

Economic Activities which Strengthen the Social Cohesion Among Fishermen and Promote the Co-management

Actividades Economicas que Portalecen la Cohesion Social entre Pescadores y Promueven el Co-manajeoles

Activites Economiques qui Renforcent la Cohesion Sociale entre les Pecheurs et Promouvoir la Cogestion

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ABSTRACT

This paper discusses the case for the promotion of the co-management model of fisheries management in six (6) OECS member countries, through the transfer of the Okinawa practices in fisheries management. To increase sustainability and profitability of Fish Aggregating Device (FAD) fisheries in the Caribbean, the Caribbean Regional Fisheries Mechanism (CRFM) and Japan International Cooperation Agency (JICA) are implementing pilot activities intended to introduce and develop co-management in six (6) of its sub-regional member countries.

Co-management is considered an effective way of fisheries management with social cohesion among fishers, being the impetus to its success; especially through fisheries cooperatives. The approach to foster social cohesion is the business of the main fisher organizations – fisheries cooperatives, in Okinawa, Japan, where they engage in shared economic activities such as marketing, fuel and fishing gear supply, financial services, management of fisheries centers which provide landing and marketing facilities, fisherman's locker and workshop. To verify this approach, the fisher cooperatives are studied through the implementation of questionnaire surveys.

It is envisioned that the CARIFICO project will adapt applicable co-management practices from Okinawa, Japan to the collaborating CRFM Member States. Further, the results of these activities are measured and verified through the implementation of survey programs, directly targeting fishers. As a beneficiary of the CARIFICO project, the St. Vincent and the Grenadines Fisheries Division earmarked its fishing community of Barrouallie as the pilot for the introduction of fisheries co-management. However, the question is, how is social cohesion strengthened. The applicability for the co-management approach is examined and verified through a series of questionnaire surveys. Monitoring indicators are suggested, which will apply this approach and continue for five years.

KEY WORDS: Co-management, fishermen, social

INTRODUCTION

The CARIFICO project is the offspring of the “Formulation of Master Plan on Sustainable Use of Fisheries Resources for Coastal Community Development in the Caribbean” project, a technical cooperation initiative between the CRFM member countries and Government of Japan, through JICA, from 2009 to 2012. The Caribbean Fisheries Co-management (CARIFICO) Project was launched in May 2013; and, is a collaborative initiative between the Caribbean Regional Fisheries Mechanism (CRFM), the Japan International Cooperation Agency (JICA) and the Fisheries Divisions of Antigua & Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, St. Vincent & the Grenadines. The overall goal of the project is to develop suitable Fisheries Co-management approach(es) as pilot activities and share these appropriately in the Caribbean region. It is envisaged that the project will adapt applicable co-management practices from Okinawa, Japan, to the collaborating CRFM Member States.

The Final Report of the Master Plan proposed:

- i) To establish practical co-management models for sustainable use and management of the fisheries resources,
- ii) To promote participatory resource management and development toward co-management, and
- iii) To formulate and strengthen the regional network by sharing the local expertise and lessons learned in each country.

The Fish Aggregating Device (FAD) Pilot Project implemented during the development of the Master Plan confirmed that diversification of coastal fishery using FADs has great potential and can be used as a tool to involve fishers and their organization in the sustainable use of large pelagic fishery resources.

The CARIFICO project seeks to carry out its stated objective through the construction, use and management of Fishing Aggregating Devices (FADs) with a view to foster social cohesion among fishers, especially through shared economic activities of fisheries cooperatives. To this end, expected project outputs are:

- i) Establish qualification for FAD fisheries:
- ii) Rules and regulations for deploying, utilizing, and maintaining FAD fisheries,
- iii) Fisheries information to be utilized for FAD management, and
- iv) Fisheries Co-management mechanism for FAD fisheries.

Co-management is considered an effective way of fisheries management with social cohesion among fishers, being the impetus to its success, especially through fisheries cooperatives, but there are very few good examples of this in the region (Gutiérrez et al. 2011).

As a beneficiary of the CARIFICO project, the St. Vincent and the Grenadines Fisheries Division has started a pilot activity focusing on the introduction and development of co-management, in an effort to increase sustainability and profitability of FAD fisheries. The challenge is however, how social cohesion could be strengthened among Fishers.

THE OKINAWA EXPERIENCE

In Okinawa, the southern island of Japan, where the natural environment is similar to the Caribbean islands, fisheries cooperatives in collaboration with the Government of Japan implement fisheries management. Based on the strong cohesion of the fisher, Okinawa Fisheries Cooperative (FC) plays important roles in fisheries co-management.

Legal Framework

Fisheries Law (FL) sets regulations for issuance of rights and licenses. The marine fisheries of Japan are classified under three distinct categories (Figure 1): fishing

right fisheries, licensed fisheries, and free fisheries on the fisheries law.

Fishing right manages the coastal area and licensed fisheries manage off shore area and the both are provided to and managed by FC. Under the fishing rights pursuant to the fisheries law, the management for the coastal area is delegated to the FC and only members of FC have a right to operate fishing in the area in front of their fishing village. To construct aquaculture facilities or set net in the sea, another type of fishing right is required.

On the other hand, the license is provided individual fishers by the prefectural Government. However, to issue licenses, the fisheries department should seek advice of regional fishery adjustment commission, which is similar to Fisheries Advisory Committee in the Caribbean region. More than half of its members along with the chairperson represent the fishers, and the FCs has a strong voice in the decision making.

Unique factors to make Okinawa co-management work are as follows:

- i) Fisheries department support and supervise the FC
 - Separate law for FC from other cooperatives
 - Government support through subsidies
 - Roles of the agent for the planning and implementation of the business of Fisheries Department
- ii) Obligation of members to use the services
- iii) The member of the FC can enjoy various benefits such as fishing right and government support.
- iv) By Fisheries Law, only active fishermen can be member of the FC. It increases the social cohesion of the members and their participation to the business and fisheries management of FC.

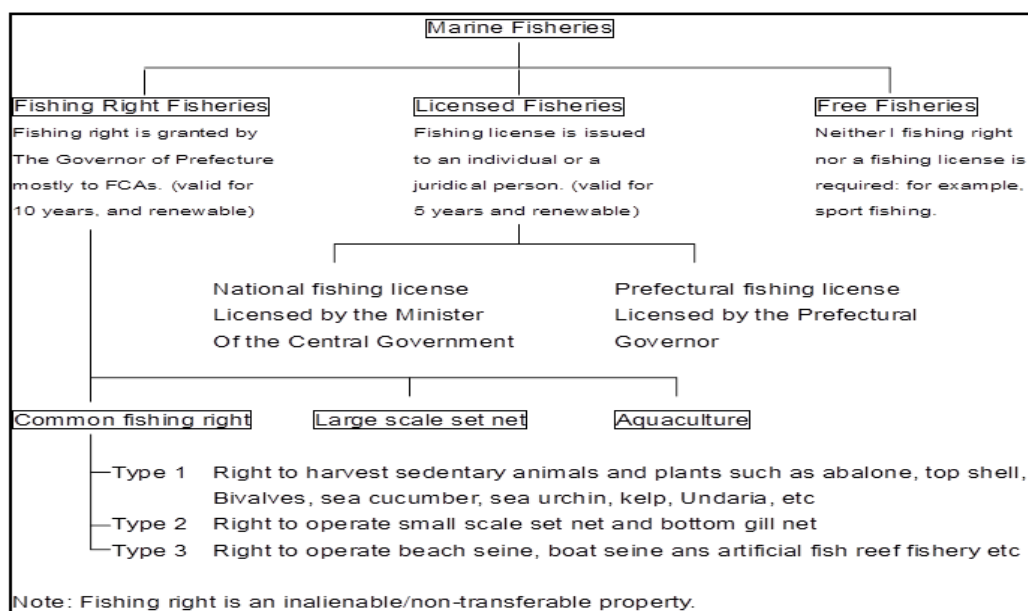


Figure 1. Legal classification of Japanese marine fisheries.

Economic Activities of Fisheries Cooperatives

Fisheries cooperatives (FCs) in Okinawa satisfy almost all needs of fisher. This is a one stop service and very convenient to the fisher. It also generates synergy effects among marketing, supplying and financing activities. The principle of the business of cooperatives is that the fishers are clients, shareholders, and also managers. It is the business of the fisher, by the fisher, for the fisher. The business concentrates on meeting needs which are not satisfied by private companies (to compete with private sector will be difficult.). To stabilize the revenue of the businesses, the fishers make agreement with FC to use the services provided by FC.

Marketing is the most important business in terms of fisher needs and revenue of FC, and FC will choose the marketing methods according to their capacity and market demand. Buying and selling of fish is sometimes very difficult and risky, because of the time constraint for selling and catch fluctuation. Okinawa FC employs marketing on consignment basis, which are Auction and Tender. This marketing method benefits everyone: fishers, buyers, and cooperatives. Fishers can concentrate on fishing activities and getting good prices; Buyers can get fish whenever they need and have a variety of choices; FC can get commission without business risk. However, there are two important conditions to make this system work: All fisher bring their catch to the FC, and FC keeps operational fund to pay fisher immediately.

On the other hand, the profit of the supply business is relatively small, because the goods which fisher wants vary, no economies of scale, and there is competition with private shops. In this regard, the fuel supply is the best choice for supply business because it is in high demand and a standardized commodity. In Japan, each local FC

estimates annual demand for fuel and submit its order to the national federation. The national federation then combines orders and directly buys from suppliers in bulk, with strong bargaining power.

Financial services complete with marketing and supply business. Proceeds from sale of fish are transferred to the fisher’s account at FC bank and the fishers’ receivables of supply business are automatically deducted. The fisher can borrow money for purchase of fishing boat or engine without collateral, because FC knows his capacity for repayment and can directly collect payments from his proceeds. The funds in the savings are utilized for the operations of marketing business, to pay fishermen for their catch immediately, without having to wait on proceeds from current sales. This financial business also needs the national federation to adjust the supply and demand of the funds.

Table 1. Questionnaire results re economic activities

Questionnaire survey at Kunigami, Okinawa								
Priority	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Insurance		1			6	4	2	5
Supplying	1	1 2	4	1				
Marketing	1 0	2	3	3				
Ice	6	1	2	2	5	1	1	
Facility		2	2	1 2	1	2		
Radio				1	2		6	8
Finance	1		6	1	1	5	2	2
Fisheries Management					2	6	7	2

Table 2. Questionnaire results re economic activities

1. Why do you use the supply business?	
6	The price is cheaper
3	The shop is nearby and staff are kind
1 2	I would like to contribute the management of fisheries cooperatives
2. Why do you use the marketing business?	
7	It is convenient
3	The price of the catch is high
1 2	I would like to contribute the management of fisheries cooperatives
3. Why do you use the financial business?	
1	The interests rate of saving is high
2	The bank is nearby and staff are kind
1 5	I would like to contribute the management of fisheries cooperatives
4. Do the economic activities of FC realize the common interests of the members?	
1 2	YES
1	NO
4	I don't know
5. Do the economic activities strengthen the social cohesion among the members?	
1 3	YES
	NO
4	I don't Know
6. Will you use the economic activities of FC even if the price or conveniences are not better than private shops?	
1 4	YES
	NO
3	I don't Know

Awareness of Economic Activities and Social Cohesion – Okinawa

Okinawa fishers answered that the marketing is the most important business activity and also identified economic activities as the catalyst to strengthening social cohesion (see Tables 1 & 2).

APPLYING OKINAWA EXPERIENCES TO BARROUALIE

Fishery Description

Barrouallie is located on the west coast of St. Vincent and is one of the main fishing towns on the island. Based on the St. Vincent Fisheries Division registration records, forty (40) of the forty two (42) registered fishers are active, while forty nine (49) from a total of fifty four (54) registered vessels are active. Note that these values are believed to be less than the actual values. Based on local knowledge, there is an approximate total of 150 fishers (full time and part time) operating in the community. Overall, fishing activities can be characterized as seining, trolling, hand lining, the extraction of lobsters and marine mollusc (whelks and queen conch), pot fishing and FAD fishing for large offshore pelagics (Table 3). Main fishing vessels include pirogues, bow and sterns and double enders.

History and Present Situation of FAD Fishing

Currently there are two FADs deployed in the waters of St. Vincent and the Grenadines. One is found five nautical miles west of Bequia and the other three nautical miles west of Barrouallie. These FADs were deployed in March 2012 as part the MAGDELESA (Moored fish Aggregating Device in the Lesser Antilles) Project. They are single head buoy FADs with GPS indicator, capable of reporting information on the device in real time.

Currently, at least 18 fishermen and 14 vessels operate around the MAGDELESA FAD, located offshore Barrouallie. Among the fishers who share this FAD are locals of the Barrouallie, Layou, Buccament, Kingstown and Chateaubelair communities, and at least 1 fisher from the Grenadines Islands. Thirteen vessels make up the combination of pirogues and bow and stern vessels, and one Cabin boat, utilizing trolling and drop lining to catch target and bait species.

Impact of FAD Fishing in Barroualie

FAD fishers in Barrouallie have indicated that the MAGDELESA FAD has lead to an improvement in their finances because they are now able to catch fish on a more regular basis and with less gas and effort. However, some fishers have had some concerns regarding fishing activities at the FAD: 1. Bait species such as skipjack tuna and little tunny are targeted as part of the main catch thereby reducing sustainability and productivity of fishing at the FAD; 2. FAD is also used as a mooring which will reduce the longevity of the FAD.

However, some fishers are concerned that only a limited number of fishers have achieved strong success from FAD fishing activities since during a months' period they were unable to catch the more marketable species, and, that the seasonality of species around the FAD does not encourage fishing activity. It is important to note however, that at the same time other fishers are successfully engaged in FAD fishing.

Activities carried out by the Fisheries Division to develop FAD fishing in St. Vincent and the Grenadines include consultations with fishers, creation and redesign of data forms to capture FAD data, strengthening of fisheries cooperatives, update vessel registration system, conducting of baseline study, preparation of the 2014 Annual Workplan and Fisheries Cooperative Action Plan, and the sourcing and purchase of material for the construction of fishing vessels. (Report on Workshop on FAD Fishery Management, December 2013).

Individual ownership of FADs is not encouraged. Currently no permission or licenses are needed to fish on FADs and there are no applied fees. (Report on Workshop on FAD Fishery Management, December 2013).

It is hoped that the CARIFICO project would collaborate with stakeholders regarding the establishment of qualifications and the development of rules and regulations for deploying, utilizing and maintaining FAD fisheries, in an effort to increase sustainability and profitability, as the project seeks to introduce and support co-management practices.

Status of Fisheries Cooperatives, Barroualie

The Barrouallie Fisheries Development Co-operative Society Limited is one of the three main Fisheries Cooperatives in St. Vincent and the Grenadines. Membership is

Table 3. Catch data* for MAGDELESA FAD offshore Barrouallie.

Species	2012 (Jul-Oct)	2013	2014 (Jan - Mar)	Total
	Weight (lbs)	Weight (lbs)	Weight (lbs)	Weight (lbs)
Yellowfin Tuna	6080	3658	4251	13,989
Blue Marlin	0	965	2395	3360
Blackfin Tuna	120	285	0	405
Skipjack Tuna	225	177	0	402
Bigeye Tuna	0	223	0	223
Dolphin (Mahi Mahi)	0	58	0	58
Wahoo	0	43	0	43

* Catch data for a maximum of five fishers.

low and uninterested (with only 3 new members in the past 5 years), lacking strong knowledgeable leadership and management. Though they engage in some economic activity, the extent is limited only to organizing culturally based fish festivals which unfortunately do not benefit members of the Cooperative, but vendors from the community (Dougal James 2013). Cooperative could not collect monies to fix the gas station. Consensus building such as sharing the cost for FAD buoy lights is difficult.

Awareness of Economic Activities by Fishers - Barroualie

The results of a questionnaire survey (Table 4) revealed that fishers believe economic activities of Fisheries Cooperatives are important, and that they will join with other fishers to implement such activities. In both cases - Okinawa and Barrouallie, their interest on the fisheries management is lower than economic activities. However it is felt that economic activities may promote their participation in fisheries management.

Co-management as a Mechanism for Improving Fisheries Management

In recent years the literature on fisheries resource management in the Caribbean encourages the adoption of the co-management concept of management. Brown (1996) has suggested that the policy changes in the region are also matched by evidence adduced by recent research among fishers in fishing communities in the region.

Table 5 below summarizes the responses of 937 fishers, in 30 fishing communities in the CARICOM region on various issues dealing with their preferences for forms of management of the regional fisheries:

The significant support of the fishers for the adoption of the co-management model is matched by similar findings elsewhere in the region. Peter Espeut's "Socio-Economic Survey of Fishers in Belize and the South Coast of Jamaica" (1992a), showed comparable figures of 89.6 % and 98.5% for Jamaica and the Belize Co-operatives respectively, in favor of the Co-Management model.

Another study by R. Mahon and N. Drayton (1990) on the "Trap Fishery Management in Barbados", dealing with

the perspectives of the fishermen, also arrived at similar overwhelming support for the Co-Management model.

Table 4. Questionnaire results re economic activities in Barroualie, St. Vincent

Questionnaire survey at Barrouallie, St. Vincent and the Grenadines			
	I want it very much	I want it if possible	I don't need it
Selling of ice	18	2	5
Selling of gasoline	21		2
Selling of fishing gear and materials	24	1	
Rental of fishermen's locker	16		9
Workshop facility for maintenance of engine and boat	21	3	1
Marketing of your catch at a higher price	23	2	
Fisheries management to prevent overfishing	16	1	8

1. Will you join to the cooperatives if you can get the services above?	
Yes, I will join	17
No, I don't need to join	
I don't know	8
2. Will you support the cooperatives with other fishermen to implement the activities above?	
Yes, I will support	21
No, I will not	
I don't know	4

Table 5. Preferred Models of Management

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

Source: Peter Espeut/ CFRAMP, Socio-Economic Baseline Survey of Thirty Communities in Twelve CARICOM-Countries, CARICOM Fisheries Unit; Belize City, Belize; December, 1994, cited in Brown (1996).

**APPLYING OKINAWA EXPERIENCES
TO BARROUALIE**

Monitoring Indicators

The challenge is deciding what economic activities are best suited to strengthen the social cohesion for the Barrouallie Fisheries Development Co-operative Society Limited. Further, the results of these activities are measured and verified through the implementation of survey programs, directly targeting fishers. Finally, monitoring indicators are suggested to guide and verify the application and effect of the co-management approach for Barrouallie pilot activities and throughout the five year life span of the CARIFICO project.

CARIFICO will verify the effectiveness of the approach and in so doing develop monitoring indicators to analyze the following factors:

- i) The influence of economic activities to the strength of the social cohesion,
- ii) The influence of the strength of the social cohesion to the success of co-management, and

Qualitative indicators involved over the 5-year project life are:

- i) Present situation of FAD Fisheries,
- ii) Registration and License,
- iii) Rules and Regulations for FAD Fisheries Management,
- iv) Catch and Effort Data,
- v) Fisher Organizations,
- vi) Fisheries Center, and
- vii) Government measures for increasing fishers incentive to co-management

Quantitative indicators are provided in Table 6.

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Table 6. Quantitative Indicators

Number/list of the captains who	starts	1st yr	2nd yr	3rd yr	4th yr	ends
Operates FAD fishing						
Participates into fishermen's consultations						
Pays the maintenance fee						
Records the catch and effort data in the logbook						
Utilizes the services provided from the fisheries center/ fisheries cooperatives						
Is a member of the fisheries cooperatives						
Gets the fishing boat inspected and registered						
Is registered and holds ID						
Relies on other fishermen						
Relies on the fisheries cooperatives/association						
Relies on the fisheries department/division						