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Review: Payments for Watershed Services as an element of Integrated River Basin Management

Payment for watershed services (PWS) are generally considered to be most feasible as small-scale local level initiatives. In large-scale operations, where there is a greater diversity of environmental and socioeconomic conditions and interests, it is harder to establish links between causes and effects of watershed degradation.

However, even when these links can be established in small-scale initiatives, it has generally been found difficult to demonstrate that specific watershed benefits have sufficient economic significance to justify payments that outweigh opportunity costs (Aylward, 2004; Johnson & Baltodano, 2004). There is also a tendency for small-scale pilot initiatives to be constrained by conflicting macro economic incentives and lack of a supporting policy and institutional context. It is therefore important to also consider whether benefits may have significance as one of the multiple objectives in an Integrated River Basin Management (IRBM) strategy.

The key advantage of an integrated basin-wide approach is that it makes it possible to consider the entire flow regime, and how water is allocated between different human uses, as well as between human and environmental uses. These kinds of water allocation decisions define local options for land use and facilitate urban, agricultural and industrial development, as well as land use practices that would not otherwise have been feasible.

In principle, IRBM also includes local level management, allowing stakeholders direct participation in land use decisions. This is critical, as it is the local level where impacts are most directly experienced and land management practices are actually implemented. In practice, a more centralized approach to IRBM is generally adopted, where priorities are skewed towards achieving immediate and tangible economic benefits, that are self-financing (such as hydropower generation) and that support national interests (which are often in conflict with local livelihood interests). One example is the Tennessee Valley Authority (TVA), which was established during the US Great Depression to support economic development through a comprehensive approach to river basin management. TVA management objectives originally included flood control, power generation, navigation, recreation, maintenance of water flows, and soil conservation - all of which were regarded as essential for economic development. But power generation, which was self-financing, became the dominant mission. Natural resource programs, which were also crucial for human welfare in what was a poverty stricken region, instead relied on public funding, which eventually dried up (Barrow, 1998; Miller and Reidinger, 1998).

Although TVA is not the only model, it was adopted as a blueprint for river basin management in several other countries, primarily through donor driven initiatives. Other more recent IRBM initiatives (such as those mandated by the South African Water Act and the European Water Framework Directive) have placed a more explicit emphasis on the use of economic instruments to support conservation objectives and participation in decision-making. Their implementation is also leading to the creation of new institutional entities for river basin management, but raises unanswered questions about accountability.

In a more bottom up and decentralized approach, effectiveness and inclusiveness of IRBM generally depends on the extent to which it is also democratic. Transferring authority to local entities in the form of constitutionally protected rights is key to democratic decentralization and

allowing communities to share in the benefits of good management practices. An independent stream of revenue from natural resources can support the development of local management capacity to respond to site-specific conditions, as well as holding regional and national authorities accountable (Ribot, 2004).

All of this suggests that PWS can potentially strengthen IRBM by providing independent sources of revenue to support a more inclusive approach. An example of PWS used in this manner can be found in Colombia, where taxes on hydropower facilities are used in part to fund regional environmental authorities (Becerra and Ponce de Leon, 1999). Conversely, even when there is no straightforward or economically significant link between forests and water supply, including the multiple uses of watersheds in an IRBM plan may provide justification for investments in upstream conservation measures and help to achieve better representation of livelihood interests in basin-wide decisions.

References and further reading

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- See: www.dams.org for full report and archive of documents associated with it.

New Publications:

- UN FAO & CIFOR (2005) [Forests and floods: Drowning in fiction or thriving on facts?](#) RAP Publication 2005/03; Forest Perspectives 2 Food & Agriculture Organization of the United Nations and the Center for International Forestry Research, Bangkok
- Wunder, S. (2005) [Payments for environmental services: some nuts and bolts](#). Occasional Paper 42, CIFOR, Jakarta

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