PROLINE-CE

WORKPACKAGE T4, ACTIVITY T4.2

ORGANISATION OF TRANSNATIONAL EVENTS FOR REPRESENTATIVES OF OPERATIONAL AND DECISION MAKING LEVEL

D.T4.2.6 LESSONS LEARNT: SUMMARY REPORT OF PROLINE-CE PARTICIPATORY PROCESSES

WP T4 – ADVANCEMENT: STRATEGIC POSITIONING AND COMMITMENT

April, 2019

Lead Institution	**LP - BMNT**
Lead Author/s	**Elisabeth Gerhardt**
Date last release	**17.04.2019**

Contributors, name and surname	Institution
Austria	
Elisabeth Gerhardt	Federal Research and Training Centre for Forests, Natural Hazards and Landscape
Hubert Siegel	Austrian Federal Ministry of Sustainability and Tourism
Roland Koeck	University of Natural Resources and Life Sciences, Department of Forest- and Soil Sciences, Institute of Silviculture
Markus Hochleitner	Municipality of Waidhofen/Ybbs
Gerhard Kuschnig	Municipality of the City of Vienna, MA31 – Vienna Water
Harald Kromp	Municipality of the City of Vienna, MA31 – Vienna Water
Markus Werderitsch	Municipality of the City of Vienna, MA31 – Vienna Water
Croatia	
Josip Terzić	Croatian Geological Survey, Department of Hydrogeology and Engineering Geology
Jasmina Lukač Reberski	Croatian Geological Survey, Department of Hydrogeology and Engineering Geology
Ivana Boljat	Croatian Geological Survey, Department of Hydrogeology and Engineering Geology
Daria Čupić	Croatian Waters
Matko Patekar	Croatian Geological Survey, Department of Hydrogeology and Engineering Geology
Ivona Baniček	Croatian Geological Survey, Department of Hydrogeology and Engineering Geology
Germany	
Daniel Bittner	Technical University of Munich; Chair of Hydrology and River Basin Management
Prof. Dr. Gabriele Chiogna	Technical University of Munich; Chair of Hydrology and River Basin Management
Prof. Dr.-Ing. Markus Disse	Technical University of Munich; Chair of Hydrology and River Basin Management
Hungary	
Robert Hegyi	General Directorate of Water Management
Magdolna Ambrus	General Directorate of Water Management
Peter Molnar	General Directorate of Water Management
Tamas Belovai	General Directorate of Water Management

Contributors, name and surname	Institution
Barbara Bezegh	Herman Otto Institute Non-profit Ltd.
Matyas Prommer	Herman Otto Institute Non-profit Ltd.
Italy	
Cinzia Alessandrini	Arpae
Silvano Pecora	Arpae
Francesco Puma	EU WATERCENTER
Guido Rianna	CMCC Foundation
Giuseppe Ricciardi	Arpae
Monia Santini	CMCC Foundation
Anna Sperotto	CMCC Foundation
Silvia Torresan	CMCC Foundation
Poland	
Joanna Czekaj	Górnośląskie Przedsiębiorstwo Wodociągów S.A.
Mirosława Skrzypczak	Górnośląskie Przedsiębiorstwo Wodociągów S.A.
Andrzej Siudy	Górnośląskie Przedsiębiorstwo Wodociągów S.A.
Rafał Ulańczyk	Instytut Ochrony Środowiska – Polski Instytut Badawczy
Andrzej Witkowski	University of Silesia
Andrzej Woźnica	University of Silesia
Slovenia	
Barbara Čenčur Curk	University of Ljubljana, NTF
Anja Torkar	University of Ljubljana, NTF
Ajda Cilenšek	University of Ljubljana, FGG
Špela Železnikar	University of Ljubljana, BF
Branka Bračič Železnik	Public Water Utility JP VO-KA

TABLE OF CONTENTS

1. Introduction

The main output of PROLINE-CE, the DriFLU (Drinking Water/Floods/Land Use) Charta, which will be signed by notable representatives of each partner country during the Final Conference in Vienna (04.06.2019), will be a document with proposed measures, which should be implemented not only within the partner countries, but also in the whole Central Europe area. To enable the applicability of this document an intensive stakeholder involvement on different levels (inter-/national/regional/local) was conducted and very important during the whole PROLINE-CE project duration.

Within thematic Work Package T1 (Capitalization: Capacity Building and Stakeholder Engagement) seven national stakeholder workshops (Austria, Croatia, Germany, Italy, Hungary, Poland, Slovenia) were carried out based on a transnational concept and thematic preparation report. During the workshops, an overview about PROLINE-CE objectives, activities and outputs was given. Afterwards by means of brainstorming processes, dialogues and intensive exchange of ideas, current challenges and gaps (SWOT analysis) were analysed in each country.

Based on these inputs and further activities especially in pilot areas, carried out within all thematic Work Packages (WP T1 – T4), strategies and measures to be potentially integrated in existing policy guidelines were elaborated.

To facilitate and concretize the application and implementation of these proposed strategies towards drinking water protection a second national operationalisation stakeholder workshop series was held within thematic work package T4 (Advancement: Strategic Positioning and Commitment, D.T4.2.4, Output O.T4.1) with a quite similar approach (presentations and carousel discussion) like the first series within WP T1. The aim of this series was on the one hand the operationalisation of the developed strategies on national level and on the other hand the improvement of good networks for further cooperation. This cooperation will take place both on national and on transnational level to spread the idea of DriFLU Charta – the final main output of PROLINE-CE.

Additionally to these two national stakeholder workshops two Round Tables were organized to get important external viewpoints also from people mainly outside the project consortium for further developing the two main outputs of PROLINE-CE: GOWARE (Transnational Guide towards an Optimal Water Regime) and DriFLU Charta. The first Round Table was held back to back with the mid-term-conference in Ljubljana (12.06.2018) and the second Round Table back to back with the 6th Partner Meeting in Budapest (14.02.2019).

2. Result compilation of first stakeholder workshop series

7 national training workshops were implemented in the partner countries (AT, DE, HR, HU, IT, PL, SI) and feedback procedures were carried out, the evaluation of which showed that an average of 81 % of the participants were satisfied with the information provided. The average number of participants was around 20-25 persons per event. Concerning the target groups reached, they were quite equally split up between local, regional and national public authorities, infrastructure and service providers and higher education and research with a slightly larger share for the latter group. Last but not least participants from various NGOs and other concerned interest groups completed the circle of participants.

The trainings were carried out as interactive workshops aiming to identify strategies and measures to be integrated into policy guidelines. The input provided by the target groups is essential for developing best management practices in land use for drinking water protection and flood/drought mitigation. The participants were divided into groups, led by experts involved in the project, and each group discussed issues of water resources protection in daily operations and possible solutions, related to integrated land use management. A conclusion of the group discussions and proposed solutions is given in workshop summaries on a national basis, providing an important input to the process-elaboration of the "Strategy for improvement of policy guidelines".

As possible solutions to overcome existing gaps especially more flexibility in the planning of action plans as well as better involvement of the respective land users and land owners were proposed. This may not only reduce the gaps in the stakeholders' daily operations, but also increase the acceptance and lower the overall costs. Often, participants also agreed that ‚communication' and ‚cooperation' between the stakeholders related to (water)resources protection are of major importance to decrease the existing gaps.

2.1. Impact and benefits

The expected impact is the utilization of the key objectives (such as recognizing the problems, education, active participation in mitigation) of the workshop in different organizations. The benefits include raising the awareness of the population through the work of assorted groups who attended the workshops.

As a result of the trainings it is expected to have increased the awareness of the participating stakeholders regarding possible synergies in an integrated land management approach towards drinking water protection and flood mitigation. Participants also have increased awareness about opportunities of cooperation provided by the project and, at the same time, have a clearer overview of challenges and conflicts characterizing the use of water resources in the respective territories. Participants were informed about the qualitative and quantitative status of water resources and experienced different tools and approaches to facilitate participatory processes, also useful in daily work.

2.2. Sustainability and transferability

The workshops gave an overview of several land use management practices and their impact on the water cycle. This ensured the transferability of the training to different territories. Due to the increased awareness and the curiosity of the participants, it is expected that they spread the knowledge they gained during the workshop, thus ensuring the sustainability of the training.

Moreover, the tools adopted for characterizing the status of water resources in the area, opportunities and constraints can be easily applied to other contexts or environmental issues (e.g. DPSIR, SWOT); the workshops-documentation (incl. summary report) and presentations (in national languages) were put on the PROLINE-CE-website. Based on the workshop feedback, the stakeholders expressed their interest in further involvement in the project activities.

2.3. Lessons learnt and added value

Training in the form of national workshops with introductory presentations / lectures, followed by interactive group discussion has proven to be a very successful tool for communication with the stakeholder-groups, especially the application of the carousel discussion, proposed by the WP-Leader, was very useful since it turned out very efficient and effective in order to cover different topics within a relatively short available time of discussion. Some PPs learned that the complexity of the topic issued within PROLINE-CE can be easily communicated using illustrative examples. A challenge to overcome was the use of technical terms. Thus, avoiding too much subject specific terminology was important since almost all participants had different professions, level of education and backgrounds. Despite the burden associated to translation of materials drafted in English, it is recognized to be necessary to carry out such events in national languages to favour a proper interaction.

3. Result compilation of second stakeholder workshop series

Similar to the first series of national stakeholder workshops within WPT1 seven operationalisation workshops were conducted in the relevant partner countries (AT, DE, HR, HU, IT, PL, SI) within WPT4. The average number of participants was around 26 per event. Concerning the target groups reached, representatives of higher education and research as well as of infrastructure and public service provider account for the largest share, closely followed by persons coming from national public authorities. Quite equally split up was the group of regional respectively local public authorities and interest groups or NGOs. General public and other target groups (like land users) completed the circle of participants.

The workshops were carried out according to the concept provided by the WP-Leader: presentations of the main outcomes of the WPT2 (Best Management Practices -BMPs and limitations/challenges and improvements/strategies) and WPT3 (Relevant national/pilot area

related measures and possibilities for funding ecosystem services), carousel discussion about the most important Best Management Practices, their actual implementation and necessary improvements of relevant framework conditions, like legislation, funding systems, awareness raising - in order to collect feedback for GOWARE and DriFLU-Charta. Based on a template of the WP-Leader each partner country made a summary of the main outcomes of their workshops.

According to the guideline given by the WP-Leader each partner country had to select not more than five BMPs of each land use type respectively of general drinking water related BMPs for the discussion processes. The selection and corresponding results of each workshop can be seen in the summaries on national basis, providing an important input to the further development of DriFLU Charta and Action Plans on national level (see chapter 0 of this report). In general the importance of awareness raising and education/trainings of the involved stakeholders were stressed out by the whole project consortium.

3.1. Impact and benefits

In general the audience of each workshop was very engaged and interested in PROLINE-CE outcomes and topics. As the compilation of stakeholders was mostly quite diverse different points of view from their daily work could be provided and were very informative, also for the project team. The mentioned topics have an impact on their daily operations and are very up-to-date and they all see benefits in the outcomes of PROLINE-CE project. In most of the workshops also the awareness about the main project issues (gaps, Best Management Practices and possibilities in terms of drinking water protection) could be raised.

The methodology of carousel discussions turned out very efficient and effective as the motivation to debate is higher in smaller groups.

In general the workshops were very successful and all participants – PROLINE-CE team and stakeholders – could gain positive experiences and new knowledge. Such workshops with working groups contribute to establishment of personal relations among stakeholders and foster better co-operation. In Croatia even transnational dialogues were conducted together with Bosnia-Herzegovina, which should be continued also in the future.

3.2. Sustainability and transferability

In general most of the developed Best Management Practices in PROLINE-CE concerning land use and different tools, methodologies and operational systems (like drinking water protection strategies, BMP-catalogues, Flood Forecast and Flood Early Warning System, FEWS and Drought Steering Committee and Drought Early Warning System, DEWS in Italy) are also important and applicable in other regions and attractive for further stakeholder groups and institutions.

Most of the involved stakeholders have expressed interest in cooperating also in the future, after project-end and some stated, that the developed and implemented best practice examples should be spread around to other regions and affected stakeholders (e.g. water suppliers).

3.3. Lessons learnt and added value

The number of participants is not as important as the compilation of the audience. The broader the audiences, coming from different fields of action and competences, the more diverse are the inputs.

The advantage of small discussion groups could be observed in each workshop as the discussion processes are more intensive and efficient.

However, there is still a clear need to further develop a network of stakeholders in order to implement proposed BMPs. This seems to benefit not only the project, but also was an important result praised participants. Stakeholders contribution (e.g. farmers), involvement and acceptance of measures and management instruments, is not yet a common rule for all the activities related to land use management and water protection.

Sharing the experience of PROLINE-CE project with stakeholders put in evidence the importance of water governance and the integration among water and land use policies. This process as a whole and some of its specific aspects still need a stronger contribution of experts as well as the capitalization of transnational and interdisciplinary experience.

A deep understanding of different plans addressed to several topics related to water (e.g. drinking water protection, climate change adaptation, flood risk management, impacts of land use/land cover, environmental safeguarding) makes possible to highlight potential priorities, externalities, synergies and conflicts among measures developed in each of those plans, to be carefully considered in further implementation steps.

Different modelling approaches need to be considered for different sites with respectively varying modelling requirements, e.g. in some parts the interest is more on simulating trends of groundwater recharge or nitrification processes while somewhere else the focus should lie on long-term predictions of the effects of floods and droughts on a considered water reservoir.

4. Result compilation of Round Table 01

During the Round Table 01, held back to back with the mid-term-conference in Ljubljana, still existing shortcomings and challenges in terms of drinking water protection were discussed from different fields of actions (agriculture, water management, forest management) to provide important inputs to the further development of the two main outcomes of PROLINE-CE: GOWARE and DriFLU Charta. Following aspects were shown up (supplemented by results of the Panel discussion during the mid-term-conference):

Land-use causes costs and benefits. Concerning the **payment for environmental services**, we should look: who benefits and who pays the costs? Land use management, which only conforms to the legislative framework should not receive transfer payments. Payments for ecosystem services should only be applied, if state-of-the art land use management based on Best Practice-

catalogues is implemented. The related costs for example can be taken by the whole society – how could this be distributed to everybody. A lot of changes would be necessary to distribute the costs equally. This is a fundamental question for all incentive schemes, questions of fairness need to be considered; there are many national approaches.

In Slovenia, subsidies for agriculture are paid, if certain measures, which are dedicated to improve the environment (e.g. ecological production, use less fertilizers), are applied by the farmers.

It could be an aim of PROLINE-CE to raise awareness about those issues: the fact that the system of subsidies is not transparent; what is good practise, what is compensation for additional efforts which others don't have; often this is not transparent, often it is a political struggle.

Within the next months new regulations concerning subsidies of the common agricultural policy will be developed and it would be important to give target-oriented inputs according to the main results of PROLINE-CE (e.g. DriFlu Charta). Additionally, on a national level there should also be started conversations with national authorities (e.g. ministries) according to the developed national Action Plans.

In PROLINE-CE we are talking about the guidelines BEFORE implementing something: subsidies that exist and are related to agriculture are not always linked to nature conservation or water protection; in Bavaria, e.g. there are 2 different Ministries concerned - there is a subsidy related to different land-use measures, but it's not directly linked to water protection; so talking about subsidies means also talking about political structures; so EU-wide legislation should create a link between agriculture and water protection!

Authorities have to work closer together; there are too many interferences. Therefore we should try to balance different interests by finding common interests: good drinking water **is** a common interest, but the question is – how do you sell this idea? Are there synergies that can be created? Can we define measures allowing a stepwise implementation, based already on existing studies etc.?

Thus one of the most important goals is to persuade the different actors to collaborate, to see it in an integrated way, the project comes up with measures which provide synergies! The technical knowledge was transferred into arguments which need to be marketed.

From the stakeholder's point of view, e.g. in Slovenia, farmers would like to see more measures tailored to their circumstances.

For the project, water utilities are a main target group: for drinking water protection and flood mitigation; measures could be promoted that combine both.

- The target group would be first of all water utilities, but then also other institutions should be addressed, who could make use of it.
- Furthermore, key stakeholders have to be identified which support marketing measures to push the ideas that were developed.

5. Result compilation of Round Table 02

During the Round Table 02, held back to back with the 6th thematic Partner meeting in Budapest (14.02.2019), important external viewpoints for the final elaboration of the DriFLU Charta (and the GOWARE) were provided. Thus the DriFLU vision was raised to a higher strategic level and the usability of the main outputs of PROLINE-CE shall be ensured through efficient and decisive inputs by the audience.

Experts coming from different field of actions (drinking water, forestry and climate change) and countries presented their gained experiences:

Suggestions for future activities are: improving shared models for climate and hydrology, improving the understanding and use of the outputs of those models and the cooperation at local level. The challenge is to be up to date and to integrate also the local level to find someone to adopt the results. It is difficult to keep an overview about things proceeding on transnational and national level and to convey that to local authorities and experts so that they are up to date about what is going on.

One hint is made by the audience: to have a look on the homepage of the Carpathian convention (protocol for sustainable forest management) and the Climate Adapt – there is an area dedicated to transnational projects: PROLINE-CE case studies and policy practices can be sent to the responsible person, which checks, if they could be integrated into the respective field.

Including the general public in planning already at the beginning of the process and keeping them continuously involved is very important. Agenda 2030 gives us a chance for better cooperation among different sectors and levels.

Finally the proposal respectively process of the new Drinking Water Directive (DWD) was presented and provided an interesting insight into the discussion processes on EU level. Some new topics will be included in the new DWD, like: risk assessment (Water Safety Plan), “right to water” and information of general public. The big question is how to implement these issues and who will overtake them?

6. Concept/Guide for processes of embedding PROLINE-CE results in national/regional strategies and policies

Based on the tables of D.T2.3.4 the main gaps/actual management land use practices, the relevant proposed Best Management Practices (BMPs) and the necessary steps concerning adaptation of policy guidelines and strategies in general in each partner country were summarized, supplemented by some inputs from D.T2.3.1 on pilot area level and the “Lessons learnt” of the operationalisation workshops (D.T4.2.4):

[DWPZ = drinking water protection zones]

6.1. Austria

Category	Actual management practices /Driving forces (GAPs)	Proposed BMP	Adaptation of strategies/policies	Lessons learnt
FORESTS	Continued application of the clear-cut technique	Avoidance of the clear-cut technique	Prohibition of clear-cut applications within DWPZ	Best practice examples are the pilot areas: These Best Practice examples and measures (within the pilot areas) should be disseminated on national level and periodically evaluated. Individual conversations are more successful than group discussions
	Extensive construction of forest roads	Limitation of forest roads	Clear guidelines for forest management within DWPZ	
	Creation of conifer plantations, even within deciduous forest communities	Tree Species Diversity According to the Natural Forest Community	The guidelines for DWPZ should define the creation of natural and stable forest stands with native tree species as necessary management practice	
	Cutting of old, huge and vital tree individuals	Foster old, huge and vital tree individuals	Forest Policy in Austria should develop more awareness towards the need to protect old growth forests and tree individuals	
	Unnaturally elevated wild ungulate densities as result of trophy-hunting activities and resulting browsing and bark-stripping damages	Forest Ecologically Sustainable Wild Ungulate Densities	Clear compliance to the regional Hunting Acts (provincial legislation) in all Austrian forest areas	Hunting laws of the Federal States should enforce mandatory enhanced hunting rates. If hunters are simultaneously beneficiaries of the relevant drinking water resources, they should be convinced to regulate game stock according to a forest ecologically sustainable level
(ALPINE) PASTURES	Erosion dynamics (open soils without vegetation cover) around water troughs for cattle	Placing of water troughs for cattle more frequently, avoiding concentrations of cattle / Concrete basements for the	Stakeholder involvement (concerning water trough spacing and construction of concrete basements)	Recommendations /Explanations for farmers etc. how to manage the relevant land use in the future have to be as simple and

		troughs and their surroundings		understandable as possible
	Grazing of cattle in or close to dolines and sinkholes	Fencing of dolines and sinkholes in order to keep cattle in distance from those karstic features	Stakeholder involvement (Fences around dolines and sinkholes have to be maintained continuously for providing sustained functionality)	Intensive conversations with the affected farmers: they have to be asked what they want; then the preconditions under which they may continue to manage their pastures, have to be set out. General framework conditions should be determined, which the farmer has to comply with. Communication (at eye level considering that economic arguments are more successful than ecological ones), awareness-raising of problems on site (very important is that landowners and all stakeholders are present on site, so that nobody feels passed over and complains afterwards)
	Unwanted grazing patterns of cattle	Grazing management for cattle on alpine pastures	Stakeholder involvement (Strategic planning process based on detailed knowledge about the pasture quality and strategic placing / spacing of fences)	
GENERAL WATER MANAGEMENT		Strategic and integral catchment-oriented source water protection concepts and planning for DWPZ		Fostering of cross-sectoral coordination and thinking
		Water management plans and water efficiency programmes - considering climate change issues; vulnerability and risk assessment mapping ("Water Safety Plan")		Drinking water protection measures/management provides not only benefits for water

			suppliers, but also for foresters, nature conservation, economy and general public

6.2. Slovenia

Category	Actual management practices /Driving forces (GAPs)	Proposed BMP	Adaptation of policies	Lessons learnt
GENERAL WATER MANAGEMENT	Individualistic (Non-Sectoral) approach to common problematics regarding protection of drinking water resources	Joined and integrated management of drinking water resources (horizontal and vertical co-operation)	/	The perception of the environment must be at the state level, namely that we need a single concept of social development that integrates the environment and integrates the various policies and ministries. The state must establish a hierarchy that the environment represents a priority and is in the first place, not the policy. The environment must be protected at the national level. The connection between various institutions is very important, which is currently not functioning at its best.
DRINKING WATER MANAGEMENT	Drinking water protection zones (DWPZs) do not exist	Determination (e.g. hydrogeological modelling) and establishment of DWPZs	Adaptation of Spatial plan of the Municipality of Ljubljana with DWPZ determination and adoption of Decree on the water protection area for this aquifer.	The planners must take into account all restrictions on the DWPZ. The DWPZ decrees are adopted too slowly and should be speeded up, because in the meantime some data are outdated and are no longer accurate.

	Lack and not effective control over implementation restrictions for existing DWPZ	Strict implementation and inspection of DWPZ restrictions	Implementation should be supervised by inspectors of the Ministry of Agriculture, Forestry and Food.	Legislation for DWPZ is good, but it is noted that the problem is an ineffective inspection and a violation of legislation, which leads to pollution of the environment. The inspection in the field is insufficient. The operation of the inspection services should be strengthened, and the number of inspectors should be increased. Problems are also within the competence of the inspection, which requires systemic changes.
FLOOD MANAGEMENT	Pollution sources in flood prone areas are not known / identified	Register of potential point pollution sources on flood areas identified in PA	Potential pollution sources are exceeding current requirements of national legislation (Slovenia: Environmental protection act O.G. 39/2006) and EU requirements SEVESO Directive, IED Directive 2010, E-PRTR Register. Proposed amendment to existing Decree on conditions and limitations for constructions and activities on flood risk areas 89/08 – activities of storage activity on flood prone zones.	On flood prone areas there is a lack of information about potential point pollution. Aggregated list of all potential point pollution sources (industry, heating oil tanks in households, etc.) is needed for efficient incident management in case of flood event. Some of the potential pollution sources are known (especially industrial establishments under Seveso Directive), but there is among others no list of heating oil tanks in households, which are still quite common in Slovenia.
	Surface water intrusion in the well	Sealed wells heads on flood areas evaluated according to Hydrological / Hydraulical model	Amendment to the technical specification relative to standards of construction on flood prone zones (proposed amendment to existing Decree on conditions and	On a proper height above the flood water well heads should be sealed appropriately. One of best practices was highlighted, the rehabilitation of the Water utility Brest, where

			limitations for constructions and activities on flood risk areas 89/08).	the wells were equipped with a special shut-off system from the system, detecting the invasion of water into the well.
	Water balance status and effective mitigation measures are not known (identified)	Water balance status will be determined with Hydrological / Hydraulical modelling	Flood risk map as an adaptation of evaluation of parcels included in Municipal spatial planning.	Water balance status must be taken into the account in Spatial planning. The land use should be adapted in the flood zone areas. With modelling also flood plain areas are identified, therefore these areas should be reserved and protected. The information of water quantity could also be used for planning of rainwater drainage.
	Legalization of illegal construction on flood areas	To prevent legalization of construction on flood areas	Improvement of ineffective control or higher penalties from state authority on illegal construction (legislation implementation problem).	The problem of legalizing illegal construction is widely recognized. In flood zones, construction should be prohibited, or the land use in such areas should be adapted, for example, there are insured buildings that are illegally constructed, and the question arises who controls that at all.
	River banks vegetation is not maintained	Management of river banks vegetation	Similar Decree as on Ambrosia (Ambrosia should be Decree on measures to suppress harmful plants of genus Ambrosia (Official Gazette No. 63/10) should be accepted also on Japanesee Knotweed. Maintenance of the vegetation along watercourses and on inundation plains should be better defined and	Floods represent a conflict of interest; there are problems with owners in maintaining watercourses, reducing river banks vegetation and with the supervision itself and, last but not least, with financial resources. Overall, the vegetation is maintained, but not as regularly as it should be.

			implemented.	
AGRICULTURE	Inflexible time ban of fertilizers and manure application	Redefinition of time ban of fertilizers and manure application	The Slovenian Environment Agency yearly produces the agronomic prediction according to the weather forecast but is more as a recommendation and not as an obligation with determined exact date of fertilizing period.	The Slovenian Environment Agency (meteorology section) which monitors and predicts weather conditions, should for each year determine date of fertilizing period. Nevertheless, the storage of manure and slurry in the time of application restriction should be properly sealed to be safe from overflowing and consequently contamination of water sources.
URBAN AREAS	Torrential water flooding - excessive surface runoff, lack of water for animals and watering the plants	Collecting torrential water in wider channels, small retention pond (e.g. transient marsh Mali Rožnik) managed according to Hydrological / Hydraulical model	Existing policy and regulation measures do not address necessity for gradual multi-use improvements of existing drainage systems. Strategic development of new policy framework addressing complex climate change adaptation process is necessary.	Torrential water should be collected in wider channels or ponds. The water runaway with a charging reservoir or a pond for drinking water for the animals would be arranged with previous calculations with a hydrological model.
TRANSPORT UNITS	Unarranged road rainwater discharge	Collection and treatment of road rainwater discharge, particularly within drinking water protection areas	Adaptation of road management policy for road rainwater to run through separate system and not through public sewage system.	Roads in the DWPZ should have arranged road rainwater discharge. The construction of sewage systems on the DWPZ should be more closely monitored.
	No limitation of road runoff water salinity	Define limitation of salinity of road water run-off	Upgrade on the Decree on the emission of substances in the discharge of meteoric water from public roads.	Salting of roads and motorway cannot be prohibited, but the salinity of road water discharge should be limited.

FORESTS	Abandonment of forest areas	Forestry subsidies and encouraging foresters to facilitate regeneration dynamics within their forests	Most of the forest in the PA locates in two nature parks: Nature park Tivoli, Rožnik and Šišenski hill and also the natural park Polhograjski Dolomiti. In these parks activities are limited according to the Ordinance for each Nature park in order to protect nature but there are no directives for maintaining the safety of their visitors, even sanitary cutting needs authority's agreement. Despite that it has to be taken into account that natural forest ecosystems in general show the highest level of stability.	Aging of Slovenian forests, due to unregularly maintenance can turn out problematical, since old growth forest ecosystems can be more vulnerable to extreme weather conditions and catastrophes if the natural regeneration dynamics do not take place. Small-scale forest owners should become more motivated to manage their forests in order to increase resilience of their forests to natural disasters. This can only be achieved if the natural regeneration dynamics of the forest ecosystems are facilitated.

6.3. Hungary

Category	Actual management practices /Driving forces (GAPs))	Proposed BMP	Adaptation of policies	Lessons learnt
GRASSLAND / PASTURE	The impact of livestock and manure on surface water resources	Frequently monitoring livestock farms (authorities), providing information to the farmers about the environmental disadvantages of improper manure storage and about climate change	Guidelines for farmers about manure storage	During stakeholder discussions we learned that most of the time the actual monitoring on livestock farms are more or less just formality, accurate data is often not available.
AGRICULTURE	Improper or excessive use of pesticides and manure on plant production fields	Involving farmers to the Agrarian Environmental Program, emphasizing the importance of green products, providing information to the farmers about climate change.	Stakeholder involvement (adequate plant production considering climate change, ploughing parallel to the watercourse)	While many farmers are aware of the dangers of improper application of pesticides, fertilizers and manure, the experience is that in most cases they can only be motivated through financial incentives.
	Agricultural groundwater pollution	Participation in Agro Environment Program	The availability of subsidies acts as a main driver for the implementation of such practices. Guidelines can be adapted to not only prohibit certain practices in sensitive areas but also to better encourage sound practices beyond the required minimum.	There is no access to comprehensive data on how many farmers have joined the AEP already. Better cooperation between experts and authorities is necessary.
	Increased contamination of surface drinking water resources during flood events	Reducing flood effects on surface drinking water resources	Guidelines for agricultural practices in riparian areas	Preparation for extreme flood events caused by CC seems to be necessary.

GENERAL WATER M.	Flood protection protocol on bank-filtered wells operations during high water and flood events	Ensure the drinking water supply during high water or flood	Current flood management practices are good, but preparation for extreme flood events caused by CC seems to be necessary	
URBAN AREAS	Lack of sewage system and wastewater treatment	Appropriate collection and treatment of municipal waste water	Existing policy guidelines already establish required treatment. Unfortunately, in selected areas these guidelines are not yet implemented.	While sewage handling is not a general problem on the whole PA, there are still some areas which are not entirely covered with sewerage system. On Szentendre Island the main problem beside the lack of municipal wastewater treatment is that this area was a recreational area and has become permanently populated over the last years, but no regulations regarding wastewater handling have been followed.

6.4. Croatia

Category	Actual management practices /Driving forces (GAPs)	Proposed BMP	Adaptation of policies	Lessons learnt
	Increased water demand	Establishment of groundwater level monitoring network in Imotsko polje and South Dalmatia	Relevant for water market: if necessary, revisions of payments, schemes and quotas	During the workshop, a problem of hydropower plants on Neretva river was stressed out. Namely, legal restriction is power-plant operation are evaded due to insufficient network of groundwater level monitoring stations (as well as flow rates for surface water). Furthermore, representative from Croatian Waters mentioned the soon-to-be signed transnational agreement of a collective piezometric monitoring of water levels in both Croatia and Bosnia and Herzegovina, which is the first step to tackle with the water problems of the region.

GENERAL WATER MANAGEMENT	Periodic field flooding	Infrastructure maintenance and reconstruction / Non-structural flood mitigation measures	Prevention of land use change should be included in designated sensitive areas (e.g. prevention of agricultural land spread on the account of Prološko Blato wetland area)	Natural conditions of ecosystems in karst poljes were negatively modified by the numerous construction interventions (channel and tunnel for drainage of surplus water from the flooded fields) both in Croatia and upstream in the neighbouring Bosnia and Herzegovina. The choice of structural measures over non-structural or natural measures for flood mitigation often creates a false sense of security, encouraging people to accept high risks (such as construction in previously flood prone areas). Several stakeholders pointed out the upcoming plans for construction of additional drainage and retention structures, which should help with flood mitigation.

	Insufficient number of proclaimed drinking water protection zones on valuable springs in South Dalmatia	Defining and establishing sanitary protection zones in South Dalmatia	Policy guidelines are well developed concerning DWPZ, but implementation is lacking, inspections are inadequate and penalties are rarely given.	During the workshop, a good management example was presented - case of a transboundary water protection project for Prud water supply which will include restrictions from both countries as well as the compilation of a new study. HGI-CGS applied on the tender to lead the research. The results of the tender are still pending. Furthermore, many stakeholders pointed out a persistent problem - lack of established drinking water protection zones and deficient legislation, a matter which requires prompt response from the responsible authorities (inspections).

	Pressure on water resources quantity	Climate change adaptation and resilience / Reconstruction of public water supply network	CC Adaptation Strategy 2040-2070 and Action Plan 2019-2023 provide good guidelines for adaptation and resilience for CC. Local authorities should incorporate it in local plans and strategies.	Workshop participants agreed that climate changes cannot be ignored anymore and immediate action is necessary. Major problems related to CC are prolonged droughts, extreme floods, seawater intrusions and loss of drinking water resources. Participants discussed mitigation mechanisms, such as crop diversification, development of irrigation systems and alternative water sources. All concluded that every level of society (from population to decision makers) much tackle this issue promptly in order to adapt to climate changes which are especially severe in Mediterranean area.

URBAN AREAS	Unsanitary and illegal waste disposal	Educative brochure and awareness raising activities	Policy guidelines are good, penalties are prescribed for illegal waste dumping but inspections are poor and misdemeanour is not punished	Educative brochures were handed out to all participants during workshop. Brochures are useful and practical handouts which contain all relevant info at glance (main problems, potential solutions, ecosystem services, possible funding mechanisms and PROLINE-CE general info). Brochures are still distributed amongst experts and general population during monthly field investigations.
		Encourage and promote innovative solutions of sustainable waste management	Innovative solutions for waste management are not mandatory, but rather an option. However, positive management examples can serve as a catalyst to improve waste management guidelines	Stakeholders stressed out that this is one of the most problematic environmental issues in region and improvements in infrastructure for waste processing and handling are too slow. Main reasons for being so are complicated bureaucracy and licence procedure, population resistance and high costs. Innovative solutions can only be achieved when basic, technically sufficient waste disposal sites are developed, which is not the case in many areas.

	Insufficiently effective waste water treatment system that needs to be reconstructed and expanded	Natural waste water treatment system	Plans for the extension of sewage and purification network must shift towards green and innovative methods	Stakeholder gave an overview of Prud natural wastewater treatment system, which has been in operation for some time now. He provided an overview of problems encountered during operation (e.g. insufficient intake, foul smell) and how to overcome them. Positive aspects of such treatment were discussed and participants agreed that it is the best solution for many similar areas.

6.5. Italy

Category	Actual management practices /Driving forces (GAPs)	Proposed BMP	Adaptation of policies	Lessons learnt
ENERAL WATER MANAGEMENT	Pressures on water resources management	The Drought Observatory/ Steering Committee and Drought Early Warning System (DEWS)	Improvement of potential synergies among stakeholders on water demand and land use. Give more decisional power to the Permanent Observatory on Water Uses. Support to the implementation and put in place of the Water Management Plan.	The proposed BMP is recognized as efficient and well accepted among the involved stakeholders who pointed out the importance of water governance and the integration among water and land use policies. First of all it is very important bringing together all the actors, processes and targets related to water management, including drinking water. A need for higher spatial resolution and for better coordination of local authorities arose, in order to address local criticalities at sub basin scales. Another suggestion was to improve the connection and interoperability between different regional information and early warning systems within the River Basin District. Other relevant aspects to consider are: improvement of communication of drought information; the inclusion of long term projections for of strategic planning (investments and interventions); improvement of tools for assessing environmental and economic impact of drought and of pollution events. Nothing can be done without continuous funding and implementation of interactive systems for hydrological simulation. A careful understanding of different plans addressed to several topics related to water (climate change adaptation, environmental protection, flood risk management, urban areas, agriculture..) makes possible to highlight potential priorities, externalities, synergies and conflicts among measures, helpful for further implementation steps.

	Climate change impacts on drinking water resources	Analysis of the impacts of climate changes on drinking water resources	Test the implementation of proposed solution by relevant stakeholder's communication in actual decision-making processes (mainstreaming). Improving the process increasing the awareness of all the stakeholders about the future challenges for effectively preserving drinking water resources.	The proposed BMP is well accepted among the stakeholders who have agreed on the usefulness and effectiveness of this practice. Although, the approach has been tested on a small basin (Taro River near Parma), potentialities for effective upscaling are evident even if data stocktaking phase could result highly challenging. Stakeholders recognized its innovative nature and the potential benefits coming from the use of appropriate modelling and simulation tools for projecting the impacts of climate and land use changes. Nevertheless, according their view, uncertainties should be carefully explained and quantitatively, when possible, evaluated. Stakeholders highlighted the need of high efforts to communicate in proper way what are the sources of uncertainties, their magnitude and evolution on different time horizons. Furthermore, although the proposed measure is considered as useful planning support tool, stakeholders believe that the transfer of the instrument from research to actual planning require strong efforts. Making the results of research and institutional activities easier interpretable for all potential stakeholders represents a key issue for the effective local implementation of the proposed BMP

	Flood impact not fully implemented and considered	The Flood Forecast Centre for the Po River and Flood Early Warning System (FEWS)	Integration in policy guidelines of predictability, uncertainty and communication of extreme events, and related losses including those for drinking water supply systems.	The proposed BMP is relevant and well accepted among the stakeholders who recognized the institutional responsibility and competence of the Flood Forecast Center, as the high computational level of the FEWS alert system. There is a need for a better communication of flood information including prediction uncertainty, and for a higher spatial resolution for smaller rivers modeling; here benefits can come also from warning approaches simpler and faster than complete hydrologic modeling (probability prediction of thresholds exceeding and other). It is very important to consider the environmental impacts of floods: flooding of potential sources of pollutants; dynamics of pollutants transport; drinking water and supply systems management during floods. An easier information, web services and interactive tools for dissemination and decision support linked to floods are strongly requested, as also involvement of experts from different fields (communication, economy, environment, social sciences and others) to test operational tools and to share knowledge. Finally, education and training programs, may bridge the gap between academia and working life.

6.6. Poland

Category	Actual management practices /Driving forces (GAPs)	Proposed BMP	Adaptation of policies	Lessons learnt
GENERAL WATER MANAGEMENT	No DWPZ established	Proposal of DWPZ establishment	Implementation of DWPZ according to the new Water Law Act	Establishing of the DWPZ is a priority due to current regulations and a foreseen positive impact of implementation of the DWPZ. DWPZ establishing includes implementation of prohibitions and injunction of land use and water management. Within Stakeholders meeting, during discussion, the need of implementation of 3 – step DWPZ, covering whole catchment system was pointed out as a complex solution for improvement of drinking water protection.

	No complex evaluation of water hazards	Complex catchment modelling	Catchment modelling should be included in policy guidelines as important tool for water management. Within the preparation of local land use management plan procedures results of the catchment modelling should be taken into account	Using of mathematical modelling is still not popular in water resources management in Poland. Models are a complex tool to be used for finding solutions to improve water management and can be used as an EWS and for better understating of water. Stakeholders was getting familiar with concept of using catchment model to predict possible pollution loads to water environment and, thus, to drinking water source. They expressed their interest of implementation of a model to daily operation of waterworks.

	Low level of society awareness	Raising awareness and increasing knowledge	Set of society meeting was organised to get participants familiar with water environment and management problems. Society was introduced in current water policy, guidelines and BMPs established for improvement of water protection.	The meeting was tailored to get the society familiar with water resources hazards, possible impact of CC, current water policy, current and proposal of BMPs for improving water protection. Unfortunately it turns that some of the water protection aspects, including cause and effect, are not familiar among society. The need of society meeting was recognise to raise awareness and increase their knowledge.

	No information about ecology of water reservoir	Establishment of an ecology model of water reservoir	Ecological modelling, integrated with catchment models, should be included in policy guidelines as important tool for water management. Within the preparation of local land use management plan procedures results of the ecological modelling, integrated with catchment models, should be taken into account	Since modelling in general is still not popular in water management, ecological modelling of water reservoirs is practically not used at all. Using ecological modelling users are able to predict possible changes of water biology under pressures. Ecological model also can be used to predict water quality under CC. Stakeholders are really interested in possibility of utilization of ecological models of water reservoir as a complex tool for better knowledge of water environment reaction on pressures.

	Small scope of water monitoring	Establishment of constant, multi-aspect water monitoring	Establishing multi-aspect monitoring network of water environment provides full information about water quality and quantity. Conducting at least seasonal monitoring campaign gives an opportunity for following trends of changes. The need of conducting proper, multi-aspect monitoring of water system should be emphasized in guidelines at local, regional and also national level.	Monitoring approach is crucial in evaluation of drinking water resources state and potential impact of outer factors on water resources. Stakeholders agreed that there is a strong need for monitoring of a whole water system to have full picture of drinking water resources quantity and quality. Also wide range, good quality and high frequency of monitoring data gives an opportunity for good quality results of modelling studies.

6.7. Germany

Category	Actual management practices /Driving forces (GAPs)	Proposed BMP	Adaptation of policies	Lessons learnt
GRASSLAND	Continuous conversion of (permanent) grasslands	Continuous monitoring program in both, surface water and groundwater	The value of monitoring should be more emphasized in the policy guidelines. Water suppliers as well as water authorities should receive incentives to better manage available data and to collect relevant data (incl. hydrogeochemical, water level and discharge data) more frequently and with a better spatial resolution.	Discussions with farmers can be a challenge. This was not only stated by stakeholders coming from the water part, but also from farmers themselves. Thus, we learned that communication with all stakeholders involved in water resources protection needs to be tailored also to get data monitored by farmers.

GENERAL WATER MANAGEMENT	Public engagement in development of action plans	Finding site-specific solutions	The value of an available hydrological model is not adequately reported in the current guidelines. This tool is of fundamental importance to find efficient site-specific solutions, to test the implementations of solutions proposed by the various relevant stakeholders and to communicate the decision-making process.	Proposing Hydrological Modelling as a BMP cannot be considered solely related to modelling hydrological processes and related effects of land use operations. Different modelling approaches need to be considered for different sites with respectively varying modelling requirements, e.g. in some parts the interest is more on simulating trends of nitrification processes while somewhere else the focus should lie on long-term predictions of the effects of floods and droughts on a considered water reservoir.