Understanding Economic Valuation of Wetland Resources: Why is it Important for Wetland Conservation?

1. Introduction

- Wetlands provide very important goods and services to the society and help in sustaining critical livelihoods of wetland communities as well as communities living far downstream. There are two types of use-values that wetlands provide: 1) direct use values such as fish, tourism and agriculture; and 2) indirect use values such as flood control, groundwater discharge, and water shade protection, which are sometimes more important than direct use values, providing more than 4 to 5 times higher values than direct use values. Also, indirect use values of wetlands benefit much wider sections of the society.
- Major types of economic benefits of wetlands are summarised in table 1. In addition to fish and aquatic food products, wetlands provide several other important services and functions to the society, which are very critical for sustaining livelihoods, maintaining ecosystem base and economic activities.

Tab 1. Classification of economic value of wetlands based on type of services provided

Use Value			**Non-Use Value**
Direct use values	**Indirect use value**	**Optional value**	**Existence value**
Fish and other aquatic products	Flood control and flow regulation services	Potential future uses	Biodiversity
Agriculture uses	Groundwater recharge	(direct + indirect uses)	Cultural, spiritual, etc.
Recreation and Tourism	Nutrient retention	Future value of resources (genetic resources)	Bequest value
Wildlife harvesting	Ecosystem support		Socio-cultural uses
Fuel wood and water supply s	Micro-climatic stabilization		Research and education uses
Peat/energy	Storm protection		
Transport support	Toxic removal and pollution clean up		

Note: As summarised in table 1, over 20 types of benefits are provided by wetlands, out of which about 80 percent of wetland benefits are public good types, and less than 20 percent only of direct use value for which the direct stakeholders mostly care about.

- Despite a full range of functions and services, wetlands, particularly tropical wetlands, are poorly understood. This makes economic analysis and economic valuation of tropical wetlands a complicated task.
- Valuation of marketed goods and services (e.g. fish and other aquatic products, fuel woods, etc.) is relatively easy, as unit prices of these products are easily available in the local markets. Even in the

absence of market one can readily derive unit values of these products. Compared to valuation of marketed resources, valuation of non-marketed resources of wetlands is more complicated, even though the later is more important in building arguments and public policies in support of wetland conservations. This is because of the fact that over 80 percent of the total economic values of wetland resources are indirect use value types (see Table 1; Barbie, et al., 1997), whose unit prices are hard to derive.

2. What is mean by economic value of wetland resources?

- Economic valuation of wetlands is a process to assign quantitative and monetary values to goods and services provided by wetlands. This includes use of market prices for direct use resources as well as derived prices for other indirect uses and functions (e.g. flood control, groundwater recharge) of wetlands.
- Economic value of any good or service is measured in terms of what consumers are willing to pay for the commodity, less what it costs to supply the commodity. But, in the case of environmental goods and services such as wetland ecosystems, the costs of supply are almost zero, so the consumers' willingness to pay for a environmental resource is also the total value of the resource.
- Economic valuation is recognition, quantification and valuation of **multi-functionality** of the wetland services.

3. Economic valuation: why it is important for wetland management

- In the absence of market, wetland resources, particularly of indirect uses and non-marked services, are under valued. Hence, is information on wide range of wetland values, even from alternate means, is incorporated into the policy decision-making process, this could provide powerful argument in support of wetland conservation and alternate financings (see, Emerton, 1998; Barbier, et al., 1997).

- Information on monetary value of resources, including wetlands, is heard with great enthusiasm and interest by public policy makers, and/or decision-makers. These are also the reasons for frequent recommendations for Total Economic Value (TEV) in valuing the wetlands.

- Reliable and improved information on economic value of wetland resources not only provides incentives for these values to be incorporated into decision-making processes, but it also assist in generating additional financing for conservation by identifying significant gainers (groups) of wetland conservation.

- Economic valuation also provides information on how costs and benefits of wetland conservation are distributed – who gains and who loses, and by how much. This helps in identifying losers in conservation, to identify the gap that needs to be filled/compensated; and for the gainers, the potential to capture and redistribute some of this surplus-benefit of the wetlands conservation to the losers.
- A commonly suggested valuation technique for estimating value of wetlands in totality is a framework of Total Economic Value (TEV), which is a way to understand or recognise several components of wetland products and functions in monetary value terms. But, it is not easy to apply the TEV framework in practice, which requires full range of information on ecological and hydrological functions of the wetlands as a priori of the wetlands valuation exercise.

- If the Total Economic Value of wetland resources is not feasible, then information on partial value of wetlands, and/or, partial impacts assessment of wetlands, can also convey equally powerful information and messages for policy intervention in support of wetland conservation (see, Barbier, et al., 1997).

4. Basic concepts in economic value of wetland ecosystem services

The term *economic valuation* means not only putting a monetary value to the natural resources like wetlands, but a full extent of economic valuation study involves following steps on resources valuation (see, Pagiola et al., 2004), including identifying alternate financing mechanisms.

i. Identifying net benefits (costs) associated with new policy measures by expressing full range of costs and benefits associated with the conservation in monetary value (quantitative term).
ii. Identifying the public good benefits (costs) versus private costs (benefits) of the resource conservation strategy.
iii. Identifying the net benefits of the conservation (society, private).
iv. Identifying losers and gainers of the intended policy changes.
v. Developing a self sustaining modified financing mechanism for sustainable uses of the resources.

5. Summary

- Development decisions are usually made on economic ground, therefore economic value of wetland resources can be a powerful tool to improve wise use and management of global wetland resources.

- Improved information on economic valuation has great potential to contribute to effective management of wetland resources by identifying the potential gainers of conservation decisions and sources of additional financings for the conservation.

- A major difficulty facing valuation of a complex environmental ecosystem such as wetlands, is insufficient information on important ecological and hydrological processes and functions. In this perspective, economic valuation of wetland is a multidisciplinary exercise, which involves information from several other disciplines.

- Having said that, we should not over emphasise the monetary valuation of each and every component of wetlands, as economic valuation is not a panacea for wetland management in each and every case. In fact, economic valuation is only one component of economic assessment of wetland resources. Economic analysis includes, in addition to economic valuation, assessment of institutions, and management and stakeholders incentives for conservation and sustainable uses of the wetland resources.

Literature Cited

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