Abstract

A practical method for justifying less stringent environmental objectives according to the EC Water Framework Directive with disproportionally high costs

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Summary

The European Water Framework Directive (WFD) generally pursues the ambitious goal of good status for all European Waters but allows "less stringent environmental objectives" if the costs for reaching the goal are disproportionally high. This exemption bears the danger of watering down the ambitions of the directive if abused. Currently no transparent, well-established, universally applicable method for testing disproportionality exists. That is why the authors developed such a method for surface water bodies. The proposed method combines both interpretations of disproportionality – affordability and cost-benefit assessment. Its core idea is to determine a water-body specific disproportionality threshold which is then compared to the projected costs for achieving good ecological status. The method was empirically tested for a river in the German federal state Rhineland-Palatinate. Due to moderate data requirements it is directly applicable in all German federal states and, generally, also in other EU member states.

Introduction

The European Water Framework Directive (WFD) pursues the ambitious goal to bring all European Waters into a "good ecological status" by 2015, the latest by 2027. As a matter of fact, however, only 18% of German surface waters and less than 50% of European surface waters will reach that goal by 2015 (BMU 2012, EEA 2012). For all water bodies that presumably will not achieve the objective by 2027, the member states have to define and justify "less stringent environmental objectives" within the exemption regime by 2021. There is a catalogue of possible reasons for that, in particular "disproportionately high costs".

Disproportionality according to the WFD generally means that costs for potential measures to achieve the objective are too high (i) in relation to the financial capacity of the public or private subjects that have to bear the costs (affordability), or (ii) in relation to the positive effects, i.e. the generated utility of the measures (cost-benefit assessment) (Klauer et al. 2007). A thorough review of existing studies, documentations and publications has revealed that currently no well-established, universally applicable method for testing disproportionality in the sense of the WFD exists in Europe.

Method

Against this background the authors developed a suitable and universally applicable method for testing for any specific surface water body whether less stringent environmental objectives can be justified with disproportionally high costs. This method considers both, the financial capacity and the utility generated by imposing measures, as yardsticks against which to determine whether costs can be judged to be disproportionally high or not. Also, the method features considerably lower data requirements compared to, e.g., a full-blown cost-benefit analysis.

The core idea of the method is to determine a specific disproportionality threshold for a water body which is then compared to the projected costs for achieving good ecological status of this water body by 2027. Starting point for determining the disproportionality threshold are past public expenditures for surface water protection. Such expenditures can be interpreted as a criterion for the financial capacity of the state to invest into water protection also in the future, i.e. in the period 2021-2027. Data on past public expenditures for water protection over some period of time are normalized with respect to the catchment area of the water body in question. The resulting figure is marked up by some factor depending on the generated utility (regarding the water body itself and beyond) by bringing the surface water body in question from the current to a good ecological status.

The method comprises five steps.

1. Step: Identification of water bodies to be checked for (dis-)proportionality of costs
2. Step: Calculation of nationwide past average state expenditures for water protection.
3. Step: Calculation of water-body related cost thresholds for disproportionality
4. Step: Estimation of water-body specific costs to reach good status
5. Step: Comparison of costs and threshold and appraisal of (dis-)proportionality

Results

The method was so far empirically tested for a river consisting of seven surface water bodies in the German federal state Rhineland-Palatinate. The result was a clear statement that reaching the objective of a good status (or of a good ecological potential in case of Heavily Modified Water Bodies) would be disproportionally expensive. The data needs have been moderate. The data necessary to calculate the cost thresholds stem mainly from the environmental-economic accounting of the German Federal Statistic Office and the monitoring program which is mandatory according to the WFD. Expert knowledge was used for a rough estimation of the positive side effects of the management measures beyond improvement of water status. The assessment of costs of the management measures has been more laborious. However, this effort is unavoidable for any check for disproportionality.

Discussion

Particularly in Germany there are massive reservations in academia as well as in administration against an area-wide application of economic cost-benefit analyses for the appraisal of disproportionality. Economic cost-benefit analyses make positive and negative effects comparable by measuring them in monetary units. A case study for the Lower Wupper River (Hecht et al. 2014) revealed for example that economic cost-benefit analyses might be extremely time-consuming, costly and not necessarily bring about clear recommendations. Their practical application involves several methodological problems and biases. On the other hand the justification of disproportionality by overburdening the state's financial capability may hide an insufficient political will to reach the ambitious environmental objectives of the WFD.

Conclusion

The WFD grants member states an area of discretion when interpreting "disproportionality". Nevertheless their decisions should be well documented and transparent. The proposed method combines both interpretations of disproportionality – affordability and cost-benefit

assessment. Disproportionality decisions based on the proposed method fulfill the Directive's claim for transparency. Due to moderate data requirements the method is directly applicable in all German federal states and, generally, also in other EU member states.

References

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