CEPS Task Force

Which economic model for a water efficient Europe?

Brussels, 5 March 2012

Water use in agriculture and industry: What experience with water efficiency and pricing?

Presentation by:

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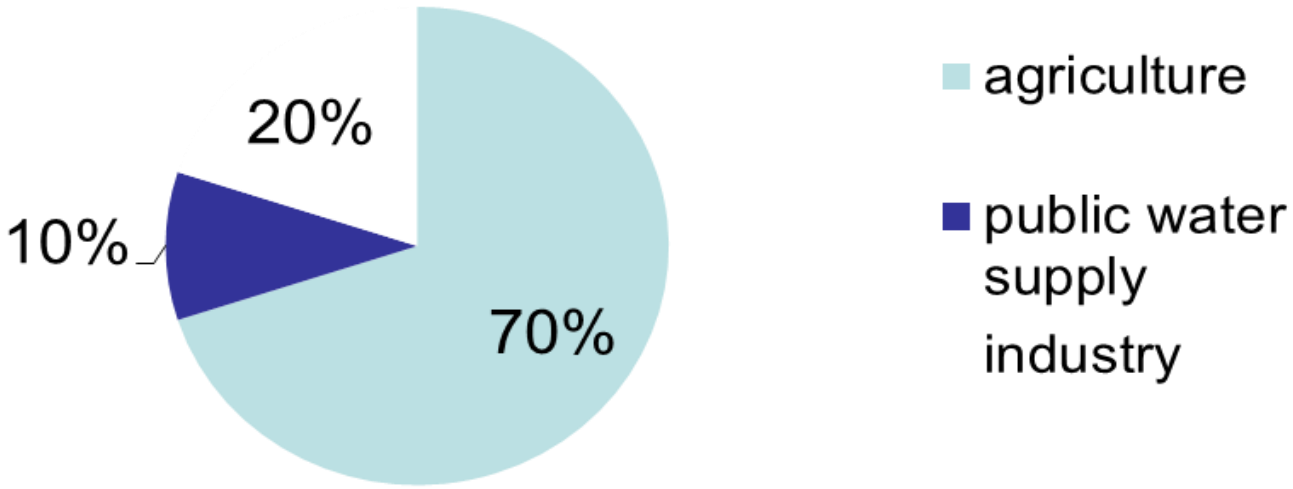
Water demand

Water demand

Global (Source: OECD.; 2011)



EU (Source: Lutter, S. et al.; 2011 & EEA; 2009)

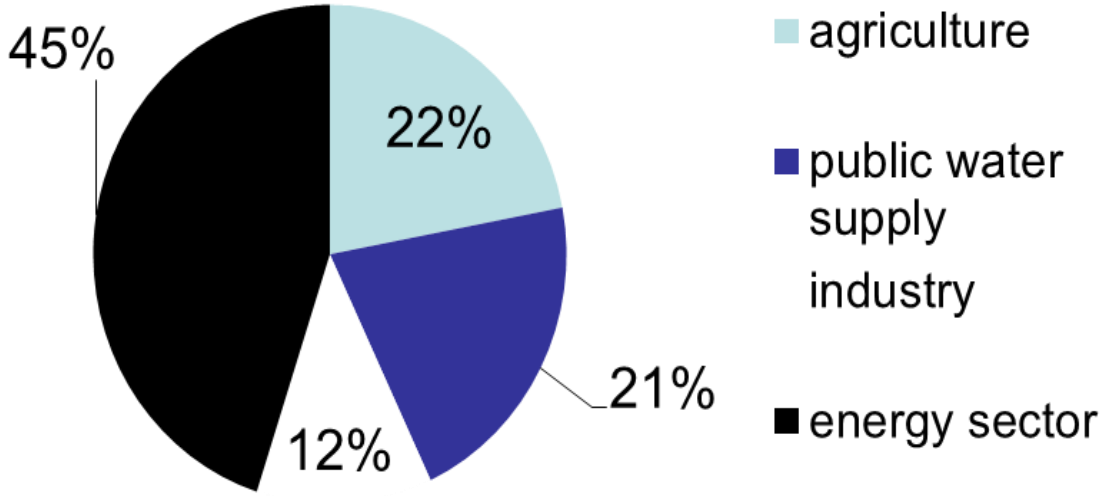
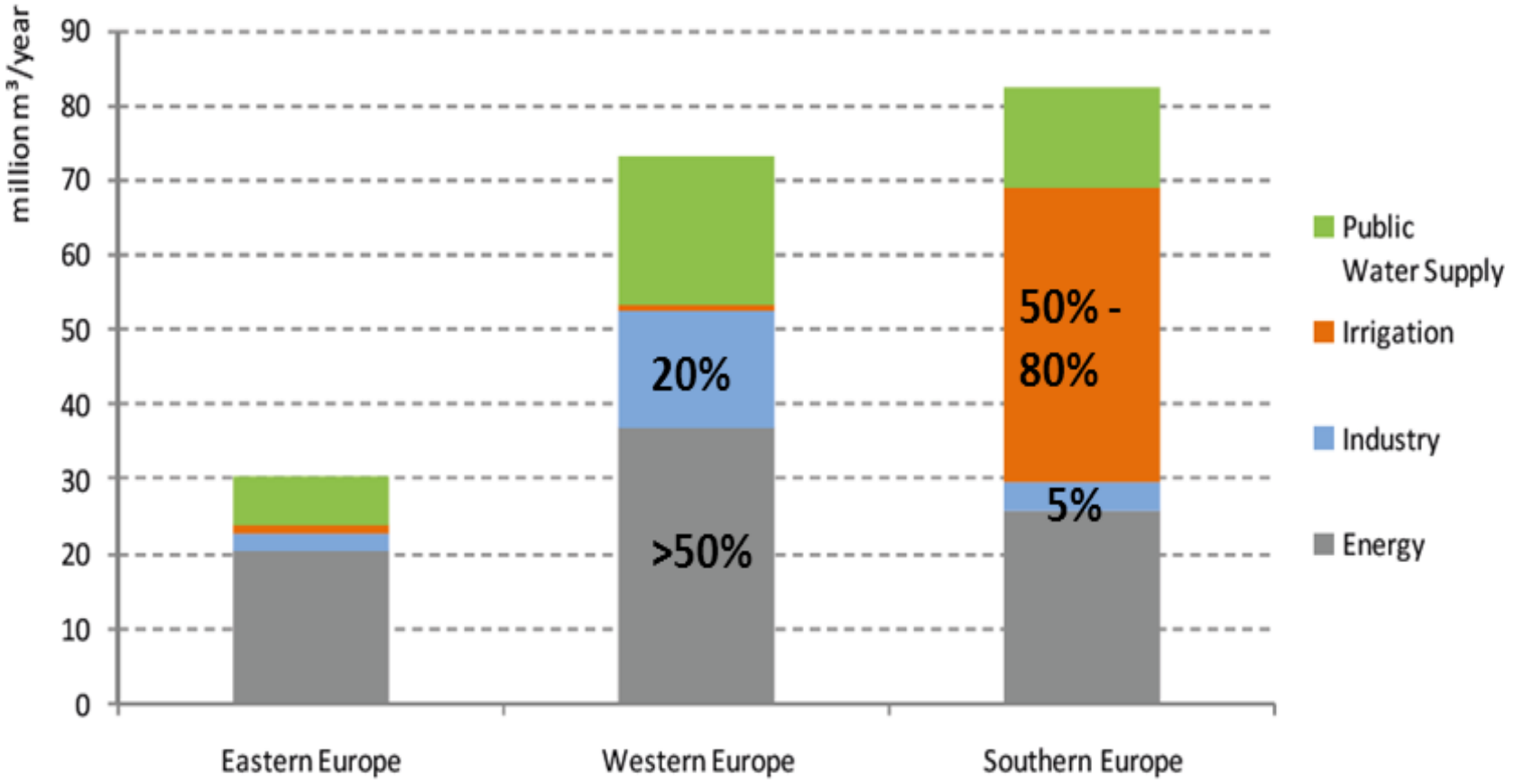


Figure 5: Water abstractions for different sectors in three European regions (million m^3/year) in the period 1997-2007 [vi]



Source: Lutter et al., 2011

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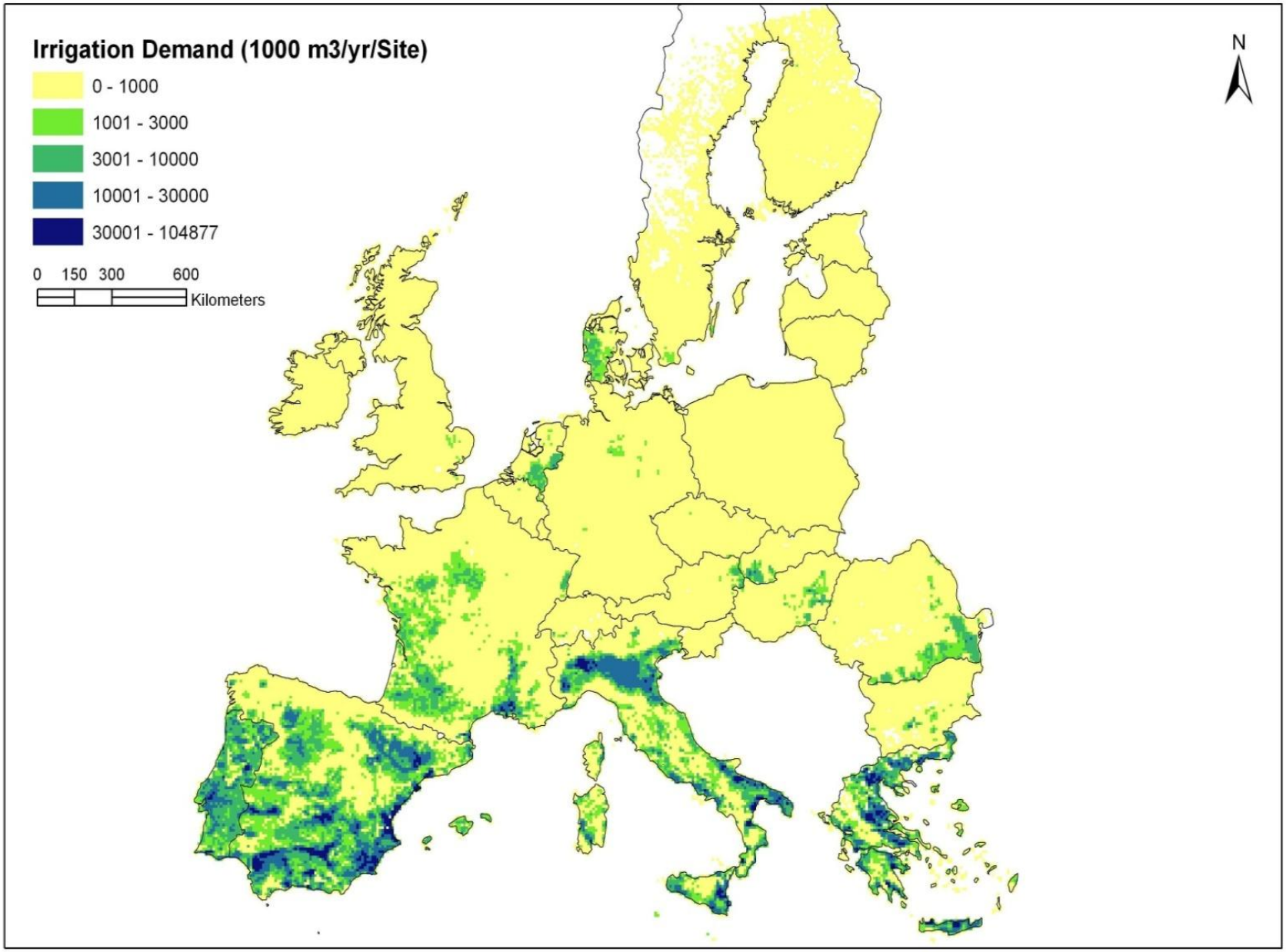

Source: JRC 2008

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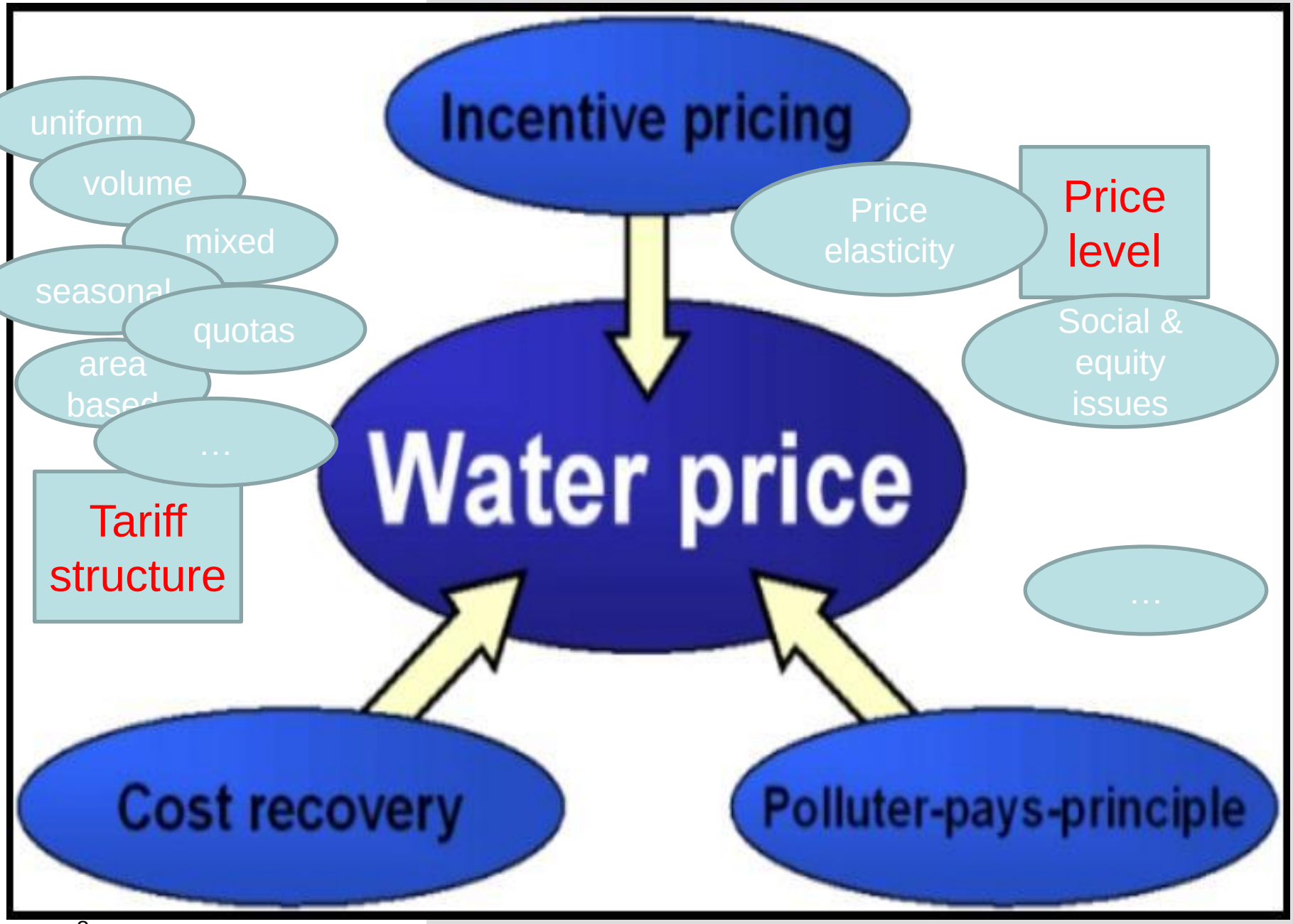
Abstraction in industry in EU

Stabilised/decreased since 1980s, a.o. because of:

- the general **decline** in water-intensive heavy industry
- due to **technical developments** such as:
  - on-site recycling of wastewater and reusing water
  - changing production processes
  - using more efficient technology
- prevention of **increased waste water charges** over time

Water Pricing



Source: adapted from Interwies et al., 2006

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Tariff structure: large heterogeneity

	Industry	Agriculture

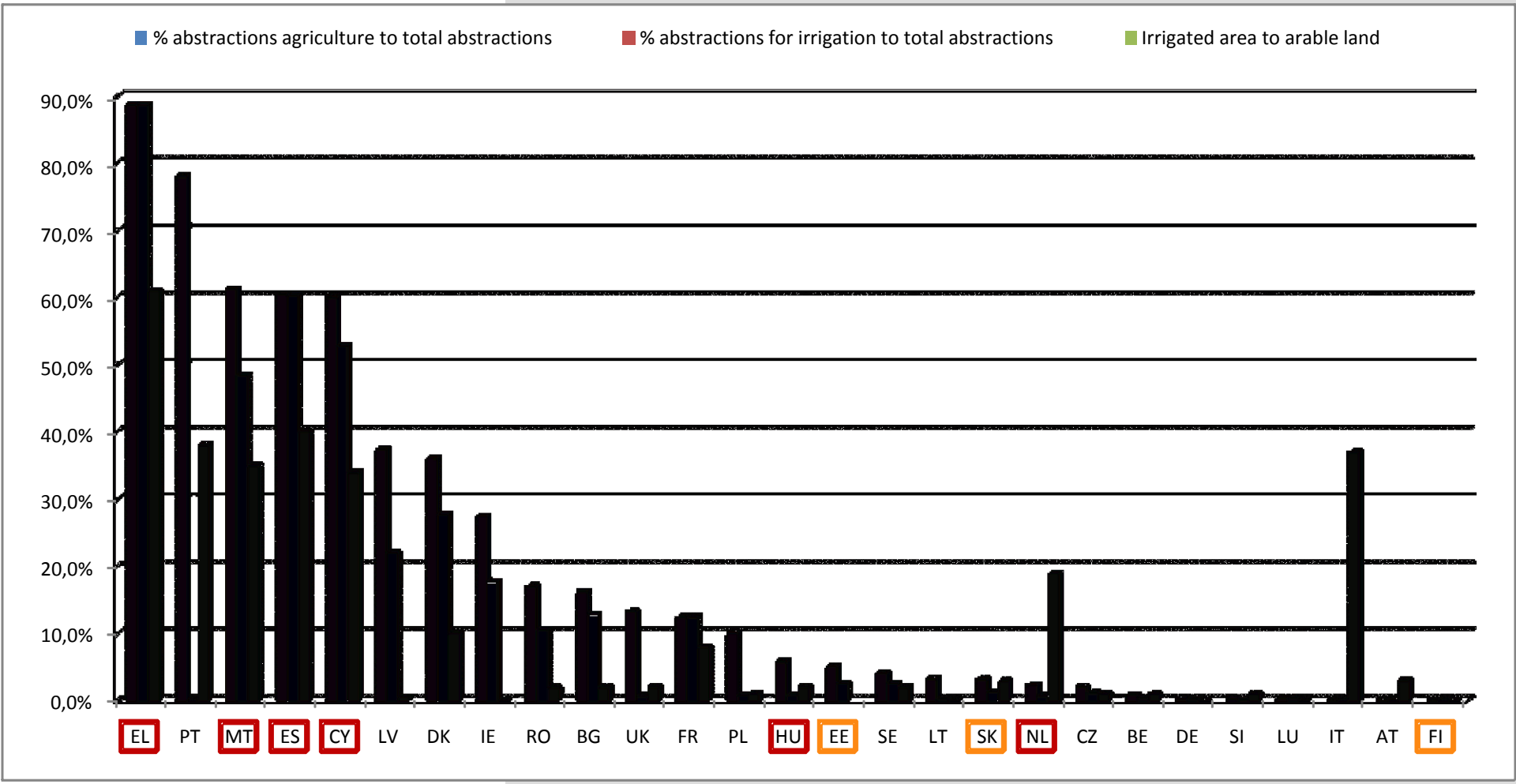
Self supply	• Volumetric
	• Flat or variable rate e.g. based on area of industrial estate
		• Free of charge
		• Volumetric:
		  • Usually /m³, per hour (capacity)
		  • Above threshold
		  • ≠ level and structure
		• In a few cases mixed tariff: volumetric + fixed (GW/SW) or area-based (SW)

Provision	• Volumetric • Fixed fee & volumetric (esp. Northern & Western E) • Decreasing block tariffs + fixed fee (esp. Western E e.g. B, FR, UK) • Increasing block tariffs + fixed fee (esp. Southern E)	• Volumetric still rare • Area based charge: BG, EL, FR (gravity fed), CY (small river systems), ES, IT, PL, PT • Mixed systems i.e. fixed per ha & volumetric (Northern & Western E)
Metering	Well developed	In development, essential for volumetric

Price level: large heterogeneity

	Industry	Agriculture
Self supply	• GW > SW • GW: 0.01 – 0.15 €/m³ (10 MS) • SW: 0.01 – 0.04 €/m³ (10 MS)	• GW > SW • Often well below 0.01 €/m³ • Some regions/RB have higher tariffs, esp. in case of limited availability • Free of charge
Provision	• Esp. pressurized drinking water • 0.55 - 2 €/m³ (10 MS)	• Esp. irrigation water • Modest level, e.g. 0.06 – 0.25 €/m³
Cost recovery	• Efforts made to increase cost recovery through tariffs • O&M costs of WSS generally covered • Limited margin for renewal investments • ERC/PPP through rel. high waste water charges (OECD, 2010)	• Large investment in irrigation infrastructure (also modernisation) often subsidised • For at least 30% of the MS, O&M costs for the provision of water are only partly recovered • Some MS working on including ERC (e.g. ES, CY) • Difficulty to internalise diffuse pollution costs (ARCADIS & al., 2012)

Self-supply: exemptions of pricing for agri or for irrigation



Source: ARCADIS et al., 2012

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Efficiency

	Industry	Agriculture
	Well developed (esp. driven by high waste water charges)	In development
Distorting factors	• Decreasing block tariffs • Low price elasticity	• Subsidies (rebound effect) • Per hectare flat rate tariffs • Illegal abstraction • Low price elasticity • Significant role of electricity prices
Stimulating factors	Esp. technological solutions • Reverse osmosis • Closed loop water recycling • Measures to reduce leakage • Etc.	Esp. managerial solutions • Deficit irrigation • Irrigation technology: drip, spray • Conveyance efficiency • Reduction of leakage in distribution networks • Daily water balance – crop requirements • Timing of irrigation • Drought resistant crops • Application of treated wastewater to agricultural land

Conclusions

Conclusions Industry

- Large heterogeneity in structure and level of prices
- Increasing waste water charges have stimulated technical developments, leading to decoupling in certain sectors
- Environmental water policy has been an incremental policy, so industry has been able to adapt to it over time.
- Decreasing block tariffs in e.g. Western Europe ≠ incentive pricing

Conclusions Agriculture

- Even larger heterogeneity in structure and level of prices
- Generally, a lack of incentive pricing:
  - Sometimes no charges (even in water stressed areas)
  - Low tariffs (often below 0.01 €/m^3)
  - Area based systems e.g. water intensive crops pay less

Conclusions Agriculture

- Good practices:
  - Volumetric tariffs: water intensive crops pay more
  - Pricing taking into consideration scarcity of the resource and/or volumes
  - (Penalty) charge for exceeding quota
  - Alternative water sources e.g. cheaper tariffs for treated effluent
- Metering = prerequisite to volumetric pricing!

Challenge of finding and introducing the ‘right price’:

- Step by step approach
- Specific temporal & spatial characteristics
- Without a substantial impact on farm income
- Providing incentives to conserve water
- Recovering a larger share of costs
- Not masked by subsidies

Further information

The role of water pricing and water allocation in agriculture in delivering sustainable water use in Europe

EC DG ENV 070307/2010/579624/ETU/D1

http://ec.europa.eu/environment/water/quantity/water_agri.htm

Thank you for your attention!

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