

THE VECHT CASE CONTINUED

Simulated negotiation for joint investment in regional river restoration

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■ In 2013, we published in *Water Governance* a paper about a unique project that explored the added value of the Ecosystem Services approach in a real world, regional water management case. Between 2011 and 2013, regional water managers and other stakeholders explored the costs and benefits of planned river restoration measures in a transboundary part (Germany and the Netherlands) of the Vecht river.¹ At a very early stage of the planning process, a draft design of measures was shared with and jointly assessed by the regional stakeholders for its anticipated impact on the ecosystem services that were important to them. Participants stated that a structured ecosystem services assessment was beneficial since it provided them more insight in the (potential) effects of the proposed measures on the specific ecosystem services that they themselves as well as different other stakeholders value. The assessment revealed that costs and benefits related to river restoration can be better balanced and the regional water managers are interested to find partners willing to co-invest in the restoration measures. Therefore, our follow-up project focussed on a simulated negotiation for a payment for ecosystem services (PES) scheme in which those stakeholders who benefit from a restored river co-invest in the restoration effort and those who face costs are compensated. The negotiation did result in the identification of some additional (public) funding for the restoration effort. However, the pre-set target budget needed for implementation of the measures was not obtained. A reason for that could be that some of the stakeholders in the negotiation process had the opinion that the related water managers will anyhow restore the river simply as they have to in order to meet the objectives of the Water Framework Directive. However, if measures need to be prioritized and can in reality only be implemented if co-funding can be found, PES negotiation may prove a useful instrument to sharpen the insights in the actual costs and benefits and facilitate the identification of that co-funding.²

PAYMENT FOR ECOSYSTEM SERVICES

The concept of Ecosystem Services provides a framework for analysis of the impact of ecosystem changes on humans, such as the impact of river restoration. Ecosystem services are the goods and services provided by ecosystems that directly and indirectly contribute to human well-being. Examples are food provision (e.g. crops, fish), water regulation, erosion control and options for nature-related recreation.

Payment for ecosystem services (PES), as defined by Wunder³, represents a market-based instrument that is supposed to increase the provision of ES. It involves payments by beneficiaries to parties facing costs due to ecosystem management actions, or not using specific ecosystem services to optimize others. Another important characteristic of PES is that transactions are voluntary.

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Picture 1. **The Vecht river is being used for multiple functions, such as water regulation, recreation, boating and draining**

(picture by Uta Sauer).

Can PES provoke co-investments and balance the costs and benefits of river restoration?

Payment for Ecosystem Services (PES) may be a suitable instrument for balancing costs (negative impacts) and benefits (positive impacts) among stakeholders and to gain additional financial support for river restoration measures that are optimized to provide a maximum of benefits to different stakeholders. However, examples of PES-applications in regional and transboundary water management practice are rare. The aim of our project was to assess whether PES helps to balance among the stakeholders the costs and benefits of planned river restoration measures in the Vecht river basin and thus to not solely let the regional water managers bear these costs.

Costs and benefits of river restoration as basis for the PES scheme

The proposed river restoration plan for the Vecht river between Laar (Germany) and Hardenberg (the Netherlands) includes dike realignment, land-use change (agriculture to nature) and increased meandering. The main goal is to create a more natural river, thus helping to achieve the good ecological status objective of the Water Framework Directive. Maintaining the current flood protection level is regarded as a boundary condition. From here on we will refer to these river restoration measures as ‘the measure’.

In the previous phase of our project, stakeholders identified potential costs and benefits for different stakeholder groups associated to the execution of the measure and to the resulting, restored river

system. For the potential benefits, a reality check was performed to find out if the positive impacts of the measure, especially for nature organizations and the tourism sector, were likely to happen and if they were acknowledged by these supposed beneficiaries. The engaged stakeholders also identified new opportunities to regionally gain more benefits from a restored river, for example by adding infrastructure to enable local residents and tourists to access and enjoy the restored area. Next to positive impacts or benefits also negative impacts or costs were identified, linked to specific stakeholders, and the likelihood that these costs occur was explored. Farmers, for example, anticipated loss of agricultural land and increase of parasites. If river restoration improves landscape quality, this may attract more tourists, which is considered beneficial by some actors (e.g. the municipalities) but at the same time this may lead to increased littering and thus to removal costs for the managers of the restored area.

At the start of the negotiation simulation project in 2013, the planning and implementation costs of the measure on the German side were estimated to be about 460 k€, of which 60 k€ are for planning (already part of 2013 municipalities’ budget). The costs of the measure are expected to be covered by 90% by river development funding programmes, and the remaining 10% by Landkreis Grafschaft Bentheim, being the agency responsible for the measure. On the Dutch side, the total costs were estimated to be about 1600 k€, including land acquisition. About 42% of these costs will be covered by the regional water authority Vechtstromen and the remaining part by the Province Overijssel and a Water Framework Directive synergy subsidy.

Amount of € offered (O) or requested (R)	Number of offers/requests	Stakeholder group
O: 0.00	2	Nature Protection (during workshop), Tourism
R: 4,000.00 (yearly)	1	Agriculture
O: 2,500.00	1	Municipality Laar
O: 10,000.00	2	Municipalities Emlichheim, Hardenberg
O: 20,000.00	1	Nature Protection (during follow-up interview)
Total O: 42,500	3(+1)	German and Dutch Municipalities, (Nature protection)
Total R: 4,000 (yearly)	1	Agriculture

Table 1: **Overview on offers and requests expressed by the stakeholders during the simulation**

Set up of the PES simulation: 5 stakeholder groups and a financial target of 90 k€

In order to assess the willingness of beneficiaries to co-invest in the measure and to balance costs and benefits among stakeholders, a workshop was organized in which a PES scheme negotiation was simulated. It was agreed upon with the engaged stakeholders that the outcomes of the negotiation will not directly affect the actual implementation of the river restoration between Hardenberg and Laar. The project team set a hypothetical financial gap of 90 k€ (about 4.5% of the total investment) that needed to be covered in the negotiation. The gap sums up the own contribution of 10% by the German regional water authority and the proposed additional investment for some features to improve touristic attractiveness in the Dutch area. At the start of the negotiation, as a hypothetical boundary condition, it was explained to the participants that the river restoration measure will only be implemented if the stakeholders come to an agreement on how they will cover the gap.

Ten participants from five different stakeholder groups participated in the simulation: three representatives from the German (DE) and Dutch (NL) regional water authorities; four participants work for DE and NL municipalities: one from Samtgemeinde Emlichheim (DE), one from Gemeinde Laar (DE), and two from Gemeinde Hardenberg (NL). The agriculture (DE), nature protection (NL) and tourism (DE) sectors were represented each with one participant.

The stakeholders were asked to group together along their interest groups and discuss on their offer, or their compensation requests, before they wrote down their offer and handed it to the workshop facilitator. All offers and requests were opened at the same time. The motivation for the offers and requests, as well as their consequences for the implementation of the measure was discussed. Subsequently, the stakeholders were invited to adjust their offers and requests.

For assessing whether the ES / PES concept facilitated integration of different stakes, after the first offer,

stakeholders were asked to fill in a questionnaire wherein they could indicate if they considered the earlier identified costs and benefits and / or stakes as relevant. In addition, qualitative responses were invited by open questions on which costs and benefits were relevant for their offer.

Furthermore, after the workshop, we contacted important stakeholders who did not participate to find out about their perspective on the negotiation simulation outcomes and potential offers / requests. These stakeholders were representatives from the Dutch tourism sector (an organisation that is responsible for marketing of the region and one civil servant from the municipality responsible for tourism policy), and from the German Nature Protection sector (representatives from the municipality).

Results of the simulation

ARE THE STAKEHOLDERS WILLING TO CO-INVEST?

The negotiation simulation resulted in a total of 42,5 k€ offered by the stakeholders as a contribution to the river restoration measure implementation. The municipalities of Emlichheim and Hardenberg each offered 10 k€ and the municipality of Laar offered 2,5 k€. In contrast and actually surprising to some of the other stakeholders, the representatives of the tourism sector (originating from a German public association for supporting regional tourism) and from the nature protection sector (from a Dutch NGO) started both with offering zero €. The representative of the agriculture sector placed a request of €500 ha/year to compensate for income foregone. Taking the total affected area into account, this summed up to a request of 4 k€/year. In the interviews after the workshop, the German nature protection representatives additionally offered 20 k€ and the representative of the Dutch tourism sector did not want to contribute. Thus a total of 42,5 k€ once only, minus 4 k€/year became (hypothetically) available for co-financing of the measure. In the context of the simulation this would mean that the measure will not be implemented as the pre-set boundary condition of 90 k€ of co-investments is not met. An overview of the offers and requests is presented in Table 1.

	Agriculture	Nature Protection	Tourism	Municipality
Agricultural Costs and Benefits				
C Loss of agricultural area	3.0			2.25
C Threat to existence of farm		3.0		
C Increase of parasites (risk for grazing animals)	3.0			
C Loss of agricultural subsidies				
B Options for land swapping		3.0		
B Additional source of income due to tourism		3.0	3.0	2.75
Municipality Costs and Benefits				
C Increase of litter and noise due to more recreation seeking people	3.0	4.0	3.0	2.25
C Maintenance expenditures (e.g. for litter removal)	3.0	4.0		2.5
C Increase of mosquitos	3.0			
B Increase of living and life quality		3.0		3.75
B Options for environmental education			3.0	2.5
Nature Protection Costs and Benefits				
B Ecological upgrade of the region		4.0	3.0	3.25
B Increase of biodiversity		4.0		2.25
B Showcase		4.0		2.5
B Natural erosion control				
B Decrease of agricultural input				
Tourism Costs and Benefits				
C Restrictions for boating			3.0	
C Water logging of trails and paths	3.0	4.0	3.0	2.25
C Use restrictions for recreation/tourism		3.0	3.0	
C Requirements for touristic and ecological balance		4.0	4.0	2.75
B Increase of recreation attractiveness		4.0	4.0	3.5
B Options for nature tourism		3.0	3.0	3.5
B Supporting of regional leisure boats			3.0	3.25
Water bodies Costs and Benefits				
C Costs of river restoration		3.0		3.0
B Fulfilling of WFD requirements		3.0		2.5

Table 2: **Costs (C) and benefits (B) considered most important by the different stakeholder groups for making their offer/request in the negotiation simulation.** Numbers indicate relevance to stakeholder: 2= to a minor degree, 3= to a major degree, 4= primarily. Only relevance higher than 2 is included. If multiple participants represent the same sector, their mean value is given.

In the interpretation of the amounts offered or requested one should consider that particularly in hypothetical frameworks, the expressed willingness to pay (WTP) may over- or underestimate the real WTP of the stakeholders. This so called hypothetical bias is caused by the fictive character of the negotiation. Quite a number of studies have highlighted the great difference in decision making on hypothetical and real markets ^{4,5}.

What costs and benefits of the measure were the stakeholders taking into account when making their offer?

Not all costs and benefits that were identified during the previous project appeared to be of relevance to all the stakeholders in the negotiation simulation. Table 2 shows that the representatives from the municipi-

palities and nature conservationists considered most of the identified costs and benefits as relevant. The municipalities especially took into account benefits related to recreation, landscape attractiveness, quality of living, nature value, and fulfilling of water quality (WFD) requirements. The main costs taken into account by them were associated to litter removal and maintenance of the restored floodplains. The nature protection representatives, in addition to ecological benefits, took into account costs and benefits for other sectors, whereas two of their own benefits – natural erosion control and a decrease of agricultural contamination input (nutrients and pesticides) – apparently became irrelevant during the negotiations. In the post-workshop interviews the German nature protection representatives emphasized that their

willingness to invest depends strongly on the possibilities to limit the touristic pressure and related impacts to the area, instead of creating opportunities for more tourism.

The representatives of the agriculture and tourism sector consider mainly those effects directly impacting their own stakeholder group, especially through land-use restrictions and hindrance (litter, noise, water logging). The agriculture representative only considered costs associated to the impact of river restoration to be relevant in the negotiation. The previously identified benefits for agriculture were only taken into account in the bids by the other sectors. The German tourism sector representative, although considering beneficial effects on recreation and tourism, was not willing to make an offer. The reason is that she expected a conflict of interest with nature protection and no substantial benefits from river restoration as the scale of restoration is too small for attracting more tourists. Furthermore, during the simulation it was anticipated that for entrepreneurs to contribute to floodplain restoration or additional measures they need to have more certainty about the return on their investment. This was confirmed in the post-workshop evaluation by stakeholders from the Dutch tourism sector.

Conclusions and relevance of the outcomes for water managers

In the previous project phase (see our 2013 paper in *Water Governance*), costs and benefits of river restoration for different stakeholders groups were identified by the engaged stakeholders themselves. The PES negotiation simulation described in the current paper seems to emphasize specific costs and benefits that are of real relevance to them. Not all costs and benefits as identified in the previous phase were considered important by the stakeholders when they were making a bid in the PES negotiation. The stakeholders who considered most benefits as relevant for their bid also provided the highest offer. Public stakeholders, representing municipalities and a nature conservation organization, considered the benefits of the river restoration to be important enough to co-invest in order to support implementation and to optimize the design to further enhance the local benefits. For the tourism sector, the positive impact of river restoration on tourism is expected to be too small and uncertain to invest. The agricultural representative only considered his own costs associated to the impact of river restoration (resulting in income foregone) to be relevant in the negotiation and requested for compensation.

As boundary condition at the start of the simulated PES negotiation it was stated that the measure is not implemented if the negotiation did not result in a total offer of minimum 90 k€ from other stakeholders than the water managers. Less than 50% of this budget was offered and accompanied with a compensation request from the farmer of 4 k€ annually. This means

that in the hypothetical situation of this negotiation simulation, the river restoration measure will not be implemented. Although the facilitators emphasized at the start of the simulation that the bids should be made in the assumption that without sufficient co-investments from the stakeholders, the measure would not be implemented, one of the participants (after bidding zero) stated that he anticipated that the water managers will implement the measure anyhow. Maybe other participants also had this perspective in mind during the negotiations. We are not sure about this. As long as water managers have a legal obligation to implement measures, stakeholders may in real life also be reluctant to provide financial support.

Whether the results of our case study are likely to be transferrable to a different planning process cannot be said. It is recommended to execute and then compare results of more case studies. However, our case study illustrates that if measures have to be implemented in order to meet the Water Framework Directive objectives at a defined place and in the given time frame, PES may be considered as not realistic by the local stakeholders as they expect the measure to be implemented anyhow. If measures need to be prioritized and can in reality only be implemented if co-funding can be found, PES negotiation may prove a useful instrument to sharpen the insights in the actual costs and benefits and facilitate the opportunities for that co-funding.

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- 1 Van der Meulen, Brils, Borowski-Maaser, Sauer (2013), Payment for ecosystem services (PES) in support of river restoration. *Water Governance* 04/2013.
 - 2 Acknowledgement: We are grateful for participation of the local stakeholders, for their lively and constructive engagement in the discussions during the interviews and in the workshops. We especially want to acknowledge the regional water managers from Landkreis Graftschaf Bentheim and Waterboard Vechtstromen (formerly Waterboard Velt en Vecht) for allowing us to connect to their ongoing planning process. The Dutch Ministerie voor Infrastructuur en Milieu and the German Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit provided financial support as our project contributes to their activities in the context of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (adopted 1992 in Helsinki, short: Water Convention).
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 - 4 Sauer, U. & Fischer, A. (2010) Willingness to pay, attitudes and fundamental values – on the cognitive context of public preferences for diversity in agricultural landscapes, *Ecological Economics* 70 (1), 1-9.
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