

A cultural perceptive in the participative valuation of ecosystem services of aquatic ecosystems across europe: from Evrotas (Greece) to the Broads (UK)

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Abstract

The ecosystem services framework aims to support informed decision making by explicitly linking the goods and services produced by functioning ecosystems to human well-being illustrating the broad impacts of various land-use scenarios. The Economics of Ecosystems and Biodiversity (TEEB) approach provides a framework for assessing multiple stressor and multiple outputs of a river basin, facilitating management of a complex system. Economic valuation includes monetary and non-monetary methods. Non-monetary valuation relies on perception and values of stakeholders. The definition and valuation of Ecosystem services is claimed to contribute to the implementation of the water framework directive.

The main research question addressed is: How do stakeholders perceive Ecosystem services and functioning at river basing level?

The practical framework to elicit stakeholder knowledge and to enable discussion around the functioning of Ecosystem services is based on a participative workshop with representatives from the public and private sector involved in water management, nature management, cultural heritage and water related economic activities, municipal, and regional planning. A brief presentation of Ecosystem definition and types was given in order to provide the participant with the same conceptual framework and basic knowledge of TEEB. Group-dynamic was rhythmized by group exercises, restitution of group findings in plenary session enabling expression of view- points and social learning. Identical methodology and setting led to radically different group dynamic and perception of the value of ecosystem service as a tool to contribute to reaching good ecological status in two river basin in breach of the WFD: Evrotas in Greece and the Broads in the UK.

Twenty Five valid questionnaires were collected and analysed in Evrotas and 16 in the Anglian'workshop.

Keywords

Participative workshop, Ecosystem services water scarcity, Water framework Directive

Introduction

Freshwater ecosystems are under threat from the effects of multiple stressors, including organic and inorganic pollution, land use changes, water abstraction, invasive species and pathogens [1]. Little is known beyond the described effects of single stressors on the chemical and ecological status of water bodies and on their ecosystem functionality. This lack of knowledge limits our capacity to understand ecosystem responses to multiple stressors and to define a programme of measures that can improve the ecological status of a water body as sought by the European Water Framework Directive. People rely on ecosystems to provide many water related services[2]. Stakeholders, the beneficiaries of ecosystem services (ES) and those who own and manage landscapes that produce them play a key role in ecosystem service analysis.

They identify the services they receive from a water body and its catchment [2]. The ecosystem services framework aims to support informed decision making by explicitly linking the goods and services produced by functioning ecosystems to human well-being illustrating the broad impacts of various land-use scenarios. The Economics of Ecosystems and Biodiversity (TEEB) approach provides a framework for assessing multiple stressor and multiple outputs of a river basin, facilitating management of a complex system. Economic valuation includes monetary and non-

monetary methods. Monetary methods although under continuous development and construction are well documented [3], [4], [2]. Non-monetary valuation relies on perception and values of stakeholder at large.

The objectives of this article are i) to clarify the methodology for participative valuation of ecosystem services following the TEEB framework for the assessment of aquatic ecosystems under multiple stressors, ii) to specify the role for stakeholder participation in the valuation of ecosystem services and iii) to describe the findings of an elicitation-workshop focused on the participative identification and ranking of ecosystem services at river basin level. The core activity of the workshops is co-construction of ecosystem services, in three steps: (i) identification of ecosystem services in groups of four to six participants, (ii) plenary exchange of the findings, in order to identify the major ecosystem services, made specific for the river basin and (iii) individual ranking of ecosystem services by participants. A questionnaire build during the initial part of the workshop, is then used to assess: 1) How important are the ecosystem services previously identified by the stakeholders), 2) Who benefits from these ecosystem services, and 3) Which ecosystem services are currently threatened by a decrease in the quality of the natural environment in your river basin?

Materials and methods

The practical framework to elicit stakeholder knowledge and to enable discussion around the functioning of Ecosystem services is based on a participative workshop with representatives from the public and private sector involved in water management, nature management, cultural heritage and water related economic activities, municipal, and regional planning. A brief presentation of Ecosystem definition and types was given in order to provide the participant with the same conceptual framework and basic knowledge of TEEB. Group-dynamic was rhythmized by group exercises, restitution of group findings in plenary session enabling expression of view- points and social learning. Twenty Five valid questionnaires were collected and analysed in Evrotas and 16 in the Broads.

Conclusions

The proposed approach allows for the identification and ranking of ecosystem services, made specific for different river basins. It is a promising way of integrating stakeholder perspective in a valuation of Ecosystem services in river basins. Stakeholders reported positively on participation in the workshop where stakeholder had limited previous experience with the concept: they appreciated the opportunity for exchange with other stakeholders and found the discussion on ecosystem services useful. They came up with new interpretations of the concept of ecosystem services, thereby enriching the concept. Stakeholder involvement will prove to be useful in relation to ecosystem services valuation in the following ways:

- Identification of important ecosystem services in case study areas by key stakeholders
- A qualitative assessment of ecosystem services which cannot be expressed in monetary terms. The outcome of the valuation process depend on what the various stakeholders value, whose values count and who benefits.
- Valuation may alert different groups of stakeholders to the impact of their choices on ecosystems
- Valuation reveals conflicting interests as well as multiple benefits thus revealing opportunities for co-operation between stakeholders

Dialogue about the definition and functioning of ES in the catchment where some stakeholders had previously worked on ES revealed to be challenging as our approach unwillingly challenged existing perceptions.

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- Acknowledgement - The authors thank the consortium members of Globaqua financed under Grant Agreement No. 603629-ENV-2013-6.2.1-Globaqua, 7th Framework Programme of the EC and the EC.