The Environmental Costs of Water Flow Regulation: an Innovative Approach Based on the 'Polluter Pays' Principle (García de Jalón et al. 2017) [1]

The EU Water Framework Directive (WFD) explicitly requires the full cost recovery of water services, including the environmental costs incurred from the damage that water uses inflict on the environment. Although flow regulation by river damming is one of the most prominent human impact on fresh water ecosystems its environmental costs are not properly included in water pricing. This paper presents a novel approach to assessing the environmental costs of flow regulation based on the polluter-pays principle.

The methodology includes three steps: (i) assessing the admissible range of regulated flow variability, derived from the natural flow regime variability, (ii) estimating the daily environmental impact of regulated flows according to deviations from the admissible range of flow variability, and (iii) calculating the environmental costs of flow regulation. The procedure is applied to four river case studies in Spain, UK and Norway. The advantages over other water cost valuation methods are discussed. The methodology enlarges the current recognition of environmental costs of water use and represents a practical management tool within the WFD context, encouraging transparency and stakeholder communication.

Keywords: Environmental costs Flow regulation Environmental impact Valuation Water

Highlights:

• A methodology to assess the environmental costs of flow regulation by dams is presented

• The polluter-pays principle is applied to calculate costs proportionally to hydrological alterations

• The method enlarges the current environmental costs recognition within the WFD

• It measures environmental costs of river damming with advantages over stated preference techniques

• It represents a practical management tool and encourages transparency and stakeholder communication

Publication Date:

Monday, 24 April 2017

Full reference:

García de Jalón, S., del Tánago, M. G., Alonso, C. & García de Jalón, D. (2017). The Environmental Costs of Water Flow Regulation: an Innovative Approach Based on the 'Polluter Pays' Principle. Water Resources Management, 1-14.

Link to DOI:

REFORM has received funding from the European Union's Seventh Programme for Research, Technological Development and Demonstration under Grant Agreement no. 282656.

http://dx.doi.org/10.1007/s11269-017-1663-0 [2]

Links
[1] https://reformrivers.eu/environmental-costs-water-flow-regulation-innovative-approach-based-%E2%80%98polluter-pays%E2%80%99-principle-garc%C3%ADa
[2] http://dx.doi.org/10.1007/s11269-017-1663-0

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