Flows
News on Payments for Watershed Services

Supported by the International Institute for Environment and Development (IIED) and the World Bank, Bank-Netherlands Watershed Partnership Program

Review: *Willingness-to-play* for watershed services

Before stakeholders can be expected to value – and therefore be willing to pay for – watershed services, they need to have an opportunity to learn about trade-offs and what is at stake. Markets also work better and more equitably when there is a common pool of information available to all buyers and sellers, and once a mutual trust has developed through repeated transactions. Scientific information about the links between land use practices and the flow and quality of water needs to be gathered over long periods of time and large spatial areas – and is never complete. Information about opportunity costs can help indicate what a service provider is willing to accept in exchange for pursuing agreed management practices. This information, however, can be particularly hard to obtain in the absence of prior transactions because it is not in the interest of sellers to reveal it. (Ferraro, 2005).

Among the various tools that can be used to share information and facilitate learning are auctions, bets, and economic games. Auctions, in which service providers offer bids, can reveal the opportunity costs of land use changes , but will not work unless there is already a "willingness to play" or to cooperate in new and untried endeavors. Bets can provide an indicator of confidence in existing information, as well as in subjective judgments regarding uncertainties (including the behavior of other players). Although there are no known cases of formal betting on the outcome of PWS management practices, it could be argued that they represent a form of betting to the extent that payments reflect buyer confidence and awareness of inherent uncertainties. It is also argued that markets serve to aggregate known information.*

Economic games that play out different scenarios serve a number of key purposes and provide another way of: getting known information on the table; understanding the relationships between stakeholders; determining their willingness to pay and cooperate; learning about their attitudes and expectations; and identifying steps that could be taken to establish a PWS scheme. With these purposes in mind, this approach was recently taken to explore the potential for developing a PWS scheme, as part of a pilot project in the Fúquene Lake watershed, Colombia. The project is led by a group of researchers from CONDESAN and GTZ with support from CGIAR's Challenge Program on Water and Food. The design and implementation of economic games in Fuquene was led by the Universidad Javeriana (Colombia) with the advice of researchers from Universidad de los Andes (Colombia), CONDESAN and CIAT.

90% of the Fúquene Lake watershed has been converted to agricultural crops and pasture, which has raised the level of sedimentation, increased nitrogen and phosphorus inputs to the lake, and reduced levels of dissolved oxygen - thereby threatening the lake with eutrophication. The lake in turn supplies several aqueducts that serve downstream municipalities. In this case, the main actors in the upstream areas are traditional potato growers from the uppermost part of the watershed (who are responsible for high amounts of sediment, nutrients from fertilizer use, and other pollutants), as well as cattle ranchers in the mid-range (who have recently shifted from extensive to intensive grazing).

This game was played with real money – the equivalent of one day's labor wage was paid to Fúquene Lake stakeholders in exchange for their participation in a day-long scenario testing workshop. The potato growers were asked if they would be willing to switch to minimum tillage and other management practices that result in increased productivity but that also require greater

investment. Cattle ranchers were questioned about their willingness to change land use practices and, (like the municipal water users) whether they would be willing to pay the potato growers.

The game provided an opportunity to explore the relationship between individual and group decisions, and generally confirmed the importance of negotiation and communication for generating greater social and long term benefits. Willingness to pay was higher in scenarios where there was direct communication between stakeholder groups. Cooperation and communication is also desirable because it puts free riders at a disadvantage. However, willingness to pay was also greater in cases where payments are made directly to the farmers rather than through an intermediary, indicating a low confidence in existing institutions. There was also low confidence in the enforcement of compulsory payments.

Although direct payments are not yet being made between these stakeholders, potato growers are now receiving credit from GTZ and the Ford Foundation, and have already paid back the loans made in the first year – this is indicative of upstream benefits. Currently, negotiations are underway with banks, to increase loans for conservation farming. This will allow researchers to monitor actual impacts on soil and water so that they can demonstrate the provision of downstream benefits (including improved water quality), and will also allow stakeholders to learn whether the program is working. Learning will only be possible when stakeholders realize that existing strategies are inadequate and if this information leads to a change in values as well as practices. Recognition of the upstream value of conservation, by financial institutions, can also help to establish credibility and pave the way to a payment program.

References and further information:

This bulletin was prepared based on presentations and interviews with Jorge Rubiano and Marcela Quintero from CIAT, and Alonso Moreno from GTZ/CONDESAN.

For additional information contact: Juan Camilo Cardenas (jccarden@uniandes.edu.co) expert on Experimental Economics; Alonso Moreno (a.moreno@cgiar.org) project leader.

Análisis de la acción colectiva para el Manejo de cuencas. Estudio piloto-cuenca de la Laguna de Fúquene (pdf). Informe Final de investigación. Agencia de Cooperación Técnica Alemana – GTZConsorcio para el Desarrollo Sostenible de la Ecorregión Andina, CONDESAN, Corporación Autónoma Regional para el desarrollo sostenible de Cundinamarca Equipo de Investigación: Diana Lucía Maya Vélez, Daniel Castillo Brieva, Pablo Andrés Ramos, Ana María Roldán. Pontificia Universidad Javeriana, Facultad de Estudios Ambientales y Rurales, Departamento de Desarrollo Rural y Regional. Julio 25 del 2004.

Cardenas, J.C. 2003. Real Wealth and experimental cooperation: experiments in the field lab. Journal of Development Economics 70 (2003) pp 263-289.

Ferraro, P. J. (2005). Asymmetric information and contract design for payments for environmental services (pdf). Payments for Environmental Services: Methods and design in developing and developed countries, Paper presented at ZEF-CIFOR workshop held in Titisee, Germany, June 15-18 2005.

Murphy, J.J. and J.C. Cardenas. (2003) An experiment on enforcement strategies for managing a local environmental resource. Journal of Economic Education.

Other links:

Living Lakes Partnership, Fundación Humedales

* Although there are no known cases of formal betting on the outcome of PWS management practices, it has been used to challenge those who have been seeking to discredit the science of climate change. More information on this as well as a review of the concept can be found in:

Annan 2005. Betting on climate change on the RealClimate blog. Updates with links to further information can be found on the blog of climate scientists James Annan, and also William Connolley. Brian Schmidt keeps a running tally.

Feedback and Commentary

If you have a good rule-of-thumb, or other comments, please send them to comments@flowsonline.net for inclusion in the next bulletin. We also welcome input and references for forthcoming bulletins.

New resources

Kevin Jeanes, Meine van Noordwijk, Laxman Joshi, Atiek Widayati, Farida and Beria Leimona (2006). Rapid Hydrological Appraisal (RHA) in the Context of Environmental Service Rewards

Announcements

'THE DIFFERENCE A TREE CAN MAKE'

A side-event hosted by The World Agroforestry Centre (ICRAF) @ World Water Week, Stockholm, Sweden

12:15 – 1:15 pm
Tuesday, 22 August 2006

A light lunch will be served.

Public perception of the effect of trees on watershed function vacillates between strongly positive or negative, influenced by media reports on floods and droughts and scientific responses to publicized perceptions. However, research led by the World Agroforestry Centre (ICRAF) and partners shows that trees play a nuanced role in important watershed functions. In water-scarce conditions, the use of deciduous trees can greatly reduce water use and competition with crops. In areas of high erosion and sedimentation, maintenance of indigenous trees in riparian areas may be the best option. Three brief presentations at the side event will provide insight into the ways trees can be best managed to advance watershed management objectives and the implications for watershed management policy and programme design.

NEW Policy brief launch:
The findings presented at the side-event are drawn from more than 20 years of ICRAF research. For the first time, these critical findings are being brought together in a series of information briefs, which will be launched during the side-event. With prominent media coverage of floods and landslides, the rise of large scale afforestation projects, and the rooting of carbon sequestration projects, these findings have never been more relevant in guiding decision-making processes. Join us and learn the secrets to using trees to achieve your watershed management goals.

Programme:

Brief Presentations:
1. Tree Water Use
Chin Ong - Plant Physiologist and RELMA Project Manager

2. Effects of trees at the landscape level
Meine van Noordwijk - Regional Coordinator, ICRAF Southeast Asia

3. The science-policy nexus
Brent Swallow - Leader of Environmental Services Theme, ICRAF

The presentations will be followed by a panel discussion where ICRAF scientists will be joined by:
• Maurice Mbegeba, Director of Compliance and Enforcement, National Environmental Management Authority of Kenya

• Catherine Muthuri, Senior Lecturer & Chairperson, Department of Botany, Jomo Kenyatta University of Agriculture and Technology (JKUAT)

• Graham Jewitt, Associate Professor - Hydrology, School of Bioresources Engineering and Environmental Hydrology, University of KwaZulu-Natal

For more information, contact: Rachel Rumley (r.rumley@cgiar.org)

About the Flows Bulletin

The Flows Bulletin is produced by Sylvia Tognetti, an independent consultant on environmental science and policy, with the collaboration and support of IIED project on Policy Learning in Action: Developing Markets for Watershed Protection Services and Improved Livelihoods, and the World Bank, through the Bank-Netherlands Watershed Partnership Program.

The Flows Bulletin is a forum for multiple perspectives, and does not necessarily represent the views of the sponsoring organizations.

Previous issues of the Flows Bulletin are archived at www.flowsonline.net Flows is also available in Spanish - to receive it is Spanish, please send an e-mail to subscribe-spanish@flowsonline.net

Flows bulletins 7-12 are available also in Indonesian, online at www.flowsonline.net. To receive future bulletins in Indonesian as they become available, please send an e-mail to subscribe-indonesian@flowsonline.net

To subscribe in English please send an e-mail to: join-flows@list.flowsonline.net or visit www.flowsonline.net

To unsubscribe from the English, please send an e-mail to: leave-flows@list.flowsonline