FISHERMEN AS CO-MANAGERS OF COMMUNAL PROPERTY IN THE CARICOM REGION

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ABSTRACT

This article examines the existing and past models of fisheries management in the CARICOM region and argues that there are trends leading towards the adoption of the co-management model in the region, and that this should be followed through in the management of fisheries at the community level. The concepts of property rights and co-management, as used in the article, are clarified and a differentiation is made between the management of the "open-access", off-shore fisheries and management of the in-shore, communal property. The possibilities and problems involved in the fishermen's organizations and communities playing the role of co-managers of these fisheries are assessed. Additionally, based on empirical data re: the position of the fishers on the issue, we argue for the adoption of the co-management model in the region. The past and present forms of traditional systems of management are examined, and the argument is advanced that some elements of these could be formalised and upgraded, through existing institutional arrangements , for the enhancement of the capabilities of the fishermen's organizations and communities to play the role of co-managers. Finally, the rights and responsibilities of the state and the fishermen as co-managers in fisheries are identified. The question is posed thus:- " Are the governments and fishermen of the CARICOM region prepared and ready to assume the additional responsibilities involved?" The possibilities and problems are analysed, using empirical data from recent research in fishing communities in the region. The conclusion arrived at is that certain vital conditions must be fulfilled, in order to upgrade the capabilities of the fishermen for the tasks involved in playing the role of co-managers of communal property.

1.0 INTRODUCTION AND CONCEPTUAL CLARIFICATION

The main thesis of this paper is that the intervention of the state in the inshore fisheries of the region disrupted the traditional communal property rights systems but failed to avert the turning of the state property regimes into virtual "open-access" regimes, which has caused overfishing of the near shore fisheries in the region. The solution suggested is to reverse the situation, and develop collaborative management between the government and the resource users at the community level.

Two types of property regimes are germane to the analysis of trends in the management of the fisheries of the region. First, the traditional management systems, in which property rights with management responsibility, were held by the community on behalf of the local resource users, and the stream of benefits accrued to the members of the community, to the exclusion of "outsiders".In this system, the resources were considered as communal property. Second, the state property regime, in which the resources are controlled and managed by the government through its agencies (in the case of the CARICOM region, the Fisheries Departments within the Ministries of Agriculture) on behalf of the general public[2]

The main argument advanced is that historically, the traditional systems of communal property regimes were undermined, when the state (colonial and post colonial) asserted property rights over the national fisheries, and instituted centralized management systems, largely without the co-operation and involvement of the resource users. The paucity of resources available to government agencies, increasingly made it difficult to effectively police the fisheries,[3] and rapid technological, economic and demographic changes allowed for external infiltration into the communal properties, and the undermining of related institutions and social practices. The result has been the turning of communal property regimes into virtual open-access regimes.

Following the lead of several writers [4] the term communal property, is conceptualised as a social institution, with a history and internal dynamics of social and working relations, conflict and competition [5] and built-in conflict resolution mechanisms. The community of resource users asserts territorial and property rights over the resources, restricts access to members of the group, and collectively recognizes conventions and tradition in management, and institutes rules, obligations and sanctions to ensure sustainable resource use. Sanctions may range from moral pressure exerted by neighbours and colleagues, to physical actions such as seizure and/or destruction of vessels or gear and catch. The exclusion of outsiders, creates a sense of collective territorial and resource ownership and responsibility; an appreciation of, and willingness to support its sustained use and management.[6]

The marine capture fisheries of the CARICOM region may be divided into two main areas: the in-shore fisheries and the off-shore fisheries, with the former limited to the reefs and slopes adjoining the mainland[7]. An estimated 80% to about 90% of the fishers operating in the national and regional fisheries are artisanal fishers, who exert so much fishing effort pressure, that there is now evidence that many of these fisheries have become overfished. Yet there is no evidence in sight that central management has the resources and the capability to arrest the situation.

The off-shore fisheries are by comparison, new and small in size and dominated by non-fisher industrial magnates and corporations, including foreign-owned fleets. Lack of reliable data means that there is not enough evidence on the health of the stocks. Moreover, the migratory nature of the fishes, forces most issues arising from these fisheries into the domain of international law, politics and diplomacy. The nearest artisanal fishers can get involved in such matters, might be through their organizational representation on the National Fisheries Advisory Committees) [8]

The critical problem dogging all the CARICOM countries is the unhealthy nature of the stocks and the resource habitats in the inshore fisheries; its effects on the resource users and other stakeholders; the well-being of the human population as a whole, and the socio-economic fall-outs that might occur should the total collapse of these fisheries happen. Recent regional and national policy and strategic shifts, including processes of institutional building; all point towards some forms of capacity building for both fishers and fisheries officials, and the development of collaborative management efforts between the professional managers and the fishers.[9]

The evidence is pointing towards some forms of co-management arrangements, in which the healthy elements of communal property systems will be fused with modern resource management strategies. The concept of co-management is used in this paper to refer to "...the integration of local-and state-level management systems" at the community level, involving " the sharing of power and responsibility between the government and local resource users" (Berkes et. al. 1991:12) As Evelyn W. Pinkerton (1994: 320-1) has suggested,

> ...when folk knowledge and local perspectives are incorporated into a larger management system as co-management, they may make the difference between the system's having legitimacy or not, having local relevance or not, and in general operating more rather than less effectively [10].

The policy changes in the region [11] are also matched by evidence adduced by recent research among fishers in fishing communities in the region. Table 1 below summarizes the responses of 937 fishers, in 30 fishing communities in the CARICOM region on various issues dealing with their preferences for forms of management of the regional fisheries:-

TABLE 1: PREFERRED MODELS OF MANAGEMENT

MODELS	RESPONSES (YES) No. of Respondents	(%)
Fishers should be involved	864	92.2
Fishers should take a leading role	791	84.4
Fishers should unite to manage	669	71.4
Fisheries should be centrally managed	69	7.4
Fishers should manage alone	82	8.8
There should be co-management	706	75.3

N = 937

Source: Peter Espeut/ CFRAMP, Socio-Economic Baseline Survey of Thirty Communities in Twelve CARICOM Countries, CARICOM Fisheries Unit, Belize City, Belize, December, 1994

The results clearly show almost total rejection of the centrally managed model which replaced and disrupted the communal property model, and yet abysmally failed to manage the fisheries sustainably. The second significant finding is that, even though the fishers realised the need for the end users of the resource to be intimately involved in the management process, the respondents would not suggest that the fishers' organizations do so single handedly. Apparently, they realise their shortcomings in dealing with modern complex issues of technology, politics, policy formulation, and long-term planning, which have become indispensable constituent parts of modern resource management.

Dyer and McGoodwin (1994:4) convincingly argued that,

> There is no question that in many fisheries today, the local fishers are unable to manage without considerable outside help. There is great diversity among fishers...that it may be impossible for them to collectively institute workable home-grown management regimes, at least not without considerable help and guidance from outside.[12]

The reverse is also true. Government officials will need the cooperation and collaboration of the fishers to make any headway in the formulation and enforcement of fisheries regulations for sustainable yields.

The significant support of the fishers for the adoption of the co-management model in the region, is matched by similar findings elsewhere in the region. Peter Espeut's " Socio- Economic Survey of Fishers in Belize and the South Coast of Jamaica" (1992a), showed comparable figures of 89.6 % and 98.5% for Jamaica and the Belize Co-operatives respectively, in favour of the Co-Management model. Another study by R. Mahon and N. Drayton (1990) on the " Trap Fishery Management in Barbados", dealing with the perspectives of the fishermen, also arrived at similar overwhelming support for the Co-Management model.[13]

We must however, not be too enthusiastic to accept this evidence at face value. In some cases, there is likely to be a gap between the verbal expression of support and the willingness to act accordingly, when the time for action arrives. Second, the route towards the institutionalization of communal property regimes in the fishing communities of the region, will involve a major policy shift from government ownership and control to resource-using communities' ownership and control. It will involve the " devolution of certain fisheries resource management and allocation decisions to the community level" (Pomeroy & Pido, 1995:213). That will surely mean some degree of reduction of authority and power now exercised by bureaucrats, which they may be reluctant to let go easily. However, the devolution of power to local people in the management of communal fisheries has happened elsewhere [14]. There is little reason why the CARICOM region should not follow suit. Already, as will be shown in sections 2 and 3 below, there are elements and examples of this emerging in the region.

The historical and current evidence will be examined; and the preparedness of the governments and the fishermen's organizations and communities for the co-management of communal property will be assessed and recommendations made.

2.0 EVOLUTIONARY CHANGES IN TRADITIONAL SYSTEMS OF MANAGEMENT OF COMMUNAL PROPERTY

2.1 THE HISTORICAL BACKGROUND

In a socio-economic survey of thirty fishing communities in the CARICOM, only 212 (22.6%) of 937 fishers claimed to employ "Traditional Fishing Measures" in their operations. (Espeut/CFRAMP,1994). At first glance such a categorical response could be interpreted as a clear renunciation of, and/or wholesale withdrawal from traditional practices. It could also be partly interpreted as owing to interviewer errors or gross misunderstanding of the question, as was pointed out in the report. However, the latter observation should not subtract much from the significance of this level of response, given the large number of respondents involved.

Research in the CARICOM countries by professional fisheries officials and other scholars in the region, show sufficient evidence pointing to the existence of forms of management and practices developed by resource users in their communities over time, albeit, no more in their ideal and pure forms, but nevertheless having withstood the onslaught of state intervention, processes of modernization, and externally induced market forces. Writing on the artisanal fisheries of St. Kitts/Nevis, Ralph Wilkins (1983:35) argued that,

> The present fishing gears and methods (beach seines, pots/traps, handlines) used in St. Kitts/Nevis fisheries today are traditional ones used by generations of the past and over the years, have proven adequate for effective harvesting in shallow waters [15].

Our professional task is to study the historical and cultural elements of these systems, in order to selectively adopt the most relevant for each community, in our quest to develop forms of communal resource management systems, which will fit into the demands of modern socio-economic realities, fulfill the quest for sustainable yields, and yet not alienate the intended beneficiaries, who are the resource users in the communities. Such an approach will positively improve the attitudes, behaviours and commitment of the end users of the resource at the community level, towards the sustainable management of the resources. It might also generate a readiness to cooperate with government officials, and to get involved in the decision making and planning processes.

Fishing communities have historically developed systems of cooperation, with built-in procedures for accountability and conflict resolution in the productive system. In these systems, owners of the means of production, the direct producers, and other stakeholders in the community, play their respective roles in the productive process, and share the product, based on their relations to the means of production, in an equitable manner, dictated by the socio-cultural realities of their communities. These systems, which have the elements of equity and conflict control built into them, [16] have stood the tests of time, and are today operational , along side the so-called modernised systems, in the artisanal fisheries sector of the CARICOM countries.

In their historical evolution, the traditional systems developed their own mechanisms for survival, based on communal property and use rights regimes, stable populations sustainable under the pervailing conditions, and systems of community organization, conventions, norms, and sanctions governing resource appropriation.

> As Evelyn Pinkerton (1994: 319), paraphrasing McGoodwin put it, " Local populations had developed a system of space allocation that worked under certain technological conditions (nonmotorized vessels, low population density). Space allocation had proved effective as an indirect conservation tool in communities with relatively stable populations."

Knowledge of these developments could provide the data base on the kinds of institutional and organizational arrangements on which locale-specific communal resource management structures could be built.

The articulation of traditional forms of resource use and management, with the rapid modernization and commercialization processes penetrating the inshore fisheries, coupled with the failure of state-sponsored management, monitoring and surveillance systems, has resulted in severe overfishing in many of the inshore fisheries in the region. In some cases, as Haughton and Aiken (1987) observed for Jamaica, there is evidence that the government lacked the spine to design and implement management measures which they considered to be politically sensitive. In more general terms, Mahon and Drayton (1990:2) also observed that, " Management measures which reduce fishing effort or catches will impact on a large number of the poorest fishermen (in the artisanal sector) and therefore the political will to implement such measures is frequently lacking".

These developments began to signal the loss of communal ownership and protection of resources; the breakdown of access limitation to outsiders, and the consequential unrestrained increase in fishing effort pressure on the inshore fisheries.

If the present day fishers find it difficult to recognize elements of the traditional practices which have survived, it is because these have been " overwhelmed" [17] and diluted by historical and externally-induced factors, which have prevented the surviving traditional elements from being noticed, under present day conditions. Though the seeds of these might have been sown during the colonial era, the daunting conservation issues and problems facing today's inshore fisheries in the CARICOM region, took a turn for the worse during the post-colonial period.

The historical evolution began with the integration of traditional subsistence economies of colonial societies into global markets, followed by the increasing commercialization of all aspects of life. These developments undermined the self-sufficiency of these societies, and resulted in the development of dependency relations between operatives in the traditional sectors, such as fishing, and the emerging modern sectors of the colonial economies [18]. What Johannes (1981:675) observed for the Pacific Islands applies to the CARICOM region as well, namely, " Traditional appropriation was only for subsistence. But as distant markets materialise the incentive to harvest in moderation

diminishes."

The seeds of poverty, a phenomenon exemplified in today's inshore fisheries in the region, were sown in this era. The explanation for the increasing fishing effort pressure on this sector's fisheries and the concomitant evidence of overfishing; and why some governments find it difficult to implement effort reduction measures in the artisanal fisheries sector, cannot be divorced from the phenomenon of poverty.

The race to modernise their countries' economies, led some governments of the immediate independence era, to embark, *inter alia,* on the promotion of the phenomenal expansion of their national fisheries through the rapid modernization of technology and methods, without building effective resource conservation and habitat protection measures into the system. [20] The flood of motorized vessels and the ease of vessel movement resulted in the internal, and more recently, the international encroachment on the communal management systems, and in many instances, in the violation of the hitherto sacrosanct communal rules and regulations. Conflict situations arising from pot stealing, net destruction by intruding larger vessels, ghost fishing, dynamiting and other such practices [21] can be explained partly by these historical trends.

The systems of traditional Territorial Use Rights in Fisheries (TURF) were rendered vulnerable to the forces of modernization and commercialization. More importantly, the imposition from above of the control and regulation of fishing effort by the state, with belated or no consultation with the resource users in the fishing communities, only attract(ed) non-compliance. Indeed, we support Jentoff's (1989:139) position that a correlationship exists between legitimacy and compliance, and that compliance is likely with co-incidence of the definition of the problem(s), active involvement of the resource users in the formulation and implementation of decisions and policies; and the existence of a perception of equity and fairness.[22]

The reluctance or sometimes outright refusal of some fishers in today's CARICOM region to cooperate and identify with such imposition from above, follows a global trend. This writer has had experience of fishers questioning why they should continue abiding by the regulations imposed from above, when other local and international violators of the same rules and regulations, continue to do so with impunity.[23] It has become clear that centrally administered and enforced management regulations, which lack the support and involvement of the end users of the resources have failed. The unfortunate result is that the fisheries, particularly the inshore artisanal fisheries, have virtually been turned into open access resource regimes.

The solution being advanced in this article, is to turn these virtual open-access conditions into communal property regimes, and to promote the collaborative management of the resources by the agencies of the state and the end users of the resources in the fishing communities.

2.2 THE TRAP (POT) FISHERY OF JAMAICA

The trap or pot fishery of Jamaica represents a classic case of a traditional use rights system, with built-in mechanisms for sustained yields, which broke down as a consequence of state intervention, and was turned it into a virtual open access regime, resulting in serious overfishing in the inshore fisheries.

The trap or pot fishing was based on indigenous technology which has barely changed since the nineteenth century. Fish traps which are set in the shallow waters of the narrow coastal reefs, were made of mangrove poles, split bamboo or wild cane. The mesh changed from wicker to chicken mesh and has since remained so. Until fairly recently, it was the small dug out canoe which was used. This has rapidly began to give way to the fibreglass type. However, the efficiency of the traditional pot fishers has long been noted. For example, writing in 1945, Ernest Thompson observed that the pot fishers "...show great skill and courage in the handling of their small canoes; they have carried 'pot' fishing to a higher degree of specialization than anywhere else with which I am familiar." (24)

The traditional pot fishing was based on Territorial Use Rights, which was an access control mechanism. Territoriality was respected and observed by the members of the resource using community, prior to the introduction of motorised vessels. Randolph Walters (1987) observed that

> " the best known regional attempt at limited entry...is the formal delimitation of near-shore fishing territories in Jamaica...involving the limiting of trap fishing activities to waters off the beaches of local communities".

Territorial Use Rights in Fisheries (TURF) was restricted to the members of the local communities and effectively excluded "Outsiders". According to Berkes and Shaw (1986:184) "... non-residents would normally have to be accepted into the community before they could use the fishing beach." The nearness of the fisheries to the community of resource users, made it easy to monitor and keep out intruders.

Some of the techniques used to keep out outsiders was the utilization of "landmarks" for navigational purposes and also for setting and retrieving traps. (C. O'Marde, 1994:) Due to intimate local knowledge and experience of the movement and distribution of stocks, local people could manipulate and mislead outsiders, while reserving good fishery grounds to themselves. It has also been observed that a technique called " Interference" was a "...socially accepted mechanism used as a sanction weapon against intruders"(Berkes & Shaw, 1986:184). These included destruction of their traps, or moving them into a different location which would be difficult to find, or stealing them. (25)

The system of fishing territories effectively limited and controlled fishing effort, reduced competition and conflict, and could have contributed to sustainable yields, until the advent of motorization of vessels. In 1955, the colonial government introduced a Boat Mechanization Scheme which offered attractive incentives to adopt the outboard engine, including easy access to credit, and duty free gasoline, without concurrently instituting implementable use management measures. The result was a steep rise in fishing effort and landings, and the ease in mobility led to the rampant intrusion into

communal property. Munro (1969:18) observed that,

> By equipping a substantial portion of the canoe fleet with motors the entire island shelf on the south coast of Jamaica was brought within the regular operational range of the fisherman, resulting in a 50% increase in the landings from the Jamaica shelf within the first seven years of operation of the mechnization scheme.

The use of the"Inteference" techniques and even the expansion of territorial boundaries to ward off intruders [26] could not assist in keeping the rules and regulations of the TURF system from being broken regularly. Since then the government has been advised that the near shore fishing grounds had been overfished and that these fisheries should be subjected to regulations.However, as Haughton and Aiken observed,

> ...although there is the scientific information available for management and although various recommendations have been formulated ... the fishery administrators chose to postpone the decisions on restricting fishing effort, as these have always been politically sensitive decisions. Thus it is our view that in order to maintain political stability management decisions were put aside indefinitely [27]

A phenomenal expansion of catch and effort in the fisheries was repeated in the 1970s and the 1980s. The fishing population has now risen to about 20,000 and the number of boats to about 9,000. The overfished situation persists and catch levels continue to fall, despite attempts at shifting fishing effort to the off-shore zones. The Antillean "Z" traps and the nets used by the small artisanal fishermen in the inshore zone still accounts for 95% of the total number of fishermen and some 54% of the total landings (A. Kong, n.d.:2). Fish trap piracy, ghost fishing and "cut away" by marauding vessels have become associated with the trap fisheries. [28]

There is no doubt that there must be a beach by beach, community by community, reexamination of the situation, for formulating plans towards the reinstitutionalization of communal property rights, with the political and legal backing of the state, where the grounds have been laid for such.
In such an arrangement, access controls must be firmly accompanied by use controls.Haughton & Aiken (1978) had made recommendations, since then supported by many other writers, on optional ways to reduce the fishing effort pressure, and ensuring the recuperation of the stocks, towards the sustainable co- management of the inshore fisheries. However, any such strategy must be preceded by measures to provide alternative employment opportunities, and other means of containing the inevitable socio-economic hardships which these strategies might initially generate.

2.3 THE BEACH SEINE FISHERIES OF THE EASTERN CARIBBEAN

James Finlay (1993 & 1995), draws our attention to the long existence of communal property rights systems in the traditional Beach Seine, artisanal fisheries of St. Lucia, St. Vincent & the Grenadines, Dominica and Grenada.[29]. His findings, to varied degrees, might exist in other Caribbean countries where this type of net fishing operates. Finlay provides the main characteristics of this fishery as : community-based, self regulatory and involving Territorial Use Rights in Fisheries (TURF). These are similar to what Taconet, M. (1986) has been interpreted to have found in the Beach Seine fisheries of neighbouring Martinique [30], namely, "...self-regulatory mechanisms developed by seine fishers to systematically allocate space and fishing opportunities amongst themselves on the fishing grounds" [31]

This is a system of traditional fisheries resource use and management, which has evolved overtime and served the needs of generations of resource users. It is based on communal property rights, and includes the inadvertent exclusion of "Outsiders". The simple traditional technology, namely the beach net, has barely changed over time. The main targeted fishes have been multi-species stock of coastal pelagics.

The fishing sites are the shallow waters off the small bays on the beaches, close to the communities possessing the exclusive use rights. The nets are cast and the catch hauled in by teams of fishermen; hence it involves the traditional sharing of the products among the operatives. Both the share system and the judicious privilege accorded to the resource users of the community in fishing opportunity, have built the element of equity into the system. [32]

Territoriality is largely recognized by the resource using communities, through a number of unwritten conventions, mores, norms, and rules for allocating space, developed over time *in situ.* Finlay (1995), identifies ten such rules, including the first come, first cast rule; specified length of waiting periods; and the rotation and compensation systems of taking turns.

Although the general principles and practices are similar in all the countries, some minor differences exist. For example, the length of time for keeping the alloted space, or for discharging cast rights, might be as short as twenty four hours or as long as three days. However, to minimise waste of opportunity time, allowance is given for trading cast time with the next in line, for some tangible agreed-upon compensation.

Rapid modernization and economic changes, have introduced some serious disturbances into the system. Economic expansion has generated multi-use of sea space disputes in fishing zones which were hitherto the exclusive domain of the beach seine operators. Finlay is rightly concerned that these are "...threatening the sustainability of this community-based traditional management systems" (Finlay, 1995: 70). Some conflicts are directly related to fishing, such as acts of reprisal against past infringement of rules done, and anchoring and intruding by motorized fishing boats at the beach seine casting and hauling sites. Others are extra-fishery conflicts, particularly relating to tourism activities, and other structural developments close to the beaches.

The main elements of the system which can inform the future development of any co-management of communal property for sustainable yields are the following:-

- the limitation and control of access through the TURF system and mutually agreed-upon rules and regulations;
- the exclusion of outsiders from the enjoyment of communal property rights;
- the controlled but free fishing opportunities for members of the resource-using communities and avoidance of inter-gear conflict; and,
- the unique attributes of equity built into the system.

Restoration of communal property rights in any future co-management system, could include some form of localised management, based on the legalization of the most relevant elements of the traditional TURF system. It could include coupling the access control mechanisms with more effective use controls, and must involve the resource users in any decision making processes which might have impact on their territorial rights. Finally, it should ensure real partnership between government fisheries officials and the fisher's organizations and other stakeholders laying claims to communal property rights.

2.4 THE LOBSTER AND CONCH FISHERY OF BELIZE

From a modest beginning, briefly initiated by foreigners, the lobster industry, has flourished largely under the control and management of 'native' Belizeans. The technology used in the fishery has changed very little since the 1920s. The lobster trap was the sole gear until the 1960s, when,due partly to pot piracy, skin diving and hooking were introduced, and have now become more popular. Changes to vessels, as for the other artisanal fisheries in the region, has been mainly in the introduction of outboard motors and fibre glass boats.

The entire lobster and conch fishery resources fall into the category of communal property, with territorial use rights exclusively reserved for 'native' Belizeans. Many national fisheries legislations in the region have clauses which purport to reserve use rights to the nationals, but none has been as actively supported by the government, or as stoutly defended by organized resource users, as in Belize. The production, processing, packaging and exporting of lobsters and conch are entirely controlled by the fishermen's cooperatives. Elements of co-management built into the system are limited to collaborative patrolling (to ensure compliance with regulations and to keep out intruding "Outsiders"), and participatory decision making, in the formulation and application of regulatory measures.

The lobster industry [33] replaced the turtle and manatee fisheries as the major fishery in the early 1920s, when a Canadian sailor from Nova Scotia, Captain Frank Foote, introduced the traditional pots from the Maritime Provinces of Canada, trained local fishermen to build a modified type for fishing, and encouraged them to sell their lobsters to his barge-mounted canning plant, which exported the processed product to the USA. This system was short-lived, due to irregular and insufficient supplies of lobsters to the plant. [34]

Commenting in the 1940s on the "unsatisfactory nature of the supply" of lobsters by Belizean fishermen to the lobster cannery, a writer provided two reasons :-

- that fishermen appeared to set themselves low targets in earnings; and once this was reached, they reduced the fishing effort ; and,
- that the fishermen had begun to be convinced that the prices paid to them were too low and that they were being exploited, since huge profits were being made by the foreign concerns, through the export market.[35]

We are certain that had the writer been around today, he would have realised, from the success story of the lobster industry, that his first observation cannot be defended, and ethnic prejudice might be read into it. H. P. Vasquez (1984:2) revealed that,

> The buyers obtained their products at very low prices, and were selling those same products at very high prices... realizing exorbitant profits. This was proven to be a fact when fishermen's new fish processing and marketing operation... immediately realized significant savings allowing the fishermen to double their individual incomes.

The main factor behind the success of the industry has been the organizational strength of the fishermen's cooperatives, particularly since 1970 when the umbrella organization, the Belize Fishermen Cooperative Association (BFCA) was formed. The BFCA set out to unite the affiliated cooperatives, [36] by eliminating unnecessary competition; organizing for the defence of their Territorial Use Rights; bargaining with government for concessions and influencing decisions. It also drew up a programme of education to build the capacity of its members, "... to instil an acute awareness among fishermen of the necessity and benefit of conservation policies" (BFCA Policy Statement, 1985). [37] The BFCA has ensured effective representation of its affiliated members on the National Fisheries Advisory Board, the main decision making body on fisheries matters. It has also made the movement known internationally, through representation at various international gatherings on fisheries and resource management affairs.

The individual cooperatives purchase the products from their members, process them at their own plants to meet international market standards, and export the products. The high export earnings strengthen the cooperatives economically, while translating into the relative affluence of Belizean (lobster and conch) fishermen *vis-a-vis* their CARICOM counterparts. Certainly, the resilience of the Belizean Cooperatives is strongly correlated to their economic strength. However, they operate effectively also because the state has provided the *de facto* legal and political support to the industry, which has now become a major foreign exchange earner, and a major avenue of employment.

The fishermen's cooperatives are adept at defending their exclusive communal property rights so that, "...the fishing industry and fishermen of Belize will never revert to exploitation, manipulation and control by foreign or national capitalist enterprise." (BFCA Policy... 1985). They are always up in arms at any real or imagined threat of foreign intrusion into the industry, and have always stood firm on their " right to exploit the marine resources in all areas within the Barrier Reef and Atolls, which must be reserved exclusively for native Belizeans". [38] The lobster and conch fishery remains the only

major economic sector in Belize in which foreign concerns are effectively barred from participating, mainly, because of the radical stance of the cooperative movement.

On paper the cooperatives would allow for foreigners to enter the industry legally through joint ventures, but in reality, the terms and conditions are harsh. These include obtaining special conditional licence, reserving the majority share to Belizean partners, and the retention of the cooperatives' monopoly in marketing and exporting. Even Belizean citizens residing abroad cannot participate in the industry, unless they become *bona fide* members of the local cooperatives.The BFCA's policy statement maintains that,

> ...the BFCA is adamant that no alien should be granted a fishing licence if he does not meet the requirement of expertise and technology to engage in a fishery not utilized or exploited by Belizean fishermen.

The joint venture policy is yet to materialise in the lobster and conch fishery in real terms.

The fishery however, is not without its problems. Besides trap piracy, there is increasing threat of foreign incursions, particularly from neighbouring Honduras in the far south . [(39)]. More importantly, a BFCA Radio Broadcasts document (1995) admits that,

> ... the inshore fishery in Belize is becoming over-crowded and lobsters and conch are experiencing heavy pressure from commercial harvesting. Sometimes you hear of fishermen fighting over territory, sometimes the fights are critical involving gun play. Too often you hear of illegal trading and poaching.

It would seem that the problems facing other artisanal fisheries in the region are emerging in Belize.The increasing lack of resources available to government, means that fisheries officials no more patrol the fisheries effectively.[(40)]. The signs of over fishing has not fully hit home yet, since decreasing production levels are currently counterbalanced by higher export earnings. It is time to institute more effective use controls in addition to access controls. For obvious reasons, the impact would not be as hard on the target groups in Belize, as it would have been in other countries in the region.

Another emerging threat is posed by the booming tourism industry in the cays in the north and south. Some of the young and energetic fishers are quiting the fishing industry in pursuit of easier, faster income earning opportunities in the tourism sector.The weakened cooperatives in these areas partly respond by transferring their products for processing, to the plants run by the stronger cooperatives, in order to reduce overhead costs. If the industry is able to withstand this problem, it might translate in the long run, into easing fishing effort pressure on the fisheries, and might catalyse any measures aimed at recuperating the stock, and ensuring sustainable yields.

Despite the emerging problems, this case study demonstrates how effective organization of the users of the resources controlled and managed as communal property, coupled with unflinching political support by the state, and effective partnership between the fisheries bureaucrats and the resource user organizations, can contribute to the development of the co-management of communal property.

2.5 PARTICIPATORY PLANNING AND CO- MANAGEMENT IN ST. LUCIA

St. Lucia is generally portrayed as a country with a tradition of identifying localised fishing grounds, as the common property of specific communities, who exercise exclusive resource use rights. More recently, it has been recognised as having a unique record of " institutionalizing" participatory resource use planning, and establishing structures for the promotion of co-management at the community level. (41)

L.A.Vermeer, et. al. (1994:9) have identified a number of geo-cultural factors which contribute to the relative ease of promoting " area-specific, community -based management " of resources in St. Lucia. The latter is endowed with geographically discrete communities, delineated by difficult terrain and infrastructure; with a coastline (particularly in the south east and south west), dotted with "discrete separate bays," which result in fishing areas being readily identifiable with specific communities. J. R. McGoodwin (1984:19,26) has observed that,

> The main cultural orientation of St. Lucians seem rather uniform throughout the island. There is no incidence of any markedly distinct ethnic enclaves anywhere to be found....Most fishermen live in neighbourhoods within their communities which are principally inhabited by others like themselves.

The cultural homogeneity of these communities strengthens their claim to exclusive resource use rights in what is regarded as communal property. When "outsiders" infiltrate into their common property domain, the resource- owning community groups are wont to solidly defend their territorial rights.

In this sub-section, we discuss two case studies of how two of the most serious problems emerging in the inshore fisheries of the region - overharvesting and resource depletion, and multiple resource user conflict - were successfully dealt with in St. Lucia. This was done through a combination of participatory planning, community involvement in implementation, the restoration of communal property rights , and the introduction of co-management of resources at the community level.

2.5.1 SEA URCHIN HARVESTING IN ST. LUCIA

By late 1970s, the government realised that the lack of proper access and use controls in the harvesting of sea urchins, had resulted in the near depletion of the resource. In 1987 the government, introduced a ban on harvesting, and through a series of consultations with the resource users and other stakeholders, conducted a research to find out how best to bring about the recovery of the fishery. Throughout the period of the research (1987-89), regular feedback information was exchanged with the resource users on progress being made. (42)

According to Renard, (1994:8), the findings of the research " ...showed that the traditional community-based management system that existed in one of the three study locations was as effective as the government ban enforced elsewhere". The decision was made to revive communal property rights, involving the traditional methods of management, under a co-management arrangement, in which day-to-day management responsibility largely shifted into the hands of the local resource users.

The co-management arrangement which took effect from 1990, was preceded by a series of negotiations. The arrangements involved user groups' active involvement in regulatory decision making (Sanderson, 1995), and some level of delegating of authority to the resource users. George and Joseph (1994) explained that the negotiations resulted in zoning of resource use areas for particular groups, and that, the smallness of the resource use area for each group, coupled with its proximity to the community, allowed for ease of surveillance and management.

The end results of the series of consultation processes were a number of mutually agreed-upon management measures, namely,

- harvesters were to be licensed;
- dates for closure of seasons were to be mutually arrived at;
- there would be size limits of what one can legitimately harvest;
- harvesters were to report to the Fisheries Division "... when stock above the size limit was exhausted, for the season to be closed." (Renard, 1994:8).

George & Joseph (1994:6-7), opined correctly that,

> The sea urchin experience in St. Lucia clearly demonstrates that a user group can become actively involved in the central aspects of resource management and play an important role in ensuring its sustainable exploitation.

A major policy statement on the development and management of the fisheries sector in St. Lucia, prepared by the Department of Fisheries in 1992, declared that, " Since sea urchin harvesting was reinitiated in 1990, the Department has been developing community-based approach for the sustainable management of the resources." (Gov. of St. Lucia, 1992:9) The government's policy has been " to pursue the feasibility of creating certain decentralised local fisheries management bodies, where they appear to have the potential of improving the welfare of local fishermen while retaining the sustainability of the fish resources." (Walters, 1978:28)

This case study demonstrates how a situation of inevitable stock depletion can be turned around by participatory planning, the revival of communal property rights, and the development of co-management systems at the community level. It holds good prospects for the future of fisheries management in the region.

2.5.2 THE SOUFRIERE MARINE MANAGEMENT AREA PROJECT, ST. LUCIA

Economic expansion and diversification on a national scale generated a spill-over effect in a sub-region of St. Lucia, whose simple economy was hitherto based particularly, on artisanal fishing. Soufriere coastal region in the south west of the country, is situated on a narrow submarine reef, which is considered as one of the most diverse and productive coral reefs.

The problem of multi-user conflict over sea space and use arose, when the tourism and related transportation and recreational industries sought a footing in the area, which hitherto had been the exclusive domain of mainly beach seine and some trap fishermen. (43) The local fishers considered the area as communal property over which they had exclusive territorial rights. The intrusion of outsiders was therefore cause enough to galvanise them to the defence of their communal territorial rights.

As a result of the intensification of the conflict, evidence of habitat and resource degradation was emerging (44). The government's first response in 1986, was to declare some areas as Fishing Priority Areas and Marine Reserves, but this failed to settle the issue. The next attempt, in 1992, was to embark on a complex, extensive and intensive mix of public awareness building and consultation processes, involving all the stakeholders, in a bid to seek solutions to the problem; solutions to which all participants would have contributed and would therefore identify with. The leading organizers of this participatory search for solutions, were the Fisheries Department, CANARI and the Soufriere Regional Development Foundation. Preliminary agreement reached in 1993 among all the stakeholders, was a system of space allocation and zoning , including redefined fishery priority areas, marine reserves, multiple use areas, recreational areas, and areas for specific tourism -related activities.

The final agreement of this participatory planning and negotiation process was reached in 1995, with the establishment of a general management body, the Soufriere Development Foundation, whose Technical Advisory Committee (TAC), comprises representatives of all the resource using groups, and the main governmental agencies concerned. Significantly, the Department of Fisheries chairs this management body, and retains control over the Marine Reserves and the Fishing Priority Areas. The programme is now at the implementation/ monitoring stage.

What are of particular interest to us are first, the role which community participation has played and will continue to play in the management process. Second, the return to the fishing community, of the exclusive use rights to the resources, albeit over a smaller space than previously. Third, the co-management system that has been put in place, by which the fisheries officials, representing the government, will share management of the communal property, with the resource- using community. The legal backing for this co-management arrangement comes from the St. Lucia Fisheries Act # 10 of 1984, which empowers the Minister responsible for fisheries to declare a designated area as a Local Fisheries Management Area (LFMA), under a local organized body, considered to represent the interests of the fishing community. (45) R. M. Walters (1987: 6-7), defines the function of this body as one,

... that has been vested with the legal authority to make locally applicable by-laws to regulate the conduct of fishing operations, and fisheries management, in the said designated area.

Overall responsibility and general policy direction for the fishing and marine reserve areas however, still fall under the aegis of the Fisheries Department. This includes ensuring that by-laws passed by the management body are approved by the Minister responsible for fisheries (Sec. 19[2]), and to provide technical assistance to the local management authority in the area of co-management (Sec. 18 [3]).

3.0 REGIONAL INSTITUTIONAL ARRANGEMENTS FOR SUSTAINABLE FISHERIES MANAGEMENT

3.1 INTEGRATING THE TRADITIONAL AND THE MODERN

In view of the fact that centralized management of the region's fisheries has not been able to arrest the deterioration of the health of the stocks, it is time to develop systems which would integrate elements of the traditional management practices, with the modern elements of resource management. This could involve taking some or all of the following measures:-[46]

- shifting from centralised management towards a middle course between full self-management and full state control of communal property ;
- restoration of communal property rights to the local communities, including the right to exclude " outsiders" from resource use;
- the formation and/or strengthening of local fishermen's organizations, through community awareness and education/training programmes in organization and fisheries management;
- the formation of local resource management bodies, led by representatives of the fishermen's organizations, but allowing for representation of other stakeholders in the communities;
- the promulgation of legislation that would give legal backing to the communal property rights regimes;
- the delegation of authority to the local resource management bodies to pass by -laws, suited to the conditions and circumstances of the locality ; including rules and regulations to back the relevant traditional resource management practices;
- the institutionalization of the participatory planning and management processes at the community level; and,

- the provision of technical and operational support to the local management authorities, by the fisheries establishments, representing government at the community level, in areas such as data analysis, scientific stock assessment, information dissemination, conservation education, and support in monitoring and surveillance.

The institutionalization of co-management of resources considered as communal property is being advocated. That will involve the devolution of some degree of power and authority in resource management, now exercised by bureaucrats, to local management authorities." The range of local accommodations to the State" (Pinkerton,1994: 332) might differ from community to community, depending on local conditions and circumstances, and the institutional (or organizational) and capability strengths of the communities.

According to this model, on " a vertical range of local / state accommodations" (Pinkerton, 1994:325), from point 1 (local management) to 10 (state management), the Belizean lobster and conch fishery might lie between 2 & 3 on the scale; [47] whereas the management of St. Lucia's Soufriere Resource Management Area [48] might fall between 6 & 7 on the scale. Further movement along the continuum, away from centralized management, will depend on progress made in the promotion of the sustainable utilization of the resources managed locally.

There are some regional institutional arrangements created to assist in the institutional strengthening and capability building of the countries and the fishermen's organizations and communities, for the sustainable management of the fisheries of the region. The rest of this section will briefly outline the two major ones.

3.2.1 THE ORGANIZATION OF EASTERN CARIBBEAN STATES FISHERIES UNIT

The OECS is a sub-regional union of states formed by a treaty in June 1981 to promote cooperation among member states, all located in the Eastern Caribbean. These are Antigua & Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, and St. Vincent & the Grenadines; all former colonies of Great Britain. [49]

The OECS Fisheries Unit [50] was created in 1986 to co-ordinate and promote fisheries management in the OECS member states, and to promote cooperation in resource management. According to P.A. Murray (1995:4),

> The approach of OECS Member States to fisheries management is geared, among other things, toward: the development of the capacity of Member States to harvest the resources of the Common Fisheries Zone and fishery waters on a profitable, longlasting basis; the co-ordination of the efforts of Member States in the exploration exploitation and management of their Common Fisheries Zones and fishery waters... and the development of the human resources...for the efficient management of their marine resources on a co-operative basis.

The Unit has been instrumental in the development of a number of harmonised regulations which are adopted in the member countries. These include coastal zone management, fisheries conservation measures, licencing and control of foreign fishing and vessels, collection of data and fisheries management and development planning.

Of more relevance is the Harmonized Fisheries Act, 1984 (revised in 1993). Section 33 empowers the Minister responsible for fisheries in each member state to designate any locality as a Local Fisheries Management area, and to designate any fishermen's cooperative or fishermen's association or other appropriate body representing fishermen in the area, as the Local Fisheries Management Authority (LFMA) for that area.

The LFMA is empowered to recommend by-laws appropriate for the sustainable management of the communal property for the approval of the Minister. Once approved, these would have the force of law. The Chief Fisheries Officer is to provide any assistance to the LFMA in the performance of its functions.

The Harmonised Act therefore reinstates Communal Property Rights and involves the delegation of some degree of power to the local management authority. It therefore lays the grounds for the establishment of the co-management of resources at the community level. The seven OECS countries have adopted the Act to various degrees.[51] The two examples from St. Lucia (sub-section 2.5.1 and 2.5.2) above, are illustrative of its utilization for the promotion of the co-management of communal property.

3.2.2 THE CARICOM FISHERIES STOCK ASSESSMENT AND MANAGEMENT PROGRAM (CFRAMP)

The idea of establishing a fisheries management program for the CARICOM region was mooted by the leaders of twelve English-speaking Caribbean countries, and it became a reality in 1991.CFRAMP is an eight- year regional program, jointly funded by Canada and the twelve Caribbean countries. [52] Its overall goal is to put systems in place for the promotion of the sustainable management of the national and regional fisheries, and to establish a regional mechanism which will ensure continuity of the process after the life of CFRAMP.

Some major factors led to the decision to establish CFRAMP. These included the realization of the increasing importance of fisheries to the national economies; the concern about the emerging scientific evidence of overfishing, particularly in the inshore fishery zones; and, the insufficient knowledge of the state of the regional stocks, their migratory patterns, stock structure,needed for reliable assessment and management purposes.(Jentoff & Sandersen, 1993:12).

The program has three interdependent sub-areas namely,

- **Data Management Systems**, involving Licencing and Registration of fishers and vessels and Catch and Effort Data Collection, and the modernization of equipment and methods, with a strong training component.

- **Stock Assessment Systems**, including Biological Data Collection and Processing. There are three Regional Assessment Units (RAU), their locations co-inciding with centres of abundance of the stocks after which they were named. These are the Lobster and Conch RAU located in Belize, where the headquarters of CFRAMP, the CARICOM Fisheries Unit is also located; the Shrimp and Groundfish RAU, in Trinidad & Tobago; and the Reef and Pelagics Unit in St. Vincent and the Grenadines.

- **The National and Regional Fisheries Management Systems**, comprising the following sub-projects.

  - Strengthening National Fisheries Management, through lending technical support for the formulation of National Fisheries Management Plans and the establishment of National Fisheries Advisory Committees,with the effective representation and input of the fishers' organizations, to work towards consensus on fisheries management policies and to oversee its implementation,

  - Building the capacities of the fisheries establishments through long-term training programmes in Fisheries and Marine Biology, Fisheries Resource Management, Fisheries Socio-Economics etc. in local and overseas learning institutions, in preparation for managing the fisheries of their countries. This is supplemented by several short-term seminar/ workshops and attachment programmes under each sub- project area;

  - Community Involvement and Education, aimed at lending support for the formation of, and/or strengthening of existing fishers' organizations. Through community awareness and education/training programs in fisheries and organizational management, to prepare them for representation on the National Fisheries Advisory Committees, so that they could effectively participate in the formulation of fisheries policies, and to have an input in the designing of national fisheries management plans. It is also meant to prepare them for the role of co-managers of the fisheries, particularly the inshore fisheries, with the backing of legislative instruments, such as the OECS Harmonized Fisheries Act,[53] existing in the region

4.0 STATE AND COMMUNITY PREPAREDNESS FOR CO-MANAGEMENT OF COMMUNAL PROPERTY

- A case has been established for the revival of communal property rights regimes, in the light of the evidence that centralised management systems have led to resource depletion and habitat degradation in the inshore, artisanal fisheries of the region;

- Elements of the traditional, space-allocation and entry restriction management systems, which have survived over generations, have been identified, as suitable for incorporating into the management of communal property rights systems;

- A call has been made for the fusion of these elements with suitable elements of modern fisheries management techniques, and the forging of a collaborative operational partnership between the government fisheries officials and the revitalised community organizations for the co-management arrangements;

- Emerging examples of participatory planning and co-management of reestablished communal property regimes in the region have been identified;

- Existing legal and resource management institutional arrangements which could facilitate the establishment of the co-management of communal property resources have been outlined.

With this foundation laid, the logical question which follows is : " Are the governments and the fishermen of the region prepared and ready to assume the responsibilities involved in becoming co-managers of resources managed as communal property ?

The rest of this section examines the possibilities and problems, and identifies areas which need remedial action, in order to make the wide-spread establishment of co-management of communal property regimes a reality.

4.1 THE POLITICAL WILL OF THE REGION'S GOVERNMENTS

Horace Walters (1978:28) has pointed out that, "...the most important prerequisite to the designation of a LFMA in most Caribbean locales will be the political will to ensure that it succeeds." Effective legal and political support is critical to the realization of the goal of the widespread institutionalization of the co-management of communal property.

At the community level, this will involve the delegation and sharing of power and authority, and a shift of the ownership and the control of resources to adjacent communities and community resource management authorities respectively. The moot question is whether bureaucrats working on the ground with fishers' organizations will be willing to share their authority. However, if the general trends in the region as shown in sections two and three above continue, it might translate into more of the Belizean and St. Lucian models in various countries in the region.

4.2 ORGANIZATION FORMATION AND CAPACITY BUILDING

As Ostrom (1992) has pointed out, effective and efficient" Appropriator Organization" is the basis for successful community -based management of common property resources. In order for the fishers' organizations to effectively participate as co- managers of the communal resources, they need to organize themselves into strong and sustainable formal organizations., " with written rules clearly specifying mutual rights, duties and procedures for making binding decisions on all members." (54). Together with the incentive and benefit streams flowing from the exclusive property and resource use rights for the community, this will contribute to raising the degree of social cohesion.

The next step is to strengthen their capacity to effectively participate, by organizing training and education programmes in areas such as the principles and practice of leadership, financial and organizational management, and para-legal studies, to build up their awareness of issues relating to resource use and management. Institutional strengthening and capacity building of this nature, would lead to:-

- ease of mobilization and communication
- increase in dialogue with government on management issues
- effective representation and involvement in national level decision making
- becoming more self-reliant in advocacy, lobbying and influencing of policy.

However, as Sanderson (1995:3) has argued, " in the Caribbean there is currently a limited capacity among existing community organizations to perform the varied functions that co-management requires." (55). This writer has documented (Brown/CFRAMP, 1995) the weaknesses of the fishermen's supply co-operatives whose very existence hinge precariously on the subsidies doled out by governments, and which for the most part of the year are dormant, until a threatening situation suddenly galvanizes them into temporary action . Apart from the Belize Fishermen Cooperative Association (BFCA), which can genuinely be called a large - scale user-group organization, most of what passes for national umbrella co-operative organizations encompass far less than 20% of the fishers' population in their countries.

Part of the solution to the problem lies in the power vested in the government, before declaring a resource locale where there is no " appropriate body representing fishermen in the area," as a Local Fisheries Management Area (LFMA), to "...promote the formation of such a body".(St. Lucia, Fisheries Act #10,18 [2]). The formation of the Soufriere Development Foundation, made up of representatives of all the stakeholders is a good example.

A test case in Jamaica, is the work of an environmental and development NGO, the South Coast Conservation Foundation (SCCF), which is committed to participatory planning and co-management, working among fishers in the Portland Bight area on the south coast of Jamaica. The area had about 4,000 largely un-organized artisanal fishers.The "essential first step" it took was " to assist the fishers of Portland Bight to organize themselves", into eight fishermen's associations at the various landing sites.

The next step was the organization of education and training programmes, so that after SCCF's initial technical assistance, the Associations will gradually take control of managing their affairs. This is an on-going programme.

The third major step it took was to form the **Portland Bight Fishers Management Council,** comprising the representatives of the associations, and other stakeholding organizations. The latest development is that the Natural Resources Conservation Authority (NRCA), the Jamaica Government's Environmental Protection Agency, established by the NRCA Act. 1991, has decided to declare Portland Bight and sorrounding region a Special Protected Area, and to licence the **South Coast Conservation Foundation (SCCF)** to manage the area. (56)

This is considered as pioneering example of an NGO in the region getting the political and legal recognition to implement the co-management of communal resources, and may become the pattern for future developments in the management of communal property in Jamaica and other parts of the region.

Following closely on the heels of SCCF in this regard is the **Centre for Marine Sciences (NGO), University of the West Indies** project on the North Coast of Jamaica. **The Discovery Bay Improvement Project** also used the Institutional Strengthening and Capacity Building approach through the formation of the Discovery Bay Fishermen's Association, Fisheries Management Education Programme, and the establishment of a Local Management Committee.

The project went further by pioneering a Mesh Exchange Program which exchanged the small mesh used by the fishermen for larger mesh for their traps at the rate of 1 for 2, with resounding success. The evaluation was done in terms of sizes and weights of fish caught in the area after the mesh exchange programme, compared with the sizes before the exchange.

A Report on the project stated that,

> The word is spreading in Jamaica about the success of the Mesh Exchange Project. Fishermen in St. Mary were reported to say that Fishermen at Discovery Bay were catching larger fish with larger mesh, and were themselves buying it. The South Coast Conservation Foundation (an environmental NGO working with people in the Old Harbour/ Portland Bight area) plans to introduce a large- scale mesh exchange. There has been interest in other Caribbean territories.(57)

We have yet another example of an NGO promoting and co-managing the resources of a communal property, and making a laudable contribution to fisheries conservation in the region. It would seem therefore, that the formation and/or strengthening of fishermen's organizations and building up their capacities prior to the establishment of co-management of communal resources, contributes greatly to the success of such schemes.

4.3 RIGHTS AND RESPONSIBILITIES IN CO-MANAGEMENT

The most significant right enjoyed by the community to which territorial use rights in fisheries resources have been restored, is the right to exclude so-called "outsiders" from enjoying that privilege. But as Bromley (1992:4) has pointed out, " Rights have no meaning without correlated duties". Evelyn Pinkerton (1989:6) has captured the essential elements of these responsibilities involved in co-management in the form of " seven potential management functions". These include data collection and analysis, taking logistical harvesting and allocation decisions, habitat protection, regulations enforcement and taking policy decisions and formulating long-term plans.

The right to include all in the community and to exclude all outsiders itself is pregnant with difficulties and conflict, both within the resource using group and outside of it. These make the management function even more complex and taxing. Consider the following scenarios:-

- The tendency for some members of the group to violate rules which they consider to interfere with their personal interests;
- the presence of "free riders" within the community, who might not contribute to the management function, but who will insist on enjoying all benefits which will accrue to the membership. As Ostrom (1992) has explained, this problem stems from the difficulties of excluding intended beneficiaries from resources;
- potential conflict with outsiders refusing to refrain from past acts of incursions or the nebulousness of boundaries which will render them porous, and hence allow for ease of external intrusion.
- biases could be built into decisions made on allocation of resources in favour of an elite minority based on status, wealth, ethnicity, consanguinity and the like.
- difficulties in enforcement due to the close relationship between local officials, acting as informers or patrolmen. In such cases they will find it difficult to turn in relatives, neighbours, and friends (Espeut, 1992b.) As Jentoff (1989:151) put it,

> ... fishermen inspectors usually find it difficult to carry out the role as 'informers' and will rarely report other fishermen... . If there is a general lesson to be learned from this it is that enforcement is one of the regulatory functions which seems better handled by government than by a fishermen.

Any persistent combination of these potential conflict areas listed above can lead to the problem of substractability, and as Ostrom (1992:296) has pointed out,

> the substractability of the resource-unit leads to the possibility of (crowding effect, over-use problem) approaching the limit of the number of resource units produced by a CPR (Common Pool Resource)

The cumulative individualistic use of the resource without any firm use controls, " will eventually substract from the total yield of the commons over time". (Oakerson,1992:45)

The lesson to be learnt from the above is that the restoration of communal property and use rights to the community, and the establishment of a co-management regime, would not automatically translate into effective sustainable fisheries management, unless there is genuine collaboration and functional cooperation between the government fisheries officials and the local resource management authority, in areas such as surveillance and enforcement. To the extent that the aggresiveness of intruders are to be reduced to manageable proportions, the fishermen will need the support and collaboration of the government officials. Moreover, there are certain areas of responsibility such as long-term policy formulation and planning , data analysis and stock assessment that are better handled by the officials, with the support of the fishers' organizations.

On these basis, the recommended functions of the Community Resource Management Authority would be :-

- Data Collection: Fishers will initially provide the information to the official collectors, but at a later stage after some training and awareness building, fishers can record and submit their findings to the officials.
- Assist the officials, with their knowledge and experience in the locality , in the area of stock assessment, the study of migratory patterns etc.
- Make equitable harvesting and allocation decisions, already built into the traditional management systems.
- Formulate, through participatory approaches, access and use control measures, and area-specific rules and regulations for enforcement.
- Collaborate with the fisheries officials in the surveillance of the fisheries; and enforcement of the regulations.

The responsibilities of the fisheries officials in this co-management arrangement would then be :-

- Analysing scientific data, and conducting stock assessment.
- Sharing feedback information on the above with the local management authority for collective decision making.
- Providing technical support to the management body in policy formulation and long-term management planning.
- Assisting in surveillance and regulation enforcement;
- Organizing community awareness and education/training programs, when and as needed.

This division of labour between fisheries officials and the fishermen's organizations may involve some adjustments under different circumstances and conditions.

4. PROMOTING POSITIVE PERCEPTIONS, ATTITUDES AND BEHAVOURS TOWARDS SUSTAINABLE FISHERIES MANAGEMENT

Unless the perceptions, attitudes and behaviours of the intended beneficiaries of a co-management regime towards sustainable fisheries management are positive, no level of institutional arrangements and regulation of practices, will make the system succeed, where centralized managerment had failed. The burden of this sub-section is to analyse data from a recent regional socio-economic survey of fishermen's attitudes, perceptions and behaviours towards fisheries management , to test the readiness of the fishers to take on the responsibilities involved in co-managing communal property resources.

Table 2 provides the data on responses to various options on management measures:

RESPONSES TO MANAGEMENT MEASURES

LIST OF OPTIONS	RESPONSES (YES)	
	NUMBER	PERCENTAGE
Small fishes should be protected	769	82.1
Mangroves, Reefs should be protected	762	81.3
All fishers should be licensed	734	78.3
Sanctuaries should be established	607	64.8
Closed seasons should be established	501	53.5
Enforce wider net mesh	440	47.0
Enforce bigger trap mesh	403	43.0
Ban destructive gear	356	38.0

Limit number of large boats	309	33.0
Limit number of fishers	159	17.0
Limit weight of catches	150	16.0

N=937

Source: Peter Espeut/ CFRAMP, A Socioeconomic Baseline Survey of Thirty Fishing Communities in Twelve CARICOM Countries, CARICOM Fisheries Unit, Belize City, Belize, Dec. 1994.

The responses range from the positive highest of 78% - 82.0 % for relatively neutral management measures of general applicability , and with no immediate threat to the material well-being to the individual respondent, to the lowest of 16%- 33% in the categories where the measures are specific on the mode of implementation, and are an immediate threat to the material interests of the respondents.

Respondents did not show much concern when measures would not affect them personally, but sharply reacted negatively when they perceived the measures as potentially threatening to their immediate material interests. Limitations placed on effort are likely to directly affect income levels, hence the negative reaction.

The data can also be interpreted to mean that, in spite of the signs of depletion of stocks in the inshore fisheries of the region, artisanal fishers do not see it as mainly resulting from too much fishing effort pressure on the resources. The implication is that, unless such measures are introduced in a co-management arrangement, subsequent to strong community awareness and education programmes; and unless thorough consultation processes, leading to consensus positions on the issues are done prior to the introduction of such measures, the implementation might meet serious opposition, and compliance might be difficult to accomplish.

Table 3 shows the reaction of the respondents to the application of sanctions for the violation of fishing regulations

RESPONSES TO APPLICATION OF SANCTIONS

LIST OF SANCTIONS	RES PONSES (YES) NUMBER	PERCENTAGE
Heavy fines for dynamiters	806	86.0
Turn in dynamiters	752	77.4
Fines for unlicensed fishers	600	64.0
Turn in unlicensed operators	522	55.7
Turn in violators of no entry requirement	517	55.2
Turn in small mesh users	513	54.7

N= 937

Source: Peter Espeut/ CFRAMP, Socioeconomic Baseline Survey of Thirty Fishing Communities in Twelve CARICOM Countries, CARICOM Fisheries Unit, Belize City, Belize, Dec. 1994

Besides their outright outrage against dynamiting and dynamiters (see also Table 4), depicted in this table, and for which reason they are prepared to report the perpetrators for sanctioning, their reponse to turning in violators on regulations are significant but relatively low. The unwillingness to turn in violators who are closely related to them,might lead to lopsided application of the regulations. Once discrimination is identified as a major feature by others, the system might break down.

If communal territorial rights are restored in a co-management of communal property regime, the sense of ownership and responsibility might engender some compliance. Peers might exert moral pressure on their colleagues to tow the line. Compliance might also come from public awareness and education programs, and effective consultation and consensus building processes. The technical assistance of the fisheries officials might be urgently needed to straighten things out.

Table 4 shows the respondents' explanation for the causes of stock depletion:-

CAUSES OF STOCK DEPLETION

LIST OF CAUSES	RESPONSES (YES) NUMBER	PERCENTAGE
Weather changes	667	71.2
Fish Getting Smarter	353	37.7
Illegal foreign fishers	398	42.5
Mangrove destruction	314	33.5
Factory Pollution	291	31.0
Sewage Pollution	280	29.9
Fish caught too young	509	54.3
Use of dynamite	400	42.7
Net mesh too small	283	30.2
Trap mesh too small	259	27.7
Too many traps	185	19.8
Too many fishermen	156	16.7
Too many nets	131	14.0

N=937

Source: Peter Espeut/ CFRAMP, Socioeconomic Baseline Survey of Thirty Fishing Communities in Twelve CARICOM Countries, CARICOM Fisheries Unit, Belize City, Belize, Dec. 1994

The responses range from the "esoteric" weather changes cause fish depletion (71%) down to the "main stream" low on cutting down on fishing effort. The upper two rows deal with factors which cannot be directly linked to the activities of the fishermen, whilst the bottom two rows are linked directly to the activities of fishermen. The message which comes through is that the blame should be shifted elsewhere, rather than on them.It is also interesting that the respondents could not see the connection between "fish caught too young" (54%) and mesh sizes (28% - 30%).

Their attitude towards the link between increased fishing effort and stock depletion, comes clearly through in this data, as it did in the previous data (Table 2). There is clearly a lot of room for stepping up community awareness and education programmes in the principles and practice of fisheries management, in order to address this attitudinal lacuna in their perception vis-a-vis the real sources of stock depletion, with particular reference to the link between increasing fishing effort and stock depletion.

CONCLUSION

This study shows that the replacement of traditional management of communal property rights with central management of the fisheries of the CARICOM region, not only failed to prevent resource depletion and habitat degradation in the inshore, artisanal fisheries , but also undermined and overwhelmed communal property rights regimes. In spite of that, however, healthy elements of the traditional space allocation and access restriction systems have survived the onslaught of modernization and government intervention.

The solution proposed for the problem of resource depletion and habitat degradation in the artisanal fisheries is to turn these "open-access" conditions now prevailing in most of the inshore fisheries into communal property rights regimes, and to promote the collaborative management of the resources by the state and the end users of the resources in the fishing communities. Suitable elements of the traditional systems could be fused with modern fisheries management techniques for a co-management model.The division of responsibilities between the fisheries officials and the local managers of the communal resources have been suggested.

Existing legal and resource management institutional arrangements which could facilitate the widespread establishment of the co-management of communal property rights regimes, and provide political and legal backing for these systems, have been identified.

Two models of setting up local management structures have been examined. The" St. Lucian Model" which sprang up in a crisis situation, and involved intensive and extensive use of consultation with the stakeholders, the establishment of the participatory approach to the decision making process, and

the institutionalization of a local resource management body representing all interest groups.

The second model, which could be labelled the "NGO Model" in Jamaica, which gives priority to the formation and/or strengthening of existing fishermen's organization, and organizes community awareness and education/training programs, to build the capacities of the fishers to effectively participate in the sustainable management of the fisheries, and the establishment of a co-management system under a management body representing all the stakeholders. The Belizean case falls fittingly into this model.

Each of these models contains elements which could be adopted to suit different conditions and circumstances. A major concern is how far the political directorates would be prepared to delegate some aspects of central authority to the local level, and how far they can accommodate what might seem to be increasing influence of NGOs at the community level. The institutional strengthening and capacity building approach to the establishment of co-management of communal resources, will go a long way to prepare the fishers for the co-management of the resources of their communal property.

NOTES

1. In the literature the concepts, Common Property and Communal Property tend to be used interchangeably. The writer prefers the concept, Communal Property, to stress its community base, and to avoid the conceptual confusion which has led to the protracted debate on the so-called "Tragedy of the Commons". See Evelyn Pinkerton & Martin Weinstein (1995:19), on the problem with the concept "common property". Also, J.M. Acheson, (1989:359).

   CARICOM stands for Caribbean Community, with a membership of 14 Caribbean countries, namely, Antigua & Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Suriname, and Trinidad & Tobago.

   CFRAMP is a regional Fisheries Management Program co-funded by Canada (CIDA) and all the CARICOM countries, except Suriname and Bahamas.

2. For the delimitation and definition of various property rights regimes, see: D.W. Bromley ed. (1992: 11-20); Gibbs & Bromley (1989:24); McCay (1981:5-6); and Anderson (1989:359); Also, Feeny et. al (1990); Ostrom (1990); and Berkes & Smith (1995).

3. The national Coast Guards, responsible for the surveillance and patrolling lack the resources to effectively operate; and when they do, they tend to concentrate on smugglers of drugs rather than on illegal fishing.

4. See for example, McCay & Acheson (1990:12); Johannes (1978); Dyer & McGoodwin (1994), Bromley (1992), Berkes & Smith (1995); Berkes (1989), and Acheson (1989).

5. See McCay & Acheson (1990:12); and Pomeroy (1991:39).

6. McCay & Acheson (1990:11); Also Johannes (1981:675) and Johannes (1978).

7. G. Andre Kong, (n.d). Mr. Kong is the current Director of Fisheries, in the Fisheries Department, Ministry of Agriculture, Jamaica.

8. There has been a recent move in regional circles, spearheaded by CFRAMP, to encourage the formation of National Fisheries Advisory Committees in all the CFRAMP participating countries, with proper representation of fishers' organizations on them, in order to give the latter a stronger voice in the decision making process. A few countries have already done so. The process is on-going.

9. These will be analysed in Section 3 below.

10. Pomeroy,R.S. & Williams M.J. (1994:3) have also argued convincingly that 'the delegation of fisheries management and allocation of decisions to the local fisher and community level may be more effective than management efforts with distant understaffed and underfunded national government agencies can provide." The latter characterization seems to be the situation in many countries in the CARICOM region.

11. See Section 3 below

12. Also Pomeroy R. S. & Williams M.J (1994: 6).

13. Peter Espeut, (1992a); Mahon, R & N. Drayton,(1990). For similar findings in the Philippines, see Pomeroy & Pido (1995:219).

14. In 1991 the government of the Philippines, decentralised the management of nearshore fisheries to municipalities and local fishing communities under the Local Government Code (LGC) of 1991 (See Pomeroy R. S and Pido M. D.,(1995: 213-226). Sponsored by ICLARM and funded by CFRAMP, the author had the privilege of visiting some " Community-Based, Coastal Resource Management " (CB-CRM) projects, run by NGOs in the Philippines eg. The Malalison Island Project by the South East Asian Fisheries Development (SEAFDEC) and an NGO, "PROCESS"; Bais Bay and Apo Island projects by the Siliman Unversity Marine Laboratory and the Department of Social Work; and the Barilli project in Cebu, run by the Tambouyog Development Centre, located in the University of the

Philippines, Diliman Campus, Quezon City.

15. See also Randolph M. Walters, (1987) ; Also. James Finlay,(1995).

16. See Mitchell, Carlyle & Gold, Egdar,(1982:19-36 esp. 26-27).

17. See Evelyn W. Pinkerton, (1994: 317).

18. For a similar argument on Ghana, see David N. Brown (1982). Unpublished.

19. Mahon & Drayton (1990:2), have observed that, " Management measures which reduce fishing effort or catches will impact on a large number of the poorest fishermen (in the artisanal sector, D.B) and therefore the political will to implement such measures is frequently lacking."

20. The Case of Jamaica will be discussed in Sec.2.2

21. See Peter Espeut/CFRAMP (1994). Also David Brown/CFRAMP (1995); Also. Geoff Clare/CFRAMP (1995)..

22. See also, Gibbs & Bromley, (1989:26).

23. See D. Brown / CFRAMP, (1995).

24. Ernest Thompson, (1945: 21).

25. See Peter Espeut (1992b) Unpublished.

26. Berkes & Shaw (1986:184) writing on the Trap Fisheries of Jamaica, observed that the effective territory of a fishing community constantly beseiged by aggresive intruders, tends to get aggresively expanded seawards by the resource using community to further ward off the aggressors, and advised that we should consider the boundaries of the territories or fishing areas as 'probability fields'.

27. M.O. Haughton & K.A. Aiken (1987).

28. Peter Espeut & Sandra Grant (1990:184). Also, John L. Munro (1969:16-21); and Craig T. O'Marde (1994).

29. This sub-section draws heavily on the works of James Finlay, presently the Chief Fisheries Officer, Grenada.See James Finlay, " Rights Based Fishing in the Beach Seine Fishery of St. Vincent & the Grenadines, St. Lucia, and Dominica,"(Draft), Fisheries Division, Grenada, 1993; and James A. Finlay, Community-Level Sea Use Management in the Grenada Beach

Seine Fishery, Current Practices and Management Recommendations, MSc. Thesis, Marine Resource & Environmental Management, UWI, 1995.(Unpubl;ished).

30. Martinique is a close neighbour of Dominica, St. Lucia, Grenada and St. Vincent & the Grenadines. They have similar geographical and ecological features.

31. *Taconet, M. (1986). Etude des Characteristiques de la Pecherie Senne de Plage en Martinique. Memoire de Fin d'Etude Dipleme d'Agronomie Approfondie. Ecole Nationale Superieure Agronomique de Rennes. Robert, Martinique.*
Quoted in Anthony T. Charles et.al., Fisheries Socioeconomics in the Developing World, International Development Research Centre, Ottawa, Ontario.,Canada, March, 1994, p. 45

32. A similar system operates along the West African Coast.

33. The prominence of conch as an attractive export commodity was a relatively recent development.

34. Allan K. Craig (1966).

35. Ernest F. Thompson (1946: 9).

36. Five major co-operatives societies emerged in the 1960s (Belize gained independence in 1981). These were Northern (1960), Placencia (1962), Caribena (1963), National (1966) and Sarteneja (1968). These were followed by a host of smaller ones which soon folded up and their members absorbed by the major cooperatives. They ran their own processing plants and hence held a firm control over both processing and marketing functions.

37. This programme has been on-going. Recently, it has been stepped up through foreign financing. The writer handles the subject, " Fishermen as Resource Managers," at the Seminars organised by the BFCA around the country. Other subjects include Conservation, Fisheries Biology, Financial Management, Co-operative Management, Acquaculture etc.

38. BFCA Policy Statement, (1985).

39. The writer (D. Brown, 1995), had recommended to the government to set up a sub-patrol station at Placencia in the south, and the local cooperative members had promised to assist by contributing fuel for the operations and acting as guides. It would seem that government does not have the resource to take action at this time.

40. Belize is the only country in the CARICOM region with a full patrolling unit in the Department of Fisheries. All the other countries rely on the Coast Guards to do the patrolling.

41. See for example, Leslie Hudson (1994).

42. The Fisheries Department of St. Lucia was effectively supported and assisted by the Caribbean Natural Resources Institute (CANARI), a Regional NGO, in the entire process.

43. For more details, see Sarah George (1994).

44. See Hakan T. Sanderson (1995).

45. The legislation identifies the constitution of the management body as any local authority, fishermen's co-operative or fishermen's association or other appropriate body representing fishermen in the area, but where there is no such body, the Minister may promote the formation of such a body. Of greater significance is the fact that "...a breach of any by-law shall constitute an offence and may provide for penalties on summary conviction by way of fine not exceeding ten thousand dollars." (Sec. 19 [3]).

46. These are not necessarily listed chronologically.

47. See Sec. 2.4 above.

48. See Sec. 2.5.2 above.

49. All are participating members of the larger CFRAMP.

50. Now known as the OECS Natural Resources Management Unit, (NRMU) located in St. Lucia.

51. See for example, The Fisheries Act, 1983, Sec. 19 & 20 for Antigua & Barbuda.

52. The participating countries are Antigua & Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago.

53. The Natural Resources Conservation Authority of Jamaica, through the NRCA Act 9 , 1991 is empowered to delegate authority to NGOs and any responsible bodies, to manage protected areas, provided the area has precise boundaries, and an acceptable management plan, guaranteed financial viability plan, and a statement on community participation. See Mark Figueroa & Peter Espeut, "Preparing Environmental Planning in the English Speaking Caribbean: The Case of the SCCF in Jamaica". Paper presented to the International Conference on Integrating Economic & Environmental Planning in Islands and Small States, Malta, 14-16 March, 1996.

54. E. Ostrom (1992:298)

55. For St. Vincent & the Grenadines, see Jentoff & Sanderson (1993:15)

56. See Tigueroa & Espeut (1996).

57. W. Hunte and R. Mahon, in a report prepared for CFRAMP recommended that "...CFRAMP extend the Discovery Bay FIP, and implement a pilot study, based on the Discovery Bay FIP, in another CARICOM member state where reef fisheries resources have been heavily exploited." See Hunte & Mahon, Size Selection of Fish by the Mesh of Fish Traps. CARICOM Fishery Research Document Large Pelagic, Reef and Slope Fishes Assessment Subproject Specification Workshop, St. Kitts & Nevis, Jan. 1994.
Quoted in Sanderman & Woodley (1995).

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