



Economic Benefits of Improved River Basin Management

Interdisciplinary team of researchers defined a set of measures to reach a good ecological status of EU water bodies by 2015. The socioeconomic analysis of the proposed measures revealed that their benefits will significantly outweigh the costs.

Improving the quality of European water bodies is the main goal of the EU Water Framework Directive. For its successful implementation it is important to integrate ecology, economy and equity in management of European river basins. In this context, it is crucial that researchers, authorities and stakeholders share information on measures to be taken and to be as clear as possible about their costs and benefits.

A recently achieved German project provides a good example of an interdisciplinary, integrative approach to river basin management. Its objective was two-fold. The first one focused on planning measures to reach good ecological status of the Werra River Basin (central Germany) by 2015. Secondly it assessed hydrological and ecological consequences of the planned measures as well as their relative costs and benefits.

According to ecology and hydrology experts the potential measures to reach good ecological status include:

- improving morphology and continuity within the basin,
- reducing diffused emissions of nutrients from agriculture
- reducing immisions from point sources through improved wastewater treatment.

The costs for combined packages of measures from all fields (agriculture, point sources, morphology, continuity) were consequently evaluated by the economists. For the total basin catchments, the estimated costs lie between -56 and -102 million € for the next 20 years, and between -70 and -149 million € for the next 50 years. The shares attributable to the different fields are: agriculture, 39–79%; point sources, 5–17%; morphology, 10–29%; and continuity, 6–17% of total costs.

On the other hand, the corresponding value of the benefits ranges between +150 and +197 million € (20 years), or +294 and +388 million € (50 years). These values reflect the benefits arising from the maintenance and improvement of biodiversity, recreational benefits, and the indirect use benefits derived from the nutrient retention capacity of buffer strips.

In conclusion, the resulting benefit-cost-ratios lie between 1.4:1 and 5:1. That means that every strategy outweighs its costs by its benefits, some strategies by far. For instance the possible benefits associated with gains in biodiversity and recreational uses are up to five times higher than the calculated costs.

The results of the Werra Basin Project indicate that the good ecological conditions will not be obtained for free, but on the long run, the benefits of the proposed measures will importantly surpass their costs.

Source: Hirschfeld J, Dehnhardt A., Dietrich J. (2005) Socioeconomic analysis within an interdisciplinary spatial decision support system for an integrated management of the Werra River Basin, *Limnologica* 35, 234–244.

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