



## Evaluating Economic Policy Instruments for Sustainable Water Management in Europe



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# Innovative EPIs for drought and scarcity management: the case of the Tagus and Segura interconnected river basins

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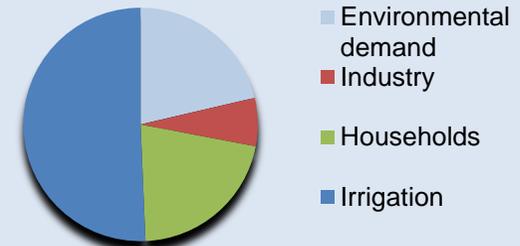
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# 1. A tale of two basins: Tagus and Segura interconnected river districts



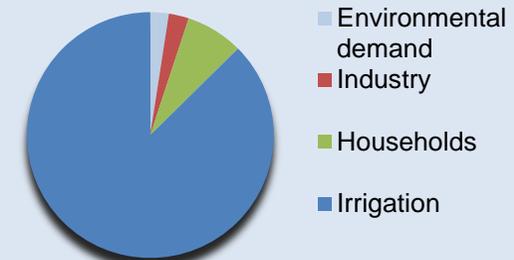
## Tagus river basin (TRB) (Tagus RBA, 2008):

- Area: 55 750 km<sup>2</sup> in Spain and 28 033 km<sup>2</sup> in Portugal
- Population: 7.2 million inhabitants (6 million inhabitants in Greater Madrid)
- Average renewable resources: 12 trillion m<sup>3</sup>
- **Water Exploitation Index: 0.22**



## Segura river basin (SRB) (Segura RBA, 2008):

- Area: 18 870 km<sup>2</sup>
- Population: 2 million inhabitants
- Average consumptive water use: 1.9 trillion m<sup>3</sup> (85% from agriculture)
- **Water Exploitation Index:**
  - 2003: 1.27
  - 2010: 2.3 – 2.71



## 2. The potential for drought insurance: irrigation, wealth and aquifer depletion

**Main hypothesis** > Illegal abstractions act as an informal insurance for irrigated land in the SRB. This scheme is neither fair nor sustainable.

**Proposal** > to create a formal insurance to replace the informal one in place

**What for?**

- *To stabilize farmers' income (as a means to...).*
- *To reduce incentives to overexploit groundwater.*
- *To reduce the enforcement cost of property rights.*
- *To transfer drought losses to the financial market rather than to the water environment (objective)*

**How? Method and design challenges:**

- Might this scheme be profitable? WTP to transfer risk vs. the Fair Risk Premium.
- How to deal with the challenges of asymmetric information and systemic risk?
- What role for the government and why?

### 3. Productivity gaps and water scarcity and droughts – the role of Water Markets

**Hypothesis** > Important potential gains from water reallocation do exist. This is based upon the evidence of differences in water productivity and efficiency gaps are equivalent. Water scarcity is endemic in some highly productive agricultural districts.

**How to take advantage of the existing opportunities?: A multi-level water trading scheme to:**

- Improve water allocation in highly productive areas.
- Create incentives to save water in low productive areas.
- Allow for interbasin reallocation (to improve allocation efficiency).

**What for?**

- To find opportunities to make production compatible with a better protection of the water resources.
- Making water trading work for the objectives of water policy.
- To increase water efficiency and water security.

**Challenges ahead?**

- Making transactions neutral or beneficial for the environment.
- Adapting institutions (defining, adapting, enforcing tradable rights).
- Broadening stakeholder negotiations (further than trading participants).
- Reducing transaction costs (information, bargaining, agreeing, contracting, etc.).

## 4. Overexploitation and idle desalination plants – the role of smart pricing

**Main hypothesis** > Current competition for cheap (but scarce and unreliable) water resources will result in reinforcing scarcity and aggravating drought risk.

**Potential solution** > Building a collective insurance strategy focusing on the financial sustainability of the whole water portfolio (introducing a water supply strategy).

### How? What EPIs?

- A security mark-up over the use of water in all uses to...
  - Guarantee the water supply portfolio) and allow non-conventional water play the role of buffer stocks in the short and medium term.
- A subsidy to the use of non-conventional sources in order to...
  - Replace freshwater, to allow for the recovery of groundwater sources and to let groundwater play the role of a buffer stock in the long run.
- A collective management fund (a public-private partnership) to...
  - Manage the entire scheme, to define priorities, to manage water trading.

### Challenges:

- > Internalizing the cost of water security.
- > Defining a role for the government.
- > Converting risk premiums into water prices.



# Thanks for your attention

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