

## Are disproportionate costs of the WFD an issue? A screening in Denmark

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### Abstract

EU's water framework directive (WFD) is implemented as an instrument to obtain good ecological status in water bodies of Europe. The directive recognizes the need to accommodate social and economic considerations to obtain cost-effective implementation of the Directive, and at the same time it is possible to claim exemptions from the objectives if costs are disproportionate. One interpretation of "disproportionate costs" is that costs exceed the benefits from fulfilling the WFD. The paper addresses whether the costs of achieving good ecological status in Denmark may be disproportionate, and demonstrates a methodology to assess the disproportionate costs based on Cost-Benefit Analysis (CBA). Specifically, we propose to use a screening procedure based on a relatively conservative CBA as a first step to identifying areas where costs could be disproportionate, and apply this approach in a total of 23 water catchment areas in Denmark where costs and benefits are estimated for each of the areas. The cost estimates include costs in relation to diffuse pollution (agriculture), and urban wastewater. The benefit assessment is based on stated preferences from a Choice Experiment survey that was conducted in one of the catchment areas with the specific purpose of generating value estimates that could be transferred to other areas. Hence, benefit transfer from this study site was used to assess the benefits in the remaining 22 catchments. In order to support and validate the main findings from the 23 CBAs, a sensitivity analysis is conducted where costs and benefits are assessed in a less conservative way, i.e. with emphasis on the uncertainty of the net benefits, as recommended in CBA's. The results in terms of net present value for each catchment from the conservative approach suggest as a preliminary indication that costs could be disproportionate in several Danish water catchment areas. The sensitivity analysis further helps to pinpoint two or three areas where we suggest that more detailed and precise CBAs are needed in order to properly ascertain whether costs are indeed disproportionate.

**Keywords:** Screening procedure, Disproportionate costs, Water Framework Directive, Cost-Benefit Analysis, Benefit transfer

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