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Economic instruments in water policy

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EPIs: Definition and theoretical benefits

- ▶ **Economic Policy Instruments (EPIs) for water policy** are *those incentives designed and implemented with the purpose of **adapting individual decisions to collectively agreed goals** (i.e. GES WFD).*
- ▶ EPIs can significantly improve an existing policy framework by **incentivising**, rather than commanding, **behavioural changes** that may lead to environmental improvement. They can have a number of additional benefits; such as:
 - ▶ creating a permanent ***incentive for technological innovation***,
 - ▶ **stimulating the *efficient allocation*** of water resources,
 - ▶ **raising revenues** to maintain and improve the provision of water services,
 - ▶ **promoting water use efficiency**, etc.



EPIs in existing European regulatory frameworks

- ▶ **EU Water Framework Directive (2000)** - *Cost recovery of water services through pricing* (Art.9)
- ▶ **EU Blueprint to Safeguard Europe's Waters (2012)** - *incentive water pricing, water trading and Payments for Ecosystem Services*
- ▶ **EU Action on Water Scarcity and Droughts (from 2007)** - *incentive pricing*
- ▶ **EU Floods Directive (2007)** - *uptake of green infrastructures and natural flood management by financially rewarding land managers and water users.*



Despite theoretical benefits, poor implementation of EPIs. WHY?

- ▶ Uncertainty about effectiveness
- ▶ Path dependency
- ▶ Transaction costs
- ▶ Heterogeneity of impacts
- ▶ Acceptability



4 Broad categories of EPIs

- ▶ **Pricing mechanisms** (*tariffs, charges or fees, taxes*)
- ▶ **Trading** (*exchange of rights or entitlements*)
- ▶ **Cooperative mechanisms** (*voluntary adoption of new practices*)
- ▶ **Risk-based mechanisms** (*insurance premiums, compensation levels*)



Classification of instruments (I)

Type of instrument		Definition	What can the EPI deliver for water policy?
Pricing	<i>Tariffs</i>	Price to be paid for a given quantity of water or sanitation service, either by households, irrigators, retailers, industries, or other users.	Encouraging technological improvements or changes in behaviour leading to a reduction in water consumption or in the discharge of pollutants. In addition, they generate revenues for water services or infrastructures.
	<i>Taxes</i>	Compulsory payment to the fiscal authority for a behaviour that leads to the degradation of the water environment.	Encouraging alternative behaviour to the one targeted by the tax, for example the use of less-polluting techniques and products.
	<i>Charges (or fees)</i>	Compulsory payment to the competent body (environmental or water services regulator) for a service directly or indirectly associated with the degradation of the water environment.	Discouraging the use of a service. For example, using charges in a licensing scheme may discourage users to apply for a permit.
	<i>Subsidies on products</i>	Payments from government bodies to producers with the objective of influencing their levels of production, their prices or other factors.	Leading to a reduction in the price of more water-friendly products, resulting in a competitive advantage with comparable products.
	<i>Subsidies on practices</i>	Payments from government bodies to producers to encourage the adoption of specific production processes.	Leading to the adoption of production methods that limit negative impacts, or produce positive impacts, on the water environment.



Classification of instruments (II)

Type of instrument		Definition	What can the EPI deliver for water policy?
Trading	<i>Trading of permits for using water</i>	The exchange of rights or entitlements to consume, abstract and discharge water.	Encouraging the adoption of more water efficient technologies. May improve the allocation of water amongst water users.
	<i>Trading of permits for polluting water</i>	The exchange of rights or entitlements to pollute the water environment through the discharge of pollutants or wastewater.	Encouraging the adoption of less water polluting technologies. Improve the allocation of abatement costs amongst water users.
Cooperation		Negotiated voluntary arrangement between parties to adopt agreed practices often linked to subsidies or offset schemes.	Encouraging the adoption of more water-friendly practices.
Risk management schemes	<i>Insurance</i>	Payment of a premium in order to be protected in the event of a loss.	Water users' aversion to risk and willingness to pay for income stabilisation. When properly designed, insurance premiums signal risk and discourage behaviours that increase risk or exposure
	<i>Liability</i>	Offsetting schemes where liability for environmental degradation leads to payments of compensation for environmental damage.	Liability as a means to incentivise long-term investments in water efficient devices.

5. Non-EU Ex- post case studies

Type of instrument

	Water tariff	Orange
Pricing	Environmental tax	
	Environmental charge (or fee)	
	Subsidies on products	
	Subsidies on practices	Light Green
Trading	Tradable permits for abstraction	Dark Green
	Tradable permits for pollution	Cyan
Cooperation		Blue
Risk schemes	Insurance	
	Liability	Yellow

CS22 Colorado, USA
 CS25 Ohio, USA
 CS26 New York, USA
 CS29 North Carolina, USA

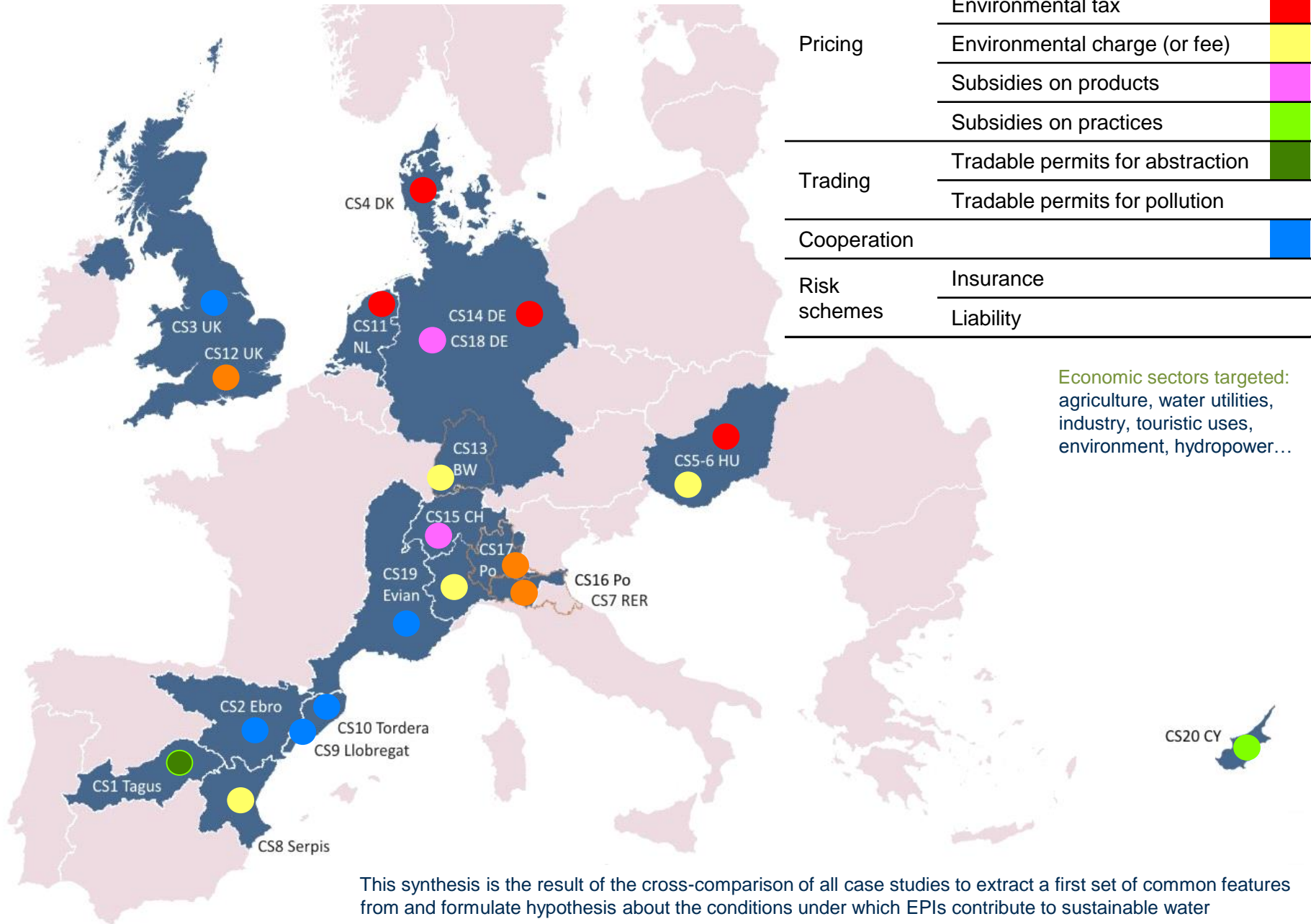
CS24 Israel

CS28 China

CS30 Chile

CS21 Australia
 CS23 Australia

4. EU Ex-post case studies



This synthesis is the result of the cross-comparison of all case studies to extract a first set of common features from and formulate hypothesis about the conditions under which EPIs contribute to sustainable water management



EPI- implementation for enhancing groundwater quality in Germany- The state of Baden-Württemberg (1/4)

- ▶ One of the wealthiest states
- ▶ Abundance of water
- ▶ Agriculture = main land user (45.7% in 2010)
- ▶ Energy = main water user (77%)
- ▶ Residence time in hydrogeological units: few years – couple of decades
- ▶ 19% of GW bodies classified at risk of exceeding 50mg/l threshold
- ▶ Main source of Nitrate = intensive farming





EPI- implementation for enhancing groundwater quality in Germany- The state of Baden-Württemberg (2/4)

- ▶ Legal reforms in 1986
 - ▶ Stricter Nitrogen norm for drinking water 90mg N/l →50mg N/L
 - ▶ Compulsary Compensation payment for restrictions of agricultural practice
- ▶ 1988
 - ▶ Introduction of schALVO, restricting agricultural practice in water protection areas & offering compensation to affected farmers
 - ▶ Introduction of Water Abstraction Charges
- ▶ 1992 MEKA program, compensation to farmers outside water protection areas



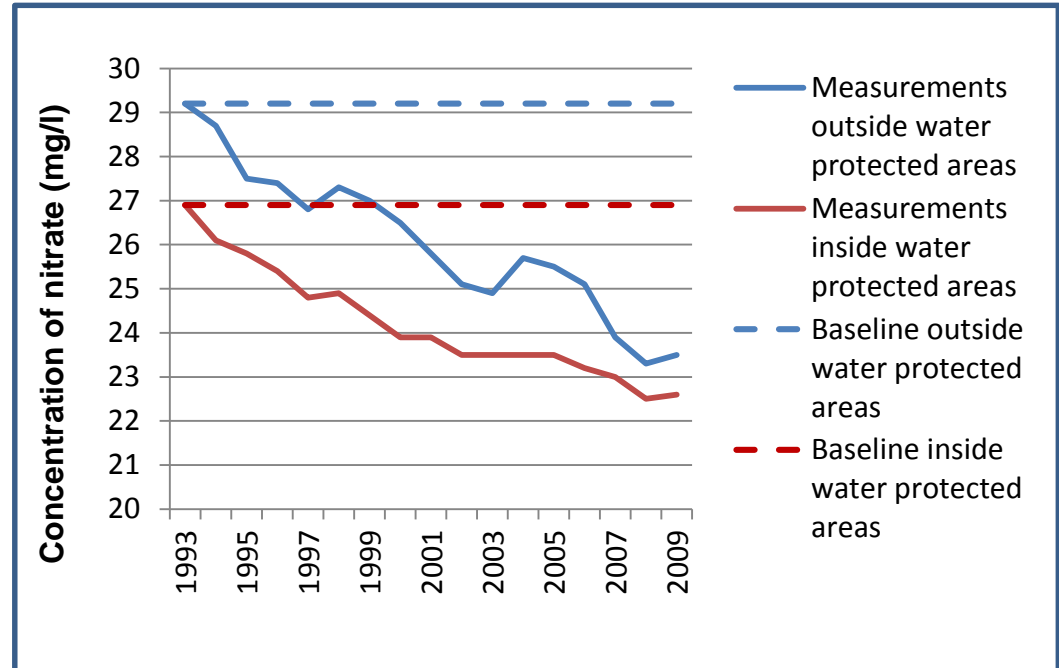
EPI- implementation for enhancing groundwater quality in Germany- The state of Baden-Württemberg (3/4)

- ▶ Adaptations of schALVO: Water protection areas increased over time (10% in 1985 – 25% in 2010), decontamination areas designated
- ▶ Total area in which MEKA measures were applied grew (50% → 96%)
- ▶ Adaptations of abstraction charges



EPI- implementation for enhancing groundwater quality in Germany- The state of Baden-Württemberg (4/4)

- ▶ ...schALVO and MEKA worked, but...
- ▶ Compliance issues (lack of monitoring and penalizing)
- ▶ Baseline data (dependent on monitoring network)
- ▶ Other factors influencing Nitrate level



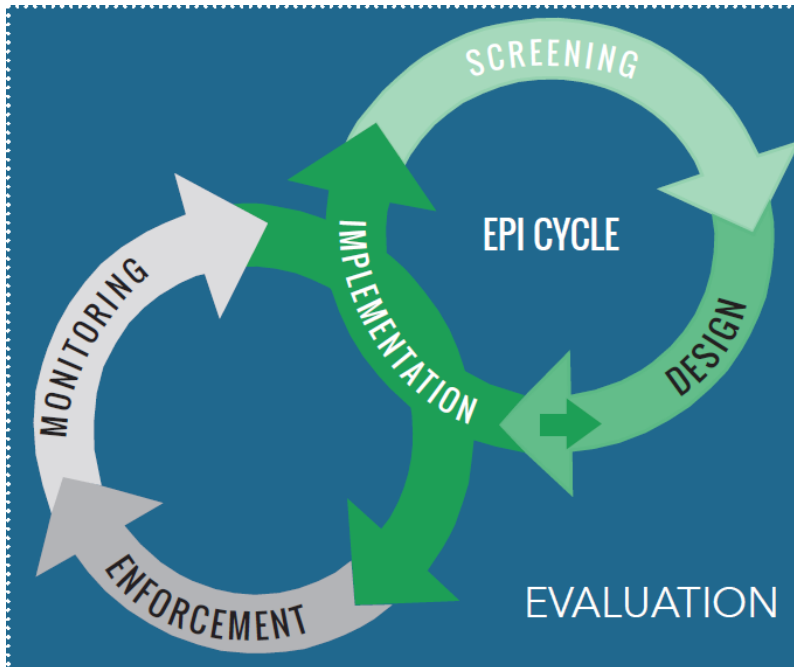


Some take away messages from current implementation of economic policy instruments in water

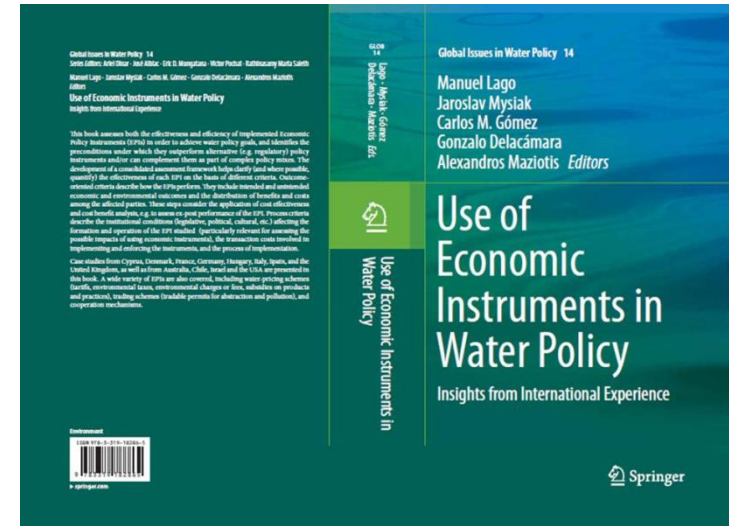
- **Transparency and accountability** in the implementation of Economic Instruments as a contribution to water governance and smart regulation
- ▶ **Economic instruments are not panaceas** nor one size fits all but adaptable solutions to current water challenges.
- ▶ **Economic instruments do not work in isolation:** but in **policy mixes** able to deliver water and all other water related policy objectives.
- ▶ **Water objectives are many:** and economic instruments do not perform miracles. One goal, one instrument can make a sensible approach
- ▶ **The importance of the institutional set-up** economic instruments cannot perform better than the institutional set up in place, but are powerful means to gradually improve water governance.



EPI water guidance document



- A step by step guidance through the design and implementation process
- A „toolbox“ of economic policy instruments, explaining policy objectives, beneficiaries, necessary preconditions and key steps for implementation



Lago, M., Mysiak, J., Gómez, C.M., Delacámara, G., Maziotis, A. (Eds.)

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