



Photo: E. Giannakis



From planning to implementation Recommendations for actions supporting adaptation in the Pedieos River Basin

Key messages

- Participatory approaches empower stakeholders to act as multipliers and promoters of adaptation strategies.
- Adaptation options should include a mix of nature-based solutions, hard engineering works and managerial approaches.
- Implementing bundles of adaptation measures can address the multiple impacts of climate change more effectively compared to implementing individual measures; priority should be given to measures with high synergies.
- The pilot implementation of adaptation options with high synergies could reveal their effectiveness and highlight the importance of the innovative participatory process followed.
- A stakeholder-driven adaptation plan at the river basin level can strengthen the cooperation between different actors, increase societal awareness and enhance adaptation processes.
- Climate change adaptation is a dynamic, iterative process that necessitates regular reviews and updates of the adaptation plan.

Introduction

Climate change is clouded in uncertainties. It is therefore important to develop integrated adaptation strategies to manage extreme events and climate risks. The knowledge and experience of stakeholders is fundamental to the process of adaptation, and can complement the models and analyses used by scientists. The Cyprus Institute research team has led a collaborative process to develop a River Basin Adaptation Plan for the Pedieos, by fostering mutual learning processes and improving awareness of stakeholders. A wide range of stakeholders including water managers, agricultural and environmental officials, hydrologists, forestry researchers, farmers, landscape planners and economists were actively involved in all steps of the participatory development process of the adaptation plan. The plan includes 30 measures for enhancing adaptation to climate change, accompanied by a prioritization based on stakeholders' views and considerations of the local context. These measures address three key climate change-related challenges, namely, the quantitative and qualitative status of groundwater resources, the quantitative and qualitative status of surface resources, and flood risk.

1 Presentation of priority measures

The adaptation measures were prioritised based on (i) the results of a participatory multi-criteria analysis, (ii) the synergies and co-benefits between the measures, and (iii) the urgency of implementation. As such, these measures are strongly aligned with community interests and are foreseen to offer an important contribution to address the three main climate-water challenges identified within the basin.

Groundwater management measures

The enforcement of borehole drilling permits and the installation of water meters on groundwater pumps aim to measure and control groundwater abstraction and reduce its overexploitation. Groundwater abstraction control is one of the major requirements of the Water Framework Directive. However, the acceptability of the measure is low among local farmers because it may restrict irrigated production. More frequent consultations between competent authorities and farmers and improvement of farm training could help farmers to better understand and apply the requirements of cross-compliance schemes of the Common Agricultural Policy. The enforcement of a water pricing policy that ensures the full cost recovery of water services and takes into account the polluter pays principle provides an incentive for efficient water use. However, there is lack of political will to impose additional costs to irrigators that may endanger the viability of agriculture.

Surface water management measures

The strict implementation of the Code of Good Agricultural Practices reduces the leaching and surface runoff of agrochemicals and livestock waste from crop and livestock farming. The obligation of keeping land in good agricultural and environmental condition as well as the compliance with standards related to food safety, animal and plant health and animal welfare are mandatory for all farmers who receive farm subsidies. However, the efficiency of this option depends on the systematic control of representative samples of farm holdings.

The development of hydrological studies, including risk assessments, can identify and assess the causes and processes of desertification and improve water resources management. The preparation of hydrological studies is necessary to meet the requirements of the Water Framework Directive, i.e., to identify and analyse the factors that improve the quantitative and qualitative status of water resources, the ecosystem services of the river and the reduction of urban runoff and flooding.

Flood risk management measures

Rainwater harvesting systems capture surface runoff from roofs and paved areas in storage tanks, while the stored water can be used for irrigation of agricultural crops or gardens. Sustainable urban drainage systems, including green roofs, permeable pavements and grassed ditches, collect and store runoff water locally. This water can recharge soil and groundwater bodies or slowly flow to the river with less chance of flooding. The adoption rates of these measures could be increased through awareness-raising campaigns that promote their environmental benefits to the local society. A subsidy program could also be developed to provide incentives to homeowners to install such systems.

2 Concluding recommendations for future action in the river basin

A broad diversity of stakeholders is important for developing adaptation measures in an integrated and holistic manner. The participation of all involved actors in the process increases the acceptability of the adaptation plan as people develop 'ownership' of the results, while the engagement of high level policy makers can substantially increase the political acceptance of the plan and funding for its implementation. Strong commitment for the implementation of the adaptation options is needed from all involved actors and authorities.

The successful implementation of the adaptation measures requires the development of a monitoring plan with sound indicators. Aligning the monitoring needs of the adaptation measures with existing monitoring plans, e.g. River Basin Adaptation Plan and Rural Development Programmes or potential future LIFE projects, should be strongly pursued.

A mix of nature-based measures, hard engineering works, as well as soft and managerial approaches are required for tackling the immense and multidimensional challenge of climate change. However, changing attitudes towards water resources can be as important as finding optimal technical solutions.

