

Fisheries Co-management: Key Conditions and Principles Drawn from Asian Experiences

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INTRODUCTION

In 1994, the International Center for Living Aquatic Resources Management (ICLARM) in Manila, Philippines and the Institute for Fisheries Management (IFM) at the North Sea Centre, Hirtshals, Denmark in collaboration with national research partners (NARS) in several Asian and African countries initiated the Fisheries Co-management research project. The collaboration between ICLARM, IFM and NARS was based on a mutual interest to gain practical experience in research in fisheries co-management, to demonstrate its applicability as a sustainable, equitable and efficient management strategy, and to develop models for use and adoption by governments, fisheries communities, NGOs and others. The first phase of the project ends in 1998 and a second phase is planned.

The project strategy is to conduct research in a variety of aquatic resource systems and countries around the world. The selection of several different aquatic resource systems and countries of the world to implement the project is to determine if fisheries co-management can be a viable management strategy under varying conditions (political, social, cultural, economic, biophysical, technological). The overall purpose of the project is to determine the prospects for successful implementation of fisheries co-management strategies. The project will not advocate or promote fisheries co-management, but systematically and comparatively document and assess models and processes of co-management at national government and community levels and their results and impacts. General principles and conditions which facilitate successful implementation of fisheries co-management will be identified.

It is this last sentence which is the subject of this paper. The purpose of this paper is to present results of the research; specifically, key principles and conditions, which facilitate the successful implementation of co-management as, identified through the project's research activities in Asia. These research results represent just one set of results from the various activities of the project.

The paper will begin with a discussion of the strategy and data sources used in the research. As a foundation for the research, the project utilized key conditions for successful common pool resources institutions as identified by Ostrom (1990, 1992). These will be revisited in the second section and assessed in light of their applicability for fisheries co-management in Asia. New conditions and principles identified through the research will be discussed in section three. The paper will conclude with policy implications for fisheries co-management in Asia and worldwide.

RESEARCH STRATEGY AND DATA SOURCES

The research activities of the fisheries co-management project are conducted through three components: (1) comparative case studies of fisheries co-management; (2) country research; and (3) information exchange. The first component, comparative case studies, makes use of secondary data sources such as project reports, research reports, NGO reports, scientific journal articles and other published materials, to gain insights into approaches, processes, performance, results and impacts of co-management at both national government and community levels. The second component, country research, makes use of a variety of research activities, including historical reviews of co-management experiences, case study analysis, impact evaluations of co-management arrangements, hypothesis testing of advantages or benefits of co-management, government legal, institutional and policy analysis, pilot sites, and workshops, to evaluate and document the approaches, institutional arrangements, performance, and legal and policy factors affecting implementation of fisheries co-management. The country research is conducted in collaboration with NARS partners. The third component, information exchange, is a networking and training activity among and between the research partners.

The research project makes use of a comparative analytical approach, relying on a common research strategy and research framework for use in each partner-country and resource system, in order to integrate and improve the understanding and implementation of co-management strategies. The institutional analysis research framework provides for a structured approach to examining and documenting the origin, current status, operation and performance of fisheries co-management arrangements (for more information on the institutional analysis research framework see ICLARM and IFM 1996).

Data for this paper comes from research undertaken by ICLARM staff and NARS partners in the Philippines, Vietnam, Thailand, Malaysia, Indonesia, and Bangladesh over the last five years. Over twenty-five individual research projects and activities have been undertaken during the life of the project. This paper is a synthesis of some of the findings from this body of research. Individual research papers and reports will be referenced in the discussion below.

Each of the six Asian countries in which research activities were undertaken are implementing fisheries co-management to varying degrees (Pomeroy et al. 1996; Ahmed et al. 1997). Of the six countries, within the Philippines there is the most experience with co-management and community-based management of coastal resources. The Philippines also has the strongest policies and laws supporting co-management in the Local Government Code of 1991, the new Fisheries Code, and the national Development Plan. The new Thailand constitution and national

development plan strongly support community-based management initiatives. The Master Plan for Fisheries Development to the year 2010 in Vietnam and the policies of the Ministry of Fisheries supports participatory approaches to resource management and local user-rights. The Malaysian Department of Fisheries is developing a new fisheries policy, which will endorse co-management arrangements. In Bangladesh, the government and non-governmental organizations are jointly promoting sustainable use of openwater fisheries resources through the active participation of users in management. The program has sought to empower fishing communities to become co-managers of these fisheries. In Indonesia, the national development plan endorses more active participation of fishers in economic development. In addition, there is increasing support by local governments and NGOs to revitalize traditional resource management systems through co-management arrangements.

REVISITING ELINOR OSTROM'S KEY CONDITIONS

As mentioned above, this project made use of key conditions for successful common pool resource institutions developed by Elinor Ostrom (1990, 1992) as working hypotheses for the research. The analysis of co-management falls in the area of common property theory (Pomeroy and Berkes 1997). These 11 key conditions, described in Pomeroy and Williams (1994), served as the starting point for analyzing the emergence and institutional sustainability of co-management arrangements. Each of these conditions will now be reexamined based on the knowledge and experience gained from this research project in Asia. The importance of each condition to the successful implementation of fisheries co-management will be scored based on a scale of high, medium and low. A score of high indicates that the condition was found to exist and be critically important for success in a majority of cases in Asia. A score of medium indicates that the condition was found to exist and be important for success in a few cases. A score of low indicates that the condition was not found to be important for success.

1. Clearly defined boundaries. The boundaries of the area to be managed should be distinct so that the fishers can have accurate knowledge of them. The boundaries should be based on an ecosystem that fishers can easily observe and understand. It should also be of a size that allows for management with available technology. The research found that boundaries were of high importance to successful implementation of co-management. In Bangladesh, the Oxbow Lakes were of a size that could be easily managed and monitored by the fishers (Khan and Apu 1998). In San Salvador Island and Malalison Island, Philippines, the marine sanctuary had boundaries identified with buoys to inform outsiders of its existence and to allow fisher organization members to more easily monitor the area (Katon, Pomeroy and Salamanca 1997; Baticados and Agbayani 1998).
2. Membership is clearly defined. The individual fishers or households with rights to fish in the bounded fishing area and participate in area management should be clearly defined. The numbers of fishers or households should not be too large so as to restrict effective communication and decision-making. The research found that clearly defined membership was of high importance to successful implementation of co-management. In Bangladesh, membership in the lake fisheries teams of the Oxbow Lakes was clearly defined to include

those fishers living around the lake (Khan and Apu 1998).

3. Group cohesion. The fisher group or organization permanently resides near the area to be managed. There is a high degree of homogeneity, in terms of kinship, ethnicity, religion or fishing gear type, among the group. The research found that group cohesion, especially in terms of group homogeneity, was of medium importance to successful implementation of co-management. In the Oxbow Lakes of Bangladesh, Muslim and Hindu fishers were able to work together on the lake fisheries teams (Khan and Apu 1998). In the Philippines, successful co-management projects occurred in both socio-economically and culturally homogeneous and heterogeneous communities (Pomeroy et. al. 1996). This is not to downplay the importance of this condition, for there were many communities in Vietnam, Thailand, Indonesia and the Philippines where successful implementation of co-management was dependent on the high level of socio-economic and cultural homogeneity of the community.
4. Existing organization. The fishers have some prior experience with traditional community-based systems and with organizations, where they are representative of all resource users and stakeholders interested in fisheries management. The research found that this condition was of medium importance to successful implementation of co-management. While it was useful for fishers to have had some prior experience with traditional resource management systems and with organizing for collective action, it was not necessary for success. There were many cases in the Philippines, Thailand and Bangladesh where co-management was successful despite the fact that fishers had no previous experience with organizing or resource management (Katon et. al. 1997; Katon et. al. 1998; Masae 1998; Khan and Apu 1998).
5. Benefits exceed costs. Individuals have an expectation that the benefits to be derived from participation in and compliance with community-based management will exceed the costs of investments in such activities. This condition was found to be of high importance for success of co-management. In the Philippines, NGOs spend a great deal of time in 'social preparation'; that is, educating the fishers about the benefits and costs of co-management and the economic implications of choosing among different management and development strategies (Foltz, Pomeroy and Barber 1996; van Mulekom 1998).
6. Participation by those affected. Most individuals affected by the management arrangements are included in the group that makes and can change the arrangements. The same people that collect information on the fisheries make decisions about management arrangements. This condition was found to be of high importance for the successful implementation of co-management. In the Oxbow Lakes of Bangladesh, the lakes fisheries teams allowed all members to have equal voting rights in making management decisions (Khan and Apu 1998). In San Salvador Island and Malalison Island, Philippines, all members of the fisher organization were involved in making and changing the rules (Katon, Pomeroy and Salamanca 1997; Baticados and Agbayani 1998).
7. Management rules enforced. The management rules are simple. Monitoring and enforcement are able to be effected and shared by all fishers. The research found that enforcement of

management rules was of high importance for success of co-management. In San Salvador Island, Philippines, the fishers shared responsibility for guarding the marine sanctuary which led to high levels of enforcement of rules (Katon, Pomeroy and Salamanca 1997).

8. Legal rights to organize. The fisher group or organization has the legal right to organize and make arrangements related to its needs. There is enabling legislation from the government defining and clarifying local responsibility and authority. This condition was found to be of medium importance for successful implementation of co-management. In the Philippines, for example, NGOs assisted in organizing fishers to take responsibility for resource management before there was any formal legislation from the government. The responsibility and authority of local fisher organizations for resource management in the Philippines has now been formally clarified under the Local Government Code of 1991. In Thailand a similar situation exists in that fishers have been organized for co-management without any legal right from the government. The new Thailand constitution supports the right for fishers to organize. In both cases while no legal right to organize exists, the government does not stop fishers from organizing.
9. Cooperation and leadership at community level. There is an incentive and willingness on the part of fishers to actively participate, with time, effort and money, in fisheries management. There is an individual or core group who takes responsibility for the management process. The research found that this condition was of high importance for successful implementation of co-management. In the Philippines, a research project evaluating the impacts of community-based management projects concluded that communities where fishers had positive levels of cultural values and attitudes toward collective action were consistently related to perceptions of positive change and were more successful (Pomeroy et. al. 1996). In all cases examined it was found that strong local leadership was critical for success.
10. Decentralization and delegation of authority. The government has established formal policy and/or laws for decentralization of administrative functions and delegation of management responsibility and/or authority to local government and local group organization levels. This condition was found to be of medium and low importance for successful implementation of co-management. Throughout the Asian region, co-management has been successfully implemented without the formal policy support of government. Only recently have governments, the Philippines and Thailand being notable cases, developed and implemented policies for decentralization and delegation of authority to local fishers organizations for resource management. It should be noted that the existence of formal policies and laws for decentralization does increase the chances of success for co-management (Katon et. al. 1997; Katon et. al 1998; Baticados and Agbayani 1998).
11. Coordination between government and community. A coordinating body is established, external to the local group or organization and with representation from the fisher group or organization and government, to monitor the local management arrangements, resolve conflicts, and reinforce local rule enforcement. This condition was found to be of medium and low importance for the successful implementation of co-management. In some cases such a

formal coordinating body does exist, such as the San Miguel Bay Management Authority in San Miguel Bay, Philippines (Pomeroy and Pido 1995), but it is not common. In other cases, coordination between the government and community is informal. This is done primarily through dialogues, meetings and consultations.

A reexamination of Ostrom's eleven key conditions for successful common pool resource institutions based on knowledge and experience gained on fisheries co-management in Asia has found that six of the eleven conditions were of high importance for the successful implementation of fisheries co-management.

CONDITIONS AND PRINCIPLES FOR SUCCESSFUL CO-MANAGEMENT

Through the research activities a number of conditions and principles, which facilitate the successful implementation of fisheries co-management, were identified. Some of these conditions and principles are already known, while others are new and innovative.

1. Individual incentive structure. The success of co-management hinges directly on an incentive structure (economic, social, political) that induces various individuals to participate. Such individuals may include a resource user, a resource stakeholder, or a politician. The co-management process often involves giving up individual short-term benefits for real and perceived longer-term benefits. Often, the costs are high in terms of lost income or voluntary labor. For a poor fisher with a family to feed, the incentive structure to support and participate in co-management must be clear and large. Risk is involved for the individual in changing management strategy. The individual must understand and agree to the co-management arrangements. Individuals must recognize an incentive for co-management before the process begins (i.e., the recognition of a resource depletion problem and the need for action to deal with it) and/or need information to further develop their understanding and recognition of the incentive. This incentive may start as simply as hope for a better tomorrow, but usually "matures" as the individual gains more information and as the process develops over time. It is often easier and faster to implement co-management arrangements where the resource user recognizes an incentive for participation on their own and undertakes action rather than when an incentive is presented by an external agent. One method to measure that an incentive structure for participation and action does exist in a community is when the community members invest their own resources (labor, money) in the project.

Different incentives appeal to different individuals. For an individual resource user, the incentive may be economic, primarily in terms of higher income, food availability or protection of livelihoods. It may also be social, in the form of higher prestige among peers or legitimate access to coastal resources (Segura-Ybanez 1996; Katon et. al. 1997; Baticados and Agbayani 1998). Co-management arrangements that offer an improvement in these areas are likely to be appealing. Economic incentives are also important to resource stakeholders, such as fish traders and processors, who are directly dependent on a steady supply of fish products for their livelihood. For resort owners, dive tour operators and managers of tourist-related businesses, the preservation of coastal ecosystems and the maintenance of clean coastal waters

are vital because these have a direct bearing on the earnings they derive from those who patronize their businesses.

Other resource stakeholders may be motivated by different incentives. The concern for stable ecosystems, food security for present and future generations, improved living conditions, and equitable property rights often underlie the motivation of development advocates, change agents, and individual members of resource management councils. The reduction of conflicts and the streamlining of plans and policies through co-management arrangements may motivate government administrators, planners and policy-makers to support co-management.

For politicians, the incentive to support co-management may be rooted in the desire to be recognized for their achievements in governance and resource management. Such achievements strengthen their capacity to win more votes from a broader base of constituents and improve their chances of being re-elected to positions of power and influence.

2. Recognition of resource management problems. The recognition of resource management problems may take the form of a progressive decrease in fish catch, disappearance of valuable species, declining mangrove stands, and existence of resource use conflicts. An impetus is needed to propel co-management forward (Pomeroy and Berkes 1997). In successful cases of co-management in the Philippines, awareness of resource-related problems prompted stakeholders to enter into collective action, particularly in communities that are heavily dependent on coastal resources and are vulnerable to non-sustainable resource uses (Katon et. al. 1997; Katon et. al. 1998; Baticados and Agbayani 1998). This is largely due to the threats to survival, economic livelihood, and food security that deteriorating resource conditions bring about.

One of the major reasons for failure of certain community-based management projects in the Philippines is lack of problem recognition by resource users. This may sound like a simple issue but due to the top-down approach of many co-management projects, the resource users are really not active but passive recipients of project interventions. The project objectives are conceptualized outside the community and without true community participation. As such, the resource users may not fully recognize the problem in the same way as the external change agent. The resource user may also work with the project only for what they can get out of it, not fully participating for long term success. Of course, this is not always the situation. In some cases, the resource users recognize that there is a problem and take the initiative for action themselves.

3. Leadership. Local leadership is a critical and necessary condition for success of co-management. Local leaders set an example for others to follow, set out courses of action, and provide energy and direction for the co-management process. While a community may have leaders, they may not be the correct or appropriate leaders for co-management. Local elite may be the traditional leaders in a community, but they may not be the appropriate leaders for a resource conservation and management effort. Leaders may need to be drawn or developed from the ranks of resource users. These individuals may be more acceptable and respected by

their peers. In Bangladesh, the local leaders of the baors were identified and elected by the fishers. Leaders' term of office were limited so as to give others the chance to gain leadership skills and to reduce the possibility of corruption (Khan and Apu 1998). Reliance on one individual as a leader can be a problem. In certain Philippine cases, projects failed when the leader died, left political office, or left the area because there was no one to take the leader's place (Katon et.al. 1998). The external change agent must not act as leaders because the community will become dependent upon them. The community must develop local leadership itself. Training and education efforts must strive to build and develop leadership skills among a variety of individuals in the community so that the co-management activity does not become dependent on any one person.

Core group formation is strategic in identifying and developing leaders (Buhat 1994). The members of the core group may be drawn from committed individuals who consistently participate in co-management activities and who share a concern for sustainable resource management. Core groups normally take responsibility for the initial implementation of co-management strategies. From their ranks, capable leaders often emerge to guide present and future undertakings. Documented experiences affirm that locally recruited and trained leaders, both formal and informal, are a potent force in mobilizing residents for collective endeavors, spearheading awareness campaigns and outreach efforts, and motivating stakeholders to take action (Pomeroy et. al. 1996; Katon et. al. 1997).

4. Stakeholder involvement. Partners in co-management need to recognize that the stakeholder community is broader than the local resource user community. Stakeholders are defined as institutions, social groups and individuals that possess a specific, direct and significant stake in the resource and area (IUCN 1996). Stakeholders include, but are not limited to, local resource users, resource users from other communities who are dependent on the same resource, traders and business people, government agencies responsible for resource management, and advocates of resource management. A well-balanced representation of stakeholders tends to facilitate a politically neutral process. The process of involving stakeholders is time consuming, but may be expected to lead to more acceptable and sustainable arrangements. There should be clearly identified benefits and costs to all stakeholders, both short- and long-term, to participating as a partner in co-management. It should be recognized that coastal communities are not homogeneous and that there are different viewpoints among the stakeholders. Reaching a consensus on issues can be difficult even in small communities. Issues may need to be addressed on both a community-wide and a resource or species or gear specific basis (Baticados and Agbayani 1998).

Many co-management projects have failed because the target audience of the project was only the fishers. The projects failed to consider and/or include the other resource stakeholders in the process. In the Philippines, for example, early community-based management projects focused their activities only on fishers. While this proved useful for the fishers, it often alienated other stakeholders, such as fish traders with whom the fishers had a credit-marketing relationship. Through this relationship the fish traders could often control the actions of the fishers. The alienation of the fish traders led them to coerce the fishers to less actively support

the project and this led to eventual breakdown of the organizational and institutional arrangements made under the community-based management project (Carlos and Pomeroy 1996).

For a co-management arrangement to work, it is essential for partners to have a good understanding of each others' positions, needs and apprehensions. The conduct of informal consultations at the outset helps create interest in common issues and allows stakeholders to express their views on alternative management options. Establishing rapport with stakeholders from an early stage is important. This is facilitated by: meeting with leaders of stakeholder groups; showing a genuine interest in local issues; explaining the reasons for touching base with a wide group of people and groups; ensuring that the host community understands the reasons for talking to other stakeholders; and clarifying unrealistic assumptions expressed by community members.

5. Empowerment. The marginalization of coastal communities has led to the problems of poverty and resource degradation. Addressing marginalization would require empowerment or the actual transfer of economic and political power from a few to the impoverished majority. By transferring the access and control of resources from a few to the community at large, the community is gradually empowered in the economic realm. Simultaneously, political empowerment ensues as community management and control over the resource are effectively operationalized (Addun and Muzones 1997).

Individual and community empowerment is a central element of co-management. Empowerment is concerned with capability-building of individuals and community in order for them to have greater social awareness, to gain greater autonomy over decision-making, to gain greater self-reliance, and in establishing a balance in community power relations. Empowerment covers a range of actions including enhancing community access to services and infrastructure, ensuring community participation, developing critical consciousness or consciousness raising of the people, and gaining control over the utilization and management of natural resources. Empowerment can be considered as an individual and a community desire to change something. Empowerment is undertaken at individual and community levels. Individual empowerment leads to community empowerment. The empowerment process must be balanced since it may have differential impacts on the community leading to not a balance of power but simply a redistribution of power elites. There is a tendency for rural power structures to gain control over resources. Co-management can be easily hijacked by the local elite. Empowerment reduces social stratification and allows groups in the community to work on a more equal level with the local elite.

Individual and collective empowerment is enhanced by education and training efforts that raise the level of knowledge of those involved in the co-management process. Empowerment is only functional if it is based on the socio-cultural and political context of the community. The co-management process needs to adopt a gender-balanced perspective, and must acknowledge the position of women. Women should be given the opportunity to develop themselves and actively participate in the co-management process (Foltz et. al. 1996).

6. Trust between partners. No co-management arrangement can survive unless a relationship of trust and mutual respect is developed and maintained between the partners. The establishment of trust between partners usually takes a long time to develop and takes concerted effort by the partners. There is some risk involved by the partners in participating in co-management. Fishers usually have a low level of trust with government, for example. Trust will require the development of good communication channels and open and ongoing dialogue. Meeting objectives and mutually agreed targets enhances trust. These actions reduce risk and stimulate partner cohesion which will have a positive effect on building trust. This can be started in the early stages of the co-management process and strengthened over time. In the Oxbow Lakes of Bangladesh, trust was developed among the fishers by upholding the rules. Those individuals who consistently disobeyed the rules were dismissed from the fisher organization (Khan and Apu 1998).
7. Property rights over the resource. Property rights, either individual or collective, should address the legal ownership of the resource and define the mechanisms (economic, administrative, collective) and the structures required for allocating use rights to optimize use and ensure conservation of resources, and the means and procedures for enforcement. The case studies in the Philippines show that when user rights are specified and secure (such as with a mangrove certificate of stewardship contract), there is a change in the behavior and attitude of the fisher toward conservation and a much greater chance that the intervention will be maintained. Without legally supported property rights, resource users have no standing to enforce their claim over the resource against outsiders. In addition, the case studies show that government support through laws, funding and enforcement is crucial to sustain the intervention. In most cases, local initiatives require active collaboration with government to enforce user rights (Pomeroy et. al. 1996). Local interventions were sustained where property rights existed, were clear and were enforced (Pomeroy et. al. 1996).
8. Local political support. The cooperation of the local government and the local political "power structure" is necessary to support and participate in the co-management arrangements. As discussed above, there must be an incentive for the local politicians to support co-management. There must be political willingness to share the benefits, costs, responsibility and authority for co-management. Co-management will not flourish if the local "power structure" is opposed in any way to the arrangements. The case studies in the Philippines show this quite clearly. In those communities where the local political "power structure" was not included in the process or was opposed to the project for some reason, the community-based management interventions failed to be sustained after the project ended (Pomeroy et. al. 1996).

Resource users may lack the confidence and political skills to effectively interact with political officials. It will take time to break down these barriers to allow for partnership. In the Philippines, some fisher organizations take a "no political alliance" policy and build informal ties with all political parties in a community to "spread the bet" and protect themselves from political change (van Mulekom 1998).

9. Capability building. Co-management often requires a conscious effort to develop and strengthen the capability of the partners for collective action, cooperation, power sharing, dialogue, leadership and sustainable resource management. Coastal villagers may not always have a tradition of collective action. Functioning organizations of resource users may not be in place. Moreover, the range of skills and knowledge required to address the complex dimensions of resource management may not be adequate. In these cases, capability building is a must.

To reverse the effects of destructive fishing practices, change non-sustainable practices, or provide viable alternatives; people must learn new management skills and new technologies. Partners need to be equipped with knowledge, skills and attitudes to prepare them to carry out new tasks and meet future challenges (Pomeroy et. al. 1996). Capability building must address not only technical and managerial dimensions but also attitudes and behavioral patterns. Training and education may include leadership, situation analysis and problem-solving, consensus building, value reorientation, technology application, livelihood and enterprise management, conflict management, advocacy, facilitation, networking, ecological and socioeconomic monitoring and evaluation, and legal/para-legal, among others. In the Philippines and other Asian countries, the experience affirms that capability building strengthens the confidence and sense of empowerment of resource users and partners. Providing opportunities to visit communities with successful resource management projects also helps create the enthusiasm and the motivation to embark on similar activities in their own community (Katon et. al. 1997). Capability building, moreover, enables local residents to sustain resource management interventions and pursue new initiatives.

10. Organizations. Co-management requires the existence of legitimate organizations that have a clearly defined membership. These organizations must have the legal right to exist and to make arrangements related to their needs. The organization must be allowed to be autonomous from government and political pressure. They are vital channels for representing resource users and stakeholders, asserting property rights and rules, and influencing the direction of policies and decision-making. The organization will need to be recognized as legitimate by the community members, resource users and stakeholders to be able to carry out its mandate. The organization should also represent the majority of resource users in the community.

In the Philippines, the formal recognition by the government of the role of resource users and non-governmental organizations as valuable partners in development confers legitimacy to the establishment of co-management organizations and favors the pursuit of co-management arrangements. Peoples' organizations and NGOs are formally allowed to enter into partnerships with local government units on a broad range of concerns, such as promotion of ecological balance, local enterprise development, delivery of basic services, capability building, and enhancement of the economic and social well-being of the people (Katon et. al. 1997). The more successful community-based co-management projects in the Philippines were those where organizing is not a prerequisite, but rather the community organization evolves after the people recognize the need for it (Sandalo 1994).

11. Conflict management. Arbitration and resolution of disputes are imperative when conflicts arise over co-management and institutional arrangements. If resource users are to follow rules, a mechanism for discussing and resolving conflicts and infractions is a must. There is a need for a forum for resource users to debate and resolve conflicts and to appeal decisions. Conflict management should be conducted at the local level where solutions can be found quickly. It is often useful to have a mediator who can objectively assess and propose solutions to the conflict. While the government can act as an outside mediator for local conflicts and as an appeal body, heavy reliance on the government to resolve conflicts is not good. Co-management thrives in a situation where forums and appeal bodies are available for deliberation and conflict resolution. The Philippine and Bangladesh experiences show that conflict management tends to be less problematic when the resource users are involved in rule formulation and enforcement and when sanctions are imposed on the rule violators (Katon et.al. 1997; Katon et. al. 1998; Khan and Apu 1998).
12. External agents. Co-management often needs change agents from the outside to expedite the process. These external agents assist in defining the problem; provide independent advice, ideas and expertise; guide joint problem solving and decision-making; initiate management plans; and advocate appropriate policies. The external agent should be objective and serve a catalytic role in the development process. The external agent should not directly interfere or influence the process, but may make suggestions or provide information on how to proceed in the process or with a policy. Documented experiences underscore the role of external agents in setting in place a process of discovery and social learning. These catalysts open the eyes of resource users, stakeholders and partner organizations to pressing issues, urge them to search for appropriate solutions, and challenge them to take collective action (Katon et. al. 1997; Katon et. al. 1998; Baticados and Agbayani 1998). Change agents may come from NGOs, academic institutions, project teams and other groups. The external agent should have a temporary relationship with the co-management process, serving their particular function and then phasing out.

In the Philippines and other Asian countries, it is not unusual for coastal communities to be aware of deteriorating resource conditions. However, these communities normally need assistance from external agents in carrying out a thorough situation analysis and digging deeper into the root causes of problems. External agents fill a special role in terms of drawing out insights with a participatory style of facilitation, processing the insights, and guiding the community in reaching its goals. Their willingness to spend long hours in the community to work with local people, ability to focus on community objectives, and their linkages with donors and other supportive organizations are among the factors which favor their catalytic role.

However, the recruitment of external agents, such as NGOs, may not always be ideal in establishing co-management. The staff may be young and may not readily be accepted by traditional societies. Some of them may have ideological views on development that may not be acceptable to the community or the government. Others may be reluctant to involve the

government and the business community even though they are stakeholders in resource management. They may also lack funds to finance continuing operations.

13. Clear objectives from a well-defined set of issues. The clarity and simplicity of objectives helps steer the direction of co-management. Partners need to understand and agree on the issues to be addressed, know what must be achieved, where the activities are headed, and why. Clear objectives developed from a well-defined set of issues are essential to success. Those involved in the co-management process must see and agree that the issues are important to their daily existence. The co-management process may involve multiple objectives and multiple implementation strategies. These should be prioritized, and linked where possible.

Fundamental to co-management are a common understanding of the situation, comprehension of the root causes of the problems and the issues, and an agreement on appropriate solutions to identified problems. The fishery tends to be better managed when resource users, stakeholders, and partner organizations have a good grasp of why they are managing the resource and what results are envisaged (Katon et.al 1997).

14. Effective communication. Providing forums for discussion are fundamental to co-management. A process must be developed to understand needs and expectations of all partners. In some cases, needs and expectations may not be straightforward. Values held by different groups, including cultural, religious and traditional beliefs, must be respected. Public discussions that encourage a free and non-threatening exchange of information foster effective communication. Dialogues need to clarify an understanding of needs, expected roles, extent of responsibility sharing among partners, and expected benefits and costs in the short-term and long-term, among others (Baticados and Agbayani 1998).
15. Political and social stability. The absence of internal disruptions rooted in political, social and economic factors is a condition for successful co-management. The partners in co-management must be unhampered by grave threats to life, property and livelihood. Where sporadic conflicts exist or where peace and order is disrupted for prolonged periods, tension and uncertainty adversely affect the potential for co-management (Carlos and Pomeroy 1996). In a similar sense, where a political or economic system is in a state of change, people are unwilling or unable to make commitments to co-management arrangements. In Cambodia, for example, people are reluctant to organize due to the negative experience with organizing during the period of Khmer Rouge control of the country.
16. Networking and advocacy. Networking is the bringing together of information and expertise in support of co-management. The development of a network of community organizations is a powerful tool for implementing co-management. Networking of communities involved in similar resource management issues provides opportunities to learn from others, deepen insights into actual experiences, and inspire new initiatives at other sites (Katon et. al. 1997; Baticados and Agbayani 1998).

Networks may take many forms: alliances of support groups, organizations of stakeholders,

and federations of resource users. They may be formal or informal. Networking is closely associated with the establishment of four types of linkages: 1) with other communities and projects involved in similar co-management initiatives; 2) with sources of power and influence; 3) with NGOs and business groups; and 4) with donors and government agencies.

Networking is closely associated with advocacy. Advocacy argues the case for a particular course of action or situation. It is the political struggle for the recognition of property rights at various levels (Addun and Muzones 1997). At the local level, it involves a campaign directed at resource users and stakeholders, formal and informal organizations, and local seats of decision-making. At the national level, it involves working towards a federation of fishers through networking, as well as pushing for relevant policy and legislative reform. If the co-management arrangement is to withstand competing demands that have negative repercussions on fisheries, advocacy is imperative. Advocacy, however, must be consistent with the culture in which it is used.

17. Enabling policies and legislation. Co-management cannot work effectively in a vacuum where there are no supportive policies and legislation. If co-management initiatives are to be successful, basic issues of government policy to establish supportive legislation, rights and authority structures must be addressed. Policies and legislation need to spell out jurisdiction and control, provide legitimacy to property rights and decision-making arrangements, and clarify the rights and responsibilities of partners. The legal process formalizes rights and rules and legitimizes local participation in co-management arrangements.

If supportive legislation and policies are in place, partners tend to have less difficulty in asserting their rights and roles, particularly if the judicial system is fair and objective. The legal basis for the resource users' participation in resource management is vital and must address fundamental concerns, which include: 1) who has the right to use the resource; 2) who owns the resource; and 3) what is the legal framework for implementing co-management arrangements. The arrangements may be undermined in the absence of a legal basis. The role of the government in establishing conditions for co-management is crucial, particularly in the creation of legitimacy and accountability for institutional arrangements and the delineation of power-sharing and decision-making.

In the Philippines, the enactment of the Local Government Code of 1991 (LGC) ushered in the formal devolution of powers and responsibilities from the central government to the local government units and peoples' organizations. The changed administrative arrangements resulting from the LGC have created a supportive environment for co-management to prosper (Katon et. al. 1997). A structural power shift placed coastal local governments at the forefront of resource management (Katon et. al. 1998). At the local level, the passage of complementary ordinances and the integration of sustainable resource management in local policies and plans have further enhanced co-management efforts.

18. Provision of financial resources/budget. Co-management requires financial resources to support the process. Funds need to be available to support various operations and facilities

related to planning, implementation, coordination, monitoring, and enforcement, among others. Funding, especially sufficient, timely and sustained funding, constitutes a critical element to the sustainability of co-management efforts (Segura-Ybanez 1996). In many instances, resource user organizations are unable to continue existing programs or start new ones due to limited financial resources that members can raise on their own. Often co-management projects which are initiated and funded from outside sources fail when the project finishes due to the inability of the partners to fund the activities. Funds also need to be made available on a timely basis to sustain and maintain interventions. The co-management arrangements must be supported and accepted so that partners will be confident enough in the process to invest their own funds and time. Co-management must be designed from the start with a secure internal budget source. Too much dependence on external sources will impact upon sustainability of the arrangements (Carlos and Pomeroy 1996).

19. Government agency support. Effective links between government agencies like fisheries departments, local fisheries service, research institutions, extension service, and environmental agencies enhance co-management arrangements. Government agencies need to be capable and willing to partner, support and interact with other stakeholders in the co-management process. Government agencies should be shielded from short-term political pressures to maintain power sharing in the co-management arrangement.

The government agencies provide assistance and services (administrative, technical and financial) to support the local organizations and co-management arrangements. The cooperation of the government must always be stimulated, solicited and nurtured, as without this support the co-management arrangements may have difficulty being implemented (Calumpang 1996).

Government agencies can serve to oversee local arrangements and deal with abuses of local authority, conflict management, appeal mechanism, and applying regulatory standards. Government fisheries administrators may be reluctant to share power with fishers. They may fear infringement by local resource users and their representatives upon what they consider their professional and scientific turf. The authority, responsibility and functions of government agencies should be specified in the co-management contractual agreement.

20. Fit with existing and traditional social and cultural institutions and structures of the community. New management plans and efforts should be based on (sometimes diverse) local social and cultural institutions and structures and contribute to strengthening or revitalizing these institutions and structures. The needs and expectations of the community may not always be straightforward due to the social and cultural value system.

In many coastal communities, there exists traditional or informal systems of resource management. These systems have often worked well at meeting management objectives of the community and at achieving ecological sustainability, social equity and economic efficiency. Co-management can be based on these traditional or informal systems such as in Indonesia (Nikijuluw 1996) or on strong family or community relationships such as in Thailand (Masae 1998). Local indigenous knowledge of ecological processes is an important cultural resource

that can guide and sustain co-management. Reluctance to acknowledge and utilize local knowledge can act as a severe constraint in the development of viable resource management strategies.

21. Partner sense of ownership of the co-management process. Active participation of partners is directly related to their sense of ownership and commitment to the co-management arrangements. Partners involved in co-management need to feel that the process not only benefits them, but that they have a strong sense of participation in, commitment to and ownership of the process. External agents working to plan and implement the co-management arrangements must allow the partners to recognize themselves as the owners and directors of the process. Early and continuous participation of partners in planning and implementation of co-management is related to success (Pomeroy et. al. 1996). It allows partners to demonstrate their commitment to the process. Not only does this type of involvement serve to adapt activities to local needs, but partners also gain a better understanding of the problems involved in implementation and a greater sense of empowerment and confidence. Objectives need to be developed jointly by the partners and external change agents.
22. Effective enforcement. Vigorous, fair and sustained law enforcement requires the participation of all partners. Enforcement can be carried out separately by an enforcement unit, or in collaboration between local informal or traditional enforcers (church, senior fishers, local leaders) and formal enforcers (police, coast guard). Local enforcement efforts may need to be backed up by government enforcement bodies to ensure objectivity. It may be necessary to have government law enforcement agencies involved in dealing with outsiders in order to have better cooperation.

The motivation to comply with regulations depends upon rational decisions where the expected benefits of violating the rules are measured against the risk of getting apprehended and fined. It is also linked to socio-cultural mechanisms that regulate behavior (fear of ancestral spirits, social exclusion, moral obligation). A key variable for determining compliance is the individual perspective of the fairness and appropriateness of the law and its institutions (Kuperan et. al. 1996). The willingness to comply is linked to the perceived legitimacy of the authorities charged with implementing the regulations. Local enforcers (bantay dagat in the Philippines, kewang in Indonesia) can be very effective provided they are formally legitimized. Rules should be simple so those affected by them can easily understand and comply. There needs to be good communication between the enforcement unit and the resource user group.

23. Partnerships and contractual agreements. The joint undertaking of co-management by a combination of organizations and groups has obvious advantages in increasing the financial, administrative and technical resources necessary for effective implementation. In addition, inter-agency linkages can promote co-management. It also leads to a stronger foundation for the co-management initiative which can be sustained beyond the implementation period. Partnerships must grow out of a mutual sense of commitment (Segura-Ybanez 1996). Adequate coordination, communication and consultation are necessary, especially with

multiple partners. It is important to have clarification about each other's role, goals, purpose, operation, style and limitations (Carlos and Pomeroy 1996). The process of clarification must take place through equitable dialogue and partnerships.

There is a downside to having too many organizations involved; that is, coordination can become very problematic at the management level. Staff of organizations with different ideological backgrounds or organizational mandates may not always be able to work together even with their common institutional objectives (Bissdorf 1996). When the actions of collaborating partners are not synchronized and consistent, resource users see too many role "players" and this may lead to misconceptions and wrong expectations, and eventually hamper success. Thus, an appropriate operational structure should always be developed based on the needs of co-management arrangement so that coordination between partners will be effective without being too costly to the structure.

To develop mutual understanding between the partners and to strengthen compliance with the co-management arrangements, it is useful to have a written contract of the co-management agreement. This contractual agreement, developed jointly by the partners, would specify the aims, role, function, authority, responsibility, financial, conflict management mechanisms, and rights, among other requirements, between the partners in the co-management arrangement. Partners may initially enter into an informal working agreement as they develop the co-management arrangements and find out about each other, but this agreement must be supported later by a formal contract to be used during the implementation process. A clear understanding of the long-term goals of power-sharing is established in which the differing interests and needs of the partners are reconciled. There should be flexibility in the agreement so that changing arrangements and relationships over time can be accommodated.

24. **Overlap of interests.** Co-management is most likely to be successful where there are significant overlapping interests among the partners, where the partners are affected in similar ways by the arrangements, and where there will be no big winners or losers (Mitchell 1995). It is a prerequisite to have a clear sharing system, and a mechanism for recirculating back into the communities some of the wealth generated by co-management arrangements (Thompson and Shelly 1997).
25. **Flexibility.** Co-management arrangements should be flexible enough so that management has the ability to change plans in response to new problems and opportunities (Yap 1996; Calumpong 1996). A flexible approach towards the development and formalization of the rules and regulations should be adopted recognizing the cultural and traditional patterns of utilization of resources in the community. There should be flexibility to cope with the unexpected, e.g. failure of communication and coordination, unplanned decisions. Unexpected reactions to rules can develop as they are implemented. If the rules and rules making system are too rigid and incapable of adapting to change, resource users will not comply with the rules.
26. **Appropriate scale.** Scale is fundamental in most co-management initiatives. The scale for co-

management arrangements should be that appropriate to the area's ecology, people and level of management. This includes the size of the physical area to be managed and how many members should be included in an organization so that it is representative but not too large as to be unworkable. Decisions on physical scale include not only the boundaries of the area to be managed but should management be conducted on a species or ecosystem level. The scale of the management unit should be appropriate to human resources and the ecology of the area. The boundaries should be based on an ecosystem that the resource users can easily observe and understand. In terms of members, it is observed that small groups are more manageable than larger groups (Cimagala 1996). In co-management where are great number of people are involved, it is wise to divide them into smaller groups to facilitate and enhance supervision, control and management. In general, a limited scale (both in terms of membership and jurisdiction) will support participatory democracy and therefore enhance co-management given that the management structure has appropriate stature and power to initiate the process. Expansion of scale is easier once initial activities succeed and are sustained, that is, start small and simple and show results early (Buhat 1994).

27. Coordinating body. Adequate coordination is particularly important when several partners are involved or when more than one intervention is taking place in a single area (Foltz et. al. 1996). An independent body with representatives from the different partners can function to systemize the co-management arrangements. The aim is to facilitate quick and efficient decision-making, conflict resolution, planning and cooperation. The coordinating body can serve to manage "turf" issues between partners or government agencies. Poor coordination can lead to confusion, unnecessary duplication of efforts, or even activities at cross-purposes or in conflict (Foltz et. al. 1996). An appropriate operational structure should always be developed based on the needs of the co-management arrangements so that coordination between partners will be effective. The coordinator of the process must be experienced in interest-based planning. It is very important to establish at the very beginning the actual mode of coordination. The coordinating body can act as an appeal body for those who question decisions made by local management and enforcement bodies.

In the Philippines, the creation of fisheries and aquatic resources management councils at the village level act to coordinate, give guidance and bring consensus in planning, implementation and enforcement. The members of the management councils include resource users, NGOs, the private sector, and local government (Fellizar et. al. 1997).

28. Social preparation and value formation. The inability to sustain co-management may be partly linked to the insufficient time allocated to the social preparation phase of the process and to rapport building and value formation in the community. Social preparation should always proceed technical and material interventions. Cutting corners during the social preparation phase to yield to pressures to produce material accomplishments is likely to weaken the foundation for self-reliance in the community. Good social preparation is manifested in positive attitudes toward collective action and in the readiness of community members to take on responsibility for resource management and decision-making (Pomeroy et. al. 1996).

POLICY IMPLICATIONS FOR FISHERIES CO-MANAGEMENT

The conditions discussed in the section above are those, which have been identified from Asian experience for the successful implementation of community-based co-management. These conditions are meant to serve as a guide in the planning and implementation of co-management.

The conditions must be viewed in the distinct political, biological, cultural, technological, social and economic context of the Asian region and the individual countries. We need to bear in mind the role these unique characteristics play in shaping the process and implementation of co-management in Asia. They are different than in Western societies and reflect the so-called "Asian values". Resource management systems must be viewed in the context of the complex interactions of these characteristics that have shaped past and present situations and that have a capacity for influencing the future. These characteristics include the small-scale, subsistence based fisheries, the local community traditions, the social and political structures, the political and economic restructuring that is occurring in the region, and the need for food security.

Some of the conditions can be met by means internal to the community, while others require external assistance. The number and variety of conditions illustrates that the planning and implementation of co-management must be conducted at several levels. These levels include the individual (i.e., individual incentive structure, recognition of resource management problem); the stakeholder (i.e., stakeholder involvement, local political support); the community (i.e., fit with existing and traditional social and cultural institutions and structures of the community); the partners (i.e., partnerships, contractual agreements between parties, coordinating body); the government (i.e., government agency support, enabling policies and legislation); the external agent; and the overall process (i.e., effective communication, networking and advocacy, leadership, organization, financial resources).

None of the conditions exist in isolation, but each supports and links to another to make the complex process and arrangements for co-management work. In addition, all of the parties (resource users, stakeholders, external agents, government) have different but mutually supportive roles to play in co-management. The role of government in co-management is often associated with the passage of enabling policies and legislation, vigilant and effective enforcement, arbitration of disputes among partners when these cannot be resolved by the parties themselves, provision of financial and technical assistance to sustain co-management activities, and promotion of a stable political and social environment. The role of the external agent involves initiating a process of discovery and social learning, guiding problem solving, building local capabilities, and advocating appropriate policies. Resource users and stakeholders are largely responsible for the day-to-day management of resources, participation in consultations, design of appropriate resource management measures, and assistance in monitoring and law enforcement. The fulfillment of these complementary roles is crucial to the operation and sustainability of co-management.

Implementation is often a balancing act to meet these conditions as timing and linkages in the co-management process and arrangements are important. For example, developing trust between partners is associated with effective communication and come before the development of

contractual agreements between partners. The recognition of resource management problems is associated with the development of clear objectives from a set of well-defined issues.

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