



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

WP4 Ex-ante Evaluation  
Ecosystem services &  
conservation  
Seine Normandie  
(France)

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- Three cases developed in the Seine-Normandie bassin:
  - Payment for environmental services schemes in the Bassée-Voulzie
  - Nitrate tax in the Bassée-Voulzie
  - Premium / for ecological continuity / hydromorphological restoration in the basin

# Payment for environmental services schemes

We consider a small area within the Seine-Normandy river basin facing three environmental issues : i) fighting against **diffuse pollution**; ii) **flood control** and iii) **biodiversity**.

Could **multi-services Payment for Environmental Scheme** contribute to the sustainable management of water in an integrative way ? One of the objective is to determine how the EPI could contribute to pool human and financial resources.

Although high transaction costs and institutions might represent barriers, PES schemes appears to be a good opportunity to give an extension to current agri-environmental measures (more flexibility in terms of spatial and temporal definition, higher level of incentive).

An **economic optimisation model** (bio-economic) is being developed to simulate how farmers might react to payments. Combining with an agronomic and an hydrological models, we will **assess environmental impacts** for nitrate pollution. Impacts on flood control and biodiversity will be approach through an digital elevation model and a scoring system respectively.

**Workshops with institutions and farmers** are done to discuss the **policy implementability, distributional effects and social equity** of the EPI.



# Nitrates tax in the Seine-Normandy basin

The Seine-Normandy basin faces **water quality issues**, especially diffuse pollution from agriculture (nitrates and pesticides)

The proposed instrument is a **tax on all fertilisers containing nitrates**. The tax is expected to influence the amount of nitrogen fertilisers used and **promote changes in agricultural practices** away from heavy input use, to reduce water nutrient loads.

The **acceptability** of such instrument remains a major issue. An analysis on a **smaller scale area** will enable to gather farmers' needs, constraints and strategies for a detailed analysis of their behaviour and the social acceptance of the tax

Assessing the impacts of implementing a nitrates tax will combine **economic, agronomic and hydrological models** in order to simulate changes in agricultural practices and their impacts on nitrate concentration in water surface and ground water. **Workshops with institutions and farmers** are done to discuss **the policy implementability, distributional effects and social equity** of a nitrates tax.

To go further in the analysis, we propose to assess the implementation of a nitrates tax **combined with payments for environmental services** as a suggestion to overcome some limits of the nitrates tax.



# Premium for ecological continuity / hydromorphological restoration

- **Main issue:** the cumulative effect of the succession of small/micro hydropower plants on ecological and sediment continuity of rivers
- **Proposal:** Premium / for ecological continuity /hydromorphological restoration in the feed-in tariff /price of electricity paid to producers. Rising the electricity price per kW over a given period to incentive operators to invest in in ecologically related infrastructure
- **Challenges:**
  - Methodological: We are using choice experiment to elicit preferences of operators (premium, conditions) with a survey
  - Methodological: Difficulty in estimating the environmental impacts
  - Implementability: Nation wide scope, has to involve both water and energy regulators and the parliament,



**Thanks!**

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