Community-based management and sustainable development

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GESTION COMMUNAUTAIRE ET DÉVELOPPEMENT SOUTENABLE

RÉSUMÉ

L'analyse des formes de propriété collective offre un cadre interdisciplinaire de recherche sur les pêches. L'approche est basée sur l'identification des régimes de droits de propriétés mis en oeuvre et sur la recherche de la meilleure adéquation entre une pêcherie et un régime approprié de gestion. Pour de nombreuses pêcheries artisanales, la gestion fondée sur la communauté représente une bonne solution.

1. INTRODUCTION

Should a fishery be managed by limiting the number of licences ? Should it be managed by harvest quotas ? How should the resource be allocated ? How can conflicts among groups of fishermen be settled ? What is the role of territorial use rights (TURFS) ? How and on what basis can decisions be made about such management measures as mesh sizes and closed seasons ? Research in the area of management interventions does not fall clearly into the realm of any one discipline. The questions above go beyond the boundaries of any one subject area, and involve a range of disciplines : biology, oceanography, economics, political science, geography, planning, sociology, anthropology.

It is doubtful, however, that multidisciplinary considerations play a role in management decision-making in the real world. Decisions are made by whatever understaffed, underpaid and overworked agency that happens to be responsible for the fishery, and often not based on sound scientific knowledge of the stocks or sound economic and social information on the fishery. It is also likely that decisions are made on an *ad hoc* basis, modified by whatever political pressure that has been brought to bear on the agency.

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The purpose of this paper is to explore ways of improving this state of affairs. Specifically, the aim is to investigate a new framework potentially applicable to research on small-scale fisheries. The proposed framework is provided by an emerging interdisciplinary field : common property resources.

2. THE COMMON PROPERTY APPROACH

Biologists may be familiar with the older «common property» theory of HARDIN (1968), and economists with that of GORDON (1954). Both of these authors and their followers have made the argument that commonly owned resources, such as fisheries, are intrinsically difficult to manage and tend to be used nonsustainably («the tragedy of the commons»). Some have proposed that only under private ownership can such resources be used sustainably, that is, in a way that harvesting can continue from year to year without depleting the stock. Others have argued that sustainability is possible only under the control of a central government agency capable of legislating and enforcing conservation.

Since the early 1980s, there has been a resurgence of research activity in the area of common property resources. A new common property theory has been emerging, relevant not only to fisheries but also to forestry, rangelands, and water resource management. With contributions by ecologists, economists, geographers, political scientists, rural sociologists, planners and anthropologists, a new consensus has been merging with respect to the use of common property resources in general, resources which share two key characteristics: difficulty of exclusion (or control of access to the resource) and subtractability - that is, the capability of each user of subtracting from the welfare of other users (OSTROM, 1986 ; BERKES, 1989).

As detailed in three recent volumes of case studies and analysis (National Research Council, 1986; MCCAY and ACHESON, 1987 ; BERKES, 1989), a new consensus on common property has been emerging :

1) there is no intrinsic reason that resources such as fisheries are doomed to be overexploited ;

2) sustainable management is possible under not two but three general kinds of management regimes: private property, state property and communal property, and ;

3) examples of successful community-based resource management, such as that by groups of small-scale fishermen, are much more common than previously thought.

Much of this emerging literature on common property rejects a deterministic «tragedy of the commons», and economic models which assume self-seeking and essentially unconnected individuals. Users of common property, including small-scale fishermen, live in communities in which resource use is never unrestricted and property never absolutely private or government-owned (e.g. BRETON, 1977 ; POLLNAC, 1984 ; PAULY, 1987 ; PINKERTON, 1989).

The common property approach also reverses the traditional emphasis on fishery management which has been on the resource rather than the people (AGUERO and LOCKWOOD, 1986), and on large rather than small-scale (LARKIN, 1988). The common property approach is based on a framework which starts with the analysis of property rights regimes.

3. THE FOUR BASIC PROPERTY RIGHT REGIMES

The classification follows the work of two leading specialists of institutional analysis, OSTROM (1986) and Bromley (1989). The following four categories are ideal analytical types. In the real world, many resources are held under regimes which may combine the characteristics of two or more of these types :

3.1. Open-access regime

Open-access regime is actually no management regime at all. Open-access (or *res nullius* in the terminology of HUGO GROTTOS) is marked by the absence of property rights. Access to the resource is free and open to all, with no management intervention.

Open-access may in fact be appropriate for short periods, if the object is to encourage profit-making and harvest maximization. Indeed, many development interventions in the past have created open-access conditions, sometimes deliberately. The development of overcapacity and overfishing in the Gulf of Thailand is one example (PANAYOTOU and JETANAVINICH, 1987). Open-access has also been created under some cases of colonialism (JOHANNES, 1978 ; BERKES, 1985). As argued by Hardin and others, and as documented for example by the Thailand case, open-access is not sustainable in the long-term.

3.2. Private property

Private property is one solution to the commons problem. ECKERT (1979) has argued that the emerging international ocean management regime may be considered an «enclosure movement», an attempt to establish property rights over marine resources.

Many economists see the commons problem as the creation of «externalities» whereby the harvest of each exploiter affects the supply available to all others. The economics perspective predicts the emergence of property rights for the harvest of fish and of markets for the exchange of those rights (ECKERT, 1979). Within the EEZ of nation states, the allocation of exclusive rights to individuals or firms effectively creates such private property rights. The individually allocated transferable harvest quota (ITQ) is one approach that makes much sense to economists as a way to privatize fishing rights, and has been implemented in a few areas (e.g. BERKES and POCOCK, 1987).

3.3. State property

State property (or *res publica* in GROTIUS' terminology) refers to the management of marine resources exclusively by the central governments of nation states. Under state property regimes, the government has sole jurisdiction over the resource, its allocation and conservation, and management decisions are made by technical experts on behalf (and for the good) of all the users. The underlying assumption behind state property regimes is that fishermen, if left to their own devices, will overexploit the stocks. Thus, to avoid disaster, managers must have effective hegemony over them, according to this argument

The establishment of the state property regime docs provide a potential solution to the commons problems, and many nations have been moving towards this objective. Many Third World nations have attempted to centralize common property management by nationalizing resources which had effectively been under local control.

3.4. Communal property

Communal property (or *res communes)* systems refer to situations in which the resource is held or controlled by an identifiable community of users. Examples include Japanese coastal fisheries in which the resource is by law under the control of village-based fishing cooperatives (RUDDLE, 1987), and many Pacific Island reef and lagoon fisheries in which there may be an elaborate code of customary laws as well (JOHANNES 1978, 1981 ; KLEE 1980).

Communal property regimes, simply called «common property» by some (OSTROM, 1986; BROMLEY, 1989), provide a third potential solution to the commons problem. Nevertheless, many fishery managers continue to assume that fishermen will overharvest the resource if let to their own devices, and ignore the evidence that communal property can lead to sustainable resource use (e.g. ACHESON, 1975 ; BERKES, 1986 ; RUDDLE, 1987).

4. SEARCHING FOR THE BEST FIT BETWEEN THE REGIME AND THE RESOURCE

It is generally difficult to establish property rights over marine resources, but the degree of difficulty varies with the resource type (Tab. 1). There is, in fact, a continuum. At one end of the scale, enclosed mariculture ponds can be owned outright by their users, as with agricultural land. Lagoons and semi-enclosed mariculture areas are often owned by the state and rented to cooperatives or to individuals, as in Mexico (MCGOODWIN, 1987) and Turkey (BERKES, 1986).

At the other end of the scale are the resources of the open ocean beyond the 200 mile zone which can be managed only at the international level, if at all. Within the 200 mile zone, the relatively large-scale vessels that constitute the offshore fleet may most appropriately be managed under a state property regime. If the expected yield levels (MSY or some other measure) are known, quotas may be established and enforced with or without the use of market mechanisms (allocated, transferable harvest quotas or ITQ).

Most small-scale fisheries fall into the two middle categories in table 1. It is these two categories which have been particularly problematic regarding the appropriate property rights regime. These inshore and coastal fisheries are subject to several conflicting forces at work. Small-scale inshore fishermen often see the resource as their «own» and in some cases regulate use among themselves. Examples can be cited from many parts of the world : the USA (ACHESON, 1975,1989), Mexico (MCGOODWIN, 1987), Brazil (CORDELL and MCKEAN, 1986), Iceland (PALSSON, 1982), Indonesia (BAILEY *et al,* 1987), Ghana (PAULY, 1987).

Larger-scale fisheries, usually well supported by government policy in the hopes of increasing production and export earnings, have frequently come into conflict with small-scale fisheries. The development of such fleets is often planned without due regard to the sustainability of offshore fish resources. Vessels originally meant for the offshore are often forced inshore following the depletion of offshore stocks. They frequently end up trying to appropriate inshore resources already used by the existing artisanal fleet. Again, examples can be cited from many parts of the world (Tab. 2).

The pertinent question from a common properly framework point of view concerns the ownership status of the resource over which the conflict occurs : Is the fishery resource used under open-access conditions ? Is it held as private property ? State property Communal property HARDIN'S (1968) «tragedy of the commons» analysis has equated communal property with open access, and mislead a whole generation of fishery ccologists and managers by suggesting that absolute governmental controls need to be established over both the resource and the user. Thus management attention has focused (at least in the West) on trying to convert the resources used by small-scale fishermen from supposedly open access status to state property.

Whereas in reality, many inshore marine, as well as inland fishing areas are under communal control. This explains why the development of larger-scale fisheries often disrupts traditional resource rights systems, and why such development is often ecologically unsustainable and economically inefficient. Many small-scale fisheries capture substantial resource rents by means of barriers to entry in the form of communal property regimes which exclude outsiders (PANAYOTOU, 1982: p. 29; for several case studies, see PANAYOTOU, 1985). Thus, by creating open access and easy entry, governments have often been the direct cause of economic and biological overfishing.

5. TURFS, TRADITIONAL KNOWLEDGE, CO-MANAGEMENT

The idea that communities of fishermen ought to be able to control their resources is not new. However, the restatement of this idea as territorial use rights recognized by the government is relatively new (CHRISTY, 1982). POLLNAC (1984) has reviewed the common characteristics of existing TURFs.

Perhaps the most successful examples of TURFS are found in Japanese coastal fisheries (RUDDLE, 1987).

Table 1 - A continuum of marine resource types with respect to the difficulty of establishing property rights over them

Resource type	Appropriate property rights
1. Enclosed mariculture ponds	Private property
2. Lagoons, semi-enclosed areas	State property to be rented out or communal property
3. Inshore fisheries with bays and estuaries	Communal property
4. Coastal fisheries within one day of home port	Communal property
5. Offshore fishing with extended trips	State property, may be allocated as private rights
6. Open ocean beyond 200 mi EEZ	International regulation

Table 2 - Examples of conflicts between small-scale fisheries and larger-scale fisheries

Area	Reference
Gulf of Thailand	PANAYOTOU and JETANAVINICH (1987)
Malaysia	ANDERSON (1987)
Indonesia	BAILEY *et al.* (1987)
Philippines, San Miguel Bay	CRUZ (1986)
Kerala, South India	DASGUPTA (1982 : p. 17)
North Yemen	PANAYOTOU (1892 : p. 25)
Southern Turkey	BERKES (1986)
Pacific Mexico (shrimp)	MCGOODWIN (1987)
Bahia, Atlantic Brazil	CORDELL and MCKEAN (1986)
Suriname (Guyanas-Brazil shrimp)	WILLMANN and GARCIA (1985)
Sierra Leone	LAWSON (1984 : p. 80)
Ivory Coast	PANAYOTOU (1982 : p. 25)

TURFs exist in many parts of Oceania (JOHANNES, 1978 ; KLEE, 1980 ; BAINES, 1989), some of them recognized by governments. They are found also in areas fished by Amerindians (BERKES, 1985, 1989 ; PINKERTON, 1989), in Lake Titicaca (LEVIEIL, 1986), in Benin and Côte d'Ivoire (LAWSON, 1984 : p. 81), in Ghana (PAULY, 1987), and in many other parts of the world, as reviewed by POLINAC (1984).

The common property framework is consistent with the TURFs idea in suggesting that the resource types which are most likely to be used by small-scale fishermen may be best managed under communal control. The TURFs approach emphasizes territoriality as the key attribute of communal control of the resource base. As an alternative approach, other scholars have chosen to emphasize traditional ecological knowledge as the key factor (JOHANNES, 1981 ; KLEE, 1980 ; RUDDLE and JOHANNES, 1985).

The common property framework, by contrast, emphasizes property rights and institutions. Since territoriality and knowledge are only two aspects of a larger system of rights, obligations and rules, the common property framework is perhaps more comprehensive than either the TURFs or the traditional knowledge frameworks. After all, successful communal property systems do exist even in the absence of territories (PALSSON, 1982) and traditional knowledge (BERKES, 1986).

The common property framework is also useful in suggesting how the property rights regimes may be the best combined for a particular resource management problem. As mentioned earlier, in the real world, the various property rights regimes are often found in combinations. Fishery regulations in many parts of Europe, for example, are worked out jointly between government managers and the fishermen. This is true, for example, in the case of the artisanal fishery of the Schlei Fjord, FRG, in which regulations are developed by the local authorities and the fishermen's guild (NAUEN, 1984). It is also true in the case of the relatively larger scale Lofoten cod fishery in Norway, in which the state empowers the fishermen to update regulations and to enforce them under the Lofoten Act of 1890 (JENTOFT, 1985).

The joint sharing of management power and responsibility between the state and the fishing community (cooperative management or co-management) has been receiving much attention in North America as well (PINKERTON, 1989; ACHESON, 1989). Now that much of the productive ocean space has been declared state property under the international ocean management regime of 1982, creative approaches are needed to help resource users share the responsibility for this huge area.

The new regime, as an enclosure movement (ECKERT, 1979), effectively converts the commons problem at the international level to one at the national level. The extension of communal fishing rights and responsibilities, and the institution of co-management in general, help reduce the scope of the management problems to a more manageable level.

Small-scale fisheries are the appropriate technology for harvesting inshore areas at the least cost (LAWSON, 1984). They have a number of advantages over large-scale fisheries (BERKES and KISLALIOGLU, 1989). One of them is key to long-term management success: management through traditional institutions. Where local communities of fishermen can control access to fishing space and enforce regulations, exploitation levels can be managed. This is an essential condition for sustainable management.

There is a great need for research to tailor management options to local circumstances. Privatization of harvesting rights may be most appropriate for the offshore. With most small-scale fisheries, however, the communal property option appears promising, especially if local controls already exist. The co-management model is particularly useful if the management of the fishery is complicated by a diversity of users. To retain the communal emphasis for sustainable development planning, management may be carried out with as much state regulation as necessary and as much local-level control as possible.

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