Funded by the European Union

UK Research and Innovation

INBO International Network of Basin Organizations

# Webinar: Economic Instruments for Resilient River Basin Management

## 26 February 2026 | 10:00 am CET | English

*Replay*

## Questions & Answers

**1. Many presentations focus on instruments to address water scarcity (droughts etc.). But what kind of policy instruments, including economic ones, can you recommend to minimize the floods risk and damage?**

A combination of complementary approaches is needed to effectively reduce flood risk.

**Land-use planning and prevention** are among the most effective long-term measures. Restricting construction in flood-prone areas and applying zoning regulations can significantly reduce exposure to flood hazards.

**Infrastructure investments** also play a key role. These include both grey infrastructures (such as dams, reservoirs, levees, and diversion channels); and green measures (including floodplain restoration, wetland recovery, reforestation, and river re-meandering). The green measures (nature-based approaches) slow down water flows, increase retention capacity, and reduce flood peaks.

**Economic instruments** can complement these measures by signaling risk and creating incentives for risk-aware behaviour. These include pricing mechanisms, insurance schemes, and compensation systems that signal flood risk and encourage preventive action.

Recent policy responses illustrate this integrated approach. For example, following extreme floods in Valencia (Spain), the Spanish government launched a large recovery and reconstruction programme including investments in improved early-warning systems, climate-resilient infrastructure ((better drainage networks, retention basins, and flood diversion channels, as well as fortifying riverbanks and flood barriers).

Additional insights and case studies on flood management are also available through the RETOUCH NEXUS project: https://retouch-nexus.eu/.

**2. How were Environmental and Resource Costs (ERC) estimated in the Italian and German case study? What impacts did this have on tariffs?**

In the **Italian case study,** two complementary approaches were used:

- Estimating the costs of implementing biodiversity protection and nature-based measures, based on existing literature, rural development plans in Italy. Both capital and operational costs were considered, with maintenance projections over a 20-year period.
- Assessing public willingness to pay through surveys among water users in the Middle Brenta area, to understand what would be their reaction if there would be a rise in water tariff. The results indicated that the willingness to pay for improved ecosystem protection was higher than the tariff increase required to finance the measures. In the website of the Parco Fuma Brenta Initiative you can find out more.

Detailed modelling results for the **German case study** are currently being prepared for a scientific publication. https://retouch-nexus.eu/results/#deliverables)

**Estimating environmental and resource costs remains a complex challenge**. After more than 25 years of implementation of the EU Water Framework Directive, there is still no universally accepted methodology across EU Member States. Environmental costs—such as the ecological value of biodiversity in a river — are inherently difficult to quantify. Estimates depend heavily on methodological choices, system boundaries, and assumptions. Different research teams may therefore produce significantly different results. In addition, willingness-to-pay (WTP) studies measure public preferences rather than the objective ecological value of ecosystems.

Two papers suggestion: 1) Brouwer, et al (2010) Spatial preference heterogeneity: a choice experiment. Land Economics, 86(3) illustrates spatial heterogeneity in preferences, reinforcing the idea that WTP reflects subjective variation rather than objective environmental cost. Berbel & Expósito (2020). The theory and practice of water pricing and cost recovery in the WFD. Water Alternatives, 13(3), 659-673, analysis 20 years of WFD application.

In practice, some experts suggest focusing less on identifying a precise value and more on providing an **order-of-magnitude estimate**. Using several valuation methods and presenting a range of possible values can already provide useful guidance for river basin managers when assessing investments aimed at improving ecological status.

**3 How are consumers reacting to additional tariffs reflected in water prices? Were surveys or consultations conducted? Is there a risk of exceeding acceptable affordability thresholds?**

In the **Italian case study,** public acceptance was assessed through contingent valuation surveys conducted among residents in the study area. These surveys estimated citizens' willingness to pay for improved ecosystem protection and water management

measures. Beyond surveys, the governance model supporting the tariff mechanism was developed through extensive stakeholder engagement, including workshops and consultations with public authorities, civil society organisations, and local stakeholders. These discussions contributed to a governance arrangement in which the regional government of Veneto assigned the management of the Natura 2000 site to the River Basin Council.

In the **German case study**, the analysis focused on modelling a potential water pricing mechanism for agriculture water use in the Oberfranken region, where agricultural water use has historically not been priced. Consultations were carried out in collaboration with local stakeholders, policymakers and farmers' organisations. Introducing water charges in such contexts can be politically sensitive, as users may be reluctant to pay for a resource that was previously free of charge.

**In Spain,** a different approach was explored through the development of a dynamic water tariff that adjusts prices according to water scarcity levels. Such scarcity-responsive tariffs help reflect the real economic value of water during drought periods and encourage more efficient use. The pricing model was developed through consultations with water authorities and stakeholders in the Júcar River Basin to ensure institutional feasibility. Water pricing policies in Spain are implemented within a regulated framework that involves consultation with basin authorities, utilities, and other stakeholders, helping ensure that tariff reforms remain socially and institutionally feasible.

Some experts suggest that, instead of attempting to precisely monetize environmental damage, a more robust approach is to:

- Establish clear environmental standards (e.g., treated wastewater must return to the system at a quality at least equivalent to the abstracted water quality).
- Require full financing of mitigation and restoration measures;
- Incorporate these costs directly into user tariffs.

Under this model, water users effectively internalize environmental costs by financing the infrastructure and ecosystem restoration needed to protect water resources.

Thus, regulatory standards and mandatory corrective investments may be more effective than attempting to embed highly uncertain environmental valuations into tariffs. This is the 'classic' model suggested by Baumol & Oates (1971) "The use of standards and prices for protection of the environment". In Bohm and Kneese (Eds), *The economics of environment*, pp. 53-65. Macmillan.

Finally, willingness-to-pay studies can be useful for identifying public interest in environmental improvements and the perceived importance of water management policies. However, many experts caution against using WTP values directly for price-

setting. Instead, they are better interpreted as indicators of public support and as approximate estimates of the perceived benefits of improved water management.