



Introduction

Common pool resources (CPRs) such as forests, rangelands, water and fisheries help to underpin the livelihoods of millions of people in developing countries. Fisheries in particular provide a livelihood safety-net for many of the very poorest in situations where there are few other economic opportunities, and where the barriers to entry to the resource and its exploitation are minimal. In countries such as Bangladesh, Cambodia and Mali, open-access floodplain fisheries provide food and income for millions of rural people.

Despite the apparent importance of fisheries and other CPRs for large numbers of people, national policies in many developing countries often fail to recognise their crucial role. As a result these resources and their value to people are frequently diminished and lost.

For river fisheries there is a particular need to integrate the value of fisheries into consideration of water management. As pressure upon the world's freshwater resources grows there is an urgent need to develop water management policies and management approaches that can help sustain these resources and foster their equitable use by the rural poor. If this is to be achieved however much better information on the value of tropical river fisheries is required. To contribute to meeting this need the WorldFish Center and the Comprehensive Assessment of Water in Agriculture have joined forces to carry out an assessment of the value of tropical river fisheries and the tools that have been used to carry out these valuations.

The value of river fisheries

To assess the value of river fisheries and consider how valuation might make a more important contribution to policy decisions on river fisheries in developing countries the WorldFish Center brought together a team of economists and social scientists over the course of 2003. This study addressed three principal questions:

- What is the status of knowledge of the value of river fisheries at present?
- What is known about the impact of changes in river or water management?
- What valuation techniques have been used to date and how do they compare in terms of their usefulness for future valuation assessments?

Status of knowledge of river fisheries valuation

This analysis has highlighted the general paucity of information on the value of river fisheries. However, the case-studies which are available also indicate that river fisheries are capable of generating significant economic benefits. For example, the Rufiji River floodplain and delta in Tanzania currently generates over US\$7 million each year, while the best estimate of current global inland fisheries production is 8 million metric tonnes valued at US\$6 billion (first sale value), mainly from river fisheries. This is equivalent to 25%



of the current value of annual fish exports from developing countries (US\$25 billion). River fisheries also provide employment, income and food for over 50 million people worldwide. In many countries, river fisheries, along with other CPRs make an important contribution to the 'poverty safety-net' for rural people. In such situations, rural households adopt a livelihood diversification strategy to cope with risk and uncertainty, and fishing is often undertaken on a seasonal basis integrated with farming and other activities.

Impact of changes in river basin management

The study also shows that there is a general paucity of information on the impact of river management on the value of river and inland fisheries in developing countries, although there is a widespread recognition of impacts - the effect of large dams on the hydrology, ecology and livelihood support attributes of tropical rivers is especially well-known. The few valuation studies which have been undertaken have made an important contribution to our understanding of these impacts. For example, in Brasil, the Tukurui Dam has had a major impact on the Tocantins River - downstream fish catch has declined by 45%, while in Kenya, an assessment of further dam construction on the Tana River projects that the dam could reduce river fisheries and wetlands benefit flows by over Ksh60 million. In both these cases the affected river fisheries make a significant contribution to the subsistence livelihoods of rural people in the area - how will these people cope if their environment is subject to drastic changes, and the state and government are unable to assist?

Valuation methodology compared

Building upon these analyses the study compares the valuation methodologies which have been used around the world and assesses their strengths and weaknesses. In the final study report to be published in 2004 these will be presented in the form of a simple guide to valuation techniques that can be used to assess the value of river fisheries.

Recommendations

The study presents 3 major Recommendations:

1. There is an urgent need to increase and upgrade the global information base on the value of river (inland) fisheries, and to make this information available to national and international policy-makers in a suitable form.
2. There is a need to upgrade the information base on the impact of changes in river management on the value of fisheries in developing countries, and to make this information available to policy-makers. Relevant capacity-building will be vital to support this process.
3. There is a need to develop a 'valuation toolbox' for tropical (inland) fisheries, combining theoretical and empirical approaches. This would help to establish 'best practice' guidelines, and a standardized approach, to the assessment and the meeting of information needs within the policy process, at both national and international levels.



	Annual inland fisheries production (tonnes), (% total production)	Conventional economic value	Valuation of river and inland fisheries		
			Economic impact assessment		Socio-economic & livelihood analysis
			Direct use value (financial values, mean and range) (US\$ millions)	Other measures (export / import values in US\$ millions)	
C/S America	351,617 (4%)	Not known globally; some case-studies.	237 (122 - 352)	Total employment: >1 million Per caput fish supply: 8.9 Kg/yr Value fish exports: 5,503 Value fish imports: 594	Some studies, particularly in Amazon;
W/C Africa	847,901 (10%)	As above	1,225 (439 - 2010)	Total employment: > 2 million Per caput fish supply: 6.47 Kg/yr Value fish exports: 2,703 Value fish imports: 1,008	Increasing no. of studies;
E/S Africa	1,204,100 (15%)	As above	605 (378 - 831)	Total employment: > 2 million Per caput fish supply: 6.47 Kg/yr Value fish exports: 2,703 Value fish imports: 1,008	Increasing no. of studies;
Asia	5,754,476 (71%)	As above	3,763	Total Employment: >50 million Per caput fish supply: 14.8 Kg/yr Value fish exports: 17,155 Value fish imports: 6,859	Some studies; esp. Bangladesh, Mekong;
Total	8,155,094 (100%)	Severe deficiency of information	5,830	Total Employment: 50-100 million Per caput fish supply: 13.8 Kg/yr Value fish exports: 25,361 Value fish imports: 8,461	Patchy distribution of information

Table 1. An overview of river and inland fisheries values and valuation.

The full report by Neiland et al, *River Fisheries Valuation: a Global Synthesis and Critical Review*, will be published by the WorldFish Center and *Comprehensive Assessment of Water in Agriculture* and will be available in early 2004.



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