

PROLINE-CE

WORKPACKAGE T4, ACTIVITY T4.1

CREATING SYNERGIES FOR INTEGRATED LAND USE AND FLOOD/DROUGHT MANAGEMENT

D.T4.1.2 DRAFT DRIFLU INPUT REPORT

WP T4 - ADVANCEMENT: STRATEGIC POSITIONING AND COMMITMENT

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1. Introduction

One of the main outputs of PROLINE-CE is the so-called **DriFLU Charta**. The abbreviation “DriFLU” stands for “**Drinking water/Floods/Land use**” combining the most important thematic issues within this project.

This joint declaration act will contain transnational guidelines regarding an efficient protection of drinking water resources. This objective should be achieved through the development of sustainable and appropriate land use and management measures aiming at the protection of drinking water resources and additionally at the mitigation as well as reduction of droughts and floods influencing these resources, under the challenges of climate change.

Based on the main outcomes of the previous working steps within PROLINE-CE a common agreed paper between all participating project partners will be prepared and at the end of the project - during the Final Conference - signed by notable representatives of each country to determine the most important tasks towards an optimized and effective land use and flood / drought management with efficient organizational structures regarding drinking water protection.

To ensure the usability of this Charta on national/regional/local level as well as on transnational level an adequate intensive stakeholder involvement (2nd series of national stakeholder operationalisation workshops, 2 Round Tables) is envisaged resulting in additional Action Plans in accordance with the DriFLU Charta on the level of each participating country to have the possibility to focus more on national specific characteristics and problems.

The aim of this deliverable “Draft DriFLU input report” is to provide an overview of necessary inputs for the DriFLU Charta and accompanying documents. As the Declaration Act will be signed by all participating countries the targets have to be defined and formulated in a more general way to guarantee the applicability to addressees and areas also outside the programme area. Additionally a concept will be developed for embedding DriFLU Charta topics also in national and regional strategies and policies. Therefore the chapters below are subdivided into “transnational” and “national” inputs for the DriFLU Charta. As far as some of the respective deliverables respectively outputs are finalized (actually only WP T1) the relevant content of each report - providing an important input for the DriFLU Charta - is lined out. Furthermore relevant issues of some documents [United Nations World Water Development Report (WWAP); Natural Water Retention Measures (NWRM)-project; Sustainable Drainage Systems (SuDS)-Manual] are summarized to provide a broad overview about existing studies as discussion basis for the further development of the DriFLU Charta.



2. Transnational inputs

2.1. Nature-based solutions for water - The United Nations World Water Development Report 2018

This report was published in 2018 by the United Nations Educational, Scientific and Cultural Organization (UNESCO) on behalf of UN-Water.

In this document it is stated that the global water demand has increased by a factor of six over the past 100 years and continues to grow steadily at a rate of about 1% per year. Most of the water is used for irrigation of agricultural areas depending among other things on crop type and cropping practices as well as the different irrigation techniques. Further intensive agriculture with increased mechanical disturbances of soil and inputs of agrochemicals, energy and water will lead to an enormous loss of terrestrial biodiversity (70% by 2050). These impacts however could be avoided if further intensification of agricultural production is based on ecological intensification improving ecosystem services to reduce external inputs. Furthermore the efficiency of irrigation water use has to be improved, accompanied by regulatory measures on water allocations or irrigation areas. A shift away from surface water distribution to improving rain-fed agriculture should be envisaged.

Concerning bad water quality also agriculture is the most severe driver through leaching and diffuse runoff of excess nutrients and pesticides. Agriculture remains the predominant source of reactive nitrogen discharged into the environment and a significant source of phosphorus as well as numerous chemicals, whereby serious data is missing and effects on the environment are mostly unknown.

The predicted longer duration and severity of droughts can be alleviated by more water storage in the environment (“green infrastructure”).

Due to intensive human activities natural wetlands cover only a small amount of land but play a disproportionately large role in hydrology per unit area.

Most notably the soil-vegetation interface is the key determinant of the fate of precipitation by influencing infiltration from the land surface, and hence groundwater recharge, surface runoff and soil moisture retention in the plant root zone and finally recycling water back to the atmosphere through evaporative fluxes. Therefore adequate land use and management approaches are indispensable:

Agriculture:

Main target = Sustainable ecological intensification: reinstate ecosystem services in landscapes and external impacts within acceptable limits

Conservation agriculture: minimum soil disturbance (no-till seeding), a degree of permanent soil cover of organic mulch and/or plants (main crops and cover crops including legumes) and crop rotation - this leads to improved soil structure and stability, increased drainage and water-

holding capacity and reduced risk of rainfall runoff and reduced pollution of surface waters with pesticides of up to 100% and fertilizers up to 70% as well as about one quarter to one half lower energy consumption and lower CO₂ emissions.



Figure 1: The same field with sections under tillage (right) and conservation agriculture/no tillage (left) immediately after a heavy rainstorm within a long-term field trial „Oberacker“ at Zollikofen (CH) - © Photo: Wolfgang Sturny

Manuring/composting: organic manures and composts improve soil fertility and simultaneously enhance soil structure and improve water infiltration and percolation. Despite this fact microbial contamination of the source waters are often caused by manure application

Vegetative buffer strips/cover: using grasses or trees/shrubs along agricultural fields in various ways, dispersed vegetation cover - this leads to increased ground cover, improved soil structure and infiltration as well as decreased erosion

Contour/cross slope farming: strips of closely sown crops (e.g. hay, wheat) alternate with strips of row crops (e.g. corn, soybeans) - this reduces soil erosion by creating natural dams for water

Precision fertilizer application

Biological pest control

Irrigation efficiency

Riparian grass and tree buffers: well-developed root systems, organic surface layers and understory vegetation along rivers and lakes reduce the nutrient/agro-chemical and sediment runoff from agricultural land to aquatic ecosystems; direct payments to farmers due to cross-compliance requirement in the Common Agricultural Policy of the EU

Vegetative waterways (wet buffer strips and other types of wet zones): drainage channels remaining under the vegetation cover - this leads to a filtered runoff of sediments, nutrients and other agro-chemicals through the physical contact with the vegetation and the filtering effect of the subsoil and underlying soil in the channel.



Urban settlements:

Catchment management outside urban areas: improve the supply into urban areas (including surface water and groundwater sources), almost always accompanied by improved water quality (Remark: this is one of the objectives of the Danube Transnational project CAMARO-D)

Improved recycling of water within urban water cycles: e.g. wastewater re-use

The deployment of green infrastructure within urban boundaries: reforestation, restoration or construction of wetlands (also for treating domestic and industrial wastewater: lower costs for construction and operating than conventional systems), new connections between rivers and floodplains, water harvesting, permeable pavements (on the other hand: waters contaminated with mineral oil products and other matters can enter the groundwater) and green spaces, urban food gardens (increase the use of urban rainfall, reduce agricultural water demand in rural areas, shorten food supply chains, saves water through avoided food waste), green buildings

Road management: deployment of a range of avoidance and mitigation techniques that aim to reduce the environmental impacts of roads

Grassland/Agriculture:

Agroforestry/Silvopasture: trees/shrubs are growing in association with agricultural crops, pastures or livestock

Wetland:

Restoration and creation: re-establishment of the hydrology, plants and soils of former or degraded wetlands that have been drained, farmed or otherwise modified, installation of a new wetland to offset wetland losses or mimic natural wetland functions - this leads to reducing nutrient and suspended sediment loads from agricultural areas to downstream receiving waters (also suitable for wastewater treatment), providing habitat mosaics and offering various ecosystem services and benefits to the landscape function

Most of the above mentioned NBS (=Nature Based Solutions) also provide important ecosystem services concerning mitigation of flood and drought risks, which also play a significant role in some drinking water protection zones.

Political implementation:

Payment for ecosystem services (PES) schemes (part of WP T3) provide incentives (monetary or otherwise) to landowners or farmers in exchange for sustainable land use practices in agriculture, forestry etc. The objective is that those who benefit (e.g. water utility) from ecosystem services (e.g. better water quality) can pay for their provision (e.g. for better pesticide and fertilizer use management or for preservation of the forest cover) to those, who can provide them (e.g. farmers or landowners), in order to ensure their continued production.



PROLINE-CE project position (specification of the paragraph above - UNESCO text):

If land-owners provide land-use management according to the national legislative framework, they are not obliged to receive PES (payments for the provision of ecosystem services). PES schemes can only be implemented, if the land-users (farmers, foresters, etc.) provide a state-of-the-art land management with the overall purpose of drinking water protection within drinking water protection zones (DWPZ, e.g. for better pesticide and fertilizer use management or for preservation of the forest cover). Hence only the implementation of Best Management Practices (BMPs) which reach beyond the legally defined land use management regime provide the possibility to apply PES schemes. This is a basic rule which has to be followed. Only if BMPs like defined e.g. in the PROLINE-CE project go beyond the level of the national/regional legal frame, the application of PES schemes can be considered.

PES schemes are often implemented through conservation and water funds (e.g. from European Commission), financed through government subsidies and contributions paid by large water users (such as urban water utilities) located in the lower areas of a river basin, to support watershed management activities in the high- and medium- altitude zones of the basin. They are essentially private-public partnerships in many cases. The funds are usually governed by a contract among founding members, which designates an independent institution to manage the financial resources and to ensure that they are spent on watershed protection activities in compliance with the objectives of the fund.

Although local stakeholders like large water users and municipalities are often driving forces for specific water management objectives, broader frameworks and partnerships at national and regional levels play a crucial role in fostering implementation of NBS. National legislation to facilitate and oversee implementation of NBS is particularly important.

The EU Water Framework Directive (WFD) provides an overarching framework towards NBS application for many other legislative, governance and even NGO-focused activities to take a lead. Nevertheless NBS are still unknown within the general public and are often implemented in different intensities depending on the relevant countries. According to the WFD the EU Member States are obliged to develop River Basin Management (RBM) plans, which refer to the three international basins of Danube, Rhine and Elbe. For each river basin, international commissions (ICPDR, ICPR, ICPER) exist in order to assure an integral and international water management fostering a catchment-based, transboundary cooperation. Together with the EU Floods Directive the foreseen NBS can be considered as win-win and no-regret measures as they have not only a positive effect on flood prevention, but also on water quality and ecology (e.g. water retention in the entire catchment, maintaining and/or extending floodplains, restoration measures, less intensive agricultural soil use).

NBS contribute to a major extent to the SDGs (Sustainable Development Goals) and their targets of 2030 Agenda for Sustainable Development, mainly SDG 6 for Water and Sanitation, but also many others due to the broad offer of co-benefits.

A key ingredient of the success of NBS implementation is the awareness-raising and promoting of win-win outcomes to encourage broader stakeholder engagement and to support improved



coordination on various levels. Contrary to “grey infrastructure solutions” NBS are often not so predictable and characterised by a lack of rigour. Therefore also the valuation of the related ecosystem services is very difficult, but important for decision-makers to evaluate different options. The best way forward is to strengthen continual innovation and research during implementation and to adaptively manage NBS in a scientifically manner.

2.2. Natural Water Retention Measures

This document contains all the individual Natural Water Retention Measures (NWRMs) identified by the NWRM project led by the Office International de l’Eau. It is split in four sectors: Agriculture, Forestry, Hydromorphology/Nature, Urban. During the work the experts found out that many measures can be implemented in more than one sector.

Most of the measures shown up in this report correspond to the already previous mentioned NBS or the best management practices developed within PROLINE-CE. Measures, which are “new” (e.g. controlled traffic farming, reduced stocking density, targeted afforestation in Mediterranean regions against drought) could be discussed with the whole project consortium if they are worth to integrate them in our recommendations made within PROLINE-CE.

Contrary to the previous NBS forest related measures are integrated in this report in detail, but are similar to the already provided best management practices within PROLINE-CE.

2.3. Sustainable drainage systems (SuDS) Manual

This guidance covers the planning, design, construction and maintenance of Sustainable Drainage Systems (SuDS) to maximise amenity and biodiversity benefits managing flood risk and water quality. The focus is laid on just some measures (e.g. filter strip, green roof, ponds, wetland), which are evaluated according to their effectiveness concerning surface water management. Generally it is a rather “technical” document and contains only some common aspects concerning land use management according to PROLINE-CE.



3. Transnational inputs from PROLINE-CE outcomes

3.1. Work package T1 - Capitalization: Capacity Building and Stakeholder Engagement

Deliverable / Output	Title	Description	End date
O.T1.2	Strategy for the improvement of policy guidelines	Based on the comprehensive review of existing management practices, in relation to the state-of-the-art level for those, points of reference are derived. The resulting strategy aims at an improvement of the holistic approach of water management for whole catchment areas. It combines measures to protect the water regime and to avoid the destructive forces of flooding, providing an adaptation input for existing policy guidelines and heading towards a new cross-sector management regulation.	finalized
D.T1.3.3	Lessons learnt: Synthesis report about start-up stakeholder workshops	Compilation of the results of the seven start-up stakeholder workshops and derived measure bundles in relation to land use types & vegetation cover management and mitigating the water-related natural risks	finalized
D.T1.3.4	Transnational catalogue of strategies and measures to be integrated into existing policy guidelines	Transformation of lessons learnt at start-up stakeholder workshops into practical guiding principles for the programme area to be implemented in EU and national policy guidelines regarding water and -related natural risk issues	finalized

3.1.1. Strategy for the improvement of policy guidelines (O.T1.2)

An important input can be derived from the **DPSIR-approach** (driving forces, pressures, state, impacts and responses), which was used to acquire better understanding of interacting factors (drivers and pressures) that change the environment by methodical evaluation of land use and flood/droughts impacts on water resources quality and quantity. Especially those issues lined out within the sub-chapter “**Responses**” are fruitful inputs for the DriFLU Charta. These tables are structured according to the respective land use types and based on the country-specific DPSIR-results a summary within this output provides a transnational approach. The respective “Responses” are correlated with the relevant “Key Type of Measures” (KTM) predefined for the 2016 WFD implementation reports. Therefore these recommendations, developed by the PROLINE-CE consortium, can provide important inputs for the Water Framework Directive.



Within the chapter “Lessons learnt from stakeholder workshops” Table 34 provides an overview of **proposed solutions** concerning interrelations between land use and water management identified by stakeholders during national workshops - subdivided according to the different land use types. More detailed descriptions are provided within following report:

3.1.2. Lessons learnt: Synthesis report about start-up stakeholder workshops (D.T1.3.3)

Based on identified gaps respectively problems in actual land use management within the seven national stakeholder workshops possible solutions were discussed. The results of these discussion processes are summarized within Chapter 4 and can provide an important input for DriFLU Charta.

3.1.3. Transnational catalogue of strategies and measures to be integrated into existing policy guidelines (D.T1.3.4)

This deliverable aims to transform the lessons learnt from start-up stakeholder workshops into measures and solutions which could be integrated into existing practices and policies in water management, land use management, flood management etc., offering improvement of existing and development of new and efficient management, control and behaviour practices. Thus these proposed measures provide an important input for DriFLU Charta. A short summary of these topics is given within Output T1.2 (Table 36 and following in detail):

	Forest
	Agriculture
	Urban
	Grassland
	Wetland
	General / all



Gap	Best management practice
Application of the clear-cut technique in drinking water protection zones (DWPZ)	Avoidance of the clear-cut technique
Elevated densities of unnaturally high stock of ungulate game as result of trophy-hunting activities and resulting browsing and bark-stripping damages.	Creation of forest-ecologically sustainable stocks of ungulate game
Extensive forest road construction within the DWPZ	Limitation of Forest Roads within DWPZ
Plantation of conifer species on all forest sites	Tree Species Diversity According to the Natural Forest Community
Cutting of huge, old and stable tree individuals	Foster old, huge and vital tree individuals
Forest deployment and cultivation, forestry practice in drinking water resources protection areas	Forest installation rules in floodplain of drinking water resources protection area
Inadequate management of forests. The conservation and appropriate enhancement of biodiversity	Establishment of an adequate deadwood management
Funding for land use actions for water protection	Linking land use measure funds to water resources protection
Deterioration of water quality due to agricultural pollution	Establishment of buffer strips
Application of intensive crop production technology and its impact on water resource protection	Intensive crop production possibilities in water protection areas
Obsolete conduction of agricultural practices	Increasing the efficient use of water in agriculture and adapting to climate change and crop irrigation to achieve optimum yields
Pollution of watercourses	Encouraging organic farming
Inflexible time ban of fertilizers and manure application	Redefinition of time ban of fertilizers and manure application
Pollution caused by inappropriate sludge management	Effective sludge management
Domestic gardens for small-scale cultivation in the drinking water protection area.	Controlling cultivation of domestic garden and small garden in the drinking water protection area.
Discharge of rainwater from the inner road network in soil	Impact assessment and pollution prevention of rainwater from the inter-urban road network to groundwater
Not arranged road rainwater discharge	Collection and treatment of road rainwater discharge, particularly within drinking water protection areas
Pollution of watercourses	Supporting guidance for creation of low-input grassland to convert arable land at risk of erosion or flooding
Continuous conversion of (permanent) grasslands	Preservation of existing (permanent) grasslands
Pollution of watercourses	Wetland restoration
Flood risk reduction, Erosion / sediment control	Preservation and revitalization of wetlands on floodplains
Public engagement in development of action plans	Implementation of site-specific solutions
Seawater intrusions in coastal areas	Prevention of saltwater intrusions
Pressure on water resources quantity	Climate change adaptation and resilience



Gap	Best management practice
Community use of inner and outer district of groundwater protection area	Community use of partitioned groundwater inner and outer protection zones, efforts for unlocking their isolation
Design of infrastructure under steady-state weather conditions	Adaptation of building standards for design, maintenance and operation of infrastructures
Pressure on water resources management	Integrated Water Management for implementing efficient voluntary agreements
Soil degradation and consumption	Evaluating effects of Soil Protection Plans on water bodies
Flood impact	Assessing flood impacts on drinking water supply systems and on water bodies
Qualitative/Quantitative unbalance of law/plans/measures implementation	Identification of priorities and measurable effects of responses to environmental drivers and pressures on water quality/quantity
Climate Change	Implementation of practical responses to mitigate climate change and to adapt to its effects
Analysis of links between employment/education policies and the water sector	Social, employment and education policies in water resources sector
Lack of information regarding groundwater salinity while designing and operating unconfined coastal aquifers	Assessment of salinization of groundwater and surface waters
Legalization of illegal construction on flood areas	To prevent legalization of construction on flood areas
Surface water intrusion in the well	Sealed wells heads
Pollution sources in flood prone areas are not known / identified	Register of potential point pollution sources
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)
Lack and not effective control over implementation of DWPZ restrictions	Strict implementation and inspection of DWPZ restrictions

Figure 2: Summary of gaps and best management practices to be integrated into existing policy guidelines (PROLINE-CE, Output O.T1.2)



3.2. Work package T2 - Pilots: Implementation and Feedback

Deliverable / Output	Title	Description	End date
O.T2.4	Action plan for adaptation of existing land use and flood / drought management practices	According to the outcomes of the different pilot actions, an action plan for achieving best functional patterns of land use will be lined out. It shall contain the sequence of steps in order to reach a smooth steering of using different land cover types within CE. The revised best land use management practices are a basis for the improvement of policy guidelines in the respective regions. The needs for action identified lead to formulation of specific tasks for an appropriate action schedule.	10./11.2018
D.T2.3.2	Transnational conclusive report containing recommendations	Compiled comparative transnational report about best management practices derived and assessed in the pilot actions resulting in recommendations for adaptation of existing land use and flood / drought management practices and improved policy guidelines	10.2018

3.3. Work package T3 - Synopsis: Vision and Guidance

Deliverable / Output	Title	Description	End date
O.3.1	GOWARE-CE Transnational Guide towards an optimal water regime	GOWARE will summarize a common methodology and a vision for integrated water protection management in the participating regions, in order to provide a frame for the implementation of best practices regarding drinking water protection and flood mitigation. GOWARE will support the partners in establishing adequate information transfer to stakeholders and will provide a plan for implementation of sustainable land use for drinking water protection and for flood / drought management in DWPA (drinking water protected areas) in the participating regions beyond project lifetime.	03.2019
D.T3.2.1	Roadmap to transnational adaptation for integrated land use	Concept report, defining the necessary steps for reaching a transnational adaptation plan for integrated land use. Operational definition of essential management adaptation measures towards the protection of drinking water resources and from flood events.	09.2018
D.T3.2.2	Transnational adaptation plan for integrated land use management	Roll-out of a measure bundle, taking into account the results of the transnational pilot action clusters, in order to optimize water management in different landscape types of CE	12.2018



3.4. Work package T4 - Advancement: Strategic Positioning and Commitment

Deliverable / Output	Title	Description	End date
D.T4.1.1	Compilation of delineated objectives for sustainable function-oriented land use management-	Compilation of targets identified and committed towards effective and efficient function-oriented land use management practices - unifying purposes and intentions for CE programme area	11.2018

4. National inputs from PROLINE-CE outcomes

4.1. Work package T1 - Capitalization: Capacity Building and Stakeholder Engagement

Deliverable / Output	Title	Description	End date
D.T1.1.1	Country reports about the implementation of sustainable land use in drinking water recharge areas	Status quo reports about actual land use activities and their relation to water management, focusing on the ecosystem services “protection of the water resources and protection against floods” for each country, evaluation of gaps, SWOT-analysis	finalized
D.T1.2.1	Country-specific best management practice reports	Review of best practices regarding different types of land use (agriculture, grassland, forestry) respectively vegetation cover (wetland), aiming at water protection and mitigating floods, resulting from several studies lines out in former projects	finalized



4.1.1. Country reports about the implementation of sustainable land use in drinking water recharge areas (D.T1.1.1)

Based on the **SWOT-Analysis** of each partner country concerning “**Opportunities**” interesting inputs for DriFLU Charta on national level can be derived.

For Example Austria:

- To guarantee a sustainable water supply also in the future, adequate water management plans are crucial
- Water efficiency programmes and proper water management , especially in dry areas, are necessary in the future
- River basin or catchment-oriented planning of measures
- Better communication and dissemination of knowledge and experience between decision-makers / legislators and experts
- Integrative flood risk management in DWPZ
- Stricter rules concerning fertilizer and pesticide applications and respective awareness raising
- Regulations for alpine pastures or grasslands to fence vulnerable sites like dolines or streams
- Strategic and Integral Source Water Protection Concepts and Planning for DWPZ
- Adaptive forest management for drinking water protection in DWPZ
- Closing ski stations within important DWPZ

A second important input can be derived from the **DPSIR-approach** (driving forces, pressures, state, impacts and responses), which was used to acquire better understanding of interacting factors (drivers and pressures) that change the environment by methodical evaluation of land use and flood/droughts impacts on water resources quality and quantity. Especially those issues lined out within the sub-chapter “**Responses**” are fruitful inputs for DriFLU Charta.

4.1.2. Country-specific best management practice reports (D.T1.2.1)

These reports on country level provide the review of best practices regarding different types of land use (agriculture, grassland, forestry) respectively vegetation cover (wetland), aiming at water protection and mitigating floods, resulting from several studies lined out in former projects. These best management practices contain a general description, advantages and challenges of the respective measure. Each measure is evaluated due to its respective water protection functionality, costs, duration of implementation and time interval of sustainability.



4.2. Work package T2 - Pilots: Implementation and Feedback

Deliverable / Output	Title	Description	End date
D.T2.3.4	Strategic identification of needs for action for clusters	The needs for action identified in each PA cluster as consequence of remaining gaps between the revised best management practices and actual management practice will be outlined in strategic form to serve as contribution to the Action Plan elaboration	09.2018

4.3. Work package T3 - Synopsis: Vision and Guidance

Deliverable / Output	Title	Description	End date
D.T3.3.1	Local application: Recommendations of optimal structures for sustainable land use	Catalogues of specific recommendations for optimizing the required institutional and organizational structures in the partner countries, i.e. to improve the capacity for implementation within the organizational political level	03.2019

4.4. Work package T4 - Advancement: Strategic Positioning and Commitment

Deliverable / Output	Title	Description	End date
O.T4.1	National stakeholder operationalisation workshop series	The operationalisation workshops are dedicated to capacity building towards application of the outputs of PROLINE-CE. It is aimed to concretize the transnational outputs and guidance to the operational level, towards operationalisation of best practice strategies for water protection - and thus foster the transnational transferability of results and push their application by relevant stakeholders. The workshops furthermore originate a good network for further cooperation beyond project lifetime.	12.2018
D.T4.2.6	Lessons learnt: Summary report of PROLINE-CE participatory processes	Result compilation of the seven stakeholder workshops and round tables and derived concept / guide for processes of embedding PROLINE-CE results in national / regional strategies and policies	03.2019



5. Structure of DriFLU Charta

Primarily the DriFLU Charta will be a transnational output of PROLINE-CE, which will be signed by notable representatives during the Final Conference. It should be a joint declaration act to bundle efforts towards an integrated land use and flood/drought management connected to drinking water protection.

Therefore the transnational DriFLU Charta will be just a very understandable, focused and short paper with the main necessary measures concerning the different land uses: forestry, agriculture, urban, grassland, wetland and general recommendations.

Within an Annex these mentioned issues will be explained more in detail to be as precise as possible.

Furthermore as the DriFLU Charta should not be only a paper, which will be signed, but also a document which should be implemented in each participating country it is important to create this Charta also related to the national specific issues, which can differ more or less between the PROLINE-CE countries. To guarantee a quite target-oriented document embedding relevant topics in national/regional strategies and policies, participatory processes with respective stakeholders will be conducted.

Transnational DriFLU Charta	
Recommendations for	
	Forestry
	Agriculture
	Urban
	Grassland
	Wetland
	General

Annex: detailed description of each recommended measure



National Action Plan	National Action Plan	National Action Plan	National Action Plan(for each partner country)
Forestry	Forestry	Forestry	Forestry	Forestry
Agriculture	Agriculture	Agriculture	Agriculture	Agriculture
Urban	Urban	Urban	Urban	Urban
Grassland	Grassland	Grassland	Grassland	Grassland
Wetland	Wetland	Wetland	Wetland	Wetland
General	General	General	General	Forestry

Annex: detailed description of each recommended measure



6. Literature

WWAP (United Nations World Water Assessment Programme)/UN-Water. 2018. The United Nations World Water Development Report 2018: Nature-Based Solutions for Water. Paris, UNESCO

NWRM (Natural Water Retention Measures): 53 NWRM illustrated, NWRM-project (<http://www.nwrn.eu>)

The SuDS (Sustainable drainage systems) Manual. 2015. London, CIRIA