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EDITORIAL

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R.S. Pomeroy

Fisheries Co-management and Transaction Costs

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Abstract

Fisheries co-management is increasingly seen as a solution to the problems of resource use conflicts and overexploitation. The importance of transactions costs may not have been given adequate attention. The transaction costs are (1) information costs, (2) collective decisionmaking costs, and (3) collective operational costs. The various components of transaction costs of fisheries co-management systems are described in this paper. These costs need to be determined for evaluating the feasibility of a co-managed fishery compared to a centrally managed one.

Introduction

It is believed that co-management, as an institutional arrangement for managing fisheries resources, will effectively address some of the problems of fishery overexploitation, dissipation and redistribution of resource rents, and conflicts among the different groups of resource users. Co-management is expected to lead to improved economic efficiency, equity and sustainability. An implicit assumption here is that the transaction costs (the costs of gaining information about the resource and what users are doing with it, reaching agreements and coordinating with others in the group with respect to use of the resource, and enforcing agreements that have been reached) of co-management institutions are equal to or lower than centralized, government-based institutions. The problem is that it is rarely possible to know, *a priori*, whether the transaction costs of centralized, government-based fisheries management institutions are higher or lower than co-managed institutions.

Transaction Costs in Fisheries Co-management

Using the generic of the Williamson's transaction cost economics (Williamson 1985), the transaction cost in fisheries co-management can be broadly categorized into three major cost items: (1) information costs; (2) collective fisheries decision-making costs; and (3) collective operational costs. The first two categories are *ex ante* transaction costs while the latter is defined as the *ex post* transaction cost. This breakdown is largely

based on anecdotal information and the various types of transaction costs in fisheries co-management are shown in Fig. 1. The transaction costs arise from the need for information, coordination and control that stems primarily from the fact that fisheries resource management decisions involve multiple actors with different interests in long-term, interdependent and uncertain processes.

The success of fisheries co-management programs depends on the amount and types of information available to both decisionmakers and participants or resource users. The information available to those two groups may vary and may not be shared. For example, information on the size of fish stocks, number of stakeholders, perceptions and requirements on allocation of the resource among stakeholders and other interested parties and over time is not easily accessible to everyone. Once this information is acquired, it has to be sorted and organized in a manner that is meaningful to all users. The costs of getting relevant information are high and are closely related to strategic and coordination costs. Participants in co-management systems may share information selectively depending on what they feel will maximize their own welfare. This strategic and opportunistic behavior is one of the components of the transaction costs in fisheries co-management.

One of the many challenges facing fisheries co-management is getting the fishers to reach a level of consensus on contracts or collective actions required. The collective fisheries decisionmaking costs arise from dealing with fishers' problems, participating in meetings, making policies, rules and regulations, communicating decisions to the community, and coordinating with local and central fisheries authorities.

The third major component of transaction costs is the collective operational costs of the management regime. This component can in fact form the strongest counterargument for the centralized resource management system. It is argued that if the resource is to be managed by both the central agency and the community, the operations costs can be quite substantial to ensure that rules are followed, conflicts among users are resolved and the reward system from the new institution is fair and equitable. Operations costs can be categorized into: (a) monitoring, enforcement and compliance costs, (b) resource maintenance costs, and (c) resource distribution costs.

Monitoring, enforcement and compliance costs include the monitoring of fisheries rules, monitoring the fishing areas, catch record management, fishing inputs, conflict management and resolutions and sanctions for rule violations. In resource maintenance costs, the transaction costs result from fishing rights protection, stock enhancement activities and resource assessment work to ensure that the stocks in the area are not overexploited. Resource distribution costs include the costs of distributing the fishing rights to the appropriate stakeholders and costs of managing the participation of the stakeholders and administering the rights to the fishery.

In a co-management system the enforcement and compliance costs may be lower as there may be increased compliance from the increased legitimacy of the regulations and allocation procedures adopted by the community. However enforcement and monitoring activities may still require substantial resources and there may not be the same economies of scale as

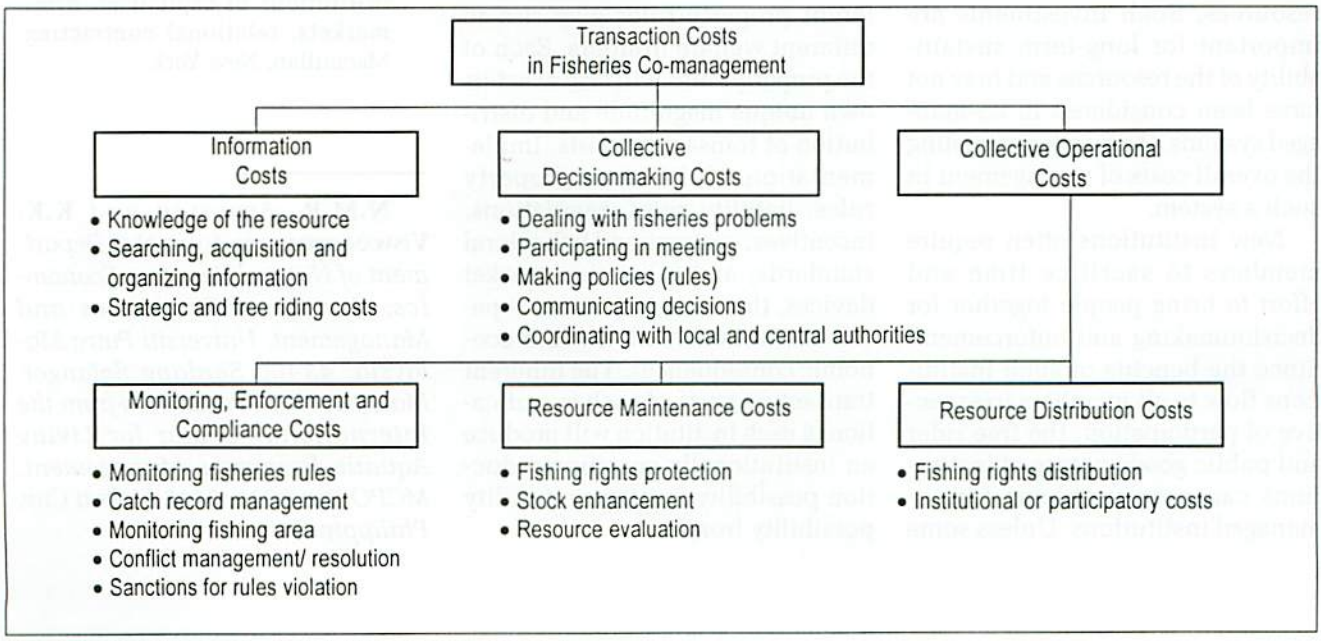

Fig. 1. Transaction costs in fisheries co-management.

in the use of monitoring and enforcement vessels by a larger fishing community as represented by the centralized management system.

The co-management system represents a shift in the burden of financing the costs of governance of common property resources from the central or public purse to user groups. An important benefit from such a shift is the improved compliance with rules and regulations which will result in lower management costs. It is the ability of user groups, especially in overexploited fisheries, to bear the cost of governance from the minimal rents from such fisheries that is often a constraint.

In many fisheries systems the costs of maintaining and enhancing the resource through material interventions involves large investments and long gestation periods to realize the benefits. These costs are often incurred by national agencies in most countries. A move towards co-management systems will call for the community to spend resources for such maintenance and replenishment interventions. Most communities will be reluctant to incur such costs as the benefits may often accrue to future generations and others since fish are migratory resources. Such investments are important for long-term sustainability of the resources and may not have been considered in co-managed systems, thus underestimating the overall costs of management in such a system.

New institutions often require members to sacrifice time and effort to bring people together for decisionmaking and enforcement. Since the benefits of such institutions flow to all members irrespective of participation, the free rider and public goods nature of institutions can pose problems for co-managed institutions. Unless some form of benefits is readily available to members who sacrifice their time, the durability of the institutions will be at stake. In addition, the equity and fairness aspects of the allocation of the benefits and costs of running the institutions will be affected.

The costs mentioned above may not be readily apparent but their identification is crucial in determining the sustainability of fisheries co-management systems. In centrally-based management systems the funds for operating and maintaining the system most often come from the general tax revenue and the element of cross subsidies from other sectors of the economy may be in effect. In co-managed systems the costs often have to be borne by the resource users and the community and obtaining subsidies from another sector may be difficult.

Policy Implications and Conclusion

In welfare analysis, the Pareto criterion is used to judge whether one approach to overcoming an externality is better than another. As stated by Griffin (1991), once transaction costs are admitted, different property rules give rise to different welfare frontiers. Each of the property rules will also exact its own unique magnitude and distribution of transaction costs. Implementation of different property rules, liability rules, regulations, incentives, customs and behavioral standards, and other non-market devices, therefore, represent separate institutions with distinct economic consequences. The inherent transaction costs of each specification of each institution will produce an institutionally specific production possibility frontier and utility possibility frontier.

Co-management of fisheries involves the implementation of different property rules, liability rules, regulations, incentives for resource extraction and distribution. The establishment of these property rules involve transactions costs that will alter the production possibility frontier and the challenge is to determine if the frontier will be moved in or out as the result of the implementation of the new institutional arrangement. There is a need to empirically evaluate the nature of the transaction costs involved in fisheries co-management institutions as a basis for defending a move away from the more centralized form of fisheries management institutions. The discussion presented here will serve as a basis for further operationalization of the three categories of transaction costs and for empirical analysis. Such work has been undertaken by ICLARM under the worldwide collaborative project on Fisheries Co-management.

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