



BeWater

**Making society an active participant in
water adaptation to global change**

Anabel Sánchez, Annelies Broekman

Triple C Networking workshop. 'Agricultural Soil Quality & Water Management'



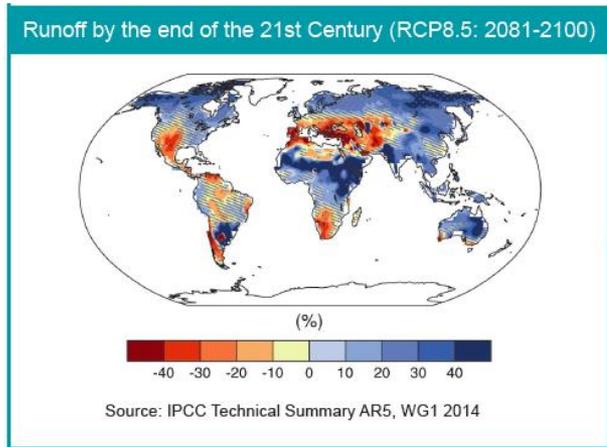
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14 th October 2020

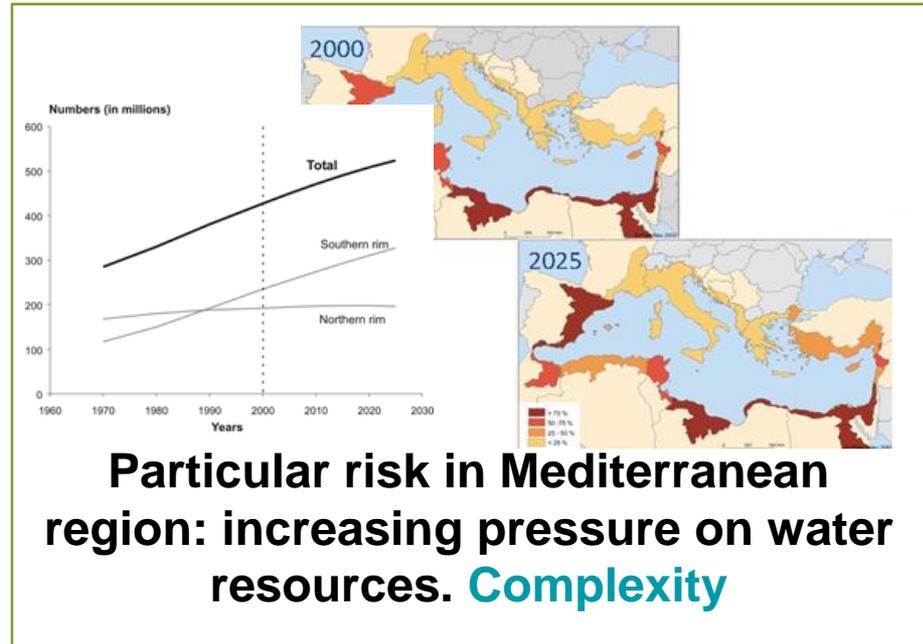


This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 612385

A collaborative response to Global Change



Global change threatens the whole society. **Uncertainty**



Particular risk in Mediterranean region: increasing pressure on water resources. **Complexity**

ADAPTATION

Dialogue and collaboration between science and society

Social awareness, empowerment and joint responsibility

Bottom-up approach

Key objectives

Apply an **innovative, stakeholder-driven method** of societal transition towards a **less vulnerable** more **sustainable and adaptive river basin management**

Promote the **transfer** of BeWater results **into management and adaptation policy**

Promote **mutual and multi-directional learning** among partners, entities and actors within and between the river basins and with the broader society

Enhance **social participation** and build **societal resilience**



Dialogue and collaboration between science and society

Participatory methodology



Co-creation of four River Basin Adaptation Plans



Iterative approach

Science based work:
case study partners,
project partners

Participatory events:
experts and stakeholders

Science based work
project consortium

.....

Applying BeWater approach to other river basins & sectors

The BeWater process



Participation for better problem identification, more suitable solutions and increased consensus → sustainable decisions

Stakeholder workshops



A participatory and stakeholder-driven approach applied in 4 case studies:

- 16 RBAP co-creation workshops
- 25 complementary events
- **Hundreds of participants** representing: public administration, academia, education, private sector, NGOs, civil society with often conflicting priorities and competing resource uses.
- Use of diverse tools and methodologies



Problem scoping: Identifying challenges & objectives



Collaborative diagnosis: the current and future state of the basins

Science-based information:

- Series of meteorological data
- Climate projections at regional scale
- Climatic risk analysis (droughts, floods)
- Land use changes
- Demographical trends
- DPSIR analysis
- Biophysical and socio-economic vulnerability and impact analysis
- ...

Stakeholder inputs:

- Citizen perceptions on current and foreseen challenges arising from climate change impacts
- Drivers of global change in the basin
- Relationship between key factors characterising the basin's dynamics
- Current and planned regional and local policies
- Common vision about the desired state of the basin
- Location of high risk areas (floods)
- ...



River basins challenges

Vipava (Slovenia):

- Water availability during droughts in growing season
- Flood risk reduction
- Appropriate water quality

Rmel (Tunisia):

- Water quantity
- Water quality
- Agriculture
- Forest & biodiversity management
- Awareness of civil society
- Human resource and employment

Tordera (Spain):

- Water quantity
- Water quality
- Health of forests & water ecosystems
- Integrated Water Management

Pedieos (Cyprus):

- Quantitative and qualitative status of groundwater
- Quantitative and qualitative status of surface water
- Flooding from the river

Problem solving: Co-developing water management options



Challenges and solutions in Pedieos (Cyprus)



GROUNDWATER



SURFACE WATER



FLOODING



102 options in total!

Evaluation of water management options



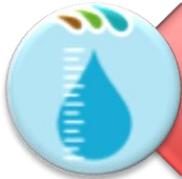
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Global change in the Tordera River basin

Challenges (4)



Water quality



Water quantity



Health of water and
forest ecosystems



Integrated water
management

Management options (33)



Recover environmental
flow regime



Establish adaptive forest
management
agreements



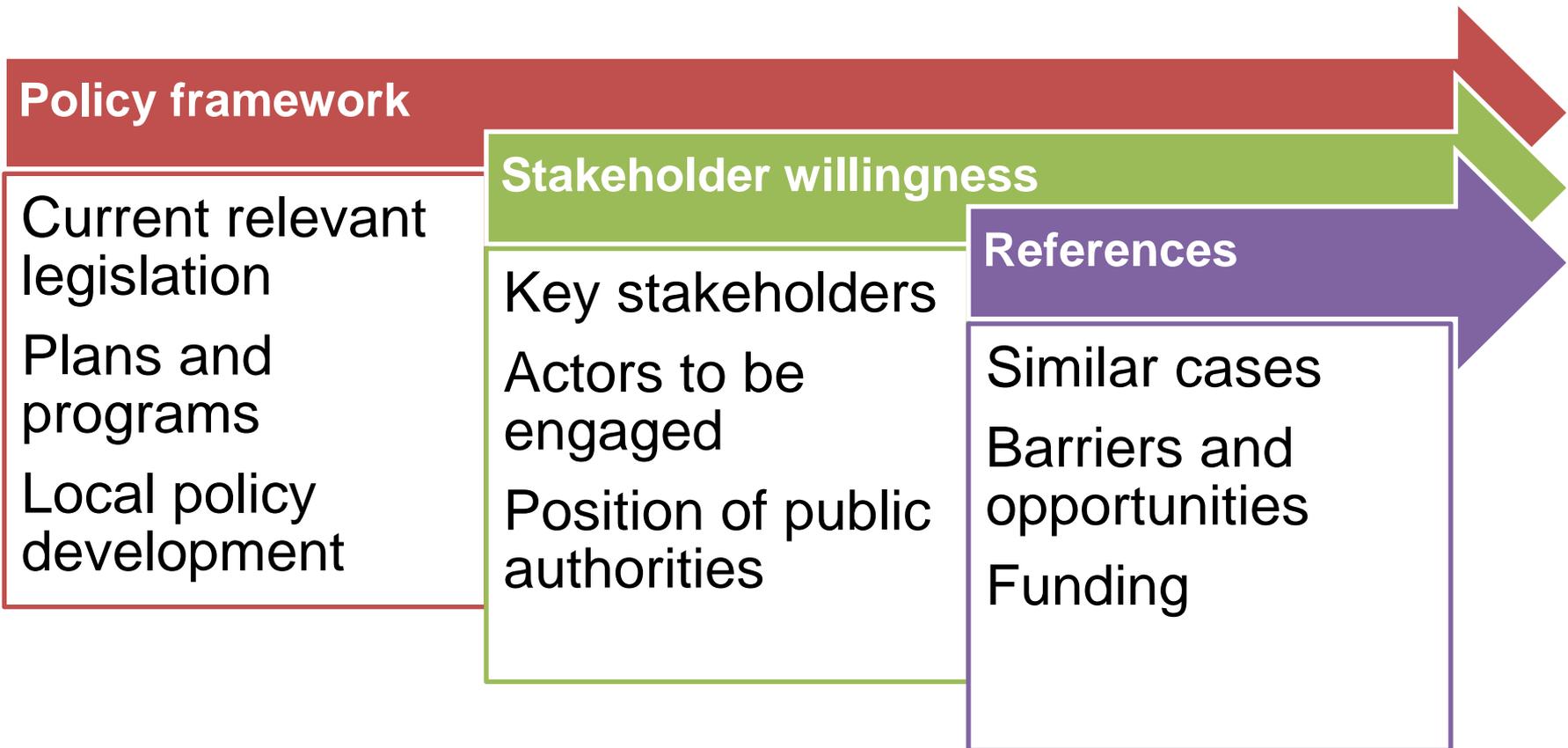
Create a permanent
Participation Centre



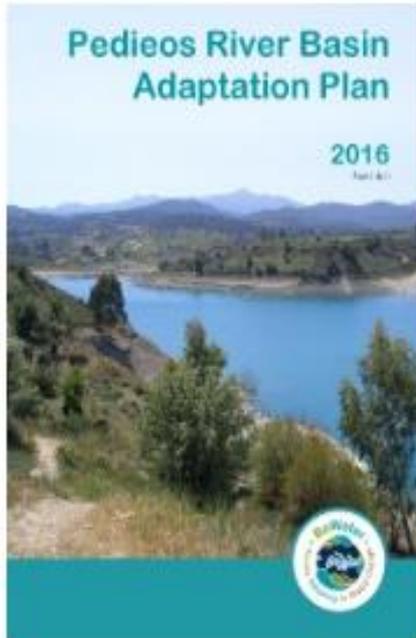
Create an Integral Plan
for the protection of the
Tordera Delta

Preparing Adaptation Plans

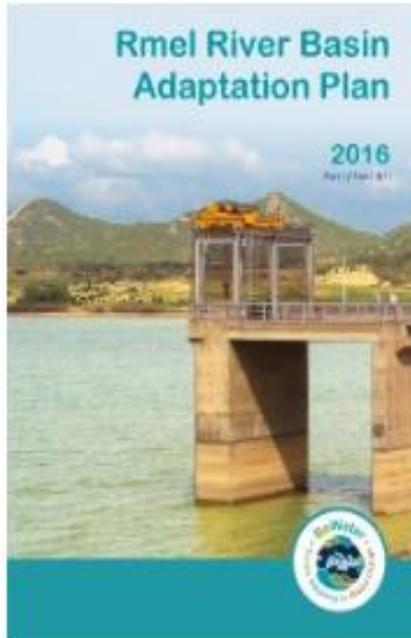
Implementation-oriented information



Four Adaptation Plans



<https://zenodo.org/record/439477#.X2mos8lzZaQ>



<https://zenodo.org/record/439489#.X2mobsIzZaQ>



<https://zenodo.org/record/439491#.X2mpNclzZaQ>



<https://zenodo.org/record/439502#.X2mo8clzZaQ>

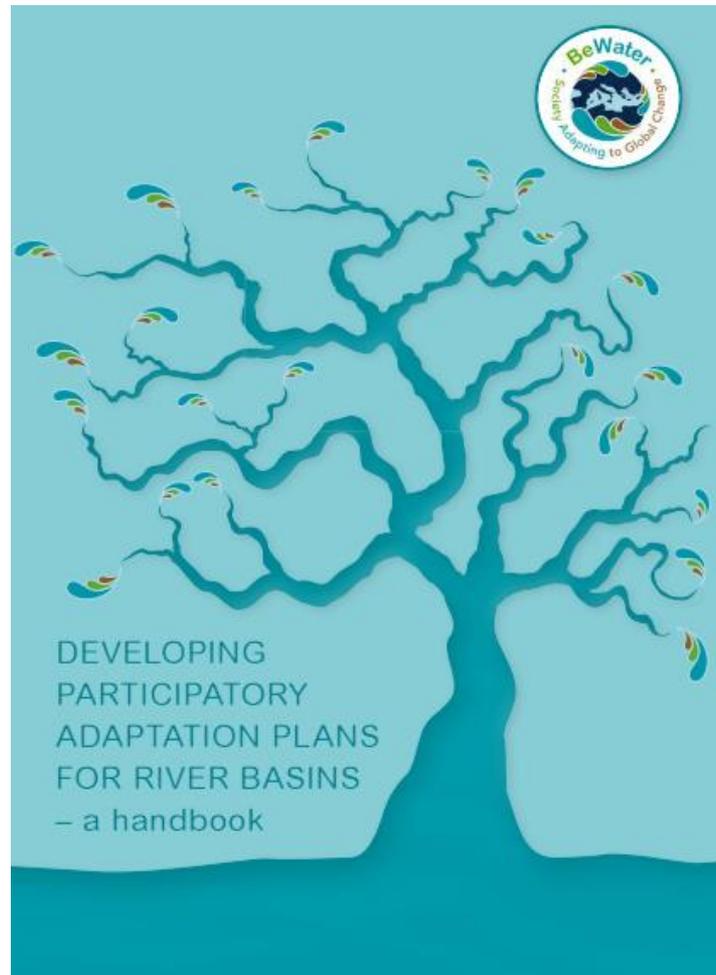


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Handbook of lessons learned



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French <https://zenodo.org/record/803919#.X2mnUMIzZaQ>

English <https://zenodo.org/record/439522#.X2mnt8IzZaQ>

Spanish <https://zenodo.org/record/495584#.X2mnzclzZaQ>

Catalan <https://zenodo.org/record/439524#.X2mn98IzZaQ>



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Policy recommendations: EU, national/regional, local levels

Policy Brief no.2
January 2017
www.bewaterproject.eu



BeWater
Adapting to Global Change

Policy recommendations for the EU level: Supporting participation in adaptive river basin management

Key messages

- Adaptation policies should be designed, implemented, monitored and evaluated through participatory processes embedded across all instruments of European policy and related sectors. These processes must go well beyond currently dominant stakeholder consultations.
- Evidence-based and shared understanding of climate change related threats and drivers is essential for participatory adaptation processes. The BeWater approach achieves this through extensive science-society dialogues build around participatory modelling and narrative development.
- Well-designed participatory adaptation decision making processes are essential elements for strengthening stakeholder networks that facilitate successful implementation of adaptation measures.
- Nature-based solutions and social innovation are especially important in order to successfully tackle the immense and multifaceted challenge of global change. Accordingly, these should be given strong support in European policy, research and financial instrument design and decision-making processes. Implementation of adaptation measures.

Supporting participation in adaptive river basin management

Policy Brief no.3
January 2017
www.bewaterproject.eu



BeWater
Adapting to Global Change

Recommendations for water management authorities within Europe and beyond

Key messages

- Adaptation planning is not well established in river basin management planning and requires increased inclusion of a variety of stakeholders that are currently poorly integrated in planning routines.
- A prerequisite for successful adaptation action is the integration of actors on the vertical level between authorities and stakeholders as well as on the horizontal level in different policy and economic sectors. Participatory approaches have proven to be effective in BeWater in supporting the vertical and horizontal integration of actors.
- Participation of actors from different sectors or management levels requires advanced communication and increased transparency. The inclusion of stakeholders is a resource intensive process whose benefit is the enhanced quality, acceptance and ownership of the developed results.
- The BeWater project contributed to increasing stakeholder ownership and capacity that led to increased water-relevant actions being implemented as a result of stakeholder cooperation as well as to the leveraging of new funding sources.

Recommendations for water management authorities within Europe and beyond

Policy Brief no.4
January 2017
www.bewaterproject.eu



BeWater
Adapting to Global Change

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 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 balancing 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 10 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.

Final remarks



Local **societies** are aware of the impacts of global change and its challenges and they are willing to **contribute** to pursue the **solutions** and actively participate in **decision taking** processes.



Stakeholders involved in BeWater have **evaluated** the process and outcomes as being **very positive** and a great experience of multi-stakeholder dialogue in **participatory RB planning**.



Innovative **governance** practices are key for enabling adaptation strategies: concrete **measures** developed in RBAPs for this aim.



Stakeholders in the 4 CSs have taken **ownership** of the project results and many of them are **promoting initiatives** to pursue project outcomes after BeWater has ended.



Mainstreaming into policy development, plans and programs:

- WFD agenda
- Local action plans and regional strategies
- National and EU funded projects, e.g. LIFE
- Small scale projects, e.g. Municipalities
- Discussions at the Parliament
- Replicability to other sectors



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