

NATURAL RESOURCES SYSTEMS PROGRAMME
PROJECT REPORT¹

DFID Project Number

R8134

Report Title

Comparative analysis of coastal resource co-management in the Caribbean.
Annex B(VIII) of the Final Technical Report of project R8134.

Report Authors

Pomeroy, R., McConney, P. and Mahon, R

Organisation

Caribbean Conservation Association

Date

2003

NRSP Production System

Land Water Interface

¹ This document is an output from projects funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.



COMPARATIVE ANALYSIS OF COASTAL RESOURCE CO-MANAGEMENT IN THE CARIBBEAN

R. Pomeroy, P. McConney and R. Mahon

Caribbean Conservation Association (CCA)

in association with the
University of the West Indies
Centre for Resource Management and Environmental Studies (CERMES)
and
Marine Resources Assessment Group Ltd. (MRAG)



2003

Contents

Executive summary.....	1
1 Introduction	2
1.1 The Project.....	2
1.2 Research Partners	3
1.3 Logframe Narrative Summary	3
1.4 Arrangement and Use of Report	3
2 Research framework	3
2.1 Definitions and concepts	3
2.2 Research Framework.....	5
3 Project Case Study Summaries	7
3.1 Barbados.....	7
3.2 Belize.....	7
3.3 Grenada	7
4 A Review of Caribbean Studies on Co-management.....	8
4.1 Summary of lessons learned and conditions for success from the literature review...	19
5 Comparison of Case Studies	20
5.1 Type of co-management	20
5.2 Phase of co-management	20
5.3 Conditions for co-management	21
6 Conditions for Success	25
7 References.....	25

Figures

Figure 2.1 Sliding scale showing various degrees of co-management.....	4
Figure 2.2 Degrees and labels of co-management.....	5
Figure 2.3 Phases of co-management.....	5
Figure 2.4 Modified ICLARM/IFM Institutional Analysis and Design Research Framework	6
Figure 4.1 Categories of co-management in cases examined.....	11
Figure 4.2 Activities undertaken in co-management in the 18 cases examined.	11
Figure 4.3 Government officials' satisfaction with co-management in 18 case studies.	12

Tables

Table 4.1 Analysis of co-management by phase and type	11
Table 4.2 Evaluation of fisheries co-management conditions in Barbados	13
Table 5.1 Types of co-management in the six case studies	20
Table 5.2 Phase of co-management in the six case studies.....	21
Table 5.3 Stakeholders perceptions of critical conditions for successful co-management	21

Boxes

Box 1.1 Logical framework for NRSP call.....	2
Box 2.1 Main analyses included in the framework.....	6

Citation: Pomeroy, R., P. McConney and R. Mahon. 2003. Comparative analysis of coastal resource co-management in the Caribbean. Caribbean Coastal Co-management Guidelines Project. Caribbean Conservation Association, Barbados. 30pp

This document is an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

Executive summary

Co-management is a relatively new concept in the Caribbean region. Over the last decade, the use of co-management arrangements in fisheries and coastal resource management has increased as new approaches to management have been sought. There is now more documentation of the various experiences with co-management that have increased our knowledge of conditions leading to success and failure and the unique characteristics of co-management in the region. This project adds to that growing knowledge base through several new case studies. This report presents a comparative analysis of lessons learned and conditions for success from both the literature and from the six case studies conducted in this project.

Apart from one case, only consultative co-management was actually in place, although in some of these arrangements the stakeholders aspired to collaborative co-management. Phases or maturity ranged from pre-implementation to post-implementation. Case study stakeholders rated their arrangements on a scale indicating the strength of the particular characteristic. The twenty-three characteristics were drawn from the international literature on co-management and verified by the stakeholders as being relevant to their situation.

From this analysis, conclusions were drawn on the status of each variable or characteristic. A few of them stood out as being of particular significance to the Caribbean region, such as.

- Membership is clearly defined as to who really has a stake in the fishery
- There is a shared recognition of a resource use problem that needs to be addressed
- Clear objectives for management can be defined based on the problems and interests
- External agents provide support for management but do not encourage dependency
- Management rules are enforceable by resource users and the management authority
- Clearly defined boundaries of the resource, of the management area, and of the “community”

Guidelines for success must be directed at the average stakeholder who does not have special training in marine and coastal management. Emphasis must be placed on ensuring that there is adequate understanding of co-management at the conceptual level. The guidelines need to answer a series of simple questions such as:

- ◆ When do we usually introduce co-management?
- ◆ Where do we do co-management?
- ◆ Who do we co-manage with?
- ◆ How do we do co-management?

1 Introduction

Co-management is a relatively new concept in the Caribbean region. Over the last decade, the use of co-management arrangements in fisheries and coastal resource management has increased as new approaches to management have been sought. There is now more documentation of the various experiences with co-management that have increased our knowledge of conditions leading to success and failure and the unique characteristics of co-management in the region. This project adds to that growing knowledge base through several new case studies. This report presents a comparative analysis of lessons learned and conditions for success from both the literature and from the six case studies conducted in this project.

1.1 The Project

The purpose of the Caribbean Coastal Co-management Guidelines Project is to ensure that mechanisms for implementation of integrated pro-poor natural resource management in coastal zones are developed and promoted. This is assisted by understanding the requirements for establishing successful co-management institutions for coastal resources under various conditions in the Caribbean. These ideals reflect the policy and objectives of the United Kingdom (UK) Department for International Development (DFID) on eliminating world poverty. The project is part of the Natural Resources Systems Programme (NRSP) Caribbean programme for Land Water Interface (LWI) production systems. This component of the NRSP has the purpose: “Benefits for poor people in targeted countries generated by application of new knowledge to natural resources management in the land water interface”. It entails:

- An understanding of livelihood strategies;
- An understanding of natural resource management opportunities;
- Identification of the means to implement management opportunities relevant to the poor.

The project is a response to a September 2001 call for proposals from the NRSP to implement parts of the LWI logical framework (or logframe) (Box 1.1).

Box 1.1 Logical framework for NRSP call

Output 1: Improved resource-use strategies in coastal zone production systems developed and promoted

Activity 1.3: Mechanisms for implementation of integrated pro-poor natural resource (and pollution prevention) management in coastal zones developed and promoted

Sub-activity 1.3.1: Mechanisms for the improvement of sustainable livelihood outcomes for poor people living in coastal zones through integrated participatory resource management and prevention of pollution developed and promoted

Sub-activity 1.3.1, milestone (b): Understanding the requirements for developing successful co-management initiatives and mechanisms for promoting them

Target region: Caribbean

Source: DFID-Natural Resource Systems Programme

1.2 Research Partners

Project implementation is lead by the Caribbean Conservation Association (CCA) under its Coastal and Marine Management Programme (CaMMP). Project partners are the Marine Resources Assessment Group Ltd. (MRAG) of the UK and the Natural Resources Management (NRM) Programme of the University of the West Indies (UWI) Cave Hill Campus in Barbados where the CCA has its office. The original execution period was 1 April 2002 to 30 June 2003 (15 months), but an extension to August 2003 has been received.

1.3 Logframe Narrative Summary

The Caribbean Coastal Co-management Guidelines Project seeks to ensure that people in the Caribbean, especially the poor, can effectively engage in successful partnerships with government for sustainable livelihoods in the context of well-managed coastal resources. The study addresses both the natural resource and human institutional aspects of co-management. Through a series of participatory investigations in case studies of conditions that favour, or do not favour, the co-management of coastal and marine resources at selected sites the project derives guidelines for developing successful co-management in the Caribbean. Uptake is promoted by interaction with target institutions and potential beneficiaries, and wide dissemination of outputs. The main activities listed below define the project.

1. Selection of co-management analysis research framework
2. Ecological and environmental assessments of the natural resource systems and their utilisation
3. Institutional, socio-economic, cultural, political and other human dimension assessments
4. Comparison of how the natural resource and human factors assessed in 2 and 3 favour or constrain the establishment of successful, pro-poor and integrated co-management
5. Development of regionally applicable guidelines on successful, pro-poor and integrated co-management in the wider Caribbean
6. Capacity of target institutions and beneficiaries for co-management built through project participatory processes

1.4 Arrangement and Use of Report

This report contains three parts. Sections 1 (Introduction), 2 (Research Framework) and 3 (Project Case Study Summaries) present background about the project. Section 4 presents a review of secondary literature on co-management experiences in the Wider Caribbean region. It presents a summary of each report and other materials that were identified in the project's literature survey. Section 5 presents a comparison of the six case studies undertaken in the project, including the type of co-management, the phase of co-management, and conditions for co-management. Guidelines for successful co-management are developed from comparative analysis and presented in a companion document.

2 Research framework

This section sets out concepts that guide the research based on previous work in coastal co-management around the world. It sets the stage for presenting the case study results.

2.1 Definitions and concepts

Definitions of co-management focus on sharing management responsibility and authority between government and stakeholders (e.g. Pinkerton 1989; McConney 1998a; Brown and Pomeroy 1998; Pomeroy 2001; Berkes et al. 2001). The fundamentals of what co-management should be, and are in practice, have been extensively researched (Jentoft 1989; Kuperan and

Abdullah 1994; Pomeroy and Berkes 1997). Co-management encompasses several possible arrangements that are often depicted as a scale constructed from the relative sharing of responsibility and authority between government and stakeholders (Pomeroy and Berkes 1997; Berkes et al. 2001) (Figure 2.1).

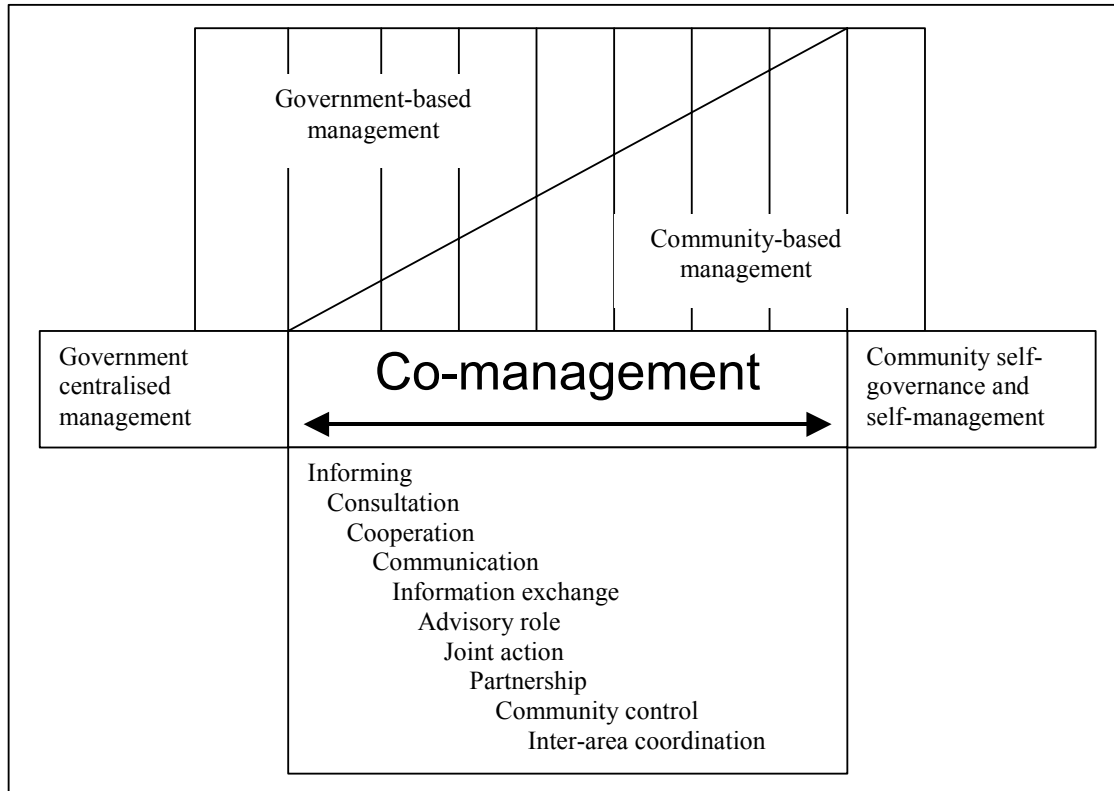


Figure 2.1 Sliding scale showing various degrees of co-management (based on Pomeroy and Williams 1994)

As in the case of participation (Arnstein 1969), there are various positions on the scale, and authors use different terms for co-management and its degrees. For example, the Caribbean Natural Resources Institute (CANARI) uses “participatory management” (see extensive document list at www.canari.org). The terms participatory management or co-management are gaining popularity in Caribbean government and NGO circles, and among some resource users (Almerigi et al. 1999; CANARI 1999; CANARI 2000; CANARI 2001; CCA 2001). These concepts, however, are not always fully understood by their users. Conceptual and practical research issues therefore include the degrees of co-management and which terms to use.

Based on international and Caribbean literature it was determined that three degrees and labels would be appropriate (Figure 2.2). The most common arrangement is described as “consultative co-management” (Brown and Pomeroy 1999). People commonly use and understand the term consultation.

<i>Government has the most control</i>	Consultative co-management	Collaborative co-management	Delegated co-management	<i>People have most control</i>
	Government interacts often but makes all the decisions	Government and the stakeholders work closely and share decisions	Government lets formally organised users/stakeholders make decisions	

Figure 2.2 Degrees and labels of co-management

(Adapted from: ICLARM and IFM 1998)

Next is joint action and decision-making. This is where several countries seem to be headed. The term “collaborative co-management” was preferred to “cooperative co-management” because it connotes stronger partnerships, and the use of “cooperative” may be confused with the formal organisation types of the same name (Kurien 1988; McConney et al.1998).

Third is “delegated co-management” that includes, but is not limited to, community-based management since national co-management structures are especially common in fisheries management (Jacobs 1998; McConney and Mahon 1998). Few cases in the Caribbean appear to be at this level, but it is not uncommon in other areas of the world (Baird 2000).

Establishing successful co-management is seldom immediate. Like most participatory processes it takes time and careful tending. Pomeroy (1998) recognises three phases of co-management and describes the sequence of steps within these in some detail. A much-simplified version is in Figure 2.3.

Pre- implementation →	Implementation →	Post- implementation
Realise need for change Meet and discuss change Develop new management	Try out new management Educate people in new ways Adjust and decide what is best	Maintain best arrangements Resolve conflicts and enforce Accept as standard practice

Figure 2.3 Phases of co-management

(Based on: Pomeroy 1998)

Like cases in Africa (Normann et al 1998; Sverdrup-Jensen and Nielsen 1999), the Caribbean is generally at the pre-implementation or early implementation phase (McConney and Mahon 1998; McConney 1998b). A few situations such as the Soufriere Marine Management Area (Renard 2000) may be mature enough to be labelled post-implementation. A very significant consequence is that neatly comparing “before” and “after” conditions arising from a co-management intervention such as a discrete project will be less feasible in the Caribbean than other locations such as in Asia where much of the literature on methodology originates (e.g. Pomeroy and Carlos. 1997; Pomeroy et al. 2001).

2.2 Research Framework

The International Centre for Living Aquatic Resources Management (ICLARM) and Institute for Fisheries Management and Coastal Community Development (IFM) (ICLARM and IFM 1998) developed the methodology referred to above for the African and Asian cases (Figure 2.4).

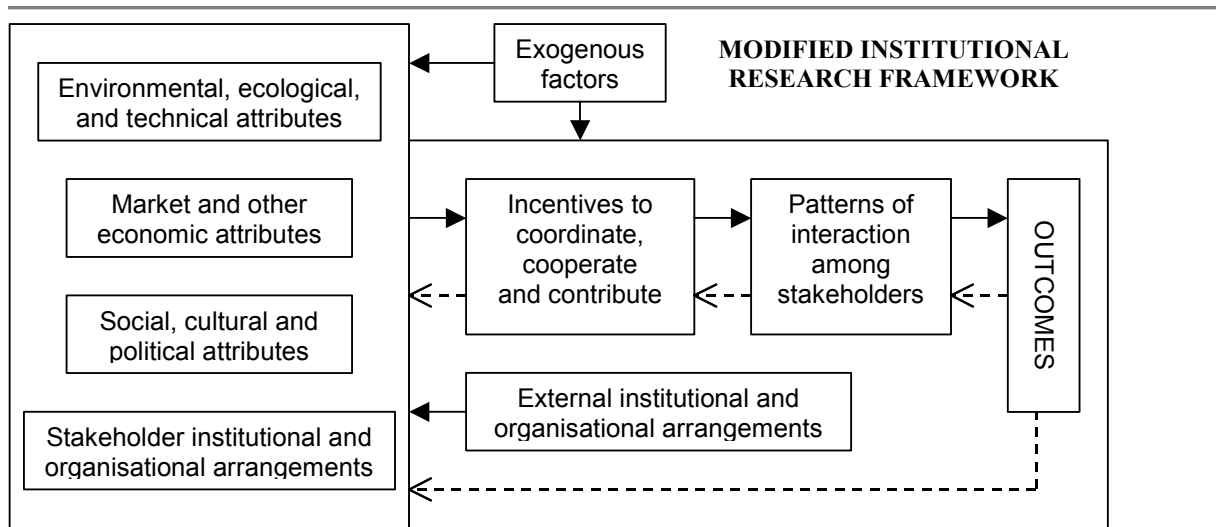


Figure 2.4 Modified ICLARM/IFM Institutional Analysis and Design Research Framework

The main analyses conducted within the framework are in Box 2.1 They are reflected in the logical framework for this project in terms of the assessments to be performed. Institutional analyses are of critical importance in researching co-management (Renard 1991a ; Noble 2000).

Box 2.1 Main analyses included in the framework

1. **Institutional Arrangements Analysis**: This component links contextual variables characterizing key attributes of the resource (biological, physical) and the resource users (technology, market, social, cultural, economic, political) with the management institutional arrangements (rights and rules). The contextual variables are each composed of a number of attributes. Causal relationships exist among and between the contextual variables, the institutional arrangements (the focus of the analysis) and the resulting transactional (action) situations. The institutional arrangements and the contextual variables affect the actions of the resource users and authorities responsible for fisheries management by shaping the incentives and disincentives to coordinate and cooperate in resource governance, management and use. The incentives, in turn, shape the patterns of interaction and behaviour between the co-management partners, i.e. the types of co-management arrangement established and the way it functions.
2. **Co-management Performance Analysis**: The co-management arrangement results in outcomes. These outcomes will, in turn, affect contextual variables as well as behaviour of resource users, other stakeholders and public authorities. Time is a critical element. All the contextual variables can change through time. This may cause change in institutional arrangements which, in turn, affect incentives, patterns of interaction and outcomes. The outcomes of co-management institutional arrangements can be evaluated in several terms, e.g. management efficiency, equity, and sustainability of resource utilization.
3. **Characteristics of Successful Co-management Institutional Arrangements**: The most important aspect of this analysis is the specification of what conditions and processes bring about successful long-enduring, fisheries co-management arrangements. From the analysis we can identify a list of principles and propositions about conditions and processes.

Source: ICLARM and IFM 1998

3 Project Case Study Summaries

Six case studies, two each from Barbados, Belize and Grenada, were selected for inclusion in this study. They are briefly summarised below.

3.1 Barbados

Sea egg fishery — A food fishery for white sea urchins (*Tripneustes ventricosus* locally called “sea eggs”) has declined on several occasions. After several closures to facilitate recovery, the government recently initiated co-management. Stakeholder groups include the Fisheries Division and Coastal Zone Management Unit (CZMU) of the government; and the Barbados National Union of Fisherfolk Organisations (BARNUFO).

Fisheries Advisory Committee — Under its 1993 Fisheries Act the government of Barbados activated a multi-stakeholder Fisheries Advisory Committee in 1995. The FAC has struggled to define and meet its co-management mandate. Stakeholder groups include the Fisheries Division of the government; individual and organisational members of the FAC.

3.2 Belize

Friends of Nature: Co-management of Laughing Bird Caye National Park and Gladden Spit Marine Reserve MPAs — These MPAs in Belize’s barrier reef are co-managed by an NGO (Friends of Nature) under agreements with the Forestry and Fisheries Departments. Government stakeholders include the Fisheries and Forestry Departments, Coastal Zone Management Authority and Institute. Friends of Nature, Belize Tourism Industry Association and Belize Fisherman’s Cooperative Association are some of the NGOs.

Fisheries Advisory Board — Belize has a Fisheries Advisory Board (FAB) that has been a powerful force in fisheries for over 30 years. However, it has not been well documented as an example of co-management. Stakeholder groups include government Fisheries and Cooperatives Departments, Belize Fisherman’s Cooperative Association, members of the FAB.

3.3 Grenada

Lobster fishery (focus on Sauteurs location) — At the rural town of Sauteurs government recently started a co-management project to encourage use of more responsible fishing practices for lobster harvest, and the fishing co-operative in the area is presently being revived. Stakeholder groups include government Fisheries and Cooperatives Divisions, the Agency for Rural Transformation, St. Patrick’s Fishermen’s Co-op.

Seine net fishery (focus on Gouyave location) — The seine net fishery in Grenada is a case of an attempt by government to systematically document traditional fishing rules and customs in order to incorporate them into fisheries management plans and legislation. Stakeholder groups include the Fisheries Division of government, Agency for Rural Transformation, Grenada Community Development Agency, Gouyave Improvement Committee and St. John’s Fishermen’s Association.

4 A Review of Caribbean Studies on Co-management

Throughout the project, secondary literature on co-management in the wider Caribbean region was collected and reviewed. This section presents summaries of lessons learned and conditions for success of co-management from the reports, journal articles, and other materials reviewed.

Geoghegan and Renard (2002) summarized the insular Caribbean's experience in participatory planning and management of protected areas, using examples from several countries in the region. The analysis of the cases identified four key lessons of direct relevance to the relationship between protected areas and local communities:

- The need to recognize the diversity of stakeholders and take into account the full complexity of their interests and relationships with the resource and with one another;
- The importance of suitable institutional arrangements for the long term success of participatory management;
- The need for transparent, negotiated processes for determining priorities in the face of inadequate resources; and
- There should be a relationship between successful participatory management and the provision of appreciable benefits for local communities.

Geoghegan, Renard, Brown and Krishnarayan (1999) reviewed experiences in participatory planning and management in the Caribbean region from the early 1980s through a case study approach. They found that the level and effectiveness of participation varied considerably among the case studies. As a body of experience, however, they reveal some general trends and characteristics:

- The use of participatory approaches is increasing in the region;
- There is widespread acceptance of and support for these approaches;
- This acceptance is resulting in more inclusive planning and policy processes at all levels;
- There has been little progress in developing enabling policies for participatory approaches;
- The coordination of these initiatives is generally assumed by NGOs with a sustainable development orientation and led at the local level by recognized community leaders;
- The initiatives are often stimulated by coastal degradation and conflict issues;
- Participatory approaches are seen by planners as an effective way to integrate community development objectives into natural resource management;
- The design of these initiatives often suffers from limited social science technical input;
- There has been only limited success in moving participatory processes from the planning stage to implementation.

Geoghegan, Renard, Brown and Krishnarayan (1999) go on to report that a number of lessons can be extracted from the Caribbean experience in the planning and management of coastal and marine resources. Future efforts can be guided by the following:

- The most effective level of participation at any given time is determined by a range of local factors, and the highest levels of participation are not always possible or desirable;
- Effective participatory processes require skilled application of appropriate methods;
- True participation can only be achieved when participants are provided with the information required to make decisions.
- When complete participation is not an option, even limited participation can contribute to improved planning processes;
- Initiatives that incorporate all relevant stakeholders from the outset are likely to be the most enduring;

- Efforts and projects that appeal to the motivations (most often economic) of the stakeholders are most likely to secure their participation;
- With Caribbean coastal areas undergoing constant and rapid transformation, participatory planning must be a continuous process;
- Data collection on stakeholder communities does not equal participation;
- Continuity requires an effective institutional framework for participation;
- Participation requires effective local organizations;
- Participation can require changes in both the behavior and the organizational structures of the organizations involved;
- Participation requires changes in attitude towards power and authority;
- More powerful stakeholders will circumvent participatory processes when it serves their interests to do so;
- Participatory processes cannot be prescribed but must be adapted to the local context and situation;
- Implementation of participatory planning decisions and management actions requires political support and adequate technical and financial resources;
- The effective design of coastal management regimes requires both popular knowledge and scientific research;
- Experience sharing can result in benefits for the entire region.

Renard (2001) reported the following lessons learnt from the Soufriere Marine Management Area in St. Lucia:

- One of the greatest threats to the success and effectiveness of participatory management processes and institutions is the accidental or deliberate exclusion of one or more groups of stakeholders from the planning and negotiating stages.
- There is need for rigorous methods of stakeholder identification, which aim at ensuring that all parties are properly recognized and given a chance to participate in the process.
- Stakeholder groups and communities are far less homogeneous than is generally assumed by the initiators and facilitators of participatory management processes.
- Even when stakeholders are properly identified, and when their interests are properly taken into account, there are many forces which mitigate against the fair and equitable distribution of rights, responsibilities and benefits.
- Representation and representativeness are two different concepts, and effective representation is difficult.
- The legitimacy and competence of facilitation are essential requirements for the success of participatory planning and negotiation processes.
- When carried out in a consensual participatory fashion, stakeholder analysis is an instrument for dispute resolution.
- Natural resource management and development processes take place in constantly evolving situations, and conflict management and participatory planning activities often suffer from the incorrect assumption that conditions are far more static than they are in reality.
- Conflicts cannot be resolved; they can only be managed. The challenge, therefore, is to establish conflict management institutions that are capable of responding equitably, effectively and efficiently to emerging changes, evolving issues and new needs.

Cumberbatch (2001) reports the following lessons learnt from the Folkstone Marine Park and Reserve in Barbados:

- The participatory approach to stakeholder analysis takes considerable time and financial resources but can provide valuable insights.

- Stakeholders have justifiable concerns that must be aired and addressed even if they appear to bear little relation to the project's focus.
- Participatory processes are very human-intensive.
- Non-organized groups are difficult to engage in these processes.
- Time lags are inevitable and problematic.
- It is not always possible or feasible to have all stakeholders represented in management.
- Access to, and perceptions of, power and influence directly affect stakeholders' interest and willingness to come to the negotiating table.

Mahon and Mascia (2003) also reported on the role of co-management in developing the Folkstone Marine Park and Reserve in Barbados, noting that:

- In participatory processes aimed at engaging stakeholders in planning, stakeholders need adequate technical information on constraints in order to avoid developing unrealistic proposals;
- There is the need to pay attention to imbalances in stakeholder capacity to participate in multistakeholder processes, e.g. fishers versus tourism.

Brown and Pomeroy (1999) examined the potential of co-management as an alternative fisheries management strategy for countries in the CARICOM region. Several case studies of co-management were reviewed to illustrate the different types and processes of co-management in the region. They report that since co-management is not a common management strategy in the CARICOM region at present, a process(s) and type(s) of co-management that meets the needs and conditions of the region will need to be developed through experience. The design and implementation of co-management in the region will be supported and hindered by several factors. These factors include:

- No formal traditions of community-based coastal resources management,
- Relative newness of the concept of co-management among government and fishers,
- Limited government-fisher cooperation,
- Lack of strong political support, and the limited number
- Weakness of fisher organizations.

Two general models of co-management seem to operate in the region.

- The first involves intensive and extensive use of consultation with the resource stakeholders, the use of a participatory approach to the decision-making process, and the establishment of a local resource management body representing all stakeholder groups.
- The second involves establishing or strengthening fisher organizations and community awareness and education programs to build the capacities of fishers to effectively participate in management and the establishment of co-management arrangements among stakeholders. Government support for decentralization, development of partnerships, legislation, and the provision of financial and technical resources is invariably required.

McConney, Pomeroy and Mahon (2002) in a review of 18 co-management case studies in the Caribbean, concluded that most (55%) were categorised as collaborative (Figure 4.1).

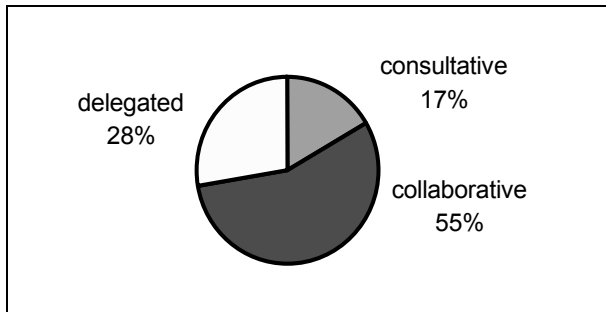


Figure 4.1 Categories of co-management in cases examined

The analysis of some of the cases showed a pattern emerging regarding the types and phases of these initiatives (Table 4.1).

Table 4.1 Analysis of co-management by phase and type

Phase \ Type	Consultative co-management	Collaborative co-management	Delegated co-management
Pre- implementation	1	5	0
Implementation	1	3	2
Post- implementation	1	2	3

Most initiatives were multi-faceted, engaging in several activities as shown in Figure 4.2. All concerned information exchange. All but pre-implementation cases reported engagement in management. Planning and enforcement were the next most common activities, followed closely by policy. However, there was a steady decline from research to interpretation that mimics the typical practise of less stakeholder involvement in the activities perceived as being technical/scientific.

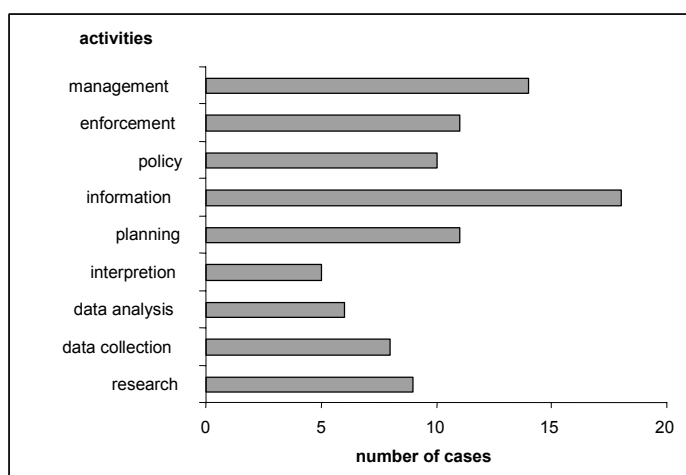


Figure 4.2 Activities undertaken in co-management in the 18 cases examined.

A summary of reported government agency satisfaction with the initiatives is illustrated in Figure 4.3. None of the respondents selected the offered options of either completely satisfied or not at all satisfied, leaving this almost even mid-range distribution. However, the proportion of slightly satisfied officials is cause for concern, since high satisfaction needs to be achieved to better ensure sustainability.

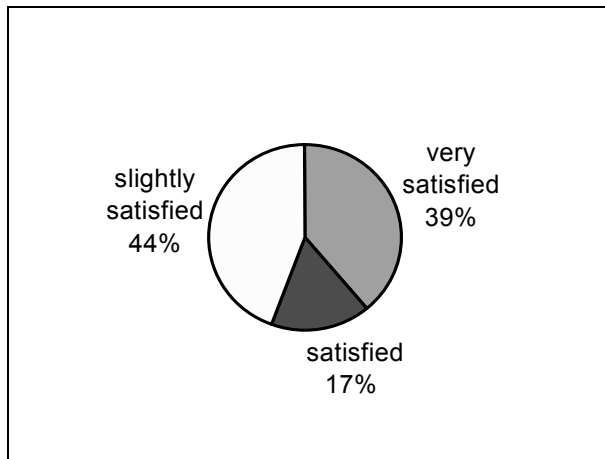


Figure 4.3 Government officials' satisfaction with co-management in 18 case studies.

Ravndal (2002) conducted a study of the community co-managed park system in Belize. She concluded that critical barriers preventing effective co-management of protected areas in Belize appear to be:

- Lack of capacity (human, financial, equipment) of the key government entity responsible for management of protected areas, i.e., the Forest Department, to implement their responsibilities related to co-management of protected areas;
- Lack of capacity of community-based organizations to implement their responsibilities related to co-management of protected areas;
- Inadequate policy and legislative framework for biodiversity conservation in protected areas and for co-management of protected areas;
- Inappropriate financial demands placed on community based organizations, detracting from their prospects of becoming economically viable;
- Lack of a clearly communicated model of co-management describing:
 - a) The respective roles and responsibilities of the co-managing entities,
 - b) The organizational structure that would best allow for communities to be meaningfully involved in co-management,
 - c) How such a structure would function and with what resources,
 - d) Financial flows and mechanisms required to obtain/secure economic viability,
 - e) Staffing requirements, and
 - f) Collaborative requirements to ensure technical soundness in protected area planning and management.

McConney (1999) evaluated the Fisherfolk Organization Development Project in Barbados in light of 28 conditions identified in the literature that facilitate successful co-management in

Asia. A score of 1 (fully present), 2 (partially present), or 3 (not present) was given to each of the attributes in relation to the prevailing co-management conditions in Barbados (Table 4.2).

Table 4.2 Evaluation of fisheries co-management conditions in Barbados

Co-management condition	Score	Co-management condition	Score
Individual incentive structure	2	Political and social stability	1
Recognised resource management problems	2	Networking and advocacy	2
Leadership	2	Enabling policies and legislation	2
Stakeholder involvement	1	Provision of financial resources/budget	1
Empowerment	2	Government agency support	2
Trust between partners	2	Social and cultural fit	2
Property rights over resource	3	Partner sense of ownership	2
Local political support	2	Effective enforcement	2
Capability building	2	Partnerships and contractual agreements	1
Organisations	1	Overlap of interests	2
Conflict management	3	Flexibility	1
External agents	1	Appropriate scale	2
Clear objectives form a well-defined set of issues	2	Co-ordinating body	1
Effective communication	2	Social preparation and value formation	2

Scores: 1 = fully present; 2 = partially present; 3 = not present

As shown in Table 4.2, the majority of key conditions and principles identified as important in the Asian experience are present to some extent in the Barbados situation. Because co-management, and indeed the whole concept of fisheries management, is a very recent introduction to Barbados it is not possible to tell whether the same level of importance will be attached to these enabling conditions and principles in the longer term. However, it seems likely from this very preliminary and superficial analysis that several of them may be critical.

The results also reveal some policy implications that point the way forward if Barbados is to proceed with co-management as far as is feasible. One of the most fundamental concerns is scale. The sharing of fishery resources with neighbouring islands makes national scale, community-based co-management virtually impossible for many fisheries. It is enticing to think that regional scale co-management will be feasible once the appropriate networks of public and private sector stakeholder can be brought together, but this is futuristic. What is more feasible now is the forging of partnerships aimed at establishing the environment for such arrangements. In this context, the ongoing establishment of a regional inter-governmental fisheries mechanism is of considerable interest, but needs to be paralleled at the community level among fisherfolk organisations.

Other major considerations concern the rate of progress of establishing co-management in Barbados, particularly in the wider context of development aspects. While the process cannot be rushed, it is clear that the government must provide a more favourable climate for co-management through policies, procedures and legislation. For example, there has been much

progress towards developing a meaningful partnership between the fishing industry and government based on good will and trust, but this alone is not enough. Unless the rights and duties of the stakeholders are more explicitly defined and firmly supported by appropriate legislation, with flexibility of course, there will always be some holding back in fear of trust betrayed. Government needs to act swiftly to improve the climate and demonstrate its commitment in a more tangible manner.

Finally there are issues concerning the perspectives and capacity of the fishing industry stakeholders, particularly the fisherfolk organisations. The latter need to recognise and exercise their true potential for self-management. At this stage there is understandably much dependence upon government, but a greater degree of self-reliance must be demonstrated if they are to avoid co-optation by government, even if unintentional. Access to resources and expertise through NGO networking must be more fully explored. The organisations are still very weak in terms of their administrative capacity and ability to conduct their own affairs. Without significant advancement in this area, given the absence of a traditional fishing community organisational structure, their chances of meaningfully participating in co-management are low.

McConney, Atapattu and Leslie (1998) reported on organizing fisherfolk in Barbados. Although the incremental approach to fisherfolk organization development employed in recent times places most of the decision-making responsibility in the hands of the fisherfolk, the directional influence of government is strong. If fisherfolk organizations are to become true partners in co-management, it will be necessary to provide more assistance in the areas of leadership skills, business management and information acquisition for decision-making. A greater degree of independence and initiative must be attained by fisherfolk organizations in order to avoid the tendency to become co-opted into government's management agenda without meaningful participation in decision-making.

If social partnership is the new way of doing business, then there should be collaborative roles for the private sector and facilitating NGOs in fisherfolk organization development. These linkages are not as well developed in Barbados as in other CARICOM countries such as Jamaica. Recent government fisheries and coastal management projects that have private consultants working on institutional issues with fisherfolk may make a slight difference. While government needs to retain its provision of information and tangible benefits, implementation of legal frameworks and generally create an environment suitable for organization development, it needs, if possible, to step back from the task of intimately directing their development. Organizing fisherfolk in Barbados is at the stage where the bodies formed could benefit considerably from mechanisms for forging linkages with non-governmental partners in development.

Jentoft and Sandersen (1993) reported on co-management in St. Vincent and the Grenadines. They stated that Caribbean communities in general do not have deep historical roots like their European counterparts. There is a low degree of social integration at the community level. The absence of community cohesion and cooperative institutions at the community level is prevalent and reduces the capacity for collective action for mutual support and self-sufficiency. There is an apparent need for cooperative institutions and collective action at the local level, but cultural conditions are such that local initiatives for institutionalizing collaboration are unlikely to occur. Government is often regarded with skepticism. To be effective as co-managers, fishermen's cooperatives need external support for organizational consolidation. Co-management may be more effectively exercised if cooperatives have privileges in one way or another, for instance, property rights or use rights. Cooperatives must

have power, but their power must be coupled with duties and responsibilities to ensure that they work for the common good.

Brown (1998a) reviewed existing social institutions for co-management in the Caribbean region. Brown concludes that significant strides have been made towards the creation of institutions that favor the establishment and sustainability of co-management systems in the region. Brown believes that the implementation of fisheries management plans and the formation of fisheries advisory committees through the newly embraced participatory approach to resource management will go along way to enhance sustainable resource management in the region. However, the structural and operational weaknesses of the existing resource user organizations render their capacity to assume the obligations and responsibilities involved in effectively participating in co-managing the resources highly uncertain. There are also uncertainties concerning the genuineness of the political will to affect the devolution of central authority to peripheral entities and for the creation of institutional structures which will further promote the decentralization of the decision-making process.

Renard (1991a) offers a number of requirements for community-based management in the Caribbean. These include:

- Strengthening community-based organizations through research and documentation of popular resource use and management systems, definition and provision of legal instruments, use of a participatory planning approach, definition of clear management agreements, and building and developing community institutions;
- Defining the role of non-governmental organizations.
- Reforming governmental institutions and their operations through facilitating policy formulation, harmonizing the actions of various partners and coordinating program implementation, providing incentives for collective action and self-regulation, enforcing regulations and policing, resolving conflicts and providing arbitration, and providing technical assistance.
- Revising the role of multilateral, bilateral and donor agencies to accommodate smaller scale initiatives, be more flexible, support institution building, and respect diversity;
- Designing new approaches to training and education to benefit community institutions and users, multidisciplinary approach, incorporation of field-based learning and dissemination of specific skills.

Govan (2003) prepared a study on co-management of coastal and marine resources and indigeneous people's communities in Central America and the Caribbean drawing lessons, and identifying issues, needs, challenges and options for regional empowerment from a review of community managed resources. Govan identified three priority areas for realizing the considerable potential that co-management has for the sustainable development and conservation of the region, namely:

- Promote co-management in the national socioeconomic and policy contexts. Co-management has been unable to present itself as an attractive option to a majority of countries in the region. The aspects of co-management most likely to be of interest are the potential economic benefits of reducing long term conservation costs and providing sustainable livelihoods while ensuring that monitoring the effectiveness of co-management approaches takes into account the variety of (non-conservation) objectives.
- Recognize and work with indigenous peoples and their territories, bearing in mind the large proportion of the region's natural resources that is under their stewardship and their marginalization to date.

- Make co-management a cornerstone of the emerging regional efforts towards integrated coastal management. This means: ensuring that appropriate levels of stakeholder participation are included from the outset; securing adequate legal, institutional and economic backing; and building appropriate social capital in the implementing agencies and amongst the local institutions and groups.

Brown (1998b) identified several steps in the use of co-management to address overfishing, resource decline and habitat degradation in the CARICOM region, including:

- To consult and promote dialogue with, the multiple resource user groups in order to find ways of accommodating all, while reducing conflict.
- Promote the consultation process with fishing communities, in order to enhance their involvement and participation in decision-making and planning processes in fisheries management.
- Traditional management systems need to be revived, invigorated and accommodated, especially territorial use rights.
- Fishers need to be organized into viable organizations and existing organizations strengthened and sustained.

CANARI (1992) undertook a survey of the current and potential involvement of non-governmental organizations and community-based organizations in marine resource development in the Eastern Caribbean, Jamaica and Belize. The review identified a number of useful lessons:

- Historically, fishing and other marine-based production have been taking place at the margin of the dominant systems of production, and have therefore received little attention from the authorities and the national community.
- Government intervention in the marine sector is relatively new, and is based on the premise that methods, rules and procedures have to be introduced and managed by the public sector. There is therefore a tendency to ignore the current or potential role of resource users, and to modify or replace existing informal systems of management.
- Development NGOs have had a difficult time adjusting to the needs and conditions of fishing communities and have not provided adequate attention to the sector.

Chakalall (1991) in a review of community-based management of fishery resources in the Caribbean, concluded that community-based management can be applied to the small-scale fisheries in the region through existing legal and institutional structures and with certain changes in policies. The experience which is lacking can only be gained through trial and error and by building on the existing traditional practices being observed by fishermen. Community-based management would form the backbone for fisheries management, to be supported by modern management measures. National fisheries management bodies will have to change their functions in that they will now provide advice and technical assistance to the holders of the exclusive use rights, who will manage the resources in conjunction with the diverse interest groups of the coastal community.

CARICOM-CFRAMP (1995) undertook a mission to assess the capabilities of the fisheries departments/divisions and the fishers' organizations and communities to implement co-management. The study found:

- Almost all fisheries departments/divisions do not have the resources to mobilize and provide extension services for fisher organization formation and collective activities.

- The majority of fisher organizations and cooperatives are structurally and financially weak and would require technical assistance to engage in co-management.
- Government policies will need to be changed to support co-management and to strengthen extension units to provide assistance for co-management.

Almerigi et al. (1999) reported the following issues based upon a review of participatory coastal zone management demonstration projects in Barbados:

- There is a need to be aware of the difference between the type of project being attempted and the traditional type of community development project.
- Projects external to the community require stakeholders to 'buy-into' the project.
- When the conservation objective is combined with small-scale economic opportunities or ways to address the immediate concerns of the community, the project is more likely to capture interest and commitment.
- If there is serious intention on the part of the government to involve stakeholders in conservation oriented coastal development and management, the public sector must be willing to address these kinds of issues quickly enough that they do not lose impetus.
- It is important to look at stakeholder composition recognizing that different types of 'communities' exist.
- Stakeholder involvement and support requires substantial effort and needs to be sustained with input from government.
- Iterative planning is an important component.

White, Hale, Renard and Cortesi (1994) discussed lessons learned for developing successful co-management arrangements from case studies of collaborative and community-based management of coral reefs, including those within the Caribbean. Among the lessons learned were:

- Ask the community what it thinks co-management.
- It is important to start correctly, because it is difficult to recover from a bad start.
- Clear, salient objectives and issues are required for stakeholders to understand and support the co-management.
- Start simple and show results early.
- Management is not possible in the absence of community organizations (core management groups) and models of cooperative behavior.
- Feedback of results is required to sustain and increase community participation.
- Community-based initiatives often need outside linkages and support, but the relationship between the community and outside agencies and institutions is delicate.
- Obstacles and limits to community-based management must be recognized so that realistic objectives can be set.
- Expansion into the larger context of coastal management is easier once initial projects succeed and are sustained.

McConney (1998b) reported on the implications for implementation of fisheries co-management in Barbados. Several key issues were identified. An approach which incrementally prepared the industry and the state for co-management seemed most appropriate. Given its scarce supply of human, technical and financial resources, the Fisheries Division is likely to remain constrained in planning and management capability. Both fishers and the state are deficient in fishery resource information, and their deficiencies differ in ways that could make information exchange mutually beneficial. Trust and cooperation within the fishing industry, and between it and the state, could be improved through information exchange. The uncertainty

surrounding the fishery, and the weakness of the state, provide a strong incentive for the harvest sector and government to introduce co-management starting with the relatively simple and straightforward exercise of joint data collection and analysis.

Begossi and Brown (2003) report on co-management arrangements in Latin America and the Caribbean. They identified three types of arrangement. The first is based on traditional territorial use rights involving minimal information exchange and occasional consultation between government and fishers. Fisheries regulations and their enforcement fall within the functional areas of fisheries administrations and final decisions are made by government. In the second type, there are more regular consultations with government and greater information sharing among the partners. The co-management arrangement is effectively collaborative rule-making and monitoring and surveillance. Organized resource users are strongly represented on the national fisheries advisory bodies that foster an avenue for the resource user groups to influence decision-makers, but there are no formalized and legalized co-management institutional structures in place. The third type of arrangement regularly involves stakeholders in the decision-making process. Co-management is formally and legally institutionalized, with localized sustainable management structures in place. User groups and stakeholders operate as partners with government and NGOs, with the latter serving as catalysts of the process.

Begossi and Brown report on a number of lessons learned from Latin American and Caribbean co-management experiences, including:

- Co-management seems to be successful when fishers have responsibility for distributing their share of the total catch quota and for determining rules of access to fishing grounds.
- The context in which co-management takes place is not static and arrangements need to be flexible.
- The exclusion of potential users by using property rights has been difficult.
- Changes in political regimes have not allowed for continuity in support for co-management efforts.
- Multiple use conflicts are increasing and need to be a focus of co-management.
- Fisheries administrations have enormous power and must be willing to share that power with resource users and stakeholders.
- Fisheries administrations lack the resources to efficiently and effectively manage the fisheries and look to co-management as a means to address this issue.
- NGOs have not been as active as they could in taking a leading role in institutionalizing co-management.
- Governments will need to provide support for co-management through legislation and funding.

Renard (1994) identifies a preliminary agenda for co-management based on lessons learned from case studies in the region. These include to:

- Appreciate the social, economic and political dimensions of conservation action;
- Suggest and advocate significant policy and institutional reforms;
- Increased research to understand popular resource management systems;
- Formulate and tailor participatory research and planning methods to the region;
- Enhance the social and economic benefits of protected areas to the community; and
- Invent a new partnership that will guarantee the rights and formalize the duties of all actors sharing the costs and benefits of conservation efforts.

Krishnarayan, Geoghegan and Renard (2002) analyze experience in participatory natural resource management in the region. From the analysis of experience, a number of observations were made:

- Capacity building is not a panacea, but the policy climate, the availability of facilitating agencies, and the presence of political support are also important;
- Existing capacities should be built on;
- Capacity building can take time.

Capacity building is not an end in itself, but is one consideration to be factored into the design and implementation of natural resource management approaches that are participatory and sustainable, and that provide economic benefits.

Charles (2001) reviews experiences and options in the region for the participation of civil society in environmental management and sustainable development. While civil society continues to utilize its strengths in advocacy and mobilization, some groups have been involved in the management of resources for the support of livelihoods. The success of these experiences has in turn led to the increasing use of economic justification arguments as the basis for meaningful participation. It is becoming difficult to place environmental factors as primary considerations in decision-making on the use of natural resources. The survey of the current scenario, and the arguments, indicate there is no clearly defined formula, but rather a path towards participation within the wider context of the desire for good governance in the region. The main recommendation therefore is a phased approach to increasing participation of civil society in environmental management and sustainable development.

4.1 Summary of lessons learned and conditions for success from the literature review

The secondary literature review on co-management in the wider Caribbean provides a number of lessons learned and conditions for success for co-management in the region.

- Government enabling policies and legislation are needed to support co-management initiatives.
- Government staff needs to change their attitudes and behaviour in order to share power with community organizations.
- Government staff will need capacity building to effectively engage in co-management.
- The nature of marine resource use in the region involves multiple stakeholders and multiple conflicts which will need to be addressed through co-management.
- As much as possible, all stakeholders should be identified and included in the co-management arrangements.
- There is a need for the formation of community organizations and/or the strengthening of existing organizations to engage in co-management.
- Many existing community organizations tend to be administratively and financially weak and will require capacity building to effectively engage in co-management.
- There is an imbalance in individual and community organization capacity and level of power which will need to be addressed.
- Many existing community organizations are highly dependent on government for their existence and will need to become more independent.
- An incentive structure (economic, social) and a clear recognition of a problem is necessary for individuals to actively engage in co-management.
- It will be difficult to restrict access to the resource with property rights arrangements.

- Non-governmental organizations as change agents need to support the co-management process.

5 Comparison of Case Studies

The purpose of this project was to suggest mechanisms for the implementation of integrated pro-poor natural resource (and pollution prevention) management in coastal zones that could be developed and promoted through understanding the requirements for establishing successful co-management institutions for coastal resources under various conditions in the Caribbean. In this section, a comparison of the type, phase and conditions for co-management from the six case studies is presented.

5.1 Type of co-management

As discussed above in Section 2.1, based on international and Caribbean literature, it was determined that it is appropriate to view co-management in the Caribbean region in three types. The research framework summarizes these main types of co-management as consultative, collaborative and delegated. The type of co-management identified in each of the six case studies is presented in Table 5.1.

Table 5.1 Types of co-management in the six case studies

Case study	Type of Co-management	Notes
Barbados sea egg fishery	Consultative	Elements of collaboration in projects
Barbados Fisheries Advisory Committee (FAC)	Consultative	Movement towards collaborative
Belize Friends of Nature (FON) marine protected areas (MPAs)	Delegated	Being maintained
Belize Fisheries Advisory Board (FAB)	Consultative	Exhibits some characteristics of collaborative
Grenada Sauteurs lobster fishery	Consultative	Plan for collaborative not attained
Grenada Gouyave seine net fishery	Consultative	Little interest from fishers for collaborative

5.2 Phase of co-management

The implementation of co-management can be viewed as having three phases: pre-implementation, implementation, and post-implementation. The pre-implementation phase includes problem recognition, discussion, consensus building, seeking assistance, and project planning. The implementation phase including a variety of activities such as community entry, research, organizing, education, plan and strategy, and plan implementation. Post-implementation includes evaluation, phase-out, and operation of interventions (Berkes et al 2001). The phase of co-management of each of the six case studies is presented in Table 5.2.

Table 5.2 Phase of co-management in the six case studies

Case study	Phase of Co-management	Notes
Barbados sea egg fishery	Pre-implementation	Government and fishers still discussing how to proceed
Barbados Fisheries Advisory Committee (FAC)	Implementation	Adjusting/adapting
Belize Friends of Nature (FON) marine protected areas (MPAs)	Implementation	Adjusting/adapting
Belize Fisheries Advisory Board (FAB)	Post-implementation	Mature/strategies to address conflict in place
Grenada Sauteurs lobster fishery	Pre-implementation	Will not advanced beyond current state in near future
Grenada Gouyave seine net fishery	Pre-implementation	Will not advanced beyond current state in near future

5.3 Conditions for co-management

This section is based on findings that have been presented in the individual case studies and on the proceedings of a special workshop of stakeholders in each country. Participants in the workshops were asked to discuss and evaluate a list of variables presented to them by the researchers based on previous research on co-management in Asia (Pomeroy, Katon and Harkes 2001) and on the secondary literature review on co-management in the Caribbean presented above. During this process the workshop participants had the opportunity to respectively add or delete variables that they found to be critical or irrelevant for the success of co-management in their country. Note that in Barbados and Grenada the results of the two case studies in each country were discussed in the same workshop. Separate results for each case study were not reported. Note that in Belize separate results were obtained for the Belize FON and Belize FAB case studies. (But separate case study results were also obtained for Grenada and Barbados). The reason for this is that no workshop was held on the Belize FON case study. Instead the ranking was based on the results of the case study alone, whereas a workshop was held for the Belize FAB. Each variable was ranked according to its presence or absence as a condition for establishing and/or sustaining successful co-management in each country based on the following scale (Table 5.3).

Table 5.3 Stakeholders perceptions of critical conditions for successful co-management

0 = absent; 1 = present but weak; 2 = present to a fair extent; 3 = strong feature of the fishery				
CO-MANAGEMENT CONDITION	Barbados	Belize FON	Belize FAB	Grenada
1. Clearly defined boundaries: of the resource; of the management area; of the "community"	2	3	1-2	1
2. Membership is clearly defined as to who really has a stake in the fishery (is a stakeholder)	3	2	2	3
3. There is shared recognition of a resource use problem that needs to be addressed	3	3	3	2

Comparative analysis of coastal resource co-management

CO-MANAGEMENT CONDITION	Barbados	Belize FON	Belize FAB	Grenada
4. Clear objectives for management can be defined based on the problems and interests	3	3	3	3
5. Good fit between the scale of the resource and feasible management arrangements	2	2	2	1-2
6. Management approaches and measures are flexible to suit changing circumstances	1	2	2	2
7. Cooperation exists, and is adequate, at the resource user level and in government etc.	1	1	1	2
8. Leadership exists, and is adequate, at the resource user level and in government etc	1-2	1	2	2
9. Group cohesion where fishers, managers and others can act collectively within their groups	2	1	2	1
10. There are mechanisms for managing conflicts within and among stakeholder groups	1	2	2	1
11. Communication amongst the stakeholders is effective, and there is adequate networking	2	1	3	2
12. Coordination between government, local community and other stakeholders is effective	1	2	2	2
13. Trust and mutual respect characterise the relationships among the key stakeholders	0-1	1	1	2
14. Organisational capacity exists for all stakeholders to participate effectively in management	2	1	1	1
15. Adequate financial, and hence physical, resources are available for management tasks	2	1	1	1
16. External agents provide support for management but do not encourage dependency	3	3	3	2
17. Benefits of participation must exceed costs from the levels of individuals up to larger groups	2	2	2	1
18. Individuals, groups affected by management arrangements are included in decision-making	2	1	1-2	2
19. Management rules are enforceable by resource users and the management authority	3	2	2	2
20. Legislation gives users some meaningful level of ownership or control over resource use	0	1	1	0
21. Legislation gives users authority to make management decisions, perhaps shared	1	2	1	2
22. Decentralisation and delegation of authority is part of the policy of resource management	1	2	2	0
23. Co-management has a good social and cultural fit to the circumstances of the situation	1	2	2	1

1. Clearly Defined Boundaries. In Grenada, the fishing areas are known only generally and are not clearly bounded. In Belize FAB, co-management agreement and MPA boundaries are on

paper but the public are not very aware of the boundaries. In Barbados, the boundaries of the fishing areas are generally well known.

2. Membership is Clearly Defined. In all cases the stakeholders are well known. However, in Barbados the unorganized or part-time fishermen are not well known.

3. Shared Recognition of a Resource Use Problem. Fishers recognize resource use problems. In Grenada, different stakeholders have recognized different problems.

4. Clear Objectives. In all cases the objectives of management are well defined.

5. Good Fit Between Scale of Resource and Management. In Grenada, without clear boundaries it is difficult to assess scale. In Belize, management capability may not be fully prepared to handle the scale of the MPAs.

6. Management Approaches are Flexible. In Barbados, government tends to be slow in responding to changing circumstances. In Grenada, fishermen feel that management is too rigid and there is not enough information to make proper management decisions. In Belize, management is often too flexible which can lead to uncertainty and legislation is slow to respond to management needs.

7. Cooperation Exists. In Barbados, there is a high level of cooperation among stakeholders involved with Coastal Zone Management, but low level of cooperation among fishermen due to personal interests and lack of consensus. In Grenada, fishermen usually cooperate by participating in consultations. In Belize, cooperation is usually based on need and there is poor cooperation between government agencies.

8. Leadership. In Barbados, leaders exist but are ineffectual, not very active and powerless. In Grenada, leaders tend to be weak among the fishermen and there is no succession plan among existing leaders.

9. Group Cohesion. In Barbados, group cohesion is fairly weak unless there is a crisis. In Grenada, group cohesion is weak as fishermen quarrel among themselves. In Belize, managers are less cohesive than fishermen; the cooperatives have strong cohesion.

10. Conflict Management. In Barbados and Grenada, conflict management tends to be informal and fishermen tend to avoid conflict, or if it occurs will let it die down over time. In Belize, the NGOs and Fisheries Department are more involved in conflict management or it is handled informally.

11. Communication. In Barbados and Grenada, fishermen communicate well among themselves. In Belize, communication between the NGO and fishermen is not strong, although it is strong within the cooperative.

12. Coordination is Effective. In Barbados, coordination is usually poor between government, fishermen and the local community. In Grenada, there is fair coordination to mobilize fishermen and between government and NGOs. In Belize, coordination exists when it is needed but implementation of decisions is poorly coordinated.

13. Trust and Mutual Respect. In Barbados and Belize, there is not much trust and respect between government and fishermen. There are too many changes in management to build trust

and there is a lack of transparency. In Grenada, there is little respect among the fishermen for each other and among government for the fishermen.

14. Organizational Capacity. Organizational capacity is not strong in Belize or Grenada. Fishers have historically not been organized to participate in fisheries management. In Barbados, organizational capacity is constrained by lethargy caused by powerlessness or disbelief that things will change.

15. Adequate Resources. In Barbados, financial resources are available from government but are not used by fisheries officers and stakeholders for management purposes and there are restraints on hiring new fisheries officers. In Grenada and Belize, funding from government is inadequate for management. Funds are available for NGOs in Belize from international donors.

16. External Agents. In Barbados, government support is fair and among fishermen independency on government is strong. In Grenada, there are few NGOs operating on marine management. In Belize, NGOs play a strong role in management but their long-term sustainability may be jeopardized without self-financing mechanisms.

17. Benefits of Participation. In Barbados, sea egg fishermen are having more costs than benefits from participation, and there is a matter of loss prevention rather than real gain. In Grenada, costs are perceived to be high with no real benefits being received. In Belize, fishermen are receiving benefits through alternative livelihoods associated with the MPAs.

18. Individuals Affected are Included in Decision-Making. In Barbados, there is policy and practice of inclusion of stakeholders at least at the technical level. In Grenada, there is active consultation of fishers by government on management. In Belize, while it is very site specific, there is consultation of stakeholders.

19. Management Rules are Enforceable. In all cases, management rules are enforceable but the awareness, will and resources to enforce needs to be strengthened.

20. Legislation Provides Ownership Over Resource. This is absent in Barbados and Grenada where there is open access. In Grenada there is legal provision to designate management areas. There are some traditional or customary practices of territorial use rights but none in law. In Belize, there are also traditional or customary practices of territorial use rights. The NGOs have defined ownership over the protected area through legislation.

21. Legislation Gives Users Authority to Make Management Decisions. While the FAC in Barbados comes closest to giving users authority to make management decisions it is a weak example. In Grenada there is the legal requirement to have a fisheries advisory committee but it has not been functional for some time. In Belize, there is no legal provision for government to engage in co-management agreements.

22. Decentralization and Delegation. Decentralization and delegation of authority as part of the policy of resource management is absent in Grenada. In Barbados, there is some decentralization for management of certain fisheries, such as sea egg and turtles. In Belize, delegation has occurred to NGOs from government for the co-management of MPAs.

23. Social and Cultural Fit. In Barbados and Grenada, fishermen expect government to do things for them and that is what they want. In Belize, fishermen have been involved in

cooperatives which gives them an understanding about collective action. There will need to be more information for them to understand and be involved in co-management.

6 Conditions for Success

From the special workshop of stakeholders held in each country, six of the conditions discussed above were perceived to exist for the success of co-management in the Caribbean region:

- Membership is clearly defined as to who really has a stake in the fishery
- There is a shared recognition of a resource use problem that needs to be addressed
- Clear objectives for management can be defined based on the problems and interests
- External agents provide support for management but do not encourage dependency
- Management rules are enforceable by resource users and the management authority
- Clearly defined boundaries of the resource, of the management area, and of the “community”

As co-management is still a relatively new concept in the Caribbean region, these conditions may change or expand over time as more experience is gained in the region. However, these six conditions serve as an important foundation for preparing the guidelines for the successful co-management in the Caribbean. These conditions allow for a number of questions concerning co-management, such as:

- ◆ When do we usually introduce co-management?
- ◆ Where do we do co-management?
- ◆ Who do we co-manage with?
- ◆ How do we do co-management?

These questions are addressed in the guidelines for successful co-management.

7 References

Almerigi, S. R. Mahon, Y. Alleyne, K. Atherley, J. Cumberbatch, and S. Mahon. 1999. Barbados Coastal Conservation Programme (Phase 1), Demonstration Projects. Participatory coastal zone management in Barbados. Coastal Zone Management Unit, 30 pp

Arnstein, S. 1969. A ladder of citizen participation. *American Institute of Planners* 35:216-224.

Baird, I. G. 2000. Integrating community-based fisheries co-management and protected areas management in Laos PDR: Opportunities for advancement and obstacles to implementation. *Evaluating Eden Series Discussion Paper No.14*. London IIED. 17 pp.

Begossi, A. and D. Brown. 2003. Fisheries co-management experiences in Latin America and the Caribbean. In D.G. Wilson, J. Raakjaer-Nielsen and P. Degnbol (eds.) The Fisheries Co-management Experience: Accomplishments, Challenges and Prospects. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Berkes, F., R. Mahon, P. McConney, R. Pollnac and R. Pomeroy. 2001. Managing small-scale fisheries: alternative directions and methods. International Development Research Centre, Canada. 320pp

Brown. D. 1998a. Creating social institutions for fisheries co-management in the CARICOM region. Paper presented at the 7th Common Property Conference of the International Association for the Study of Common Property, Vancouver, British Columbia, Canada.

- Brown, D. 1998b. Towards resource co-management at the community level. CARICOM Fisheries Newsnet. Vol.5, No.1. CARICOM-CFRAMP, Belize.
- Brown, D.N. and R.S. Pomeroy. 1999. Co-management of Caribbean Community (CARICOM) fisheries. Marine Policy. Vol.23, No. 6, pp.549-570.
- Caribbean Natural Resources Institute. 1992. Community institutions and marine development in the Caribbean. CANARI, St. Lucia.
- Caribbean Natural Resources Institute. 1999. Principals of Participation and Co-management: A Workshop For Professionals. CANARI Technical Report No. 260:24 pp
- Caribbean Natural Resources Institute. 2000. Participatory resource management approaches for managers and decision-makers. Week 1: Building institutions for participatory resource management. CANARI Workshop Report. 3-7 July, 2000, Falmouth, Antigua
- Caribbean Natural Resources Institute. 2001. Participatory resource management approaches for managers and decision-makers. Week 2: Designing participatory institutions for effective management. CANARI Workshop Report. 22-26 January, 2001, Tobago
- Caribbean Conservation Association. 2001. Report of the Executive Workshop on Co-management (28 - 29 August 2001) and Executive Workshop on Education and Outreach (30 August 2001), hosted by the Toledo Association for Sustainable Tourism and Empowerment (TASTE) in Punta Gorda, Belize. Coastal and Marine Management Program (CaMMP) of the Caribbean Conservation Association. 42pp.
- CARICOM-CFRAMP. 1995. Report of the strategic planning mission on community involvement and education sub-project #530. CARICOM Fisheries Management Unit, Belize.
- Chakalall, B. 1991. Community-based management of fishery resources in the Caribbean. Paper presented at the Common Property Conference of the International Association for the Study of Common Property. Winnipeg, Canada.
- Charles, E. 2001. Options for the participation of civil society in environmental management and sustainable development. Technical Paper No. 3. The Natural Resource Management Unit of the Organization of Eastern Caribbean States, St. Lucia.
- Cumberbatch, J. 2001. Case study of the Folkstone Marine Park and Reserve, Barbados. CANARI Technical Report No. 281. CANARI, St. Lucia.
- Geoghegan, T. and Y. Renard. 2002. Beyond community involvement: lessons from the insular Caribbean. Parks. Vol. 12, No. 2. pp16-25.
- Geoghegan, T., Y. Renard, N. Brown and V. Krishnarayan. 1999. Evaluation of Caribbean experiences in participatory planning and management of marine and coastal resources. CANARI Technical Report No. 259. CANARI, St. Lucia.
- Govan, H. 2003. Co-management of natural resources in Central America: the road to "equitable distribution of the benefits of biodiversity" or another empty discourse of the technical elite? Contribution to the EPP Initiative: Lessons Learned in Community-based Management and Co-management of Natural Resources and Protected Areas. IUCN.
- ICLARM and IFM. 1998. Analysis of Co-Management Arrangements in Fisheries and Related Coastal Resources: A Research Framework. Report Prepared by the Coastal Resources Co-

Management Research Project Core Staff at the International Centre for Living Aquatic Resources Management (ICLARM) and Institute for Fisheries Management and Coastal Community Development (IFM): 21pp.

Jentoft, S. 1989. Fisheries co-management: delegating government responsibility to fishermen's organizations. *Marine Policy* 13:137-154.

Jentoft, S. and H.T. Sandersen. 1993. Co-management in tropical fisheries: the case of St. Vincent and the Grenadines. Nordland Research Institute, Norway.

Krishnarayan, V, T. Geoghegan and Y. Renard. 2002. Assessing capacity for participatory natural resource management. CANARI, St. Lucia.

Kuperan, K and N.M.R. Abdullah. 1994. Small-scale coastal fisheries and co-management. *Marine Policy* 18:306-313.

Kurien, J. 1988. The role of fishermen's organizations in fisheries management of developing countries (with particular reference to the Indo-Pacific region). FAO Fish. Tech. Pap. No. 300.

Mahon, R., and M. Mascia. 2003. The Barbados Marine Reserve: a late bloomer? *Gulf and Caribbean Research*. 14(2): 171-180

McConney, P. 1998a. Climate for co-management. Paper presented at the Common Property Conference of the International Association for the Study of Common Property. Vancouver, British Columbia, Canada.

McConney, P.A. 1998b. Using "common science" in co-management. *Proceedings of the Gulf and Caribbean Fisheries Institute* 50: 1115-1121.

McConney, P.A. 1999. Organising fisherfolk in Barbados without completing a clean round. *Proceedings of the Gulf and Caribbean Fisheries Institute* 52: 290-299.

McConney, P.A. and R. Mahon 1998. Introducing fishery management planning to Barbados. *Ocean and Coastal Management* 39: 189-195.

McConney, P.A., A. Atapattu and D. Leslie. 1998. Organizing fisherfolk in Barbados. *Proceedings of the Gulf and Caribbean Fisheries Institute* 51: 299-308.

McConney, P., R.S. Pomeroy and R. Mahon. 2002. Caribbean coastal resources co-management – part 1. *Proceedings of the Gulf and Caribbean Fisheries Institute*. In press.

Noble, B. F. 2000. Institutional criteria for co-management. *Marine Policy* 24: 69-77.

Normann, A. K., J. Raakjær Nielsen and S. Sverdrup-Jensen (eds.) 1998. Fisheries Co-management in Africa. *Proceedings from a regional workshop on fisheries co-management research held 18-20 March 1997 at Boadzulu Lakeshore Resort, Mangochi, Malawi*. Fisheries Co-management Research Project, Research Report No. 12.

Pinkerton, E., ed. 1989. Co-operative management of local fisheries: new directions for improving management and community development. University of British Columbia Press, Vancouver.

Pomeroy, R.S. 1998. A process for community-based co-management. *AFSSRN News*. ICLARM Contribution #1448.

Pomeroy, R.S. 2001. Devolution and Fisheries Co-management. In R. Meinzen-Dick, A. Knox and M. Di Gregorio (eds.) *Collective Action, Property Rights and Devolution of Natural Resource Management – Exchange of Knowledge and Implications for Policy*. Zentralstelle für Ernährung und Landwirtschaft, Feldafing, Germany.

Pomeroy, R. S. and M. J. Williams. 1994. Fisheries Co-management and Small-scale Fisheries: A policy brief. International Centre for Living Aquatic Resource Management, Manilla, 15pp.

Pomeroy, R.S. and M.B. Carlos. 1997. Community-Based Coastal Resource Management in the Philippines: A Review and Evaluation of Programs and Projects, 1984-1994. *Marine Policy*. Vol. 21: 445-464.

Pomeroy, R. and F. Berkes. 1997. Two to tango: the role of government in fisheries co-management. *Marine Policy* 21: 465-480.

Pomeroy, R.S., B.M. Katon and I. Harkes. 2001. Conditions affecting the success of fisheries co-management: lessons from Asia. *Marine Policy* 25: 197-208.

Ravndal, V. 2002. Community co-managed park system for Belize. Final Project Evaluation. UNDP/GEF. Belize.

Renard, Y. 1991a. Institutional challenges for community-based management in the Caribbean. *Nature and Resources*. Vol. 27, No. 4. pp.4-9.

Renard, Y. 1991b. Strategies for increasing community involvement in ecotourism. CANARI Communication No. 21:6 pp

Renard, Y. 1994. Towards co-management: an agenda for action. In T. Geoghegan and V. Barzetti (eds.) *Protected Areas and Community Management*. CANARI, St. Lucia.

Renard, Y. 2000. Case of the Soufriere Marine Management Area (SMMA), St. Lucia. Prepared for the Seminar Integrating Stakeholders in Participatory Natural Resource Management, Kingston, Jamaica, April 2000. CANARI Technical Report No. 285: 8pp

Renard, Y. 2001. Case of the Soufriere Marine Management Area (SMMA), St. Lucia. CANARI Technical Report No. 285. CANARI, St. Lucia.

Sverdrup-Jensen, S. & J. Nielsen 1999. Co-Management in small-scale fisheries - a synthesis of Sothern and West African experiences. Institute for Fisheries Management and Coastal Community Development (IFM). 23pp.

White, A., L.Z. Hale, Y. Renard and L. Cortesi. 1994. Collaborative and community-based management of coral reefs. Kumarian Press, West Hartford, Connecticut, USA.