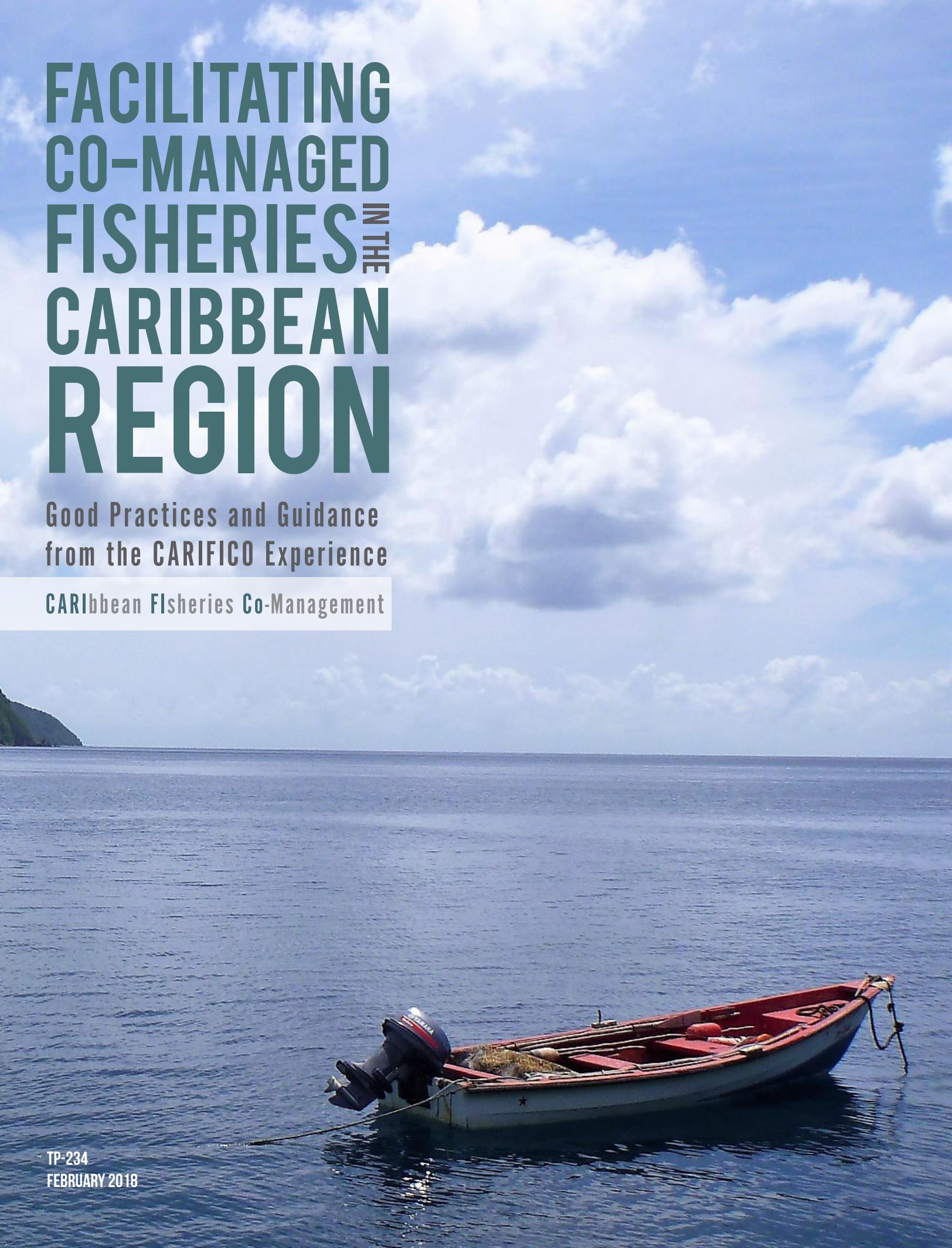


FACILITATING CO-MANAGED FISHERIES IN THE CARIBBEAN REGION

Good Practices and Guidance
from the CARIFICO Experience

CARibbean Fisheries Co-Management





- Saint Kitts and Nevis Department of Marine Resources
- Antigua and Barbuda Fisheries Division
- Dominica Fisheries Division
- Saint Lucia Department of Fisheries
- Saint Vincent and the Grenadines Fisheries Division
- Grenada Fisheries Division

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Facilitating Co-managed Fisheries in the Caribbean Region: Good Practices and Guidance from the CARIFICO Experience

February 2018

PREPARED BY

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CARIFICO
CARIBbean Fisheries Co-Management



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Introduction

Fisheries co-management is broadly defined as a flexible and collaborative process in which government and resource users (principally fishers) share the responsibility and authority for decision-making. Today, co-management is recognized as an effective approach for managing and sustaining small-scale fisheries with arrangements that may fall anywhere on a continuum from near-total government control to near-total stakeholder control.

The following co-management arrangements are described by Sen and Nielsen (1996):

- *Instructive*: Government instructs fishers on management decisions it makes.
- *Consultative*: Fishers are consulted, but final decisions are made by government.
- *Cooperative*: Fishers and government cooperate as equal partners in decision-making.
- *Advisory*: Fishers make decisions, with government playing an advisory role.
- *Informative*: Fishers inform the government of management decisions they make.

In the Caribbean, active government management of fisheries is relatively recent and generally based on a premise of strong government control of rules and procedures, with limited awareness of the current or potential role of fishers in management. At the same time, the capacity of Caribbean governments to make and enforce rules that effectively improve fisheries management is often weak. Fisheries co-management, in principle, has the potential to improve governance outcomes by strengthening the consideration given to fishers' knowledge and their capacity for individual and collective action in the management system (Brown and Pomeroy 1999; Pomeroy et al. 2004).

Various co-management initiatives have been pursued in the Caribbean region since the 1990s. A 2004 review concluded that many initiatives were at early stages of implementation and typically aimed for the consultative or cooperative level on the co-management continuum (Pomeroy et al. 2004). The review identified several conditions constraining the implementation of fisheries co-management in the Caribbean region: inflexible approaches by government to coastal resources management; lack of effective leadership, group cohesion, and organizational capacity among fishers; low levels of trust between government and

fishers; and lack of legislation empowering fishers to make decisions (Pomeroy et al. 2004).

Recognizing these constraints, the Japanese government introduced the five-year (2013–2018) Caribbean Fisheries Co-Management (CARIFICO) project. CARIFICO was implemented under the technical cooperation of the Japan International Cooperation Agency (JICA), the Caribbean Regional Fisheries Mechanism (CRFM) and six Caribbean countries: Saint Kitts and Nevis, Antigua and Barbuda, Dominica, Saint Lucia, Saint Vincent and the Grenadines, and Grenada (Figure 1).

The islands participating in the CARIFICO project share many similar economic and developmental characteristics, cultural traditions, and ecological conditions. At the same time, each island reflects a distinctive set of social values and priorities that drive governance approaches to the management of marine resources (McConney et al. 2003). Co-management activities introduced by CARIFICO were adapted and flexibly put into practice by participating national governments.

CARIFICO aimed to facilitate the development of co-management arrangements by piloting them in fisheries where individual and collective action by fishers can be expected to result in relatively rapid benefits. To this end, development and management of the offshore (pelagic) fishery through the introduction or expanded use of fish aggregation devices (FADs) was identified as a key priority, and that is the effort on which this document focuses. In a more limited fashion, the CARIFICO approach was also applied to efforts to reduce bycatch in the fish-pot fishery in Antigua and Barbuda and to sustain the conch fishery in Saint Lucia.

In the case of the offshore fishery, CARIFICO introduced a comprehensive set of activities to government and fisher stakeholders in each of the six participating countries to support the use and management of government-sponsored (public) FADs as an alternative to the setting of individual (private) FADs. An important consideration for project implementation was recognition that the historical use of FADs in offshore fishing differed among the participating countries. Dominica and Saint Lucia had a longer history of FAD use than other countries, such as Antigua and Barbuda and Grenada, where use of FADs has been a more recent development.

This document describes the planning, implementation, and evaluation of those *activities* (major steps) and their respective *actions* (supporting steps). Drawing from this experience and from the scientific literature, it also offers guidance for similar future efforts and recommends good practices

for implementing such activities at national (individual participating country), sub-regional (all participating countries), and regional (all eastern Caribbean countries) scales (Figure 2).

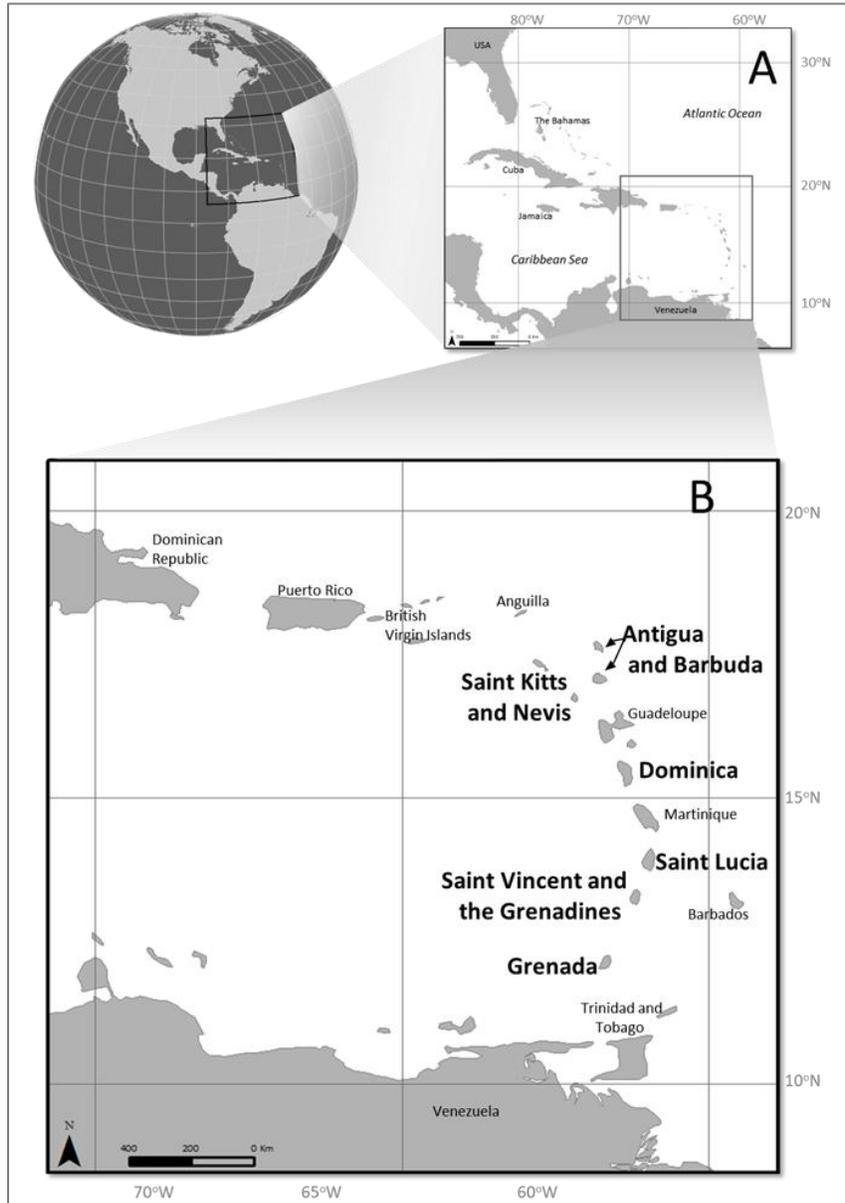


Figure 1. Countries participating in CARIFICO.

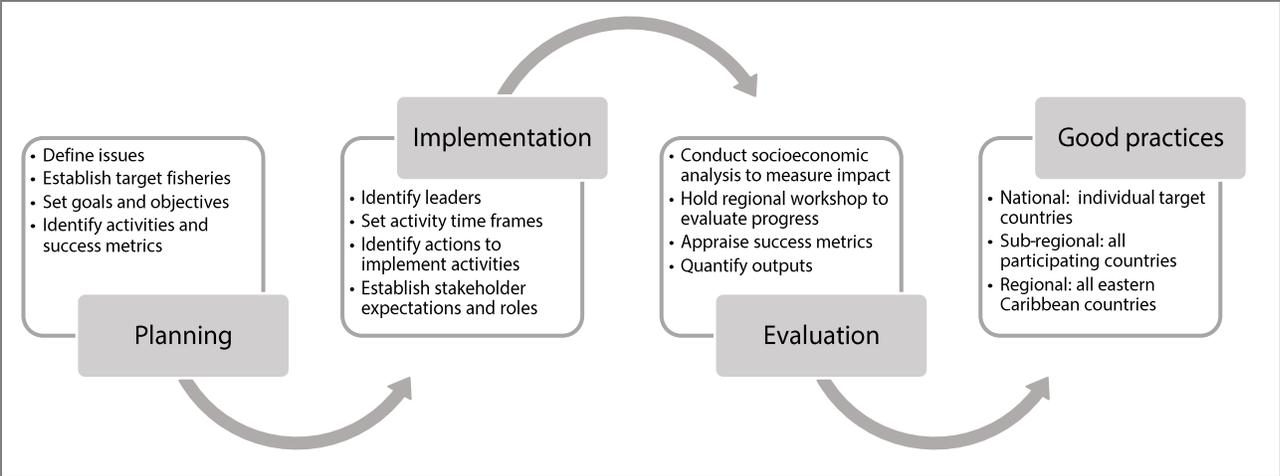


Figure 2. CARIFICO project framework.

Chapter 1. Project Planning

The key steps in the CARIFICO project planning phase were as follows:

1. Define issues.
2. Establish target fisheries.
3. Set goals and objectives.
4. Identify activities and success metrics.

Define Issues

A review of fisheries management literature and experiences by external, regional, and national project partners (JICA 2012) identified the following issues that could be addressed through co-management approaches:

- Improve information sharing and cooperation among fishers, and between fishers and government, through consultative processes and trainings.
- Improve fisher organization and decision-making capabilities.
- Improve data collection systems for monitoring fishing activities.
- Improve the predictability and profitability of offshore fishing by introducing or expanding FAD technologies.
- Improve understanding of and voluntary compliance with fisheries regulations.
- Improve methods for the safe handling and processing of fish products.
- Diversify fish products and market opportunities to benefit both fishers and consumers.
- Establish funding mechanisms to sustain co-management programs.

Establish Target Fisheries

The CARIFICO project targeted three types of fisheries:

1. *The FAD fishery (all six countries)*: This fishery was selected for development as a means to shift fishing pressure from over-exploited near-shore reef resources to offshore resources, which are at present considered to be underutilized by artisanal fishers in the Caribbean. FAD technology has been shown to introduce greater predictability and profitability to offshore fishing.

2. *The conch fishery (Saint Lucia only)*: Due to its sedentary nature, queen conch is considered by some to be susceptible to overfishing. Improving the sustainability of this fishery was identified as a potential goal of co-management interventions, particularly in Saint Lucia.
3. *The fish pot fishery (Antigua and Barbuda only)*: Lost fish pots/traps often cause ghost fishing, where the traps keep catching marine organisms, including non-target species. This issue is widespread in the Caribbean and of particular interest to Antigua and Barbuda, where co-management solutions were sought to improve the environmental sustainability of this fishery.

Set Goals and Objectives

The goal of CARIFICO was to facilitate collaboration between fishers and governments to comprehensively address priority issues identified through past fisheries development experiences, with input from JICA, regional partners, and national stakeholders in the Caribbean. This goal included two primary objectives: (1) to strengthen institutional, organizational, and financial mechanisms to develop, manage, and sustain offshore fisheries that rely on the use of FADs, and (2) to strengthen the management and productivity of fisheries facilities and services. These objectives were chosen because in both areas, individual and collective action by fishers can be expected to result in relatively rapid benefits. By contrast, many management activities aimed at reducing unsustainable practices involve restraint with deferred benefits.

CARIFICO goals and objectives were established in consultation among JICA, regional partners (CRFM), and the governments of countries participating in the project (JICA 2012).

Identify Activities and Success Metrics

Eight activities were selected to support project objectives: consulting with fishers, establishing fisher organizations, conducting trainings, codifying user rules, assessing catch/effort data, establishing financial mechanisms to support co-management programs, marketing catch, and maintaining FAD programs. The activities were designed to develop and expand FAD fisheries while facilitating the adoption of co-management approaches.

Many of the activities implemented through CARIFICO relate to factors previously identified as constraining co-management (Pomeroy et al. 2001; Pomeroy et al. 2004; Evans et al. 2011). Once project activities were set, metrics for measuring progress toward implementation were identified (Table 1).

Project Planning Guidance Based on the CARIFICO Experience

Project planning represented the initial project phase, establishing the process and elements that helped to define and structure CARIFICO’s implementation and evaluation phases. Drawing from the CARIFICO experience, the following recommendations and guidance are offered to help facilitate project planning within a consultative process.

1. Define issues.

- Evaluate social and institutional frameworks within which co-management will be developed and maintained.
- Evaluate the nature of existing relationships between fishers and government authorities to identify opportunities and potential benefits from collaborative endeavors.
 - Review motivations, opportunities, and impediments to fishers participating more and assuming more responsibility for implementing co-management activities.
 - Review motivations, opportunities, and impediments to government’s interest and capabilities in facilitating the co-management process.

2. Establish target fisheries.

- Identify a fishery or fisheries (e.g., fish pot, conch, offshore) that would benefit from co-management based on the identification and discussion of issues, interests, and opportunities.
- Evaluate the nature of those fisheries (e.g., open-access vs. limited-access fishing regimes).
 - If the target fishery has open access, such as the offshore fishery, a large number of fishers in multiple fishing communities may be involved in co-management activities.
 - If the target fishery has limited access, such as a sedentary fishery, a smaller number of fishers may be involved in co-management activities.

3. Set goals and objectives.

- Prioritize management issues and needs in the target fisheries and participating communities.
- Establish goals and formulate objectives that will lead to desired outcomes from the co-management process.

4. Identify activities and success metrics.

- Identify new or existing activities that can be undertaken to support specific co-management goals and objectives.
- Establish a set of corresponding metrics that can be used to gauge progress toward implementing those activities.

Table 1. CARIFICO activities and success metrics.

Activities	Metrics	
1. Consulting with fishers 2. Establishing fisher organizations 3. Conducting trainings 4. Codifying user rules 5. Collecting catch/effort data 6. Establishing financial mechanisms 7. Marketing catch 8. Maintaining FAD programs	A socioeconomic analysis measured improvements to five fisher livelihood assets by comparing conditions prior to and during implementation: <ol style="list-style-type: none"> 1. Natural 2. Physical 3. Social 4. Human 5. Financial 	A regional workshop evaluated four aspects of project participants’ implementation of project activities: <ol style="list-style-type: none"> 1. Roles 2. Responsibilities 3. Challenges 4. Progress

Chapter 2. Project Implementation

The key steps in the CARIFICO implementation phase were as follows:

1. Identify leaders.
2. Set time frames for activities.
3. Identify actions that facilitate the implementation of activities.
4. Establish stakeholder expectations and roles for carrying out actions.

Identify Leaders

Cultivating motivated leaders to represent stakeholders and identifying key government personnel, including national project managers and supporting liaison staff, is perhaps the most important element in successful implementation of the co-management framework. The CARIFICO experience suggests that localities where co-management was most effective benefitted from partnerships that were initially enabled and sustained by Fisheries Division staff and supporting personnel who provided the expertise needed to facilitate CARIFICO's implementation. Equally important was the identification of individuals who were respected in the fishing community who could represent their colleagues' interests, interface at

critical times with government entities on their behalf, and help ensure that findings from the CARIFICO process were effectively disseminated and acted on. The most successful CARIFICO outcomes also benefitted from project managers and liaison staff who had appropriate outreach skills and the resources to actively and continuously engage with stakeholders.

Set Time Frames for Activities

The CARIFICO experience suggests that the time frame for implementing activities (such as the FAD deployment/maintenance shown in Figure 3) may vary depending on the location, stakeholder capacities and interests, and the target fishery. For instance, Grenada took about two years to establish a functioning FAD fisher organization in the town of Grenville, while the same effort took about three years on Antigua and Barbuda and four years on Saint Kitts and Nevis and Saint Vincent and the Grenadines, and is still ongoing on Dominica and Saint Lucia. Although the CARIFICO project was planned within a specified time frame, the experience suggests that implementation can take time and require flexibility. In addition, effective implementation may require continuous resources and assurance of tangible benefits to reinforce stakeholder commitment to the process, particularly with regard to formalizing and sustaining organizations.



Figure 3. Fishers participating in a FAD deployment/maintenance activity.

Identify Actions to Implement Activities

Specific actions associated with co-management activities were identified and the roles of stakeholders in implementing those actions were established through a consultative process, based on an assessment of stakeholder interests, capacities, and desired outcomes. These actions are identified in Table 2. Identifying key actions necessary to operationalize activities helped stakeholders to develop a process to structure project implementation, which involved setting expectations, establishing stakeholder roles, and refining the metrics used to measure progress toward attaining project objectives.

Establish Stakeholder Expectations and Roles

Once project actions were identified, the expectations, roles and responsibilities of government and fisher stakeholders were considered. For some actions, particularly in the beginning phases, government assumed the primary role and fishers a supporting role. The responsibility for implementing some actions was shared equally among government and fisher stakeholders (e.g., identifying leaders); for other actions, fishers assumed a more participatory role (e.g., attending consultations and trainings) or they were obligated to comply with decisions made by government (e.g., compliance with government-stipulated user rules was considered mandatory in some participating countries). The CARIFICO experience suggests that project managers and stakeholder leaders should work collaboratively. This can help to ensure that expectations and roles for participation are understood, accepted, disseminated and followed by the various constituencies. It is also suggested that stakeholder expectations, roles, and responsibilities be periodically evaluated, and adapted where necessary, to flexibly accommodate changing circumstances and priorities.

Project Implementation Guidance Based on the CARIFICO Experience

CARIFICO activities were envisioned to work in an integrative fashion, and the connections between them should be considered when adapting them to local circumstances. For example, consulting with fishers can promote trust and the sharing of knowledge

Table 2. Actions identified to implement CARIFICO activities.

1. Consulting with fishers	2. Establishing fisher organizations
<ul style="list-style-type: none"> • Organize • Fund • Attend • Participate • Set agenda • Identify stakeholders • Take minutes • Report results • Make decisions 	<ul style="list-style-type: none"> • Identify leaders • Establish operational plan • Fund organization • Provide technical assistance • Register organization • Provide venue for organization to operate • Manage finances • Develop leadership • Promote participation
3. Conducting trainings	4. Codifying user rules
<ul style="list-style-type: none"> • Fund • Organize • Participate • Present • Transfer knowledge • Promote participation • Provide materials • Monitor effectiveness 	<ul style="list-style-type: none"> • Identify informal rules • Advocate user rights • Mediate conflicts • Develop rules • Establish policy • Follow rules • Provide feedback to users
5. Collecting catch/effort data	6. Establishing financial mechanisms
<ul style="list-style-type: none"> • Determine data to collect • Develop forms • Collect data • Input data • Analyze data • Interpret data • Report data 	<ul style="list-style-type: none"> • Determine fees • Collect fees • Monitor license status • Enforce compliance • Promote participation
7. Marketing catch	8. Maintaining FAD programs
<ul style="list-style-type: none"> • Monitor fish quality • Develop value-added products • Maintain fish quality at sea • Increase local demand • Facilitate processing • Facilitate export • Establish market prices 	<ul style="list-style-type: none"> • Provide materials • Support licensing • Encourage compliance with rules • Maintain landing site facilities • Encourage fisher participation • Encourage sustainable fishing practices

that supports the successful implementation of trainings and the establishment of organizations. Establishing fisher organizations drives the CARIFICO process and helps sustain its long-term viability. They are the vehicle for fishers to participate in and benefit collectively from the co-management process. Conducting trainings develops the institutional systems needed to provide the science, management, and outreach that sustain the program. Codifying user rules provides a regulatory framework that, ideally, integrates formal policy and informal traditions in a manner that satisfies government needs and is credible to users. Collecting catch/effort data provides the information needed to evaluate the success of the program in meeting regulatory, social, and environmental sustainability goals. Establishing financial mechanisms provides the funding that makes other activities possible. Marketing catch provides consumers, fishers, and related businesses with opportunities to benefit from fisheries development programs by diversifying markets and identifying value-added products. The implementation of these complementary activities within a collaborative process helps maintain FAD programs.

Drawing from the CARIFICO experience, the following recommendations and guidance are offered to facilitate future implementation efforts.

1. *Consulting with fishers:* Build fisher and government cooperation and trust through dialog and information sharing (Figure 4).

- Targeting interventions
 - Fisher groups, communities, fishing methods, fish species, or a combination of those may be selected for intervention based on issues and needs identified by government, fishers, and other stakeholders.
 - When a community is selected for participation, an existing and functioning community organization (e.g., fishing cooperative) can serve as the management body.
 - When a fishery such as the FAD fishery is selected, multiple fishing communities may be selected for participation due to the historic open-access nature of offshore fisheries in the Caribbean region.
 - Fish species that have high economic value (e.g., tuna) or are subject to high fishing pressure (e.g., conch and lobster) may be selected as target species.

- Establishing meeting places
 - Meeting places should be convenient to fishers.
 - Potential meeting places include fish landing sites, fishery complexes, and community centers.



Figure 4. Fisher consultation.

- Preparing for meetings
 - Meeting times should be convenient for fishers.
 - Specific topics and clear objectives should be set to avoid meeting fatigue.
 - Meetings should be designed to create an environment in which all attendees can participate equally, exchange views, and develop common strategies for addressing issues.
 - At the initial stage, it is suggested that the national Fisheries Division assign a fisheries officer to organize and manage the meetings.
- Conducting meetings
 - A fisheries officer can serve as facilitator until a suitable representative for fishers is identified.
 - The process should have a mechanism to quantify participant input and document consensus.

- Recording meetings
 - Consistent with the meeting purpose and objectives, outcomes should be recorded and shared among stakeholders. Stakeholder roles for recording meeting outcomes may evolve as needed.
2. *Establishing fisher organizations:* Encourage and build capacity for collective decision-making.
- Forming fisher organizations
 - It is suggested to start with a small group based on individual motivation to participate, standing in the community, knowledge, and expertise in interacting with fishers.
 - Executive members (president, vice-president, secretary, and treasurer) should be selected.
 - The roles of executive members should be clearly defined.
 - Trainings in leadership skills for executive members (e.g., accounting, organization operation, meeting facilitation, and conflict management) may be necessary.
 - A fisheries officer may be included as an executive advisor to facilitate organizational development and operation.
 - Registering fisher organizations
 - Organizations must be formally registered with government, but once registered should strive to operate independent of or with limited oversight by government.
 - Each organization should formulate by-laws that include the name of the organization, its purpose, and the location of its headquarters.
 - A bank account should be established for the organization to help ensure that its finances are secure and transparently managed.
 - Encouraging membership in organizations
 - Tangible benefits of participation in the organization should be highlighted to build membership and encourage participation.
 - Consider initiating organization activities with a selected community or core group that consists of a small number of highly motivated fishers.
3. *Conducting trainings:* Introduce technologies and practices that improve fisheries operation and management.
- Selecting training courses
 - Training needs should be identified and stakeholder expectations validated through a consultative process.
 - Potential training topics include FAD deployment, FAD fishing methods, safety at sea, icebox construction, fish processing, and small engine maintenance/repair.
 - Organizing trainings
 - Logistics for implementing trainings should include preparation, implementation, and evaluation.
 - Establishing stakeholder roles for organizing, conducting, and participating in trainings is recommended.
 - Transferring knowledge from trainings
 - Trainings should be offered to motivated fishers or those who are actively participating in organizations or consultations. In this way, trainings can influence other fishers to participate in co-management activities.
 - Trained fishers and fisheries officers can be resources for technical transfer to other fishers from inside and outside the participating community or communities.
 - Exchange programs can allow fishers and government participants to share information and technologies more broadly.
4. *Codifying user rules:* Formalize regulations and compliance through a consultative process.
- Formulating rules and regulations
 - A review of existing formal and informal rules can help characterize current institutional and management structures supporting governance of the target fishery or participating community.
 - A review of applicable rules in other countries can help determine the broader relevance and consistency of proposed governance strategies.

- Ideally, governance strategies will assimilate local knowledge and fishing traditions to motivate broader acceptance and compliance.
 - New rules should preferably be reviewed, modified, and adopted through consultation with stakeholders.
 - Enforcing rules
 - Formation of effective fisher organizations can aid compliance through increased buy-in and self-enforcement.
 - The establishment of intergovernmental partnerships (e.g., with the coast guard) can facilitate compliance with and enforcement of mutually agreed-upon rules.
5. *Collecting catch/effort data*: Develop systems for monitoring fishery productivity and sustainability.
- Planning for data collection
 - The purpose and type of data collection (e.g., catch data, biological data) should be clarified in consultation with fishers and be consistent with regional fisheries management conventions.
 - Data collection forms or logbooks should be prepared and tested, preferably through a consultative process.
 - Training for fishers and professional data collectors on protocols for the use of forms or logbooks may be required.
 - Collecting data
 - Protocols for data collection should be established with fishers through a consultative process.
 - Data collection protocols can be adjusted based on feedback from fishers and other data collectors.
 - Development of computing systems and the technical capabilities of Fisheries Division staff may be required to transcribe, store, manage, and analyze information collected.
 - Analyzing data and sharing the results
 - Interpretation of catch/effort data should be conducted in consultation with fisher stakeholders.
- Results should be shared with the broader fishing community through a consultative process.
 - Tangible benefits to fishers from providing information on catch/effort include validating incomes from fishing activities, necessary to secure financial resources such as bank loans.
6. *Establishing financial mechanisms*: Ensure that funding will be available to sustain organizations and FAD programs.
- Preparing for fee collection
 - License (Figure 5), user, and membership fees can be considered for generating revenue.
 - Fee structures should be proposed and evaluated with fishers through a consultative process.
 - Costs and benefits of FAD programs should be assessed to set realistic licensing or user fees.
 - The opportunity to participate in consultations, trainings, and organizations can be promoted as benefits of paying membership or license fees.



Figure 5. Dominica FAD fisher license.

- Implementing fee collection systems
 - Mechanisms should be established for government to either collect license or user fees or support fisher organizations in collecting membership fees and using them for the collective good.
 - Computerized systems for tracking licenses or user fees can help the Fisheries Division track the status of fisher registration programs and allocate funding to support fishers.

- Disseminating financial reports
 - Transparent accounting procedures and feedback to members help to instill confidence in organizational leaders and build membership in fisher organizations.
- Identifying external funding mechanisms
 - The fisher organization can diversify income sources by selling fishing gear and value-added products that provide additional benefits to members.
 - The fisher organization and/or Fisheries Division may, jointly, explore financial assistance from external agencies or donor organizations. Through formal (legal) organization, fishers may be more likely to secure funding from external sources to support their programs.

7. *Marketing catch*: Expand markets to diversify income options for fishers and products for consumers.

- Analyzing consumer preferences
 - Research on domestic and export markets can help identify demand for fish products and evaluate the feasibility of producing value-added products (e.g., smoked, dried, or sliced fish).
 - A business plan based on market research can help tailor products to domestic and foreign markets.
- Improving product quality
 - Implementing seafood quality standards (e.g., using ice at sea) can improve the value and marketability of fish products.
 - Fishers should be encouraged to offload their catch at dedicated and certified landing facilities that meet health, safety, and quality standards for processing (Figure 6).
- Promoting new products
 - Public awareness programs including school education, fish cooking competitions, and exhibitions can help expand local markets by stimulating demand for and consumption of underutilized fish species (e.g., diamondback squid) and new fish products.



Figure 6. Seafood handling and processing.

8. *Maintaining FAD programs*: Help sustain and strengthen ongoing implementation of complementary CARIFICO activities.

- Legitimizing traditions: Affirm informal rules and integrate established fishing practices into management decisions.
- Developing leadership: Cultivate leaders who can motivate fishers to organize.
- Enforcing accountability: Formalize responsibilities for the use and maintenance of landing site facilities and equipment.
- Expanding education: Continue training opportunities for Fisheries Division staff to build outreach capabilities.
- Managing flexibly: Explore public-private partnerships; use territories and limited-access options to sustain FAD programs and reduce conflicts.
- Evaluating periodically: Review activities and participant roles and adjust them in response to current or changing circumstances.

Chapter 3. Project Evaluation

The key steps in the CARIFICO evaluation phase were as follows:

1. Conduct a socioeconomic analysis to measure impacts to livelihoods.
2. Hold a regional workshop to evaluate progress in implementing activities.
3. Appraise success metrics (degree to which activities are adopted and implemented at the national scale).
4. Quantify project outputs (number of publications, consultations, trainings and technical exchanges at national, sub-regional and regional scales).

Conduct Socioeconomic Analysis to Measure Impacts

An important evaluative component for measuring the impact of the CARIFICO project was determining the extent to which the livelihood of fishers was appreciably improved (Montes et al. 2017). Socioeconomic information solicited from fishers in the participating countries (Figure 7) identified factors (e.g., improved FAD fishing skills, increased catch, and greater material wealth) that have contributed to a growing demand to pursue offshore fishing, motivated by CARIFICO through trainings and FAD deployment activities. The contribution of CARIFICO activities to fishing success was further supported by the strong interest among offshore fishers in helping to set new FADs, independently and/or in collaboration with other fishers. An opportunity exists to take advantage of this growing interest in offshore fishing to develop more robust licensing and catch/effort data systems to manage, monitor use of, and sustain FAD programs.

Two primary CARIFICO interventions were FAD use trainings and deployments. To evaluate the effectiveness of these activities, the socioeconomic analysis assessed factors that can affect fishers' interest in setting and maintaining public and private FADs. The results suggest that CARIFICO has indeed contributed to fishing success, as fishers expressed the belief that setting FADs has helped them to catch more fish.

The intent to set FADs was strongest among fishers who acknowledged that they have the ability,



Figure 7. FAD fisher interview.

skills, and the financial resources to do so, which have been strengthened by participation in CARIFICO activities (Montes et al. 2017).

Hold Regional Workshop to Evaluate Progress

The second evaluative component was a regional workshop to solicit and quantify input from CARIFICO stakeholders regarding shifting perceptions of co-management as well as factors that have promoted or impeded co-management activities and actions (Figure 8). Fishers and government representatives of all countries participating in the workshop indicated that, since the inception of CARIFICO, government responsibility for implementing co-management activities had diminished and the role of fishers had increased. Workshop participants generally agreed that, since the start of the CARIFICO project, co-management arrangements had evolved from primarily instructive/consultative to more cooperative in nature (Figure 9).

The results of the regional workshop affirmed an important quality of CARIFICO: It was implemented as a flexible program tailored to the interests and needs of government and fishers in each country. Thus, progress toward implementation was variable, with different countries focusing on broader or narrower ranges of activities and of fishing communities. This flexibility is illustrated by differences in the evolution of government and fisher roles in participating countries, as shown in Figure 9.



Figure 8. Regional workshop.

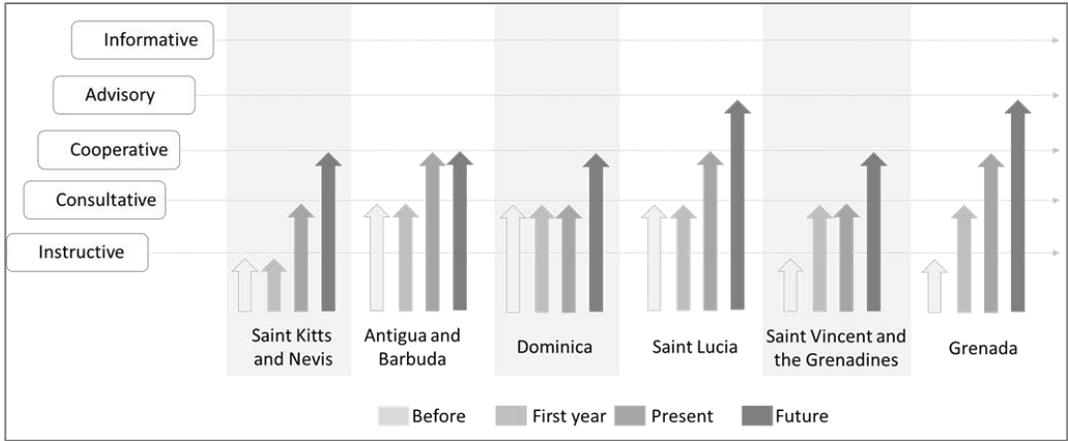


Figure 9. Evolution of fisheries co-management arrangements through CARIFICO.

According to the workshop results, activities showing the greatest perceived progress included consulting with fishers, conducting trainings, and collecting catch/effort data. Activities that have proven to be more challenging to implement include establishing fisher organizations and establishing financial mechanisms (e.g., user fees) to sustain FAD programs. Programs to market catch have also been slow to progress. Most governments participating in CARIFICO have decided to delay or forego implementation of marketing programs, based on the belief that this activity (1) can be undertaken later, once FAD programs are stable and productive or (2) is not a governmental responsibility (Sidman et al. In press).

Appraise Success Metrics

An external consultant team evaluated the degree to which CARIFICO activities had been successfully implemented in the participating countries and outputs disseminated at national, sub-regional, and regional levels. Factors considered by the consultant, and how they were measured, are listed below.

1. *The extent to which fisher cooperation and trust had been facilitated through dialog and information sharing* was measured in terms of the number of consultations and trainings that had been implemented in the participating countries.

2. *The extent to which organizing efforts had encouraged and built capacity for collective decision-making by fishers* was measured in terms of the number of fisher cooperatives and associations established and functioning in the participating countries.
3. *The extent to which new FAD technologies had been adopted by fishers* was measured in terms of the materials provided for the development and maintenance of FAD fisheries and the number of fishers participating in trainings on FAD deployment, maintenance and use.
4. *The extent to which knowledge and technical expertise had been imparted and exchanged throughout participating countries and the region* was measured in terms of the number of fisher trainings and exchanges conducted.
5. *The extent to which rules were promulgated and disseminated for the deployment, maintenance, and use of FADs* was measured in terms of the establishment of rules by participating countries to formalize governance and policy for FAD fishery management.
6. *The extent to which data systems were developed and implemented to collect, manage, and monitor fishing catch, effort, and sustainability* was measured in terms of the number of participating countries with functioning FAD fishery catch/effort data collection and management systems.
7. *The extent to which mechanisms to fund and sustain fisheries co-management programs were established and functioning* was measured in terms of the number of programs developed to collect user fees and the number of registered fishers.
8. *The extent to which activities to support the expansion of markets to diversify the income of fishers and promote consumer demand had been introduced and facilitated* was measured in terms of the number of trainings and technical exchanges conducted to improve the quality and handling of seafood products and the number of programs implemented to promote underutilized seafood products and stimulate consumer demand for value-added fish products.

Quantify Outputs

The evaluation team also assessed the degree to which outputs identified in the project planning and implementation phases had been successfully developed and disseminated at national, sub-regional, and regional scales. Metrics applied to evaluate project outputs included the following:

1. *National success* was measured in terms of the number of organizations formed, FADs deployed, fisher licenses purchased, and consultations, meetings, and trainings conducted.
2. *Sub-regional success* was measured in terms of the number of workshops, trainings, and technical exchanges facilitated and the number of technical and training manuals developed.
3. *Regional success* was measured in terms of participation at regional conferences (number of oral and poster presentations), the number of international exchanges facilitated for Fisheries Division staff and fisher stakeholders, the number of seminars conducted to foster information exchange and project implementation, and the number of technical and guidance manuals disseminated through partnerships.

Progress toward fulfillment of success metrics and outputs related to the implementation of CARIFICO activities is summarized in Table 3.

Table 3. Progress toward implementing CARIFICO activities in participating countries.

Activity	Country					
	Saint Kitts and Nevis	Antigua and Barbuda	Dominica	Saint Lucia	Saint Vincent and the Grenadines	Grenada
(1) Consulting with fishers (results)						
Organizer	Department of Marine Resources	Fisheries Division	Fisheries Division	Department of Fisheries	Fisheries Division	Fisher organization
Frequency	When necessary	When necessary	When necessary	When necessary	When necessary	Weekly
(2) Establishing fisher organizations (results)						
Name or description	Saint Kitts and Nevis FAD Fishing Association	Antigua and Barbuda FAD Fishers Association	National Association of Fishers Cooperatives	Local fisher co-operatives formed	Saint Vincent and the Grenadines FAD Fishers Coop Ltd	Grenada FAD Fishers Organization
When established	February 2016	March 2017	Before 2013	Ongoing	March 2016	October 2014
# of FAD fishers	16	17	Over 500	Around 25	Around 30	Around 120
(3) Conducting trainings (results)						
# of FADs deployed (in operation)	16 (9)	15 (6)	Over 30 (18)	13 (4)	7 (2)	9 (4)
FAD construction and deployment	High	High	High	High	High	High
Technical level of FAD fishing	High	High	High	High	Medium	High
(4) Codifying user rules (results)						
Included in fisheries regulations?	Yes, since 2015	Yes, since 2013	Yes, pending cabinet approval	No; cooperatives self-regulating	No; organization is self-regulating	No; organization is self-regulating
(5) Collecting catch/effort data (results)						
Log sheets status	Completed	Testing	Completed	Completed	Completed	Completed
Responsibility for data collection	Group of fishers	Group of fishers	Government data collectors	Government Data collectors	Government Group of fishers	Government Data collectors
Data analyses	Pending	Pending	Pending	Pending	Pending	Pending
(6) Establishing financial mechanisms (results)						
FAD license/user fee established	Not a priority	In process	In process	Not a priority	In process	Accomplished
Fishers contributing	n/a	Yes	Yes	n/a	Yes	Yes
(7) Marketing catch (results)						
To local markets	Yes	Yes	Being expanded	Yes	Yes	Yes
To international markets	Not a priority	Limited	Trial export of tuna ongoing	Not a priority	Not a priority	Ongoing
(8) Maintaining FAD programs (results)						
Long-term financial mechanism status	Not self-sustaining	Not self-sustaining	Not self-sustaining	Not self-sustaining	Not self-sustaining	Currently self-sustaining

Complete
 Ongoing
 Not a priority during the project time frame
 n/a = not applicable

Project Evaluation Guidance Based on the CARIFICO Experience

Project evaluation assesses the level of achievement of project objectives, effectiveness of activities and actions, and impact. Drawing from the CARIFICO experience, the following recommendations and guidance are offered to help structure and facilitate project evaluation.

1. Conduct socioeconomic analysis to measure project impact on fishers' livelihoods.
 - Establish the goal and objectives for the study.
 - Identify an appropriate analytical framework from a review of the scientific literature.
 - Develop a survey instrument and appropriate questions from a review of the relevant literature and through consultations with project partners.
 - Develop protocols for the collection and processing of survey data.
 - Pilot-test the survey instrument and data collection protocols and modify as needed.
 - Conduct the survey.
 - Apply appropriate methods for analyzing survey data based on a review of the scientific literature.
 - Facilitate the dissemination of study results to project stakeholders.
2. Hold a regional workshop to evaluate progress toward establishing desired decision-making arrangements and appraise roles and responsibilities for implementing CARIFICO activities and actions.
 - Develop a workshop agenda.
 - Plan information modules and participant activities.
 - Establish roles for facilitators and participants.
 - Develop workshop exercises.
 - Develop activities that facilitate participant interaction and discussion.
 - Design the exercises so that discussion outputs can be quantified.
3. Appraise success metrics to review progress toward achieving project metrics and outputs.
 - Foster transparency through an external review of project evaluative components and metrics.
 - Provide venues for project managers, participants and collaborators to share experiences, opportunities, and good practices.
4. Quantify outputs to assess project influences at national, sub-regional, and regional scales.
 - Quantify and evaluate outputs delivered within each participating country.
 - Quantify and evaluate outputs aimed at building synergies among participating countries in the sub-region.
 - Quantify and evaluate outputs designed to foster the dissemination and adoption of good practices within the broader Caribbean region.

Chapter 4. Good Practices

To support the project goal and objectives, CARIFICO planned outputs at three geographical levels:

1. National
2. Sub-regional
3. Regional

At the national level, CARIFICO activities were adapted based on each country's needs, cultural and social institutions, regulatory and management regimes, and outreach capabilities. At the sub-regional level, technical exchange programs were conducted to transfer knowledge of co-management activities throughout participating countries. Technical exchanges focused on icebox construction, small engine repair, drop-line fishing techniques, and FAD deployment. In addition, a series of sub-regional workshops were convened to develop training manuals and guidance documents by accumulating experiences and lessons learned through the national-level implementation of CARIFICO activities. At the regional level, tactics for facilitating a co-managed fishery identified through national and sub-regional activities are actively being disseminated more broadly through regional partners, seminars, workshops, and international conferences (Figure 10). Regional level activities are continuing to 2021.

National Implementation

This section describes good practices identified through implementation of CARIFICO activities in participating countries. Although many of the eight CARIFICO activities were adapted and carried out to some degree in each participating country, project managers highlighted those activities that were especially important and successful in meeting needs at the national level, identifying them as good practices for potential broader application. These practices are described in detail in the text that follows and summarized in Table 4.

Saint Kitts and Nevis

- *Conducting trainings:* Trainings on FAD deployment, use, and maintenance were instrumental in helping fishers successfully develop the offshore fishery. These trainings were organized and implemented with assistance from the Department of Marine Resources, further

Regional level (by 2021)

Guidance for facilitating co-management based on local and sub-regional experiences is provided and shared throughout the broader Caribbean region.

Workshops, symposia, and conferences promote CARIFICO guidance and good practices regionally.

Sub-regional level (2013–2018)

Experiences and knowledge gained are collectively accumulated in six countries through outputs that include this guidance document.

Technical exchanges and trainings promote sharing of experiences and knowledge among participating countries.

National level (2013–2018)

Co-management activities are planned, implemented, and evaluated in six countries.

Figure 10. CARIFICO project outputs at three geographic levels.

facilitating collaboration among fishers and between fishers and government.

- *Codifying user rules:* Fisheries legislation was amended in February 2016 with specific reference to FAD fisheries. The Department of Marine Resources drafted FAD-specific regulations to enforce the new legislation, which establishes rules for the deployment and use of FADs that are helping to address fishing conflicts identified through a consultative process.
- *Collecting catch/effort data:* Fishers are now using log sheets to record catch and effort for offshore pelagic species caught on FADs. This information is being used by the Department of Marine Resources to evaluate the productivity and profitability of FAD fishing.

Antigua and Barbuda

- *Consultations:* The relationships among fishers and between fishers and the Fisheries Division are perceived by stakeholders to have improved. Many fishers are now participating in consultations, which facilitate the exchange of information about catch and effort with Fisheries Division staff.
- *Conducting trainings:* These opportunities have facilitated the sharing of knowledge and imparted new skills related to deploying and

using FADs. Trainings have also helped to diversify the livelihood options of fishers, especially during the closed season of the conch fishery. Modification of FAD design and deployment locations resulting from these trainings have reduced accidental damage to FAD structures from marine traffic.

- *Marketing catch:* Fishers are now conducting post-harvest processing and producing and selling value-added products such as smoked and spiced fillets of blue marlin and yellowfin tuna. This is helping to increase the demand for and marketability of their fish, thereby diversifying their income.
- *Maintaining FAD programs:* Members of the FAD fisher association in Antigua have provided technical assistance on the development of FAD fisheries co-management to fishers in Barbuda and Montserrat, extending the benefits accrued at the national level from the CARIFICO project.

Dominica

- *Collecting catch/effort data:* Data collection forms have been improved to capture more accurate information on the catch of individual target species, identify fishing areas that contribute to catch, and isolate FAD-specific catches. The improved database, now managed by the Fisheries Division, has also been used to develop a more accurate licensing fee structure. This information is also being made available to fishers to quantify the value of their catch and income, allowing them to more effectively access financial resources to expand their operations.

Saint Lucia

- *Conducting trainings:* Introduction and adoption of techniques to submerge FADs has reduced their accidental cutting and damage by marine traffic, thereby helping to maintain the integrity and lifespan of FAD systems.
- *Codifying user rules:* Fishing rules have been modified to clearly identify the ownership of FADs and maintain the condition of FADs, thereby helping to reduce conflicts arising from unauthorized fishing around the devices.

Saint Vincent and the Grenadines

- *Conducting trainings:* Fishers have acquired the skills to design, construct, and deploy

FADs. This has led to an expansion of the number of fishing vessels engaged in FAD fishing from approximately 10 to 80. Newly acquired skills have also allowed fishers to increase their catch of larger offshore pelagic species such as yellowfin tuna and blue marlin.

Grenada

- *Establishing fisher organizations:* Almost all the fishers of the town of Grenville now belong to the Grenville FAD Fishers Organization, established through CARIFICO. Fisher participation in this organization has dramatically reduced conflicts related to poaching and has improved members' access to fishing gear and other materials needed to support FAD fishing.
- *Conducting trainings:* Grenville fishers have acquired new skills to design, construct, and deploy FADs and now manage an array of five FADs.
- *Collecting catch/effort data:* In addition to landing data collected by the Fisheries Division, fishers have started providing biological information, which is now being used to assess seasonal catch patterns and predict market trends for the sale of fish.
- *Establishing financial mechanisms:* The Grenville FAD fishers' organization now collects a registration fee, which is being used to support programs that benefit members including maintenance of FADs and the provision of subsidized fishing gear.
- *Maintaining FAD programs:* Members of the Grenville FAD fisher's association have provided technical assistance to others interested in establishing similar organizations elsewhere in Grenada and in the other participating countries.

Table 4. Activities identified as good practices during national implementation.

Activity	Country					
	Saint Kitts and Nevis	Antigua and Barbuda	Dominica	Saint Lucia	Saint Vincent and the Grenadines	Grenada
Consulting with fishers		✓				
Establishing fisher organizations						✓
Conducting trainings	✓	✓		✓	✓	✓
Codifying user rules	✓			✓		
Collecting catch/effort data	✓		✓			✓
Establishing financial mechanisms						✓
Marketing catch		✓				
Maintaining FAD programs		✓				✓



Figure 11. FAD construction exercise.

Sub-regional Implementation

This section describes outputs from CARIFICO activities that represent good practices in the sharing of information and technical expertise at the sub-regional level (among the six participating countries).

- *Meetings:* A series of meetings were organized by project partners to share progress and experiences accrued during the three project phases. In addition, project managers representing each participating country hosted annual meetings to share information from national experiences. This helped stakeholders to develop collaborative solutions for local issues affecting the implementation of CARIFICO activities.
- *Workshops:* A series of workshops helped to identify content and shared interventions summarized in technical manuals and other guidance documents that have been distributed regionally. For example, a FAD fishing cost-benefit calculation developed by CARIFICO provided a methodology for determining the materials and funding needed to maintain FAD programs, determine fee structures, and assess the profitability of FAD fishing in the participating countries.
- *Trainings:* Fishers are now benefiting from a Basic Fisher Training Course, developed on Dominica and promoted by CARIFICO, that imparts seamanship and navigation skills to fishers in the participating countries. As a result, offshore fishing safety has improved and fatalities have declined. The course is now mandatory for new fishers.

Fisheries and Cooperative Division staff have benefitted from trainings on data collection, data analysis, and outreach skills, which has increased the capacity of government to undertake CARIFICO activities in support of co-management. Specific outcomes of these trainings include the development of fisher identity cards, which are now being formalized in the participating countries. Through this system, the Fisheries Division can provide a new accounting service to fishers by creating customized reports that can substantiate earnings and incomes. Fishers can access this information to apply for bank loans to expand their business operations.

Trainings also have developed stakeholder capabilities for providing national and sub-regional trainings. For example, knowledge of icebox construction and engine maintenance imparted by local specialists is now widespread among fishers in participating countries. The use of ice on boats to extend fishing trips while maintaining the quality of fish is now common. Seafood safety protocols are also being adopted to increase the quality and safety of fish and fish products in the participating countries.

- *Technical exchanges:* Fisheries officers were provided with international learning opportunities on FAD fishing techniques, seafood safety, and seamanship. These extended trainings also allowed Fisheries Division staff to observe functioning fisher organizations in other countries. These experiences have been transferred throughout participating countries through exchanges at national and sub-regional levels.

International exchanges also provided opportunities for fishers to learn FAD fishing techniques and strategies for organizing FAD associations from their counterparts in other participating countries. Fisher exchanges proved to be an effective way to develop and share good practices, because fishers especially valued information provided by colleagues.

Technical exchanges fostered the development of a professional network among participating countries comprised of subject-matter experts willing to assist others who need special knowledge and skills to implement CARIFICO activities. Members of this expert network are now identified in a directory that contains their contact information and a description of their field of expertise (Appendix A). This directory is intended to be a resource to others wanting advice about the implementation of specific CARIFICO activities.

Regional Implementation

This section describes outputs from CARIFICO that represent good practices for disseminating knowledge gained from national and sub-regional implementation throughout the broader Caribbean region.

- *Publications:* Technical manuals, videos, posters, and brochures have been developed to share in-

formation about the project with fishers, researchers, and managers throughout the Caribbean region (Figure 12). In particular, a series of videos on how to deploy FADs and fish around them proved to be effective as targeted educational media for fishers. Similarly, videos describing how to establish FAD user fees through a cost–benefit calculation were oriented to the needs of government and Fisheries Division staff. In addition, a video and recipe book promoting the catch and consumption of an underutilized species (diamondback squid) created additional opportunities for fishers in the region.

- **Conferences:** Presentations (oral and poster) at regional conferences such as the Gulf and Caribbean Fisheries Institute have been an effective means to share good practices and experiences in implementing co-management of FAD fisheries with resource managers in the region and with the broader scientific/academic community. In addition, CARIFICO supported the attendance and participation of fishers at regional conferences.
- **Seminars:** Working meetings organized and facilitated by regional partners and hosted by national partners provided opportunities for fishers, fisheries managers, and external organizations to discuss and resolve issues related to the implementation of CARIFICO activities in a timely manner. For example, a regional seminar held in Antigua and Barbuda provided a venue for representatives of participating countries to evaluate

progress toward implementing CARIFICO activities and to discuss strategies for disseminating that information to the broader region. Seminars also served as a forum to identify additional opportunities and needs at the regional level. For example, content and stakeholder roles for researching and drafting the *Manual of Best Practices in Fisheries that use Moored Fish Aggregating Devices: FAD Design, Construction and Deployment* (Gervain et al., 2015) were established through organization of a regional seminar.

- **Expert network:** Identification of national and sub-regional expertise can ensure that broader regional co-management initiatives are sustained. To support this goal, a database of subject matter experts in the region was developed, as described above (Appendix A).
- **Partnerships:** Cooperation among national, regional, and external partners can bring resources and different perspectives to issue identification and problem solving. These partnerships also ensure CARIFICO’s relevance beyond the region through conformance with broader fisheries management and regulatory frameworks (Appendix B). Partnerships can also facilitate scientific exchanges and the identification of technical experts who can assist with decision support and provide training opportunities for project stakeholders.



Figure 12. JICA/CRFM/CARIFICO publications.



Figure 13. Participants at regional seminar.

Chapter 5. Conclusions

CARIFICO introduced a unique set of mutually reinforcing activities intended to facilitate the development of co-managed fisheries in the Caribbean region. The project used an organizational framework that consisted of planning, implementation, and evaluative components. Although CARIFICO focused on national-level adaptation and implementation of activities to support development of the artisanal FAD fishery, it was designed to be applicable to other fisheries, and mechanisms were included to share program outputs more broadly at sub-regional and regional scales.

The experiences and knowledge gained from CARIFICO activities were documented and shared in a variety of traditional and contemporary formats. Examples of traditional communications products included guidance manuals and technical reports that described techniques for FAD deployment and use, and cost-benefit calculations for establishing FAD user fees. Contemporary formats included video and web-based products that illustrated drop-line fishing techniques that helped fishers to use FADs more successfully. Videos showing chefs preparing recipes for underutilized species caught on FADs, such as the diamondback squid, helped to develop market opportunities for new fish products. This function of CARIFICO allowed project outputs to be extended to broader audiences including consumers, fishers, resource managers, and the scientific community.

CARIFICO also facilitated hands-on learning opportunities for fishers and their counterparts within their own countries (FAD construction and deployment) and in other participating countries (small engine repair, icebox construction, FAD fishing techniques), and supported their participation at regional venues (symposia, workshops, and conferences). This aspect of CARIFICO supported open and organized dialog among fishers and between fishers, government, and academic communities. In this way, fishers were able to participate consequentially in and benefit directly from CARIFICO. Through these technical and participatory learning experiences, CARIFICO provided fishers and government stakeholders with new skills and knowledge for utilizing and managing fishery resources that will live beyond the scope of this pilot project, setting a solid foundation for co-management as a useful model to support fisheries governance in the Caribbean.

The CARIFICO-CRFM Joint Statement on Fisheries Co-Management was endorsed by CARIFICO participating countries and other countries (Barbados, Haiti, Jamaica, Montserrat, and Suriname) during the CARIFICO-CRFM regional seminar held in Saint Lucia on November 30 and December 1, 2017 (Figure 13). The statement will be submitted in May 2018 to the CRFM Forum and Ministerial Council for its approval for continuing sponsorship and support for future fisheries co-management efforts in the region. The statement addresses four areas: support for implementation of co-management, training in support of

co-management, co-management to address climate change and disaster risk management, and public education and awareness. This document, currently in draft form (Appendix B), provides guidance for other CRFM member states that may be interested in facilitating a co-managed fishery.

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Appendices

Appendix A. Expert Database for Fisheries Co-Management

Name	Position	FAD fishery co-management										BFTC**	Fish pot construction and fishing	Conch fishery co-management		Fisher ID card	
		Fisher consultation	Fisher organization	FAD construction and deployment	Drop-line fishing	FAD data collection	FAD user rules	FAD user fee	Post harvest (fish in ice)	HACCP*	Marketing and distribution			Stock assessment	Resource management		
Saint Kitts and Nevis																	
Winston Hobson	Fisher			✓													
Antigua and Barbuda																	
Hilroy Simon	Fisheries officer	✓	✓	✓								✓	✓	✓	✓	✓	✓
George Looby	Fisheries officer												✓				
Ian Hosford	Fisheries officer					✓			✓	✓			✓	✓	✓		
Jamie Herbert	Liaison consultant					✓											✓
Barry Prince	Fisher			✓	✓												
Donald Punter	Fisher												✓				
Dominica																	
Jullan Defoe	Fisheries officer	✓	✓	✓	✓		✓	✓		✓							
Noman Norris	Fisheries officer	✓	✓									✓					
Candy Stout	Fisheries officer								✓								
Kirby Birmingham	Liaison consultant																✓
Bertley Carrette	Fisher			✓	✓				✓								
Saint Lucia																	
Petronila Polius	Fisheries officer													✓	✓		
Margaret Harrison	Fisheries officer	✓	✓														
Shepherd Joseph	Fisheries officer			✓													
Allena Joseph	Fisheries officer													✓	✓		
Gabriel "Roy" John	Fisher				✓												
Saint Vincent and the Grenadines																	
Trovan Ferary	Fisheries officer	✓															
Lorenzo George	Fisheries officer											✓					
Winston Hazlewood	Fisher				✓												
Grenada																	
Toby Francis Calliste	Fisheries officer	✓	✓	✓				✓									
Royan Isaac	Fisher			✓	✓												

* HACCP = Hazard Analysis Critical Control Point. ** BFTC = Basic Fisherman Training Course.

Appendix B. Draft CARIFICO-CRFM Joint Statement on Fisheries Co-Management

DRAFT

Statement of Outcome of the Final Dissemination Workshop of the Caribbean Fisheries Co-Management Project Held in Castries, Saint Lucia, November 30 to December 1, 2017

[Comments: The statement has been revised based on the comments and suggestions of the Regional Seminar, Nov. 30 to Dec. 1. It will be submitted to the Forum and Ministerial Council for approval as a statement of the Ministerial Council on the co-management of fisheries in the region.]

THE MINISTERIAL COUNCIL,

RECALLING the partnership agreement between CARICOM and Japan entitled “A New Framework for Japan-CARICOM Cooperation for the Twenty-first Century” adopted in Tokyo, Japan on 8th November 2000;

RECALLING the “Partnership for Peace, Development and Prosperity between Japan and the Member States of the Caribbean Community (CARICOM)”, which was adopted by the Minister for Foreign Affairs of Japan and the Ministers responsible for Foreign Affairs of the Member States of the Caribbean Community and other Heads of Delegations, in Tokyo, Japan on 2nd September 2010, giving further direction to future Japan-CARICOM relations;

RECALLING that the Scope of Work for a development study to prepare a Master Plan for sustainable use of fisheries resources for coastal community development in the Caribbean (hereinafter referred to as the Master Plan) was signed by CARICOM, CRFM and the Japan International Cooperation Agency (JICA) on December 15, 2008;

RECALLING that the Master Plan Study Report and Recommendations, which was adopted by the CARICOM States in February 2012, identified the need for follow up support to the CARICOM States to: (1) establish practical fisheries co-management models for sustainable use and management of the fisheries resources; (2) promote participatory resource management and development; and (3) formulate and strengthen regional networking by sharing local experiences and lessons learnt in each country;

RECALLING that in response to the recommendations of the Master Plan Report, the Governments of six CARICOM States, Antigua and Barbuda, the Commonwealth of Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines, requested the support of the Government of Japan for a technical cooperation project to develop fisheries co-management approaches in the Caribbean region;

RECALLING that in response to the request, the Government of Japan through JICA conducted a detailed survey and consultation with stakeholders in the countries and formulated a project entitled the “Caribbean Fisheries Co-Management Project” (hereinafter referred to as “**The Project**” or “**CARIFICO**”) with the overall goal of developing and implementing fisheries co-management approaches in six pilot countries and disseminating and applying the results and knowledge acquired in the pilot countries to the other CARICOM States;

RECALLING that the specific purpose of the Project is to develop and implement fisheries co-management approaches in each of the target countries, and that the main target areas are: co-management of the offshore resources through the use of fish aggregating device (hereinafter referred to as “**FAD**”); co-management of the queen conch resources with the aim of revitalizing the stocks in Saint Lucia; and co-management of the fish pot fishery in Antigua and Barbuda.

NOTING the progress of the activities under the Project, including the results of the pilot projects implemented and the progressive strengthening of fisheries co-management arrangements in the six pilot countries in the Eastern Caribbean, and the improvement in knowledge and capacity for co-management and sustainable use of fisheries, which will contribute to food security and improved livelihoods of coastal communities of all CARICOM Member States;

ACKNOWLEDGING the importance of fisheries to the social and economic development of the region, and the need to improve governance arrangements through co-management and participatory approaches in order to improve food and nutrition security, livelihoods and welfare of fishers and fishing communities, and ensure long term sustainable use of the fisheries resources and protection of the marine ecosystems;

EXPRESSED appreciation to the Government of Japan including JICA for the technical assistance and support provided through the Project for sustainable use, conservation and management of the fisheries of the CARICOM Member States through the implementation of pilot projects to develop fisheries co-management approaches in six target countries in the OECS Subregion, and sharing of the results obtained with the other CARICOM countries;

ACKNOWLEDGED the contribution of the Japanese Fisheries Experts who provided technical and scientific advice and support to the fishers and counterpart staff in the national fisheries administrations of the six pilot countries;

REAFFIRMED the value attached to continued cooperation and support from the Government of Japan for improved governance and sustainable use and conservation of the region's fisheries resources;

ACKNOWLEDGED the involvement, commitment and invaluable contribution of local fishers and their organizations in the planning and implementation of the activities of the Project and achievement of the results;

REAFFIRMED that co-management and other participatory approaches to fisheries management are indispensable for good governance and sustainable use of fisheries, and improving the welfare and livelihoods of fishers and fishing communities in the region;

WELCOMED the preparation of the "*Guidelines for Fisheries Co-Management in the Caribbean Region: Good Practices of CARIFICO Participating Countries*", and noted its usefulness in sharing regional best practices in introducing and implementing co-management approaches for specific fisheries in the region such as FAD fisheries, conch fisheries or fish-pot fisheries;

AGREED that Member States should continue to support and enhance their efforts to develop and implement policies, programmes and projects designed to promote and strengthen co-management and other participatory approaches to achieve sustainable use and management of the region's marine living resources;

CALLED UPON Member States and international development partners and donors including the Government of Japan to provide additional technical assistance and funding support for co-management and other participatory approaches to fisheries management, including, but not limited to, capacity building and empowerment of fishers and their organizations to enable them to effectively engage with government authorities and carry out their responsibilities as co-managers.

FUTURE ACTIVITIES

THE MINISTERIAL COUNCIL,

AGREED that urgent attention should be given to the following proposed future actions to support implementation of the recommendations of the CARIFICO Project to advance co-management and improve governance of fisheries in the Caribbean, which include, *inter alia*, legal and institutional reforms, training and capacity development, public education and awareness building and empowerment of fishers' organizations and fishing communities:

1. Support for Implementation of Co-management

With the expected completion date of April 2018 for the CARIFICO Project, additional funding and technical assistance are needed to consolidate the gains already made and support implementation of the activities needed to transform and institutionalize the co-management models developed, based on the priority areas and reforms identified by the pilot projects. In this regard, Member States in collaboration with development partners as may be appropriate should:

- (1) Work together with stakeholders to further support the sustainable use of offshore resources in the waters of Member States through deployment, management and monitoring of FADs. This will include the implementation of the Draft Sub-Regional Management Plan for FAD Fisheries in the Eastern Caribbean and development and implementation of regulations, rules, and protocols and guidelines to ensure equitable and orderly access to and use of FADs, and compliance with agreed measures to ensure conservation and optimum sustainable harvesting of the resources.
- (2) Work together with stakeholders to conduct further research, encourage, promote and share lessons regarding the use of biodegradable panels in fish pots to eliminate ghost fishing by discarded or lost fish pots, and the adaptation of appropriate technology in their fishing operations to improve selectivity of fishing gears.
- (3) Implement, as appropriate, taking into account national objectives and conditions, the "*Guidelines for Fisheries Co-Management in the Caribbean Region: Good Practices of CARIFICO Participating Countries*".
- (4) Work together with stakeholders to further strengthen and expand data collection and monitoring programmes for FAD, pot and other fisheries. Data should be collected and shared with Member States and with other competent organizations and stakeholders to facilitate effective assessment and monitoring of the stocks and preparation of conservation and management advice.
- (5) Develop a protocol on co-management within the framework of the Caribbean Community Common Fisheries Policy. The Protocol would establish an agreed CARICOM regional policy framework setting out the region's commitment to co-management and principles and standards for harmonized national actions to develop and manage FAD fisheries in a sustainable and responsible manner consistent with international and national legal obligations.

2. Training in Support of Co-management and Improved Governance

It is recognized that resource managers, fishers and other stakeholders at the regional, national and community levels are not adequately trained in the actual operation of community based fisheries management. Additional short and long-term training and capacity building at all levels will therefore be required to support the transition to co-management arrangements for specific fisheries in the Caribbean.

Training and capacity building activities may be achieved by, *inter alia*, technical exchanges and study tours among the countries utilizing local and regional trainers from government departments and fisherfolk

organizations developed under the CARIFICO Project and other regional experts to provide practical training and mentoring in co-management.

Member States and development partners in collaboration with fishers' organizations should therefore give priority to training and capacity building activities to support co-management and improve fisheries governance arrangements in the region.

3. Co-management to Address Climate Change and Disaster Risk Management

The biological productivity of fish stocks and the economic viability of fisheries operations vary from place to place and over time in relation to environmental and oceanographic conditions which are changing naturally, from year to year and due to the increasing impacts of global warming and ocean acidification. In addition, coastal communities and marine ecosystems are being affected by sea level rise and increasingly powerful and more frequent storms and hurricanes.

The destruction and devastation caused by recent hurricanes in the Caribbean underscore the urgent need for action to build resilience to climate change. Hurricanes Irma and Maria devastated or damaged the economies of several Caribbean States, including Antigua and Barbuda, Anguilla, Bahamas, Cuba, Dominica, Dominican Republic, Haiti, Puerto Rico, Saint Kitts and Nevis, Saint Martin, St. Barthelemy, Turks and Caicos, and Virgin Islands, among others.

Member States and development partners in collaboration with stakeholders should give urgent attention and support to develop and mainstream climate change adaptation and disaster risk management best practices and build resilience of the fishing communities through co-management approaches and empowerment of fishers' organizations and fishing communities in the region.

4. Public Education and Awareness to Improve Co-management

The need to promote improved public understanding of the importance of fisheries for food and nutrition security and livelihoods at the local and national levels, the important role of co-management and other participatory approaches, as well as the measures required for conservation and sustainable use of fisheries is well recognized in the region. There is also a need to provide accurate information to the public about fisheries to counter misinformation and uninformed protectionist measures being promoted by some non-state actors.

States, development partners and stakeholders in the fisheries sector should work together in developing and conducting educational and awareness programmes using the best available information and communication technology tools, public media and social media, in order to improve public awareness and understanding of fisheries issues.





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