especially EU Water Framework Directive, Drinking Water Directive, Groundwater Directive, Floods Directive).

As part of the document on which the Charta is based, the most frequently mentioned gaps within the actual management practices were listed. Also the driving forces in each partner country were selected according to the different categories of land use and vegetation cover (forestry, agriculture, urban areas / transport / industrial units / energy production, grassland, wetland). Furthermore general recommendations were integrated, mainly based on the results of national stakeholder workshops and transnational Round Tables with experts coming from different fields of action within and outside the project consortium.

To each of these gaps respectively Best Management Practices the necessary adaptations respectively improvements of existing strategies / policies were pointed out, demonstrating the most important steps for relevant decision makers, also after project end.

To ensure the usability of this Charta also on national/regional/local levels, an adequate intensive stakeholder involvement was conducted resulting in additional Courses of Action in accordance with the DriFLU Charta to focus more on specific national characteristics and problems, which can differ more or less between the PROLINE-CE countries.

For the national courses of action, each partner country selected up to five of the most relevant gaps / driving forces and Best Management Practices per land use respectively vegetation cover category, which are relevant and surveyed within the pilot areas, and supplemented them by general objectives and recommendations.



DriFLU CHARTA

As some of these Best Management Practices and their implementation possibilities were tested and assessed within the pilot areas, necessary steps were delineated for each pilot action containing also remaining issues to be solved.

Furthermore, the main results and findings of the second series of national stakeholder workshops, especially recommendations made by the participants, were taken into consideration and added to the relevant issues. Last but not least, also funding possibilities surveyed in each partner country were added to the respective Best Management Practice.

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