

Tympaki river basin – Greece

- 265 km²
- Mountainous in the north, low-lying plain in the south; diverse climates
- Main land use: agriculture (90%); main water use: irrigation (95%)
- Water demand exceeds the supply, despite the Faneromeni Dam
- Vulnerability for aquifer overdraft, saltwater intrusion, poor groundwater qualitative and quantitative status



BARRIERS TO THE ADOPTION OF INNOVATIVE ADAPTATION POLICIES

Barriers

Rigid regulations



Example

The polluter–pays–principle and water–user– pay principle, stated in the Water Framework Directive, provide a conflicting and confusing framework which may exclude other beneficiary policies. The Regional /National Rural Development Program incentivizes traditional measures precluding transformative approaches

Limited institutional know-how on novel technologies and governance mechanisms precludes transformation



Subsidies to increase irrigation efficiency allocated to save water, despite much evidence showing the contrary. Gap in communication between institutions and water providers on the use of novel solutions and governance that promotes water efficiency. Institutions lack the technical background to use modelling and understand the results, limiting their capacity to make urgent decisions. Lack of a holistic contingency plan to deal with extreme flash floods and drought events.

Discretionary water allocation mechanisms



Lack of coordination between administrations to introduce innovative policies. Lack of know-how, funds, and specific regulation to implement innovative approaches.

Innovative solutions demand high return from investments hindering their implementation



Extensive paybacks periods and uncertainty about effectiveness of innovative solutions, such as NBS or insurance systems, limit their implementation

Decision-making and people's awareness are strongly influenced by personal beliefs (based on experiences, memories, group dynamics etc.)



River basin authorities are mostly made of hydrologists, who tend to support engineering approaches over soft/economic instruments; Farmers ignore how to use water deficit irrigation to deal with periods of drought; Use of innovative solutions (e.g. change crop cultivations) by farmers is limited by market uncertainties

Gaps in modeling



No micro- or macro-economic modeling

POTENTIAL INNOVATIVE ADAPTATION POLICIES

1. Implementation of deficit irrigation (despite reduction in profits/revenues) during dry years. **2. Transition to less water demanding agriculture, through greenhouses or new crops** (avocados, figs, olives, prickly pears, aloe, Hippophae). **3. Development of main Water storage infrastructure** (construction of planned reservoir) and of actions to save water according to NBS (e.g. artificial aquifer recharge, small dams). **4. Reduction of water losses/leakages** of pipeline system. **5. Improving the infrastructure of wastewater treatment plants** to meet quality standards for irrigation or artificial groundwater recharge. **6. Adjustment of the water pricing policy** so that the indiscriminate use of water leads to increased water prices (fines on overconsumed water eg. the price to double or triple). **7. Development of a holistic contingency plan to deal with extreme flash floods and drought events.** **8. Improving control over water users.**