



## Markets for Watershed Protection Services: Challenges and Opportunities

### Protecting our watersheds: a growing concern

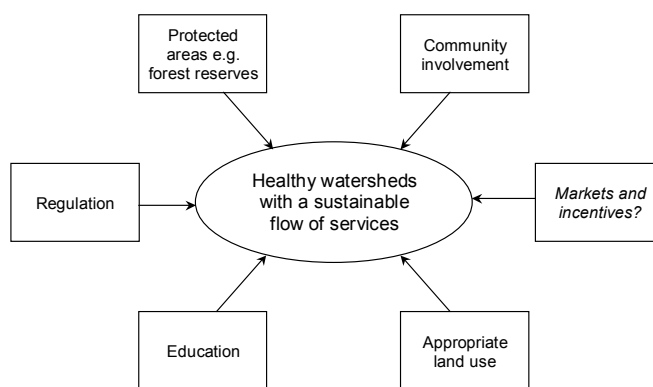
Perhaps no ecosystem is more important to Caribbean development than watersheds: they capture, store, and filter our water supply; furnish us with timber and other forest products; provide protection from erosion, landslides, and flooding; and shelter many important plant and animal species. Yet they are deteriorating at an alarming rate in most countries, and existing management measures are unable to stem the tide. The cost to the countries of the region is substantial, and rising.

Forest reserve systems, established long ago by colonial administrators on most islands, today provide only partial protection to watersheds, and land use decisions outside of reserves rarely take the protection of services such as water production into account. As a result, poor water supply, quality, and reliability increasingly affect consumers and threaten key economic sectors. Soil erosion, landslides, and flooding cause substantial economic losses each year. Those hurt the most are often the poor, and particularly the rural poor, whose hillside crops suffer from soil erosion, whose access to markets can be cut off by landslides and floods, and who are given the lowest priority when water supplies must be rationed. The need to explore new approaches that will change people's behaviour in watersheds without hurting local livelihoods is obvious and urgent.

### Can markets provide part of the solution?

Caribbean countries have relied on a range of tools for watershed management, including regulation and enforcement, state management of forest reserves, education, and stakeholder participation. While all of these have had some successes, they have not been able to reverse the loss of tree cover and deterioration of watershed services.

Markets are constructed in order to link those who have a product or service to those who want it enough to pay for it. Generally, the services provided by the environment are seen as free goods, provided by a benign deity and available to all who benefit from them. But when faced with pressure from human activity, these services will deteriorate if not protected. This is why forest reserves are established and managed by forestry departments, why development agencies and community groups plant trees on denuded hillsides, why water companies place buffer zones around reservoirs, and why farmers practice terracing on steep slopes. All of these watershed protection measures have a cost, whether to the government's budget or people's time. As watershed services become increasingly threatened, and thus more highly valued, they also have a potential market comprised of those who benefit from the services, whether they are water consumers who demand reliable and clean drinking water; coastal communities who want protection from landslides and flooding; or resorts that rely on sparkling water and unpolluted beaches.



Potential mix of watershed protection measures

This policy brief was produced by the Caribbean Natural Resources Institute (CANARI) as part of the project *Who Pays for Water? Preparing for the use of market-based mechanisms to improve the contribution of watershed services to livelihoods in the Caribbean*. The project is implemented in collaboration with the International Institute for Environment and Development, the United Kingdom Department for International Development, and a range of national and regional partners. The views and opinions expressed in this policy brief are those of CANARI alone.

## Examples of payments for watershed services from around the world

On the island of Lombok in Indonesia, a company producing bottled drinking water and a tourist river rafting company both make payments to upstream community groups to protect watershed services through tree planting, the employment of forest guards, and the revival of traditional environmental protection rules.

In the village of Sukhomajri in Haryana, India, a system has been established whereby villagers are allocated a free share of water for agricultural use from a local dam in exchange for conducting watershed protection activities and restraining grazing around the dam. The system allows for the trading of rights so that landless or land poor villagers have been able to sell their rights to larger landowners for cash or trade them for sharecropping or the rental of land on which to farm. The system has been in place for over twenty years and has resulted in a reduced rate of siltation in the dam (the original motivation for the arrangement); a significant increase in villagers' income from agriculture (and resultant reduced reliance on destructive animal grazing); and improvements in the livelihoods of the poor and landless.

The Government of Colombia in 1993 introduced a National Environmental System whereby levies on commercial and public sector users of environmental services are fed back into their protection. Watershed protection activities are supported by payments from electricity companies with hydropower plants (3% of revenues to watershed protection and 3% to municipalities in which the plants are located); water-based investors (1% of revenue to watershed protection in the investment project catchments); and municipalities and provinces (1% of annual budget allocated for purchasing land to protect watersheds that supply water locally).

In some parts of the world, markets that link watershed service “providers” to such beneficiaries have been established effectively, and have resulted in improved watershed protection (see box below).

But do these approaches make sense for the Caribbean? Possibly, if used creatively in conjunction with the existing range of watershed management tools, and in ways that have positive rather than negative impacts on livelihoods, especially those of the rural poor. The aim of any market-based approach to watershed management should be to induce both watershed service providers and users to act in ways that contribute to more effective management. For example, higher water rates encourage conservation; tax credits or direct payments to landowners can stimulate improved land-use practices.

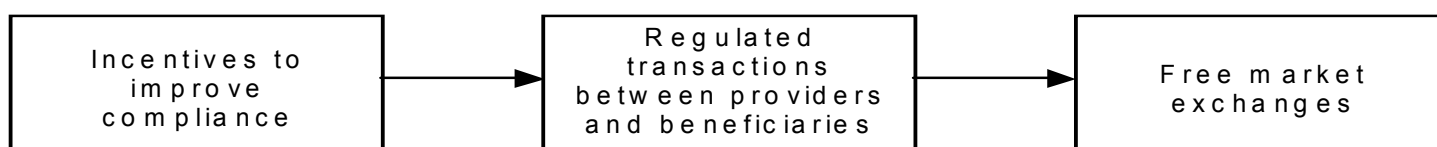
### What exactly are market-based approaches?

Market-based approaches can be defined as transactions in which a party desiring a good or service provides a material inducement to another party to provide that good or service. The types of market-based approaches that could be considered for watershed management thus range along a continuum from incentives to free market exchanges between watershed service providers and users.

Incentives for watershed protection are already in use in the region; the most common of these are Forestry Department and Agriculture Extension Service programmes to provide tree seedlings and training in erosion-control measures to hillside farmers. Incentives differ from other types of market-based approaches in that the price is determined not on the basis of the agreed value of the service being provided (in this case by farmers), but by the minimum cost that might induce the targeted group to modify their practices. Incentives therefore require little negotiation between “buyers” and “sellers” and are relatively easy to establish.

There are also examples in the region of more market-like transactions, in which watershed service providers have been able to secure a payment for their service based on a beneficiary's (or an intermediary's) assessment of its value. Two such cases are described in the boxes on the following page.

### Continuum of market-based options for obtaining desired watershed behaviours



## Securing land tenure through watershed protection: the examples of Fondes Amandes

In the late 1970's at Fondes Amandes in Trinidad's western Northern Range, a community established itself on 15 acres of government-owned fire-climax grassland, planting short crops. They lived with the constant threat of forest fires, and in 1982 took action by planting hardwoods and fruit trees. The squatters still faced periodic harassment from the Water and Sewerage Authority, as the area was also an important reservoir's filter bed. With NGOs acting as intermediaries, the water authority and a majority of the nearby residents came to accept and value the work of the community, which attracted financial backing and technical support from local private foundations. The community was eventually able to secure an informal agreement to continue to use the lands for farming in exchange for their watershed protection activities in the area surrounding the reservoir, through the planting of trees purchased from the Forestry Department. The community has become self-supporting through the sale of fruits, organic tree seedlings, and handicrafts produced on their lands as well as the provision of guided eco-tours to visitors.

### Can market-based approaches improve local livelihoods?

For the poor and marginalised, the establishment of markets generally does not offer much opportunity. These groups tend to lack the financial and technological capital to create products or services, and are hurt when environmental goods and services upon which they rely are priced above their ability to acquire them. Markets for watershed services therefore need to be carefully designed, managed, and regulated if they are to have a positive and equitable impact on development. Creating markets and incentives that improve both watershed services and local livelihoods will require overcoming a number of challenges.

**Finding incentives that benefit the poor.** Incentives that work for the middle class, such as reducing utility bills through conservation or receiving tax rebates on land conservation measures or water saving devices, have little attraction for the poor. To change behaviours of those living near or below the poverty line, incentives that will result in improved or more secure livelihoods are needed. Moving in that direction requires such measures as:

- increasing people's stake in good land management by providing secure tenure;

- offering income-generating options that would improve land use, such as the development of appropriate tree crops or heritage tourism services.

**Creating market opportunities for poor communities in watershed protection services.** The examples from Fondes Amandes in Trinidad and Talvern in St. Lucia indicate that poor communities can develop and effectively provide a range of watershed protection services. But there is resistance in many quarters to turning management activities over to rural people or community groups. In order for such approaches to work, they will need good design, lots of technical support, and continuous monitoring in order to demonstrate the impact of the interventions and cost the services accordingly.

### What is needed for market-based approaches to work?

A study of four islands carried out in 2002 by CANARI indicated that most Caribbean countries have a way to go before they can fully incorporate markets into the mix of watershed management measures. The study noted some requirements for moving towards markets that work for both people and watersheds, including:

## Income opportunities from water intake management in St. Lucia

Much of the water supplying communities in the northeast of St. Lucia comes from a river intake in the village of Talvern. When the intake was established the area around it was pristine, but it is now surrounded by small farms and also impacted by the community's animals and sanitation practices. In 1999, the Forestry Department held a series of community consultations about the situation, which resulted in the establishment of the Talvern Water Catchment Group, with the aim of protecting the intake from contamination and sedimentation, through riverbank stabilisation, upstream tree planting, the relocation of pit toilets, and community education. With initial help of the Forestry Department, the Group has been able to obtain a series of small grants from national and regional agencies to carry out its activities. The grants have included funding for members' labour, which is paid at a price negotiated by the Group and based on the amount of work carried out. The Group's efforts have contributed to better practices by people in the community and may also have had some positive impact on quality and quantity of water abstracted from the intake.

St. Lucia is now undertaking a water sector reform process that includes a market-based approach to the provision of water. These developments provide the opportunity for the establishment of a more continuous and reliable mechanism than small grants for compensating the Group for its services.

- widespread public perceptions that water resource management is an issue that needs serious attention and that there is a clear linkage between watershed management and the quality and availability of water;
- public acceptance that water has a cost that is greater than the cost of treating it and sending it through pipes into homes, and a willingness to pay that cost;
- a policy environment or governmental culture that favours innovation and public/private partnerships;
- the presence of a product champion: an agency or coordinating body with the authority, enthusiasm, and persuasiveness to pull all the actors together for concerted action;
- pro-active community-based activities in support of watershed management;
- adequate information on watershed services and management requirements to determine the economic value of management interventions.

None of the countries in the region appear to have all of these pieces in place yet; so any further work on markets for watershed services and livelihoods will need to focus on those conditions that are lacking, while building on existing progress and opportunities.

### **Who Pays for Water? A new regional project on markets and incentives for watershed protection and improved livelihoods**

The Caribbean Natural Resources Institute has recently launched a two and a half year project to examine and test the use of markets and incentives for watershed services in the Caribbean. *Who Pays for Water?* is part of a larger global initiative coordinated by the International Institute for Environment and Development with funding from the United Kingdom Department for International Development. The initiative includes activities in India, Indonesia, South Africa, and other countries in addition to the Caribbean.

In the Caribbean the project initially focuses on four countries, Grenada, Jamaica, St. Lucia, and Trinidad and Tobago, building on scoping studies carried out in 2002 to explore interest and potential.

The aims of the project are:

- to improve understanding within key institutions of the roles that market-based approaches can – and cannot – play in watershed protection and livelihood improvement;
- to develop and test economic instruments for improving watershed services in selected countries and contexts;
- to explore the potential for increasing the contribution to the protection of watersheds from economic sectors, such as the water and tourism industries, that benefit from their services;
- to identify the requirements for increasing and sustaining local benefits from watershed services;
- to transfer skills and methods for assessing and employing economic instruments for watershed protection.

Activities planned during the first year of the project include:

- establishment of a regional “Action-Learning Group” to assure that the project’s findings and results are fed into the programmes of relevant national and regional agencies;
- initiation of projects in St. Lucia and Jamaica to test the usefulness of markets and incentives to address critical watershed management issues;
- organisation of a regional workshop on hydrological considerations in designing watershed protection measures;
- research on the potential effects of water sector privatisation and of tourism certification schemes on the development of markets and incentives for watershed protection services.

For more information on the project, contact CANARI or visit the project website at [www.canari.org/watersheds.html](http://www.canari.org/watersheds.html)

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