

Dushanbe International Fresh Water Forum

**Private sector participation in water and watershed management
with a special focus on payments for ecosystem services**

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**To ensure a sustainable water supply of good quality,
we should protect and use in a sustainable manner the ecosystems
that naturally capture, filter, store, and release water,
such as rivers, wetlands, forests, and soils.**

Ministerial Declaration of the 3rd World Water Forum

(March 16-23, 2003, in Kyoto, Shiga and Osaka, Japan)

**Since Rio, forests are declining
and so is the water availability**

Ecosystem services

Ecosystem services are processes by which the environment produces what we often take for granted such as:

- Clean water
- Regulation of water flow
- Timber
- Habitat for plant and animal species
- Plant pollination
- etc...

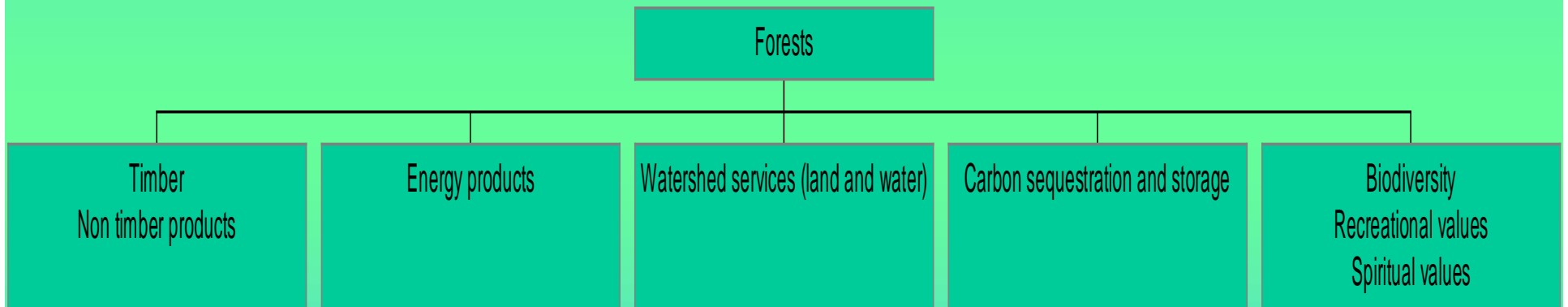
Values of ecosystem services

Up to recently, little recognition of the value of forests/wetlands... until their removal by logging or agriculture

- *Mississippi valley* : Costs of 1993 floods: 12 billion U\$
- *Switzerland* : Natural infrastructures by forests against avalanches : 2.8 to 3.5 billion U\$/year
- *USA*: Natural water filtration services for 1-1.5 billion U\$ rather than investing in an artificial filtration plant (6-8 billion U\$ + 300'000 U\$/year)
- *Nigeria*, Hadejia-Nguru wetland: revenue generation for livelihood (agriculture, fisheries and fuel wood): 34-51 U\$/ha

Forests:

A natural infrastructure producing goods and services



Ecosystem services of forests and water

- **Hydrological benefits**: regulation of surface and underground water flow (« natural sponge »)
- **Quality control**: water filtration systems (reduce nutrient loss as well as salinity)
- **Disaster prevention**: prevention of land erosion/landslides and prevention of floods
- **Reduced sedimentation**: avoiding damages to rivers, waterways and reservoirs + safeguarding uses (irrigation, hydropower, recreation, fisheries, domestic water supplies)
- **Maintenance of aquatic productivity**: by tree shade and temperature moderator on waterways

Why payments for ecosystem services are an innovative tool for water resources management

- **Given that 60% of all terrestrial precipitation falls over forest areas, there is a strong link between water and land use.**
- **The legal and regulatory framework on forest conservation have failed by a lack of compliance.**
- **Forests protection and sustainable use are not the first priorities of State budgets.**
- **Repairing damages from flooding or building civil works to protect against such events are costly and inefficient in the long term.**

Goals of payments for ecosystem services of forests

**Improve markets for forests, ecosystem protection,
water supply and livelihoods**

= implementation of sustainable development

by improving:

- **The ecosystems and water resources**
- **Land productivity**

by providing:

- **Training for commercial activities**
- **New sources of income**
- **Local institutional building**

Payments for ecosystem services of forests for water: ? Where, how and by who?

- *Where:* preferably to be applied outside strictly protected areas (as 90% of forests are not in such areas)
- *How:* by an upstream downstream hydrosolidarity
- *How:* by an interdisciplinary and participatory approach
- *By who:*

1: Sellers: land users

2: Buyers: Public authorities, private sector (hydropower companies, food processing industry including mineral bottling companies, brewers, irrigation cooperatives, water suppliers)

Why the private sector should be interested in paying for ecosystem services

Damages to ecosystems = damages to infrastructures

Source: Environmental Strategy Papers No 2: Environmental and Water resources management, The International Bank for Reconstruction and Development/World Bank, 2001)

- **Destructive land-use: Damages to water supplies, land productivity and water resources infrastructures**
- **Excessive regulation, overabstraction, overpumping: Damages to property and infrastructure (salt intrusion)**
- **Sediment deposition: Reduction of the economic life of dams, lower conveyance of irrigation canals and river channels, increases in operation and maintenance costs, increase of water treatment**

- **Excess of sediments: Wearing down of pumping equipments and turbines**
- **Alien species: Physical obstruction to water flow, loss of biodiversity and of habitats, degradation of surface waters, disruption of food chain, increase in the maintenance and operation costs of various infrastructure facilities**
- **Threats to sustainability of business activities**

Financial mechanisms

Source: Case studies of markets and innovative financial mechanisms for water services from forests, Danièle Perrot-Maître (dmp@iucn.org) and Patsy Davis, Esq. May 2001, Forest Trends (www.forest-trends.org)

- Self organized private deals
- Trading schemes
- Public payment schemes

Self organized private deals

- Little or no public involvement
- Voluntary payments by the private sector to sellers of services
- France: Payments for water quality by Nestlé (Vittel bottled water) to farmers
- Costa Rica: Financing upstream reforestation by a hydropower utility via a local NGO to landowners, supplemented by government funds
- Costa Rica: payment through a Trust Fund by clients of water utilities for reforestation
- Colombia-Cauca river: Payments by an association of irrigators through government agencies to landowners for reforestation to improve water flow

Trading schemes

- **Trading schemes if government fixes strict water quality standards**
- **USA: Nutrient trading: Polluting sources above allowable level are buying nutrient reduction credit from sources which discharge is below the allowable level**
- **Australia: Reduction of salinity: Water transpiration credits earned by the State forests for reforestation are bought by irrigation farmers**

Public payments schemes

- Most common mechanism
- USA-Catskill mountain: When a municipality (New York city water utility company) finances (through its customers) upstream activities such as land retirement or reforestation for the improvement of the hydrological services downstream for 1-1.5 billion U\$ rather than investing in an artificial filtration plant (6-8 billion U\$ + 300'000 U\$/year)
- Brazil (ICMS Ecologico): Ecological added tax (25% of tax on sale of goods and services) reallocated to local governments for environmental work such as the establishment of protected areas
- Ecuador-Quito: Creation by the municipality of a Watershed Conservation Fund replenished by water and electricity charges paid by electricity and water companies, to finance upstream individuals or communities to conserve the watershed

Conditions for the payment of ecosystem services

Source: Forests trends (www.forest-trends.org) and State of the World 'Forests, FAO, 2003

- **Governance for the partnership**
- **Political support**
- **Identify and quantify the services (package)**
- **Develop the institutional, legal and regulatory framework**
- **Identify the sellers by clearly defining and enforcing property rights**
- **Identify the buyers**
- **Establish financial mechanisms with clear rules**
- **Create a market for trading ecosystem services**
- **Tailor the project to the local conditions by involving all stakeholders in the project design and in its implementation**

Difficulties for the payment of ecosystem services

- **Lack of political support**
- **Policy and legal uncertainty**
- **Lack of clear property rights**
- **Costs for transactions, management plans and surveillance for small landowners**
- **Problems in monitoring the provision of the service**
- **Difficulty in the enforcement of contracts**
- **Lack of information and participation**
- **Level of compensation (if too low)**
- **Difficulty if forests are state-owned**
- **Possible inequity**

Future for ecosystem services

- **Raise awareness whether politically and on the ground**
- **Evaluate critically on-going mechanisms for further information exchange and refinement**
- **Create a clearing-house**
- **Engage in pilot projects**
- **Promote a catalyst role and funding from international organisations/NGOs as well as international financing organisations including the GEF and ODA**
- **Involve all stakeholders, including the private sector within countries and internationally**
- **Ensure the inclusion of ecosystem services in the next International Tropical Timber Agreement of the International Timber Trade Organisation**

Beyond Carbon: Emerging Markets for Ecosystem Services

October 29 – 30, 2003

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