

Economic Evaluation: A Pilot Study in the Upper Spree Region



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Methods

IMA forms the methodological framework for GLOWA-ELBE (Fig. 1).
Step 1: Identification of development scenarios as combinations of social-environmental development trends(A) and policy strategies(B).
Step 2: Establish indicators and criteria for the measurement and evaluation of each development scenario's effects on water users.
Step 3: Determine development scenarios' effects using *WBaIMo*.
Step 4: Evaluation of effects with decision-makers and stakeholders.

Step 2: Indicators

Interviews and expert discussion groups were employed to define indicators and criteria to measure the effects of these scenarios.

Subject	Indicators	Evaluation Criteria
Water use	Current available amount of water	Net benefit
Water dependent sectors	Costs & benefits, net benefits	Mean water availability (m ³)
Ecological functions	Ecological min. streamflow	Fulfillment of water demand (%), industry
Employment	Number of employees	Fulfillment of water demand (%), ecol. min. streamflow

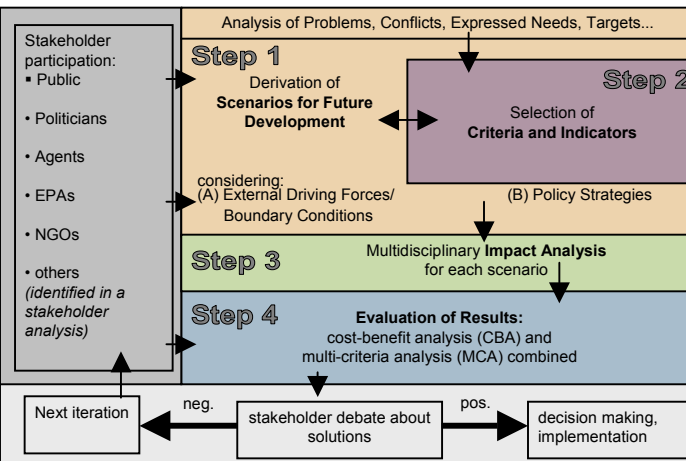
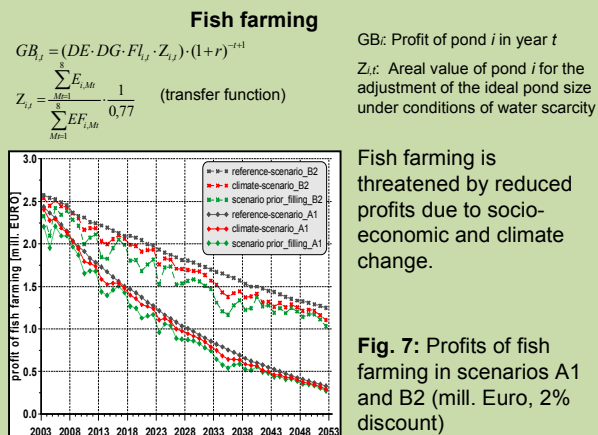
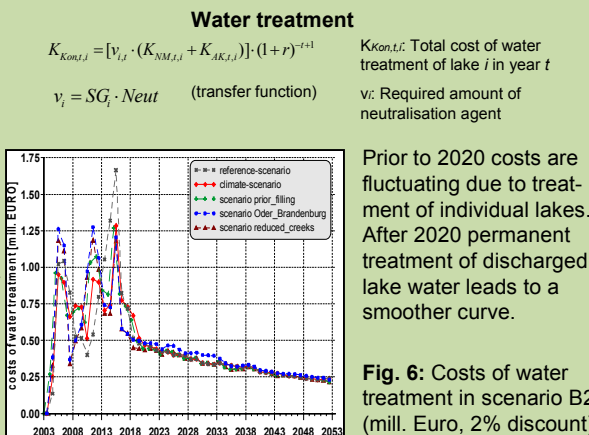


Fig. 1: Integrative Methodological Approach (IMA)

Step 3 and 4: The major research effort focused on integrating evaluation functions directly into *WBaIMo*. Transfer functions were used where results from *WBaIMo* were not directly compatible with the economic evaluation process. The economic valuation refers to different policy strategies in the context of two possible future development scenarios: Globalisation (A1) and Regionalisation (B2).

Evaluation & transfer functions

Modelling results



Step 4: Preliminary Evaluation Results

The five strategies (Step 1) were evaluated using the criteria described in Step 2. Although these results are preliminary they suggest that the current basic strategy performs worse than the others. GLOWA-ELBE II will reveal which strategies are considered best for the Elbe. The evaluation step of IMA will be improved by including stakeholders' and decision-makers' preferences in the MCA process.

Scenarios	Net benefit (mill. €) fish farming	Rank	Net benefit (mill. €) water provision	Rank	Net benefit (mill. €) water quality	Rank	Net benefit (mill. €) Tourism	Rank	Fulfillment of water demand, industry [%]	Rank	Ecol. minimum streamflow [%]	Rank	Spreevald [m ² /s]	Rank	Berlin [m ² /s]	Rank
Climate scenario	0	3	0	4	0	3	0	5	86,4	3	96,9	3	12,1	3	18,3	4
Prior Filling	-3,73	5	13,6	2	-0,61	5	13,3	1	81,3	5	98,0	1	12,4	2	18,6	3
Reduced creeks	-0,04	4	41,5	1	-0,02	4	2,78	3	86,4	3	96,9	3	12,0	5	18,2	5
Oder BB	0,17	1	<-1,1	5	0,92	1	3,21	2	87,0	1	97,1	2	12,5	1	18,7	2
Oder Berlin	0,09	2	< 0,74	3	0,30	2	0,06	4	86,6	2	96,9	3	12,1	3	18,9	1

Fig. 8: Impact matrix for scenario A1 (globalisation), 2% discount

Messner, F., Kaltfofen, M. (2004): *Nachhaltige Wasserbewirtschaftung und regionale Entwicklung – Analyse und Bewertung von Szenarien zum Wassernutzungskonflikt im bergbaubeeinflussten Einzugsgebiet der Oberen Spree*, UFZ-Report 1/2004, Leipzig, Dresden and Cottbus, 95 pp.

Messner, F., Zwirner, O., Karkuschke, M. (2004): Participation in Multicriteria Decision Support for the Resolution of a Water Allocation Problem in the Spree River Basin, *Land Use Policy* (in press, available online).



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