

Meeting the challenges in implementation

It is at the implementation stage that co-management requires careful planning, effort and cooperation of many parties for it to succeed. Co-management in essence is an institutional response that has emerged largely through a bargaining process in which groups with varying power seek to control how institutions allocate rights over resources and provide for their representation for determining those rights. Co-management will not take place in an institutional vacuum and existing institutions or power bases will influence the formation of new ones. Co-management will thus not go without being contested by the many interested parties involved in securing benefits from the resource in question.

Empowering communities to help define management objectives

An important question is how co-management authority can be vested in or assigned to local communities. The experience in Southeast Asia and South Asia shows that co-management is largely seen in terms of functional communities where rights and responsibilities will have to be assigned to representatives of fishing industry organisations or otherwise-defined groups of harvesters. These groups are usually defined in functional terms, e.g. harvesters using particular gears such as trawls and purse seines; fishers harvesting certain species such as shrimps, bivalves, pelagics or demersals; or defined by area of operation or fishing grounds such as inshore and offshore fisheries. Co-management requires a clear commitment on the part of governments to the sharing of power and authority with local governments and groups of people such as local fisher and community organisations.

As a first step, governments must establish conditions for co-management systems to originate and prosper. Governments should allow fishers to hold meetings to discuss problems and solutions and to develop organisations and institutional arrangements for management. A second step for governments to nurture co-management is to give fishers access to governments and government officials to express their concerns and ideas. Fishers should then be given the right to develop their own organisations and to form networks and coalitions for cooperation and coordination. Fishers should be encouraged to develop organisations on their own initiative that meet their needs. Thus, the role of government in establishing conditions for co-management is the creation of legitimacy and accountability for the local organisation and institutional arrangements. It is crucial to note that the government has a pivotal role in co-management especially in providing the legal basis for the functioning of community organisations and community enforcement of user rights and resource extraction rights. As an example, see Case study 1 on page 21 for the case of Bangladesh. Governments are required to defend user rights and security of tenure delineated by community groups. The often-quoted cases of long standing marine fishery co-management arrangements that work in Norway and in Japan have a legal basis (Jentoft and Kristoffersen 1987; Ruddle 1989). This suggests that beyond the simple call for more

community involvement and fisher participation, governments must establish commensurate legal rights and authorities and devolve some of their powers. See for example Case study 3 for the Philippines on page 24.

The process of establishing co-management requires changes in the government organisation involved as a partner. It is necessary to accept that the empowerment process of co-management bodies is associated with a symmetric disempowerment of government agencies, which formerly had full control. There may be a need to supplement department staffing with other types of professional skills than required in former management organisations. There may also be a need to develop capacity to deal with co-management processes in several communities simultaneously. Such changes may require reorientation in mindsets both in government organisations and in the communities towards openness for this type of cooperation.

Integrating the scientific knowledge base for co-management decision-making

One of the noteworthy problems in fisheries management has been a gap in the understanding of condition of the resource as seen by fishing communities, scientists and government managers. Centralised government-based management systems have relied heavily on research based on biological and ecological science as developed in research institutes and universities. The knowledge of fishers and the recognition of the special values, culture, practices of fishers have not been given systematic attention. The integration of fishers' knowledge and practices into contemporary management systems is one of the main benefits of the co-management approach. This is particularly important in ecosystems where both great uncertainty and irreversible natural processes require qualitative judgements.

Many different types of collaborative processes for examining the condition of fisheries resources have been effectively used. Fisheries scientists have a great deal of experience in research collaboration in which fishermen assist scientists in research that the scientists direct. While such programs are well established mainly in developed countries, many examples of successful collaboration exist in both Africa and Asia. Programs, in which fishers gather data about fish abundance, have been rigorously tested against parallel, scientifically designed sampling programs in India, Guinea, the Philippines, Laos and Zambia and found to produce usable reliable data. Many effective methodologies have been developed in four decades of research on understanding folk biology and on gathering local ecological knowledge at first mainly in terrestrial farming systems, but since the 1970s in aquatic environments as well. Truly collaborative approaches, in which fishers and scientists work together on all aspects of research from hypothesis formulation through the interpretation of results, have begun to appear in developed countries. These programs have almost all been the result of grassroots action by citizens of fairly well educated communities, particularly in Canada, Alaska and Northern Europe, which had suffered devastating stock collapses (Wilson 1999). Many have also been part of a broader fisheries co-management program that has linked their results directly to management decisions. There is an increasing willingness on the part of fisheries management agencies in developing countries to make use of the local ecological knowledge found in their fishing

communities, and to take what they consider as appropriate to their situation from these models of even richer scientific collaboration. However, it is a difficult task and a serious challenge to integrate local ecological knowledge and research-based scientific knowledge into a common basis for management decisions.

Co-management and conflicts over fisheries resources

The first lesson learned by any fisheries manager is that all conservation decisions are also allocation decisions, i.e. it is almost impossible to find a measure for conserving fish stocks that does not benefit some resource users more than others. It has actually been found that co-management arrangements may largely be driven by desires to establish mechanisms for allocation of resource access. Very often management measures are selected for their political feasibility, e.g. technical measures that affect many fishers equally or similarly are much easier to implement than quotas and area closures that affect some fishers much more than others. This reality has, of course, played an important role in the development of fisheries co-management programs. Advocates of co-management have often pointed to co-managements' important role in conflict resolution, both directly through facilitating negotiations and by identifying the most appropriate measures as shown in Case study 2 on page 22. Studies of existing co-management efforts have turned up another critical dynamic: conflict can be an important motivation for fishing communities to become involved in co-management. Co-management efforts often increase the influence of government authority in the fishing community. Communities can use this increased authority, for example, to exclude outsiders that they do not want in their fishing area.

Gear conflicts

Many fisheries conflicts are between users of different types of gear. One particularly serious form such conflicts take is between large-scale, mechanized, industrial fishers and small-scale, artisanal fishers usually fishing further inshore. These conflicts exist throughout the world. In Cote D'Ivoire, ensuring that industrial fishers stay their legally mandated distance from shore is the basis of artisanal fishers cooperation in rule enforcement. Artisanal fishers' need for protection against industrial fishers is a primary motivation for co-management in Mozambique and the Philippines as well. Other conflicts that have motivated co-management participation include competition between different artisanal gears, conflicts between gill nets and seines common in Africa, and conflicts on different understandings of property rights as seen in Case study 4 on page 25. In Benin, a conflict between a local management system that was based on the assignment of rights to fish in particular areas, and fishers who wished to use fish aggregation devices almost led to violence and increased government involvement in management. We have found the desire to use government authority to exclude outsiders from fishing grounds playing an important role in co-management programs in Cote D'Ivoire, Laos, Malawi, Nigeria, Thailand and Zambia (see cases in Norman et al. 1998 and Viswanathan et al. In press). A co-management program in Laos has found an innovative way to channel the motivation to exclude gears used by outsiders into both conflict resolution and effective resource management: it operates on the principle that any community can ban any gear within their zone as long as everyone, insiders and outsiders, are equally effected. Another issue that is arising in several African

cases is that local co-management committees are asking for greater policing powers, almost to the point where they would become an arm of the government rather than its partner.

Excluding others

Some partners in a co-management arrangement may see the arrangement as a mechanism to exclude other groups from access to the resource. An example of this was seen in Lake Chiuta in Malawi. Weaker groups including migrant fishers who have been regular resource users and may have legitimate historical rights to access may find themselves excluded because the co-management organisation is dominated by other users who use the organisation to acquire exclusive access rights.

Traditional authorities

Both conflict and cooperation arise where multiple sources of authority are involved in fisheries co-management. Traditional claims to fishing rights play a strong role in co-management programs and, in both Africa and Asia, this has led to the increasing involvement of pre-colonial authorities in co-management programs. Research in both Indonesia and Malawi has found that the involvement of traditional authorities in co-management can lead to quicker conflict resolution. Other experience in Malawi and Zambia suggests that involving traditional authorities in co-management can be a delicate matter. The relationship between these authorities and the government can be an uneven one. Traditional authorities do not always operate in ways that fit well with the transparency and participatory decision-making that co-management is based on, and, most importantly, traditional authorities often have their own unique interests in the fish resource. In Mali, a co-management program based on local authorities was used by powerful interests to serve themselves rather than the fishers. The involvement of non-governmental organisations (NGOs) in co-management can also be delicate. NGOs play a critical role world wide in helping to initiate and build co-management programs. Failures in coordination between NGOs and local governments, however, have led to redundancies and even conflicts. Villages have found themselves with several different local resource management committees; one village in Malawi was found to have five at one time. It is always necessary to verify that new institutions are justified before they are established in terms of their expected roles not already fulfilled through existing mechanisms.

Managing scale issues

An important issue with co-management is the issue of scale. The problem of scale refers to the transferability of both empirical generalisations and casual inferences from one level to another in the dimensions of space and time. At issue is whether and to what extent the causal mechanisms through which institutions affect behaviour at one level of social organisation, such as small-scale or micro level societies, also play key roles at other levels of social organisation, including national (meso-level) societies and international (macro-level) society and vice versa.

One example of scale issues in fisheries is the division of authority between community fisheries regimes versus national fisheries regimes and international regimes for highly migratory species of fish. Most studies of co-management arrangements have been

concerned with management at the local scale, involving one or a few communities. However, lessons learned from such situations may not or will almost certainly not be directly applicable to larger scale situations. The questions are therefore: Can co-management handle large-scale fisheries systems? If it can, what institutional arrangements are required to handle large-scale fisheries? Can the standard design principles for long enduring common pool resource institutions (clearly defined boundaries; congruence between appropriation and provision rules and local conditions; collective-choice arrangements; monitoring; graduated sanctions; conflict-resolution mechanisms and; minimal recognition of rights to organise) be scaled up to apply to higher levels of social organisation? What are the costs involved in scaling up and community participation? (Mustapha 1998).

Evidence from some efforts in the Philippines indicates that bay-wide or large-scale resource systems can be handled by co-managed institutions. However, these are still at the early stage of experimentation and new institutional developments are taking place such as bay-wide joint councils that aim to provide representation for the different communities of the larger group of fishers in the bay area.

In Bangladesh, the case of Beel fisheries is a good example of co-management success on a large scale where thousands of beels or enclosed water bodies are being managed jointly by NGOs representing fishing households. New institutional arrangements between Government and NGOs have emerged. Resources users set management objectives and participate in management with support from the Department of Fisheries (DOF).