

## Iberian Trans-boundary Water Management (IB-TWM): experiences from the past and approaches for the future

Aquatic, coastal and marine ecosystems are increasingly affected by point and diffuse source water pollution originating from rural, urban and industrial land uses in river basins, even though these ecosystems are of vital importance from an environmental, social as well as an economic perspective. Sustainable development of coastal regions requires Integrated Catchment and Coastal Zone Management (ICCZM), thus specifically acknowledging the inherent relationship between river catchment land use, water pollution, ecosystem state and associated environmental values.

In the development and implementation of catchment management plans for sustainable development through water quality improvement, we need to differentiate between intra and trans-boundary river catchments as benefactors and beneficiaries from water quality improvement are not in all cases one and the same. This notion is specifically addressed in the 1999 sustainable trans-boundary catchment water management convention between Spain and Portugal (RAR n<sup>o</sup> 66/99) as well as in the EU Directives 2000/60/EC and 2006/118/EC.

While approaches for water quality planning and management in linked catchment and coastal ecosystems are fairly recent though existent, water quality planning and management in trans-boundary catchments poses additional scientific and managerial challenges. In international river catchments the issue of water pollution control and management poses additional complexity as benefits from water quality improvement typically accrue to one nation while the costs are paid by multiple nations. Consequently, regulations, institutional arrangements and economic incentives can be used to internalize these beneficial spill-overs from water quality improvement such that market behavior could lead to sustainable, social welfare maximizing outcomes.

The IB-TWM project proposes to develop and apply an integrated approach that supports decision makers in the exploration of social welfare maximizing water quality targets as well as in the (cost-) effectiveness assessment of instruments that facilitate the achievement of these targets, thereby comparing the situation of intra and trans-boundary river basins in linked catchment and coastal ecosystems. This project focuses on river basins in the Iberian peninsula, with case studies for the Vouga (intra) and Minho (trans) river catchments. This focus covers the prevalent river catchment governance structures in the Iberian peninsula as well as Europe, leading to a tailored planning and policy support approach for each of these governance structures while allowing to build on complementarities between them. The IB-TWM project is developed through a collaboration between the University of Aveiro, the University of Coimbra, and the Central and Northern Regional Hydrographical Authorities.



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