

Ecosystem services and water regulation

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Ecosystems




- Ecosystem: all living organisms in a given habitat. Human beings too.
- Clean water → decomposition of waste
- These services are not infinite, are not free but **are** vulnerable.
- **At danger:** worsening air/water quality (CO₂ 30% higher than in the 1800s), deforestation (bird species die out), desertation, over-fishing (66% of marine fishing), H1N1
- We are asking for more input from these types of services while the conversion into agricultural, industrial or residential use grows.
- ***Can only be saved if economic value is given and is enforced (paid by users) as agencies are allocating resources***
- **Question:** how to give a price tag to „nature“?

How much is an ecosystem related service worth?

- To whom? Net value or net benefits of intervention? Distribution of benefits?
- The ecosystem contributes to economic activities (GDP)
- The longer we can call back to ecosystem services, the lower their cost remains
- Plato (400 BC): deforestation leads to soil erosion → Daily (1997): concepts and theory of ecosystem services –World Bank, IUCN (1/2011): 4-step approach to valuation



Setting of the price tag: *regulatory intervention*

- As long as there is no market failure, all is ok (Market failure: markets do not reflect the full social costs/benefits of a service or good)
 - But *there is*
 - In order to keep costs low and benefits high, regulatory intervention is needed
 - Make ecosystem goods and services comparable with other incentives for regulation
 - Regulation must be sector-friendly, financially sustainable, politically manageable
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The price of ecosystem services I.



- Economic valuation offers a way to compare the diverse benefits and costs associated with ecosystems by attempting to measure them and expressing them in a common denominator—typically a monetary unit (WorldBank)
- As long as we know the ratio of demand–supply: price can be +/-reasonably set (demand grows as human population grows)
- Direct values (timber, food, water)
- Indirect values (flood control)
- May-be-values (or option value: premium value for future use)
- Existence values (cultural value)
- (Cultural value)

The price of ecosystem services II.



- The price closely related to the service
 - ! Negative externalities, Public good nature, Property rights
- What is the method to define the price?
 - Market prices, replacement costs, effect on production, priced ecosystem, experimental costing...
 - Difficult to set a general rule for all services, all environments, all occasions – *all* have pro's and con's

II. Water



Water, as an ecosystem service I.

- Most valuable eco-good/service (provisioning and supporting type of service) –*Input* service
- Contributes to the economy, but varies worldwide
 - England/Wales: \$100 invested in water services since 1989 (House of Lords, 2006)
 - Rest of the World: underperformed in investing
 - OECD, 2006: levels of investment and expenditure required for the proper provision of water services are substantial and growing
- The use of water for drinking and industrial purposes results in ever growing ecological footprints
- 2m tonnes of waste being discharged daily, polluting some 12000 km³ of receiving waters in 2003 (Cashman, Ashley)
- Water usage increased six-fold over the 20th century globally, twice the rate of world population growth.



Water, as an ecosystem service II.

- Urbanization, growing scarcity and competition for finite resources, „environmental inflation”, developing countries' needs: closing the water cycle
- EPA, IWA, OECD, Eurostat reports (to be spent on water services):
 - High Income Countries 0.35% to 1.20% of GDP
 - Middle Income Countries 0.54% to 2.60% of GDP
 - Low Income Countries 0.70% to 6.30% of GDP
- World Bank estimates: annually \$576.4bn to be invested in water services



Water, as an ecosystem service III.

- I. The price of water does not reflect all costs incurred during the abstraction, treatment, transportation and recollection of water.*
- II. Current pricing does not instigate lower consumption and moderated exploitation of water resources.*
- When setting the price (regulating):
 - Must understand science, Economics, Law, Politics
 - But: end of the day, somehow, someone must contribute to the preservation of ecosystem services



Water regulation in Europe

- There is a **mismatch** between water needs and availability in the MSs of the EU (Scandinavia –Mediterranean)
- Most of the water industry is **owned** by municipalities, with private companies contracting for service provision
- There is a **great difference among water regimes** in Europe, water extraction rights and final prices of water services. 
- It's because **liberalization** means different things. Regimes: Germany, France, England.
 - *Can homogeneous liberalization change this?*
 - *How can economic regulation of the water industry change the approach to water consumption?*
 - *Can the implementation of the water framework directive result in something tangible in this respect?*
 - ***Could water prices influence the ecological footprints?***

Timing of WFD

- „The Water Framework Directive sets out a clear deadlines for each of the requirements which adds up to **an ambitious overall timetable.**” (Commission’s website)
- WFD entered into force in 2000 (Art. 25.)
- Transposition in national legislation by 2003 (Art. 23.)
- Draft river basin management plans by 2008 (Art. 13.)
- Introduce pricing policies by end 2010 (Art. 9.)
- Operational programmes by 2012 (Art. 9.)



Challenges of water regulation in Europe

- January 2011: all member states of the EU should introduce cost oriented water pricing (WFD)
- Regulation must promptly adapt the cost based service pricing and the polluter party pays principle (PPP)
 - **Question:** how to insert the *cost of the environment*, the *value* of ecological services –i.e. the “polluter pricing” into the pricing



How to live up to the WFD implementation requirements?

- What is ineffective in this respect:
 - ad hoc static regulatory tools, inflexible taxes, temporary fines on polluting companies – one time direct payments,
 - long lasting court cases,
 - local governmental rights to deal with water distribution related issues
- Yet:
 - no solid judgment on how central, unyielding economic regulation of water services could positively influence ecological caretaking
 - No decision on unequivocal water rights treatment



Concluding remarks

- How to regulate?

- Economics serve as a good benchmark –but not a stand-alone solution (social, cultural, sanitary aspects)
- Policy makers must act promptly –and revisit their decisions regularly –*ex lex* is the worst
- Comparision of not only data but regulatory regimes is of utmost importance
- Regulation must be transparent, well-defined and enforceable

- Need to regulate wisely and immediately



„Obama's 7”

1. Ensuring access to quality water supplies is among the most pressing environmental policy challenges of the 21st century
2. A rightly supervised ecosystem contributes to economic activity
3. Economics, sector specific regulation and ecological goals must be matched and used one for the other
4. Business-like regulatory thinking is required –trading is a central Q
5. A firm shift towards water „marketing” ensures efficient allocation of resources, more sustainable water management, which could lead to better conservation of water.
6. Efficient pricing could better set true values for water
7. Decision makers must understand the importance of their role in this process (EP, EC, NatGov's)



Setting the agenda

- Implementation of WFD is at stake
- World Water Council – 2012, Marseille (Forum of Solutions)
- **What can the Presidency** do to move forward the controversial problems?
 - I) Adjust water policies (speed up)
 - II) Move towards market based pricing of water services AND minimize subsidies for water
 - III) Use competition law to identify market failure
 - IV) Identify regulatory and legal tools to move ahead