



Evaluating Economic Policy Instruments for Sustainable Water Management in Europe



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## The Effluent Tax in Germany

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### 1. Structure of the presentation

- Background and problem definition
- The policy mix – shifting the focus to EPIs
  - Components
  - German Federalism
- Environmental outcomes from the policy mix
- Analysis
- Uncertainty
- Conclusions



## 2. Background and problem definition

- Since 1957 all discharges required a permit (Federal Water Act)
  - Exceptionally high growth in pollution-intensive sectors in the post war (WWII) period → serious environmental problems
  - Construction of wastewater treatment facilities did not keep pace with rising effluent volumes
- Insufficient implementation of direct regulation, partly due to lack of capacity within governmental administrations
- Direct regulation failed to incentivize investments in effluent abatement



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## 3. The solution: The policy mix – shifting the focus to EPIs

- Discharge Permits (Federal Water Act, implemented in 1957)
- **Effluent Tax (Effluent Tax Act; implemented in 1976)**
  - Implements the “polluter pays principle”
  - Economic incentive to avoid or reduce harmful effluent discharges
  - Revenue earmarked for investments in water quality programs by *Länder*
- Discharge limits and technological standards (Waste Water Ordinance; implemented in 1997)



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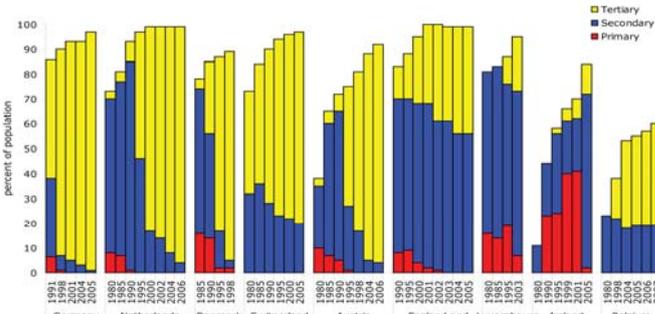
#### 4. Introduction of the policy mix: German Federalism

- Effluent Charges Act (1976) was passed as a framework law at federal level
- German *Länder* had to transpose this law into *Länder* legislation
  - Most *Länder* passed the law in 1981
  - Following German re-unification, the five new *Länder* transposed this legislation in 1991
- *Länder* had a certain degree of discretion when transposing the Effluent Charges Act



#### 5. Environmental Outcomes of the policy mix

- Change in behaviour
  - Reduction in wastewater development during production process, e.g. paper industry
  - Reduction of discharge of pollutants, e.g. chemical industry
- Upgrade of Germany's waste water treatment plants to state of the art – in 2007 93% of effluent underwent tertiary treatment

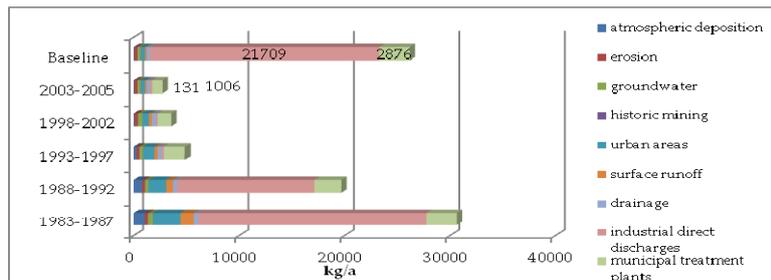


Source: EEA, 2010



## 6. Environmental Outcomes of the policy mix (con't)

- Decrease in pressures to water bodies
  - Overall quantity of discharges decreased by 3% (18% of private emitters)
  - Harmfulness of discharges decreased substantially:



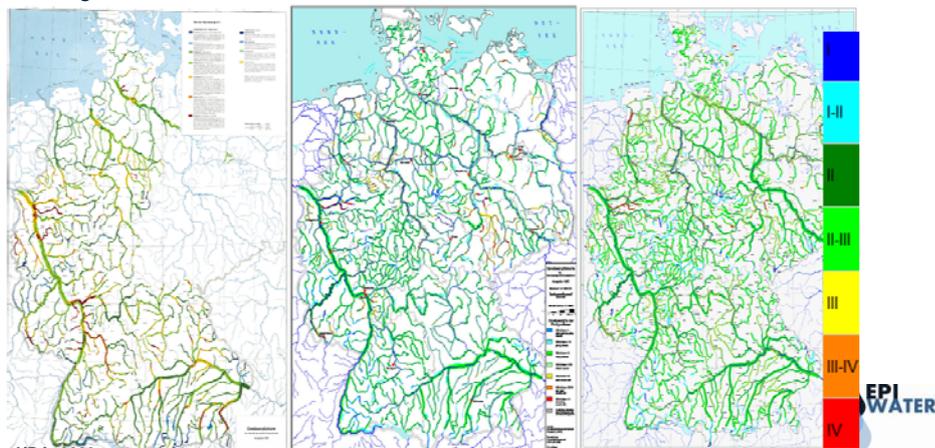
Source: UBA, 2010 and authors' estimation



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## 7. Environmental Outcomes of the policy mix (con't)

- Consequent lower pressures on water-related ecosystems
- Quality of Germany's water bodies improved substantially
  - 1995: 47% of water bodies in water quality class II (slightly burdened)
  - 2000: 65% of water bodies in water quality class II (slightly burdened)
  - BUT goal to achieve that all water bodies are classified as class II in 1985 failed



Source: UBA, 2009



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## 8. Analysis

- Effluent tax was set too low to fulfil its incentive function
  - Set too low at its introduction
  - No adjustments to inflation
  - Ignored steadily increased standards of BAT in Waste Water Ordinance
- Reasons can be found in the policy implementation process:
  - Dominant players, such as industry, rejected optimal design → political compromise
  - Administrative realities: lack of capacities and budget issues impacted EPI design to facilitate implementation



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## 9. Uncertainty

- Impact of entire policy mix can be analysed with high degree of certainty
- Difficult to discern partial impact of effluent tax as
  - Part of policy mix which had an overall objective
  - Potential interplay between instruments in the policy mix



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## 10. Conclusions

- Direct regulation alone failed to solve environmental problems
- Policy mix consisting of regulatory and economic instruments proved to be very powerful to address direct effluent emissions
- Incentives from effluent tax different for private and public emitters
- Revision of effluent tax required:
  - Tax rate needs to be increased to ensure incentive function
- Effect of effluent tax alone is difficult to single out



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