Interreg

EUROPEAN UNION

Danube Transnational Programme

CAMARO-D

Transferable Catalogue for politicians

06/2019

Project co-funded by the European Union funds (ERDF, IPA)

Contents

Foreword

The development of holistic land use planning for river catchment areas comprises a number of interdependencies between land use practices and water resources. These linkages are characterized through the effects of anthropogenic activities, such as land cover alterations and land degradation on ground water resources, water quality, water quantity, surface run off and water pollution. Through the assessment of pilot areas in partner countries and their specifics from the three clusters, it has been noticed that land use practices are framed through the topographic and climatic conditions and most importantly through cultural, political, technological and economic factors, which differ in each country. The Danube region is not homogenous and considering the mix of factors, the development of a blueprint methodology for integrated land use planning should adhere to local and regional differences.

CAMARO-D aims at the coordination and harmonization of different function-oriented sustainable land use management activities with the requirements of water management. It also provides the initial steps for transnational catchment-based cooperation. The Danube region has a great diversity of landscapes that are the result of both natural processes and a long history of human land use. Many problems of land use are specific to particular areas, not only because of their differing physical environments but also because of local and cultural conditions.

Watershed management is a dynamic and continually readjusting process. It needs a multidisciplinary and flexible approach.

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Transferability and policy recommendations

The successful establishment of function oriented land use management is based on solid scientific research, which can attract involvement from stakeholders and create room for strategic policy and decision making. This chain of events recognizes the importance of short term results represented by the need for scientific information concerning environmental processes and contributions by relevant actors and authorities.

Within the CAMARO-D project the central focus of investigations is the assessment of interdependencies between different types of land use/land cover and three groups of water resources: groundwater/torrents /rivers and accumulation lakes, organized in three clusters. CAMARO-D deals with human impact on water resources resulting from agriculture, forestry, grassland and alpine pastures as well as urbanization. The clarification of interdependencies encompasses eleven pilot areas under different direct and indirect pilot actions. The pilot actions envisaged within every cluster serve for learning, demonstration and implementation of best practices and include collaboration with local population, governmental authorities and other institutions . During this process specific problems regarding the relation between land use and water management emerge, which is the foundation for the development of watershed based interventions. The methodology used in the three clusters identifies existing pressures on water resources and relates them to land use practices and policies.

Three manuals for practitioners in the sphere of water and land use management were elaborated, allowing to delineate best practices in the various contexts, always with a transnational aspect. The transnational approach means that certain “problems” were identified in several countries of the Danube River Basin and as well as respective best practices. The 12 transnational best practice manuals (BPMs) provide new ideas on how to solve existing conflicts between different land uses on the one hand and the protection of water resources and flood prevention in the countries of the Danube River

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Basin on the other hand. A practice- oriented decision support tool "Guidance for the Danube Region for sustainable land use planning" (GUIDR) was created. GUIDR is specifically tailor-made for the respective target groups and it is directly communicated to the relevant stakeholders and decision makers by means of different learning interactions (e.g. workshops and trainings).

The development of joint standards for function-oriented land use planning at transnational level is a challenging and slow process, but it is essential for the development of a reliable concept for land use planning. Provision of national inputs and common work with stakeholders is crucial for this process. The assessment of recommendations for land use coordination in terms of transferability to other regions in the Danube River Basin is leading to better comparability and improved coordination at transnational level. Enhancing the communication between stakeholders and institutions leads to an improvement of the planning strategy. Making recommendations on the basis of national practice and experience for the improved coordination of water management and land-use planning is essential for the elaboration of the planning instrument for sustainable land management at transnational level.

Recommendations for land use planning

Land use planning refers to the process by which a society, through its institutions, decides where, within its territory, different socioeconomic activities such as agriculture, housing, industry, recreation, and commerce should take place while taking cognizance of the main determinants of the spatial plans in place. This includes protecting well-defined areas from development due to environmental, cultural, historical, or similar reasons, and establishing provisions that control the nature of development activities. In essence, land use planning is a regulatory instrument influencing the allocation of land uses to designated territorial units and thus it is a part of spatial planning.

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Land use planning is a task that should be dealt with at national level with the assistance of the corresponding regional and local authorities (consistent with the local conditions) because it comprises the common vision of the current state and the future sustainable development of concerned territories. Furthermore, it points out the general tasks for decision making and the expected results. Planning is a long-term process but it has to be implementable. For this reason the following basic principles are recommended to decision makers:

- Land use planning should be an integral part of river basin management (RBMP) and Flood risk management planning, the main spatial unit should be the river basin.
- DPSIR (Driving forces, Pressures, States, Impacts and Responses) framework is recommended to be used in land use planning at the river basin scale and an ecosystem based approach following the concept of ecosystem services.
- Application of the GUIDR principles and the best practice catalogue for function oriented land use management;
- Evaluation of the economic, environmental, political and social impacts of reasonable alternatives during land use planning guarantees the sustainability of the process.
- Formulation of a land use policy framework that promotes sustainable water use and integrated water management with clear rights and obligations for the responsible authorities and all citizens;
- A knowledge transfer across borders and sectors that promotes integrative, participatory and strategic planning is crucial to plan and manage land use at transnational level;
- Provide supervision to regional and local governments, associations and other professionals to be involved and take active participation in the process of land use planning;
- Legal coordination requirements between land use planning and water management is essential for the planning process.

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- The empowerment of local authorities to ensure that planning rules and regulations are properly implemented and functionally effective;
- Land use planning should be used as an action plan to improve water management and reduce pollution and the amount of waste water.
- Regular update of legislation and regulations is essential to ensure their practical and easy application.
- Guarantee effective funding opportunities to ensure land use planning implementation;
- During the preparation of land use plans the economic planning instruments and cycles and national sectoral policies should be taken into account
- Setting standards and regulations for the protection of water, other natural resources, agricultural land, green open spaces, ecosystems and biodiversity and their sustainable management during the planning process guarantees implementation of management activities.

Important steps to be used in land use planning at the basin level	
Step 1	Assessment of current land use situation in the planning area.
Step 2	Defining objectives for land use in the planning area taking cognizance of the overall water management objectives for the river basin.
Step 3	Develop the program of measures to be implemented regarding land use in the planning area and integrate these measures into the Program of measures within the RBMP and the Flood risk management plans. Define alternative land use measures with respect to: water retention, water quality and quantity and ecosystem services and analyze preconditions needed to implement the defined land use measures and ways to meet the preconditions.

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Step 4	Assess and quantify impacts of implementation of land use measures in terms of water retention, water quality and quantity and ecosystem services.
Step 5	Assess feasibility of the measures and redefine as necessary.
Step 6	Select measures for implementation from alternatives analyzed and develop an Implementation Action Plan.
Step 7	Implement the land use plan for the planning area.
Step 8	Monitor the implementation of the plan and its effects.
Step 9	Repeat the cycle.

A detailed description respectively roadmap of "How to implement LUDP" can be found in the respective document Output T.4.1 "Transnational Land Use Development Plan (LUDP)", Chapter 5.

Recommendations for land use management

Whereas land use planning covers the strategic aspects of land use allocation, land use management comprises the practical approaches (e.g. cultivation practices, maintenance activities) taken to achieve a planned land use outcome.

The sustainable management practices for protection of water resources and flood risk prevention differ according to the land use types.

Considering the variety of interactions between the different land use types, the implementation of the land use plan is the core element for sustainable management within the catchment. The multidisciplinary and flexible approach of the management of land use types includes the different best management practices, implemented and presented in pilot areas and applicable at transnational level. The following policy,

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economic, technical and environmental recommendations for protection of water resources and flood risk reduction in the Danube region are selected as suitable and important to be taken into consideration:

- Prohibition/restriction of agricultural activities, which endanger sustainable land use development and lead to land degradation and flood risk, on vulnerable land.
- Erosion and torrent control;
- Implementation of Good Agriculture and Environmental Conditions (GAEC) by the farmers who apply for subsidies;
- Reduction of fertilizers, pesticides and herbicides on agricultural land;
- Special management regimes and adapted spatial planning in drinking water protection areas as well as avoiding direct wastewater discharge ensure protection of water resources.
- Maintenance of river banks and cleaning the riverside vegetation;
- On forest land avoidance or prohibition of clear cuts, especially on steep slopes to prevent the related erosion processes;
- Restoration and enrichment of eroded natural grassland (meadows, pastures) and afforestation on eroded and torrential slopes to achieve soil stabilization, erosion control and flood risk reduction;
- Apply adaptation practices regarding climate change impacts (trends and extreme events) and land use changes (erosion, land degradation, soil compaction, forest fires, etc.);
- Control of infrastructure development in river flood plains and maintenance of buffer green belts around settlements and water bodies;
- Support of sustainable land use management in nature protected and/or wetland areas to preserve biodiversity and improve landscape quality;
- Limitation of bark beetle infestation and spreading of invasive species;
- Policy measures guaranteeing environmentally friendly and sustainable management of the different land use types and ensuring coordination of all

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sectors concerned (forestry, agriculture, water management, grassland management);

- Ensuring stakeholder involvement in decision making process throughout different instruments (knowledge transfer, workshops, field trips, mobile expert groups on the spot, etc.).

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