COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT (CBCRM) MODEL IN SAMAR

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Doctor of Philosophy (Ph.D.)

Major in Educational Management

RICARDO T. SEVERO, JR.

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APPROVAL SHEET

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R.T.S. Jr.

DEDICATION

To my ever dearest supporting wife Gwen and Russ Vincent

My source of inspiration

in the pursuit of this study,

this work is heartily and lovingly

dedicated.

Ric

ABSTRACT

This study endeavoured to assess the current status and impact of the implemented community-based coastal resource management (CB-CRM) programs in Samar in order to obtain sound technical data and information that are useful in improving plans, strategies, and formulation of new policies that would result to sound management measures. This study use the descriptive-development research method of assessing the status and impact of the community-based coastal resources management (CBCRM) programs in Samar using the survey questionnaire, focus group discussions (FGD), interview schedule, and documentary analysis, as the main instruments in gathering the data. For the findings, pertaining to environmental conservation and management, the indicator such as "total ban of illegal fishing practices as prescribed in RA 8550" was perceived by the respondents as "very much implemented" with a mean of 3.99. The area mean of 2.17 was perceived by the respondents as "moderately implemented". For the conclusions, as to the impact of CBCRM programs in Samar, it is concluded that the impact of CBRCM towards ecological condition is "much manifested" socio-economic is "much manifested", socio-cultural is "much manifested" and institutional is "much manifested". The components of CBCRM programs in Samar such as research, legislation and law enforcement, education, community organization and development, resource tenure improvement and environment conservation and management is significantly affect the resources ecology, socio-economic, socio-cultural, and institutional.

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THE PROBLEM AND ITS SETTING

Introduction

Fishing is one of the major economic activities in Samar. Its vast fishing grounds totaled to an area of 298 square kilometers which covers San Pedro Bay (2 km^2.), Maqueda Bay (92 km^2.), Samar Sea (198 km^2.), Zumarraga Channel (2 km^2.), and the Villareal Channel (4 km^2), driven more than 23,000 fishers to become dependent on this marine fishery resource as their source for food and livelihoods.

Samar, being one of the major fish producing provinces in Eastern Visayas, is also a major supplier of fish product to Manila. Its two major fishing grounds, the Maqueda Bay and Samar Sea, were considered in the past as one of the richest fishing grounds in the Philippines (SIDPO, 1990). The combined fishing activities of these two sites constitute almost the entire capture fishery of the province and fish productions were mainly derived from commercial and municipal fisheries sectors.

CERD, (2003) reported that in 1979 the production of municipal fisheries in Samar was recorded at 78,203 metric tons. The annual fish catch of Maqueda Bay according to Voluntary Service Overseas (1993) was 12,000 metric tons while Samar Sea has landed fish and other fishery products an approximately 27,000 metric tons (BFAR, 1976). The average daily catch of fishers using a typical gear

in 1981 was recorded at 8 kg/day and of 250 fish species recorded in the area, 50 were considered to be of major commercial importance (Seager, 1993).

Ten years later, production of municipal fisheries in Samar dropped to 33.60 metric tons (CERD, 2003). Seager (1993) reported that the average daily catch of fisher's using a typical gear was also reduced to 3.5 kg/day which was lowered than the average value of the world annual per capita fish consumption of 9.9 kg in 1960's, 14.4 kg in 1990's, 18.4 kg in 2009 and preliminary estimates for 2010 point to a further increase in fish consumption to 18.6 kg/person (The State of the World Fisheries 2012, FAO). He also indicated that out of the 50 major commercial importance fish species that was recorded in the area, only 10 remained.

In the list published by BFAR (1976), Samar Sea was one of the fourteen traditional fishing grounds that were overfished. Similar findings was reported by Fox (1986), that the coastal fishery resources of Maqueda Bay and Samar Sea was the most heavily depleted, and these areas appears to be the most heavily overfished fishing ground in the country. It ranked second to Manila Bay as the most overfished and depleted fishing grounds in the Philippines (CERD, 2003). In the study of Seager (1993), he pointed out that these two sites had been devastated for more than a decade by overfishing.

The decreasing fish production in Maqueda Bay and Samar Sea as a result of overfishing, degradation and destruction of resource base, increasing fishing population, and heavy fishing pressure led to increase poverty among coastal families and fisherfolks in the island of Samar (CERD, 2003).

In the survey made by the National Statistics Office (1988), the province of Samar was one among the poorest provinces of the Philippines which posted a poverty incidence level of 61.6%. Out of its 533,733 total population (NSO, 1990), 77% of the total households live below poverty line (PBSP, 1989). Eighty percent of these total households derived their subsistence from fishing activities (PBSP, 1989). The poverty incidence level of families that falls within the bottom 30% was posted at 55.8% (NSO, 1988).

As a response to the increasing poverty, continued degradation and destruction of the coastal areas of Maqueda Bay and Samar Sea, in 1988, the Community Extension and Research for Development, Incorporated or CERD Inc., a non-governmental organization (NGO) implemented their first community-based fishery integrated resource management for economic development or CB-FIRMED program, a five-year pilot program aimed at developing local based capabilities to manage coastal and aquatic resources in a rational, sustainable and equitable manner using the concept of community-based coastal resource management or CBCRM. The four basic components of CERD's CB-FIRMED program were community organizing, human resource development, socio-economic, and alternative livelihood development and sustainable fisheries.

A community-based coastal resource management or CBCRM as viewed by Sajise (1995), is a process by which the people themselves are given the opportunity and/or responsibility to manage their own resources, define their needs, goals and aspirations, and to make decisions affecting their well-being. It

is inherently evolutionary, participatory and locale-specific and considers the technical, socio-cultural, economic, political and environmental factors impinging upon the community. It evolved in response to the failure of more centralized approaches and the recognition that local management (or "bottom-up" approaches) may be more effective than the centralized or "top-down" approach (Christie and White, 1997).

In Samar province, the first island municipality who have availed the CB-FIRMED program of CERD, was Daram, particularly its first four barangay's, namely: San Miguel, San Vicente, Parasan, and Casab-ahan. During the course of program implementation, socio-economic projects like fishing gear with non-motorized bancas, pressurized gas lamps and panels of gill nets were dispersed to fisherfolk beneficiaries, marketing and credit project was formed, ecological awareness seminars were conducted, artificial reefs and marine fish sanctuary were established, and committees on monitoring were organized. Two years later, the implementation of CB-FIRMED program was then expanded to other barangays like Brgy. Rizal, Cabugao, Cagbubuto, Buno-anon and Valles-Bello. In 1993, the CB-FIRMED program was also introduced and implemented in the City of Catbalogan specifically in Barangay Buno-anan, Darahoway-Dacu, Darahoway-Guti, Sitio Mahaba in Basiao, Sitio Madalunot, Cal-apog, Pangdan, and Ibol.

In Samar Sea, the first implementation of CB-FIRMED was in 1997, which initially covered the island municipality of Almagro, Sto. Niño, Tagapul-an, and Tinambacan, District of Calbayog City.

Subsequently, several CBCRM projects were implemented by some NGOs to the different municipalities and cities of Samar through the WESAMAR program. Since then, no comprehensive documentation and evaluation were ever made to these projects as to whether the projects were sustained, succeeded or failed, hence, this study.

Statement of the Problem

This study endeavored to assess the current status and impact of the implemented community-based coastal resource management (CB-CRM) programs in Samar in order to obtain sound technical data and information that are useful in improving plans, strategies, and formulation of new policies that would result to sound management measures.

Specifically, this research work was undertaken to seek answers to the following questions:

1. What are the characteristics of the CBCRM communities in terms of:
    1.1 socio-demographic profiles;
    1.2 economic profiles;
    1.3 marine-based resources;
    1.4 land-based resources; and
    1.5 eco-tourism projects?

2. What is the status of the implemented community-based coastal resource management (CBCRM) programs in Samar from 2001-2010 in terms of:

2.1 research;

2.2 legislation and law enforcement;

2.3 education;

2.4 community organization and development;

2.5 resource tenure improvement; and

2.6 environmental conservation and management?

3. What are the impact-indicators of community-based coastal resource management (CBCRM) project in Samar in relation to the following areas of development:

3.1 ecological;

3.2 socio-economic;

3.3 socio-cultural; and

3.4 institutional?

4. Are there significant relationship along status of CBCRM programs and impact-indicators of CBCRM projects?

5. What CRM model could be developed based on the findings of the study?

Hypothesis

Based on the questions posed in this study, the null hypothesis tested is:

There is no significant relationship between the status of the implemented community-based coastal resource management (CBCRM) programs and the

impact-indicators of community-based coastal resource management projects in Samar.

Theoretical Framework

This study is anchored on the theory profounded by Ganguli (1993) on stewardships of resource management in which he categorically stated that developmental assistance to the forestry and fishery sector will succeed only if the projects make a deliberate attempt to bring about changes in policies which will encourage handing over the forests and fishery resources to the community for management and protection. Common resource ownership and management regimes are the most effective institutions for sustainable development of forests and fishery resources in developing countries. Forest and fishery resource development projects that do not actively involve local users will not succeed. This theory clearly explained the importance of involving the local resource users and community members in active management and responsibility for coastal resources. This theory implies that individuals, groups, and organizations have a major role, responsibility, and share in the resource management and decision-making process. This theory is based on the premise that local users, if empowered to have responsibility for their resources, will act responsibly and efficiently in their own best interest to manage the resources in sustainable ways and enforce community-derived rules. By taking responsibility for monitoring and enforcement, the community will develop sense of ownership and power over

local resource conditions which will result to successful and sustainable coastal resource management.

The foregoing theory is supported by Republic Act 7160 also known as the Local Government Code of 1991 which mandates the decentralization of the management of nearshore fisheries to municipal and local resource users. Through Local Government Code and several other initiatives, the government now actively promotes community-based coastal resource management to conserve fisheries and coastal resources and diversify income sources of the low income small-scale fishers. Section 16 of the aforementioned code, specifically in the promotion of General Welfare, states further that "the local government units ensure and support, among other things, the preservation and enrichment of culture, promote health and safety, enhance the right of the people to a balanced ecology, encourage and support the development of appropriate and self-reliant scientific and technical capabilities, improve public morals, enhance economic prosperity and social justice, promote full employment among their residents, maintain peace and order, and preserve the comfort and convenience of their inhabitants."

Conceptual Framework

Figure 1 shows the schematic diagram of the Conceptual Framework of the study. In this study, the researcher will look into the status of the implemented community-based coastal resource management programs in the various

municipalities and city of the province of Samar, particularly along the areas of research, legislation and law enforcement, education, community organization and development, resource tenure and improvement, and environmental consideration and management.

The status of the implemented community-based coastal resource management programs in Samar will be analyzed by gathering data on the socio-demographic profile, economic profile, marine-based resources, land-based resources, and eco-tourism projects of the respondent-municipalities and city.

Data about the impact of the implemented community-based coastal resource management (CBCRM) program in Samar on the ecological, socio-economic, socio-cultural, and institutional will be undertaken.

From the situational analysis, the data gathered will serve as basis in the development of community-based coastal resource management (CBCRM) model in the province of Samar with the end of improving its management towards sustainable coastal fisheries development.

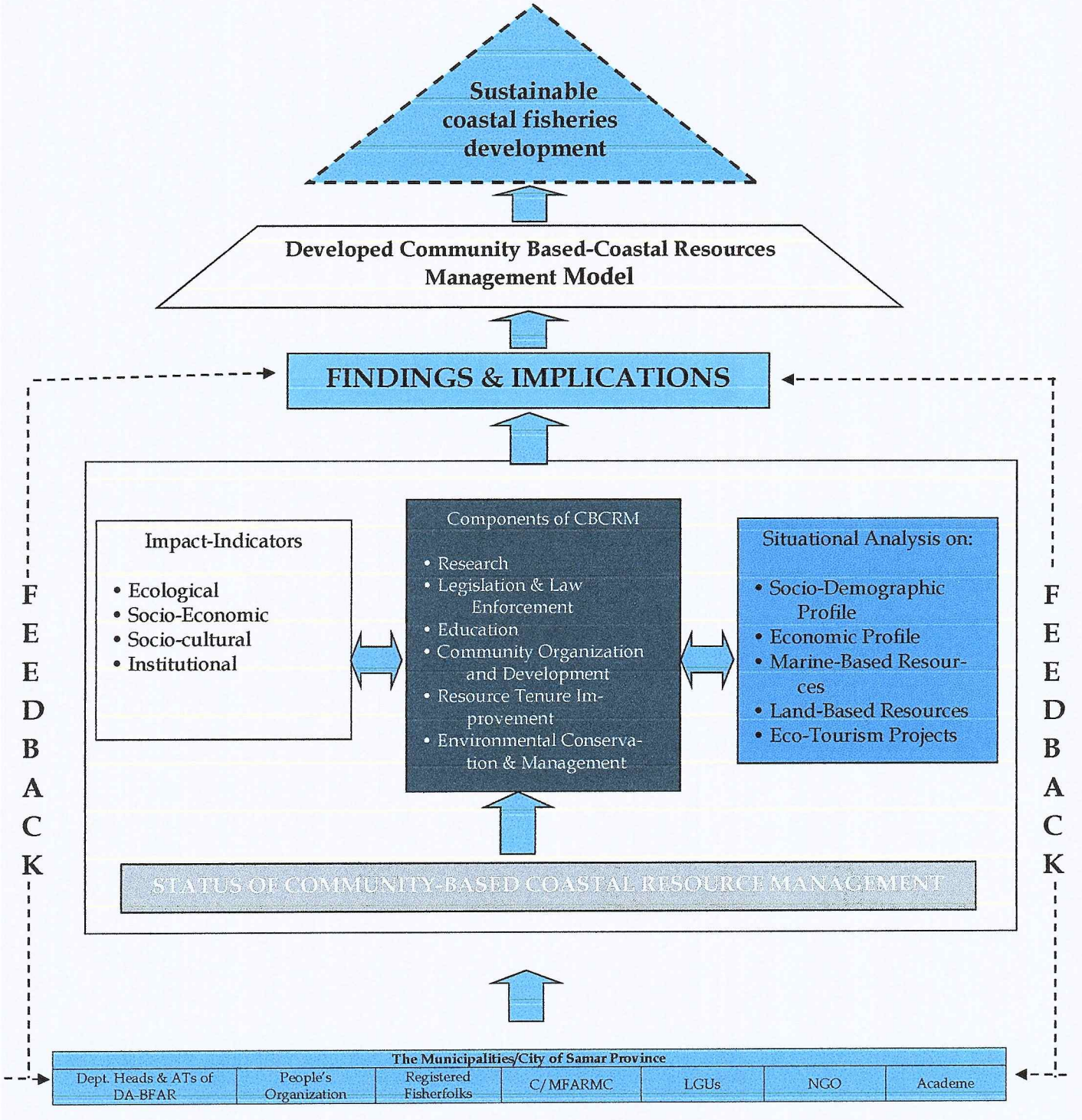

Figure 1. The Conceptual Framework of the study.

Significance of the Study

This study was undertaken in order to assess the status and extent of implementation of the community-based coastal resource management (CBCRM) programs in Samar as well as its impact to the community and other stakeholders.

To the community. The results of the study would enhanced their involvement and awareness regarding their roles as an important stakeholders in identifying issues and concerns of the community; participation in research, data gathering, planning and implementation; community-based enforcement and self-regulation; and monitoring and evaluation.

To the peoples organizations (PO's). The results of this study would strengthen and increase their capabilities in providing information by reaching out to the broader coastal community and bringing together groups with similar interest, participate in community meetings and discussions, and participate in field assessment and community mapping activities.

To the non-government organizations (NGO's). This study would help NGOs identify what particular form of assistance could still be extended to the community-level groups in order further motivate the community to sustainably manage their respective coastal resources.

To the local government units (LGUs). The result of the study would serve as an input in improving, formulating and even institutionalizing of their coastal resource management (CRM) plans including its implementation and monitoring process for municipal waters and providing technical assistance. The

result of this study would likewise serve as basis in allocating additional budget and technical staff for coastal resource management, establishing revenue generating mechanisms for cost recovery, approving local regulation and conducting enforcement, and in supporting community involvement in management.

To the research and academic institutions. The findings of the study will serve as inputs in enhancing the technical expertise and experience in coastal resource management (CRM) that would be utilized in helping solving the local problem of the community specifically, in project implementation, knowledge transfer, data collection, monitoring, and evaluation.

To fisheries and aquatic resources management councils (FARMCs). The result of the study would give them idea on how the local municipal government would be assisted in planning, implementation, and enforcement of fishery laws and regulations in municipal waters.

To program planners. The results of this study would serve as basis in making policy reforms or agenda, in giving technical and financial assistance in the conduct of research, training, education and outreach program.

To the future researchers. This study would be a good source of literature for those who would desire to pursue investigations of similar or related study.

To the students. The result of this study could be used by the students as their reference in conducting research, term papers and project proposals with similar topics.

Scope and Delimitation

The study focused on the assessment of the implemented community-based coastal resource management (CBCRM) programs in Samar in order to obtain data that would serve as inputs in developing a CBCRM model for the province of Samar.

Its content was limited to the following: firstly, the characteristics of the CBCRM communities in terms of socio-demographic profile, economic profile, marine-based resources, land-based resources, and eco-tourism projects; secondly, the status of the implemented community-based coastal resource management (CBCRM) programs in Samar from 2001-2010 along the areas of research, legislation and law enforcement, education, community organization and development, resource tenure improvement, and environmental conservation and management; and finally, the impact-indicators of community-based coastal resource management (CBCRM) project in Samar in relation to ecological status, socio-economic status; socio-cultural status, and institutional status.

The respondents involved in this study were consisted of seven groups, namely: 342 registered fisherfolks, 94 city/municipal fisheries and aquatic resources management councils (C/MFARMCs), 30 local government units (specifically the city/municipal agriculturist, city/municipal planning development officer and agricultural technologist in fisheries), 10 department heads and agricultural technologists in fisheries of the department of agriculture and bureau of fisheries and aquatic resources (DA-BFAR), 6 academe (professors

in fisheries who are CRM practitioners and handled CRM subject), 172 members of people organization (POs), and 3 members of non-government organizations (NGOs).

This study likewise included the 12 municipalities and 1 chartered city in the province of Samar which were randomly selected, namely: Calbiga, Calbayog City, Daram, Gandara, Hinabangan, Jiabong, Marabut, Motiong, Pagsanghan, Pinabacdao, Sta. Margarita, Sta. Rita, and Talalora. These areas were all accessible through land and water transportation.

The study was undertaken from December 2011 to May 2012.

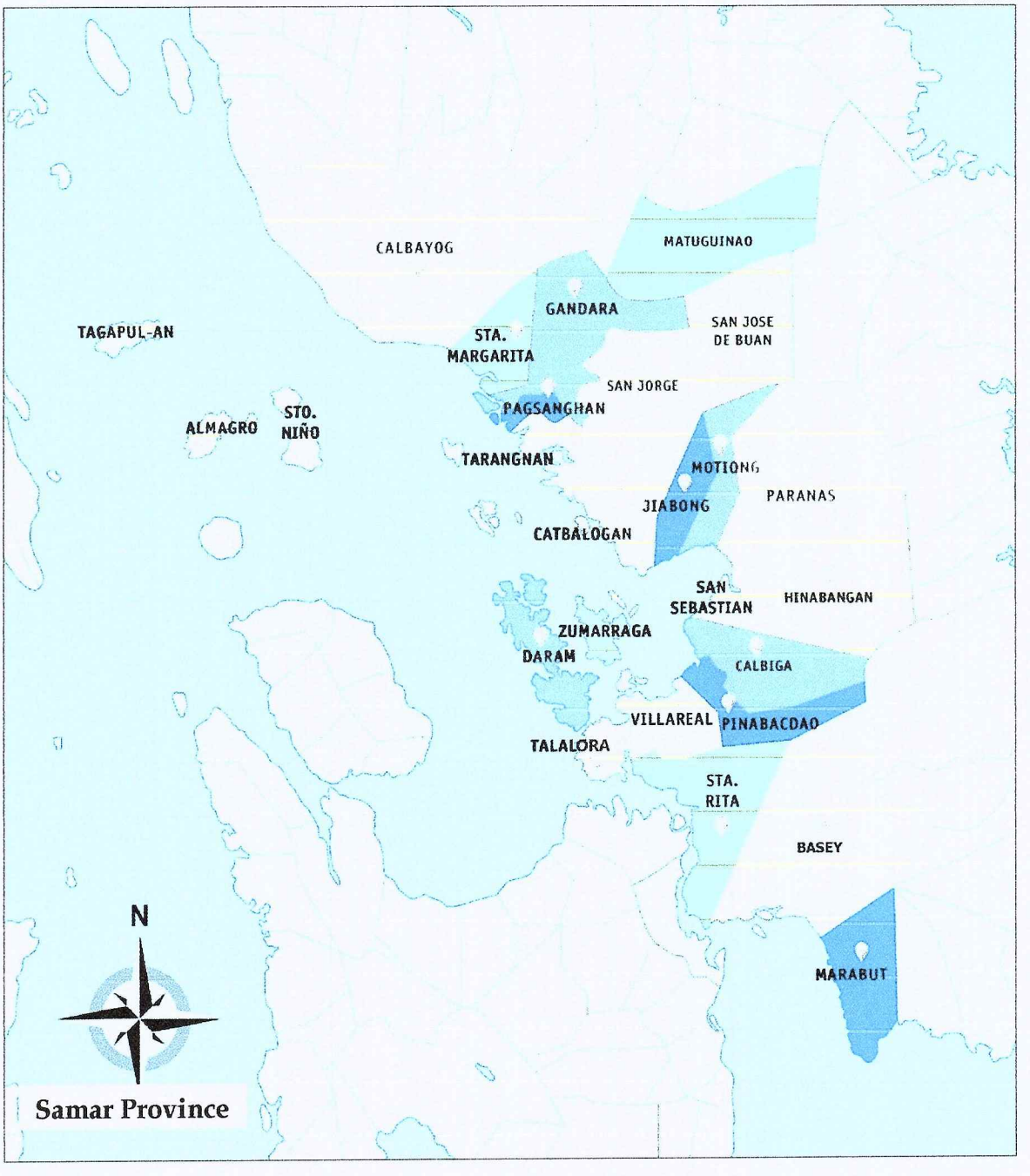

Figure 2. Map Showing the CBCRM Communities in Samar.

Definition of Terms

For purposes of clarity and common reference of the words that was used in the study, the following terms were defined:

Academe. A society of distinguished scholars, scientist, painters, etc. (Chambers Encyclopedic English Dictionary, 1994:6). As used in the study, they are one of the respondents composed of instructors and professors of a state college or university who taught and practiced coastal resource management.

Academic institution. It refers to an institution offering higher formal education like State Colleges and Universities (SUCs) in both private and public (Chambers Encyclopedic English Dictionary, 1994:6).

Artisanal fisherman. An individual engaged in subsistence fishing which shall be limited to the sale, barter or exchange of marine products produced by oneself of one's immediate family (RA, 7160).

Assessment. It refers to the collection and evaluation of facts concerning the resource, based on basic statistics on the physical to chemical and biological aspects of the resource. This may also includes the socio-economic, marketing and utilization aspects (Chambers Encyclopedic English Dictionary, 1994:73).

CB-FIRMED. It refers to the Community-Based Fishery Integrated Resource Management for Economic Development (CERD, 2003).

C/MFARMC. The City or Municipal Fisheries and Aquatic Resources Management Councils (RA 8550). As used in this study, it refers to the 94 respondents.

Coastal resources. All aquatic flora and fauna in aquatic ecosystems including habitats that nurture them such as coral reefs, seagrass beds, and mangrove forests which could bestow any form of services, influences, and amenities to man and the environment (RA, 8550).

Coastal resource management (CRM). The participatory process of planning, implementing, and monitoring sustainable use of coastal resources through collective action and sound decision-making (DENR, DA-BFAR, DILG, CRMP, Book # 1, 2001).

Coastal water. An open body of water along the country's coastline starting from the shoreline (MLLW) and extending onward up to the 200-m isobaths or 3-km distance, whichever is farther (DAO 35, s1990).

Coastal zone. is a band of dry land and adjacent ocean space (water and submerged land) in which terrestrial processes and uses directly affect oceanic processes and uses, and vice versa; its geographic extent may include areas within a landmark limit of one (1) kilometer from the shoreline at high tide to include mangrove swamps, brackish water ponds, nipa swamps, estuarine rivers, sandy beaches and other areas within a seaward limit of 200 meters isobath to include coral reefs, algal flats, sea grass beds and other soft-bottom areas (RA 8550).

Co-management. The sharing of responsibility and authority between the government and local fishers/community to manage a fishery or other natural resource (Pomeroy, *et.al.*, 1994).

Commercial fishing. The taking of fishery species by passive or active gear for trade, business, or profit beyond subsistence or sports fishing, to be further classifies as: small-scale commercial fishing (utilizing fishing vessels of 3.1 Gross Tons up to 20 Gross Tons), medium-scale commercial fishing (utilizing fishing vessels of 20.1 Gross Tons up to 150 Gross Tons), and large-commercial fishing (utilizing fishing vessels of more than 150 Gross Tons) (RA 8550).

Community. A unified body of individuals, often of different economic classes, clans or family groups, ethnic groups, gender groups, and other interest groups bound by a geographical area and sharing elements of common life such as customs, manners, tradition, and language. It also refers to individuals and groups linked by common policies and interests not necessarily in a geographical area (IIRR, 1998)

Community-based coastal resource management (CBCRM). The process in involving local resource users and community members in active management and taking full responsibility for the process of the coastal resource management planning, implementation, monitoring, and evaluation (DENR, DA-BFAR, DILG, CRMP, 2001). In this study, it refers to the assessed programs implemented in Samar province from 2001 to 2010 which has the following components such as research, legislation and law enforcement, education, community organization and development, resource tenure improvement, and environmental conservation and management.

Community organization and development. Is a process by which a community empowers itself by working to identify its needs and to resolve its problems in a collective manner. This process develops the confidence and capability of community members to organize themselves (IIRR, 1998). As used in the study, it is one of the areas or components of community-based coastal resource management program being assessed in this study.

Ecological status. In this study, this term refers to the state or condition of aquatic resources after an intervention was introduced in an aquatic environment.

Economic profile. As used in the study, it refers to the changes in living standards brought about by interventions and changes in biophysical attributes of the resource.

Eco-tourism projects. In this study, it refers to the projects implemented in the coastal areas of every municipality like beach resorts, fish sanctuary or marine protected area which are evaluated by the researcher for the purpose of this study.

Education. The process of teaching and training (Chambers Encyclopedic English Dictionary, 1994:401). As used in this study, it refers to the component of community-based coastal resource management program in Samar being assessed by the researcher.

Environmental conservation and management. It refers to the regulation and strict enforcement of environmental laws to minimize and protect the

damaging impact of some activities on the coastal resource base (IIRR, 1998). As used in the study, it is one of the areas or components of community-based coastal resource management program being assessed in this study.

Fisherfolks. People directly or personally and physically engaged in taking and/or culturing and processing fishery and/or aquatic resources (RA 8550).

Institutional. As used in this study, it refers to the component of the implemented community-based coastal resource management program in Samar which had been assessed by the researcher.

Integrated coastal management (ICM). It comprises those activities that achieve sustainable use and management of economically and ecologically valuable resources in coastal areas that consider interaction among and within resource systems as well as interaction between humans and their environment. It encompasses "CRM" being a broader set of activities that emphasize integration within government, non-government, and environmental realms (DENR, DA-BFAR, DILG, CRMP, Book # 4, 2001).

Land-based resources. As used in the study, it refers to the products such as fish, mollusks, crustaceans and other forms of aquatic organisms taken or harvested from a land-based facility like fishpond and mangrove areas (aquasilviculture).

Legislation and law enforcement. As used in this study, it refers to the extent on how a certain municipality or city imposed the fishery laws, rules and regulation regarding coastal resource management (CRM).

Local government units (LGUs). Involves local executives in the barangay, municipality, and city which participate in policy-making and planning framework for CRM (RA, 8550).

Maqueda bay. Is a semi-enclosed shallow estuary made up of seven fishing grounds and twelve municipalities (CERD, 2003). The Bay is located at the west central part of Samar Island having a total area of 98 square miles or approximately 25,382 hectares (SIDPO, 1990).

Marine-based resources. As used in the study, it refers to aquatic products like fish, mollusks, crustaceans, seaweeds, and other forms of aquatic organisms including the ecosystems that nurture them such as coral reefs and seagrass beds.

Marine protected areas (MPAs). Any specific marine area which has been reserved by law or other effective means and is governed by specific rules or guidelines to manage activities and protect part or the entire enclosed coastal and marine environment (DENR, DA-BFAR, DILG, CRMP, Book # 5, 2001).

Municipal fishing. Fishing within municipal waters using fishing vessels of 3 Gross Tons or less, or fishing not requiring the use of fishing vessels (RA 8550).

Municipal fisheries. It refers to fishing active activities which use fishing vessels of three (3) gross tons (GT) or less or none at all. It may also include aquaculture operations in ponds either on land or in once mangrove areas, fish pens, or cages in nearshore areas (DENR, DA-BFAR, DILG, CRMP, Book # 6, 2001).

Non-government organizations (NGOs). An agency, institution, a foundation or a group of persons whose purpose is to assist people's organizations/associations in various ways including, but not limited to organizing, training, and research and/or access to resources (DA-DENR-DILG-DOJ Joint Memorandum Order 2, s 1996).

Open access. It refers to a condition where a state-owned or public property is available for all to utilize. Any individual has the right to use such resource without fear of present or future exclusion (DENR, DA-BFAR, DILG, CRMP ,Book # 2, 2001).

Participatory coastal resource assessment (PCRA). Method of resource assessment wherein local communities actively participate in gathering and analyzing environmental, ecological, social, and economic information about an area. In participatory coastal resource assessment, resource assessment is done from the perspective of local resource users (DENR, DA-BFAR, DILG, CRMP, Book # 4, 2001).

People's organization (PO). A bonafide association of citizens with demonstrated capacity to promote the public interest and with identifiable leadership, membership and structure. Its members belong to a sector/s who voluntarily band themselves together to work for and by themselves for their own upliftment, development and greater good (RA, 8550).

Program. This means the set of interrelated projects or planned activities to meet pre-determined objectives within a specified time frame (Webster's

Encyclopedic Dictionary, 1002:799). As used in the study, it refers to the various activities undertaken by the CBCRM program participants who aimed towards protection, conservation, and sustainable use of coastal resources.

Project. This means any activity that involves the use of one or more scarce resources during a specific time period for the purpose of producing socio-economic return in the form of goods and services (UP-ISSI, 2005:6). As used in the study, it refers to specific activities undertaken in the various areas of concern of CBCRM program.

Research. A systematic, controlled, empirical, and critical investigation of natural phenomena guided by theory and hypotheses about the presumed relations among such phenomena (Fraenkel *et. Al.*, 1998).

Resource tenure improvement. Means gaining/ensuring access and management control by the community over productive resources. It is also called the clarification of use rights or community property rights. Operationally, this means institutionalizing access and control through national or local policies or legislation (IIRR, 1998). As used in the study, it is one of the areas or components of community-based coastal resource management program being assessed in this study.

Respondent. A person who provides information to another person through completing a survey questionnaires but also through participating in group discussions or participatory methods of analysis (IIRR, 1998).

Samar sea. It is a body of water at the mouth of Maqueda Bay. It goes around the northern most tip of Samar Island through the San Bernardino Strait then connects to the Pacific Ocean and is thus the sea-lane of large migratory fishes that spawn in Maqueda Bay and the adjacent Carigara Bay (Vitan, 2001).

Socio-cultural status. As used in this study, this refers to the changes in the attitudes and behavior of the respondents towards the resources after attending several trainings on community-based coastal resource management.

Socio-demographic profile. As used in this study, it generally refers to the characteristics of the respondents such as age, sex, civil status, educational attainment, household size, ownership of properties, trainings attended, etc.

Socio-economic status. As used in the study, it refers to the changes in living standards brought about by interventions and changes in biophysical attributes of the resource.

Stakeholders. Individuals or groups involved, interested in or impacted (positively or negatively) by coastal resources and their uses. These may include members of the community, local fisherfolk, local business sector, NGOs, representatives of government agencies, and others (DENR, DA-BFAR, DILG, CRMP, 2001).

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents the related literature and studies, which helped the researcher in the conceptualization of this study. The researcher referred to a number of published articles, books, manuals, technical monographs, periodicals, internet, and magazines written by both Filipino and foreign authors. Likewise, dissertations and theses related to the researcher's study were reviewed. These references proved useful in establishing some basic facts and principles, which were useful in the conduct of the study.

Related Literature

The marine waters of the Philippines are one of the richest in the world. With 430 species of corals, more than 2,000 species of fishes, 14 species of seagrasses, hundreds of seaweeds species, and literally thousands of species of different types of marine invertebrates, the Philippines parallels Indonesia with the richest tropical marine biodiversity in the world (DENR, DA-BFAR, DILG, and CRMP, 2001).

Coastal resources, such as finfish and shellfish, and the habitat that nurture them - coral reefs, seagrass beds, and mangrove forests - are among the most fundamental elements of the Philippine environment. They provide great benefits

to more than 80 percent of the population that lives in the 832 coastal municipalities (DENR, DA-BFAR, DILG, and CRMP, 2001).

Coral reefs are the coastal ecosystem that provides the most substantial and sustainable source of sustenance to people in the Philippines. With 18,000 square kilometers coastline of the Philippines, it only represent about 10 percent of the total land area of the Philippines where 27,000 square kilometers of this formed into submerged reefs or coral atolls. Report shows that more than one million small-scale fishers depend directly on reef fisheries for livelihood. More than 50 percent of the animal protein is derived from marine fisheries and aquaculture (DENR, DA-BFAR, DILG, and CRMP, 2001).

According to White *et.al.,* (1987), Alcala (1988), Alcala *et. al.,* (1990), and Christie *et.al.,* (1994), the coral reefs in the Philippines can supply up to 30 tons/km^2/year of edible and economically valuable fish and invertebrates assuming that ecologically sound fishing methods was used. Reef-related fisheries yield an estimated 9 to 12 percent of the world's total fishery of 70 million tons/year and are probably undervalued because of their subsistence use. Reef contribution to the total fisheries of the country ranges from 8 to 20 percent (or about 143,200 to 358,000 tons). The contribution of a reef fishery to some small island fisheries in the Philippines can go as much as 70 percent of the total fish harvest. White *et al.(* 2000) reported that the average of documented reef yields for the Philippines is 15.6 tons/km^2/year.

In 1996, the estimates of the total annual economic benefits to the country derived from coastal resources are substantial contributing US$ 3.5 billion (approximately 17 percent of the Gross Domestic Product in 1996). These economic benefits are declining at a rate of US$ 0.5 billion every year, however, without significantly increased attention to management of coastal resources in the country. In the same year, the total annual national economic benefits derived from coral reefs, fisheries, mangroves and aquaculture in the Philippines was US$ 1.35 billion, US$ 84 million, US$ 2.5 billion and US$ 0.83 billion, respectively (DENR; DA-BFAR; DILG; and CRMP, 2001).

Alcala and Gomez (1979) reported that reefs that are damaged or destroyed can take 50 years or more to recover. When the reefs are destroyed, the fish catch declines accordingly. One square kilometer of "good" reef can produced about 20 to 35 tons of fish per year for harvest; in contrast, a square kilometer of reef in poor condition produces less than 5 tons of fish per year (White and Savina, 1987).

Mangrove resources on the other hand, are in no better condition than coral reefs in the Philippines. Since 1918, the mangrove cover in the country has declined from about 450,000 ha to less than 150,000 ha in 1988. The most rapid decrease occurred in the 1960s and 1970s when government policies encouraged the expansion of aquaculture during a period when real prices for fish and shrimp were steadily rising. National laws prohibit the cutting of mangroves, except in specified management areas. Nevertheless, this ecosystem type continues to decline at a rate of approximately 2,000 - 3,000 ha/year. Schatz (1991) reported

that one hectare of healthy mangrove ecosystem produces about 1.08 tons of fish per year.

White and Cruz-Trinidad (2000) reported that coastal ecosystem in the Philippines and all over the Southeast Asia were under severe stress from the combined impacts of human overexploitation, physical disturbance, pollution, sedimentation and general neglect. Although this region is the tropical marine and coastal biodiversity center of the world, the decline of coral reef, seagrass, mangrove and estuarine quality and productivity is disturbing. Surveys in the 1980s and 1990s have shown that more than 75 percent of the coral reefs in the country have been degraded from human activities. At present, 2.4 percent of coral reefs in the country are considered to be in excellent condition, 22.4 percent are in good condition, 51.7 percent are in fair condition, while 23.5 percent are in poor condition (Gomez *et al.*, 1994).

Coastal resources are important assets of the nation that needs to be protected, conserved, and properly managed. To effectively carry out this task, there should be some form of policies or laws that would serve as legal anchorage in managing coastal resources. Perhaps, among the collective laws in the Philippines that has a huge impact on the management of the coastal zone is the Philippine Fisheries Code of 1998 (RA 8550). This law repealed the Fisheries Decree of 1975 and several other laws on fishery and aquatic resources. Unlike its predecessor, PD 704, the New Fisheries Code now considers food security as the overriding consideration in the use, management, development, conservation and

protection of fishery resources. It also stipulates that as a state policy the exploitation of the country's fishery resources would be on a limited access basis,

As stated by Anda (2003), this new fisheries law is a codification of existing fishery laws. It consolidates and updates all prior penal laws related to fisheries and provides for new provisions. Significant change in this new law include (i) the jurisdiction of municipal government over waters 15 kilometers from the shoreline; (ii) limiting the use of municipal waters to fishing operations using boats no bigger than three gross tons and using passive gears; (iii) the creation of Fisheries and Aquatic Resource Management Councils (FARMCs) at the local and national levels to enable multisectoral participation in the management of fishery resources and implementation of fishery laws; and (iv) incorporation of integrated coastal zone management as one of its policy approaches.

Anda (2003) pointed out that the Philippine Fisheries Code has attempted to address more concerns related to coastal resources that its antecedent law, but other laws affecting the coastal zone and its resources continue to apply. He explained further that one law which impacts on the coastal zone is the National Integrated Protected Areas System (NIPAS) Act of 1992 (RA 7586), a landmark legislation that recognizes the importance of the integrated protected areas system as a powerful mechanism for the conservation of Philippine biodiversity. The NIPAS law is a process of legislation in that it defines a mechanism by which the national park system will be governed more realistically, using biodiversity principles, site-specific management strategies and public participation. Under

this law, all marine-protected areas, reserves, and sanctuaries existing prior to 1992 are considered initial components of the protected area system. The Protected Area Management Board (PAMB), composed of representatives from the Department of Environment and Natural Resources (DENR), the local government unit (LGU), affected communities and private sector, manages the protected area.

Republic Act 8435 or the Agriculture and Fisheries Modernization Act (AFMA) of 1997, is another law which addresses to solve environmental issues on coastal resources on which it seeks to industrialize agriculture in the country including fisheries. This law provides for zone-based development of special areas set aside for agricultural and agro-industrial development, and focuses on converting the agriculture and fisheries sector from resource-based to technology-based industries. Given its focus on fishery production, AFMA has serious implications on coastal resources. While the Philippine Fisheries Code focuses on conservation and management, the AFMA prioritizes the industrialization (Anda, 2003). Other laws that deal with the coastal zone include the Water Code and the Public Land Act which administer activities within foreshore areas, such as tourism activity, squatting, port development and reclamation. The New Mining Act provides for the management of mining and quarrying activities in the coastal zone. Pollution control in the coastal zone is governed by the Pollution Control Law, the Solid Waste Management Act, and the Sanitation Code.

The Local Government Code (LGC) of 1991 also known as Republic Act 7160, is also another significant legislation that influences coastal resource

management. This law concretizes the constitutional policy on government decentralization and democratization. In the past, CRM programs originated from national government agencies such as the Department of Agriculture-Bureau of Fisheries and Aquatic Resources and DENR. The local government code reversed this process and gave primary management responsibility to local government units. Thus, coastal municipalities and cities are now at the forefront of coastal zone management.

According to Anda (2003), the local government code gives LGUs greater fiscal autonomy through various powers to levy certain taxes, fees, or charges. This law provides for people's direct participation in the planning and implementation of resource management plans, thus, establishing a system where local communities, NGOs, academic and scientific institutions can become partners of LGUs.

The Philippines Fisheries Code complements the primary management role of local government units as it establishes the jurisdiction of municipal/city government over municipal waters; assigns to them the enforcement of all fishery laws, rules and regulations; and mandates them to enact ordinances to regulate fishery activities, protect, and conserve fishery resources, and assist in the creation of councils where local fisherfolk and NGOs are represented.

According to Pomeroy and Carlos (1997) as cited by Fernandez (1998), the Philippines had long history of indigenous fisheries and resource management systems where the barangays had jurisdiction over the natural resource use and

access. The management system was self-regulated and decentralized and decisions on resource use, access, and control are concensus-based and are enforced through social sanctions. The management of the coastal of the coastal zone varied from the senior fisher-led scheme to territorial use rights in fisheries (TURF) system. Such management schemes are usually complemented by the richness and relevance of indigenous knowledge that help promote sustainable development and ecological consciousness (Magos, 1994). Indigenous management regimes, however, were not promoted by the colonial government under Spain and the United States since they are not based on formal and legalized guidelines but on customary, cultural tradition, and the local knowledge of the living and non-living environment (Sabido, 2010).

Spanish policy in the use and disposal of the new colony was guided by the legal theory of the "Regalian Doctrine" which postulated that all lands especially those without land titles or deeds of ownership belonged to the colonial state. In essence, indigenous laws and land claims were ignored and the natives of the archipelago were converted into property-less majority. The Spanish Colonial experience in turn, set the stage for the subsequent legal framework and management of the public domain, including land minerals, water, flora, and fauna (Sabido 2010).

Similar to the policies of the Spanish Colonial Regime, the United States government adopted a centralized system of resource management where municipalities were given the power to profit and grant fishing privileges through

an elite-led municipal councils (those who can run for an elective post at that time where limited to the properties and educated few). The Regalian Doctrine provided the legal justification for the new colonial claim to ownership of 27,694,500 hectares or 92.3% of the total Philippine land mass and all bodies of waters are within its jurisdiction. Land and water resources were designated as public domain and, as in the Spanish era, its ancestral character was not recognized (Lynch 1990:271).

Heinen (1999), reported that fisheries management is some form or another that had been practiced already even before people learned to write. It developed traditionally in certain areas of the Pacific as a response to overfishing because according to him, when there's overfishing, people inevitably start thinking about management. People are alerted to the overfishing issue because there must be some kind of monitoring going on. Still this does not complete the requisites for fisheries management to take place. There must also be communication. Fishers have to communicate with each other about overfishing and the experiences they have about the stock. If these elements are present - overfishing, monitoring, and communication, then fisheries management can develop.

According to Courtney and White (2000), the variety of community-based coastal management in the Philippines in the past years, the devolution of authority from central to local governments (municipal, city, provincial), and a series of donor-assisted projects which had resulted in a number of experiments in coastal resource management, are the three (3) factors that directly influenced the

development of coastal management in the country since the early 1980's. The evolution of coastal management in the country has approximated a pattern of five stages as suggested by Sorensen and colleagues (1990), to wit: (i) Incipient awareness: the need for a coastal program become known as signs of coastal resource degradation worsens (1970s and 1980s); (ii) Growing awareness: the need for a program is heightened through national conferences, workshops, or hearings convened by government, academe, or environmental groups (1980s and early 1990s); (iii) National study: heightened awareness resulting from conferences, international assistance, national studies, and policy recommendations (1990s to present); (iv) New program creation: studies on the coastal situation and its management led to new ICM programs and institutional arrangements (late 1990s to present); and (v) Program development, implementation and evaluation: policies, laws and programs are implemented and evaluated (starting to occur in 2000 to present).

In the Philippines, the first efforts on coastal resource management work occur in 1974 at Sumilon Island, Oslob, Cebu City. The Marine Conservation and Development Program (MCDP) of Silliman University in cooperation with the municipality of Oslob, Cebu City declared and managed a marine reserve and coral reef area off Sumilon Island (Ferrer, 1996). Ten years of effective management yielded benefits for the coral reef ecosystem and island fisheries, as well as for the fishers who were dependent on the resource. The success of this initiative led to another major undertaking by the University in 1984 through its

Marine Conservation Development Program (MCDP): the organization of community-based marine resource management using community organizing as a strategy in managing marine protected areas (MPAs). This was done in three small islands in the Visayas, one of which is the famous Apo Island in Dumaguete, Negros Oriental. This undertaking was significant since it proved that it is possible to engage local fishers in the sustainable management of their resources, lending credibility to the claim that local resource users are potentially the best managers of their resources (Anda, 2003).

In 1984 to 1992, the second (2nd) coastal management initiative was launched in the country by the Central Visayas Regional Project (CVRP), supported by a World Bank loan, implemented a decentralized planning of community-based rural development. One of its components was watershed management, including nearshore fisheries development in four provinces. Interventions included mangrove reforestation, coral reef protection and marine sanctuary establishment, artificial reef and fish-aggregating device installation, and mariculture. A major finding from a 1995 assessment of CVRP was that baseline information was insufficient to fully evaluate the results (Calumpong, 1996; SUML, 1996). A key lesson learned was that baseline information and periodic monitoring is essential for learning and sustainability.

In the same year, the third (3rd) donor-assisted and government project for CRM in the Philippines through the Marine Conservation and Development Program or MCDP of Silliman University, supported by the United States Agency

for International Development (USAID), operated on three small island in the Central Visayas. This relatively small project generated important examples for community-based coral reef management that exemplified the potential sustainable use of coral reef fisheries and habitat (Russ, 1991). The project lasted for two years from 1984 to 1986. The lessons from these three islands attest to the effective role communities can play in sustaining management efforts in spite of changes in government personnel and policies (Vogt, 1997).

The fourth (4th) donor-assisted project that have provided the foundation for coastal resource management in the Philippines was the Lingayen Gulf Coastal Area Management Program (LGCAMP) operated from 1986 through 1992 as one of six CRM planning areas in Southeast Asia supported by the United States Agency for International Development (USAID) and the Association of Southeast Asian Nations (ASEAN) countries and coordinated in the Philippines by PCAMRD. This was the first attempt at integrated coastal management (ICM) in the Philippines and addressed one large gulf in northern Luzon composed of 2 provinces and 20 municipalities. The project first generated a comprehensive database for planning, which included reliable fisheries data to measure required fishing effort reduction needs since the most serious issue in the area was overfishing (Chua and Scura, 1992). The difficulty of implementing the recommendations on fishing effort forced the planning process to steer toward education, generation of political will, and development of integrated coastal management (ICM) plans at the municipal level. This program initiated an

institutional arrangement to coordinate planning and implementation that, while not completely effective, is a model for the country (NEDA, 1992). Key results included (i) policy directives to reduce and eliminate commercial fishing within the gulf; (ii) improved law enforcement and reduced levels of illegal fishing; (iii) a detailed integrated management plan for the municipal waters and coastal resources of Bolinao; (iv) guidelines for improved aquaculture development; (v) mangrove reforestation projects; and (vi) the careful examination of proposed industrial development projects before they are implemented.

The fifth (5^{th}) donor-assisted and government projects for coastal resource management (CRM) in the Philippines was the Fisheries Sector Program (FSP), conducted by from 1991 to 1997, and was implemented by the Department of Agriculture (DA) with support from the Asian Development Bank (ADB). This large program attempted to generate and implement coastal resource management (CRM) plans in 12 bays known for their rich fisheries, management problems, and the growing poverty of coastal residents. The program tested the ability of the Department of Agriculture (DA) to incorporate community-based management as a mainstream approach to CRM. A primary strategy was to generate bay-wide CRM plans through the involvement of fishing communities by contracting NGOs to facilitate the planning and community organization processes. The results have raised awareness about the need for management, and in few cases, actually improved fishery management in the bays. A lesson was the importance of establishing a simple set of baseline information on which evaluation and

management decisions could be based. The 12 bay-wide projects, together with the national policy efforts helped (i) established 22 fish sanctuaries; (ii) organized more than 1,000 fisheries associations; (iii) conduct resource assessments to establish sustainable fish levels; (iv) redirect research and extension work toward CRM; (v) enact municipal fishery ordinances in several municipalities; (vi) rehabilitated mangrove swamps in 6,000 hectares of degraded coastal forests; and (vii) strengthened fishery law enforcement (DENR *et al.*, 1997).

The sixth (6th) was the Coastal Environment Program (CEP) of DENR, started in 1993 and implemented by the regional offices of DENR, emphasizes community participation and focusses on national marine protected areas. The CEP is the only national government program to promote management of the entire coastal environment, including water quality, mangrove protection and reforestation and shoreline land use, and is not solely focused on fisheries management. The CEP has the potential to develop into a national coordinating and policy unit supporting integrated coastal management (ICM) throughout the Philippines if it is supported and develop effective links with the Bureau of Fisheries and Aquatic Resources (DENR, BFAR-DA, and DILG, 2001).

The seventh (7th) donor-assisted and government projects for coastal resource management in the Philippines was the Coastal Resource Management Program (CRMP) supported by the USAID through the DENR started in 1996 and ends in 2002. This project was designed to build on the lessons of past projects and to address the current realities about the need to spread improved coastal

management around the country in an efficient manner to address the increasing problems and the demand for technical assistance. The CRMP was designed from the outset with the realization that the issues facing Philippine coasts and their human communities are too complex and caused by too many factors to come by viable solutions by intervening only at the local community level. The CRMP strategically orchestrates interventions at both the national and local levels with various government and nongovernment institutions. It catalyzes action at the local community level through collaboration with local government in a manner that empowers the local government and its partners to continue on alone without the assistance of the CRMP. The CRMP promotes coastal management as a basic service of local governments and attempts to provide assistance to stimulate local government initiatives and improve support for community-based management regimes. A few key lessons are (i) focus both on national and local level work simultaneously; (ii) use multiple education and communication strategies to build a wide base of support for ICM; (iii) encourage collaboration and synergy among agencies and donor projects; (iv) promote expansion by supporting demand from committed local governments and other institutions; and (v) support leadership in integrated coastal management through training , education, and learning by doing (Courtney and White, 2000).

The eighth (8^{th}) donor-assisted and government project was the Fisheries Resource Management Project (FRMP) which was supported by a large Asian Development Bank loan started operation in 1998 and continued beyond 2003. It

was implemented through DA-BFAR and represents the most significant effort by the government to improve coastal management in the country. This program is a continuation of the Fisheries Sector Program that addressed the need for CRM in 12 bays. Eleven of the 12 original bays were continued and 6 new ones added to the field implementation. The focus of field implementation is empowering communities and local government to manage their fisheries and other coastal resources. It is designed to build on past lessons of the FSP and other projects. One notable change was that coastal resource assessments were done together with community participation to start the planning and implementation process. This innovation was patterned after the CRMP upon which the FRMP was depending for some training, education, and other materials already created and available. The FRMP supports CRM as a basic service of local governments and was involved in furthering national policies for coastal management (DENR, BFAR-DA, and DILG, 2001).

The last program that was undertaken by the national government in 1999 (with some of the projects were expected to be complete by 2003) was the Community-Based Resource Management Project (CBCRMP). The project aimed to reduce rural poverty and arrest environmental degradation through the implementation of natural resource management projects (with focus on the forest, upland, and near shore fishery areas) in five priority regions (Regions 5, 7, 8, 11 and 13) which were managed by local government units (LGA, 1999). The project was supported by the Municipal Development Fund (MDF), a financing facility

supported with a loan from the World Bank, and managed by the Department of Finance (LGSP, 2003).

The various donor-assisted and government projects for coastal resource management that were implemented in the Philippines accumulates valuable knowledge and experiences which helped paved the way to a successful implementation of the different CBCRM projects in the country. To mention some of these few cases were the Community Fishery Resources Management in Malalison Island of Antique, the Central Visayas Regional Project 1 (CVRP) covering Ronda and Badian, Cebu and Ayungon, Negros Oriental, the Honda Bay Resource Management Project (HBRMP) in Puerto Princesa, Palawan and the Community-Based Coastal Resource Management in Orion, Bataan, Philippines.

The Community Fishery Resource Management (CFRM) Project was launched in Malalison Island off western Panay, Philippines in 1991 by the Southeast Asian Fisheries Development Center-Aquaculture Department (SEAFDEC-AQD) with support from the International Development Research Center of Canada. The CFRM project was a development-oriented research designed to help sustain and enhance the livelihood of people in the coastal areas and aimed to learn from the collaboration of community organizations, biologists, and social scientists in developing and adopting aquaculture technology and inshore fishery resource management techniques in a selected community in Malalison Island, Antique. The project addressed two main issues: (i) the degradation of coastal resources because of the high rate of use, high population

growth, destructive fishing practices poor enforcement of fishery laws and regulations, and (ii) the poverty of fisherfolk due to limited livelihood opportunities, low educational attainment of the island residents, and lack of people empowerment (Lacanilao, 1989).

Malalison was selected from among five candidate sites on the basis of socio-economic and biophysical criteria. Socio-economic included income and dependence on fishing, (destructive) fishing practices, use of credit for fishing activities, potential for alternative livelihood, and presence of a non-governmental organization in the locality. The biophysical criteria evaluated were the presence of live coral cover, other hard substrate, seagrass beds, mangroves, water 10-30 meters deep, and protection from the southwest monsoon (Agbayani, 1995).

The project has two sub-projects: (i) studies the fishery resources and development of appropriate technology, and (ii) the socio-economic aspects of the project. The project's Phase I (1991-1993) involved community organizing efforts in Malalison Island, institution building and the introduction of seaweed farming as alternative livelihood for the island residents. Studies were made on the marine resources of the island, the traditional boundaries and territorial use rights, the economic utilization of resources, and cultivation techniques for seaweed. Phase II started in 1994 with the implementation of the territorial use rights in fisheries (TURFs) and test deployment of prototype concrete artificial reefs. It also included economic, environmental and social impact and assessment, institutional arrangements in fishery co-management, ethnographic studies, economics of

seafarming techniques, and management of fishery cooperatives (Aldon *et al.*, 1996-1997).

After six years of project implementation and continuous resource assessment studies of selected marine communities in Malalison Island, the study showed that the coral community in the fringing reefs of Malalison Island was composed of 120 species of hard corals from about 50 genera. Mean cover of live hard coral (40%) was comparable with the state of many reefs in the Philippines. Reef fishes were determined to be some 219-238 species from 30-34 families with damselfishes predominates. Fusiliers and surgeonfishes dominates the standing biomass of the community. The three module-type concrete artificial reefs earlier deployed in 1995 in Gui-ob and Buganti reefs in the island have attracted fish to seek shelter and food in the reefs. Large surgeonfishes exploited by island fishermen aggregated abundantly in the Gui-ob artificial reef. Other reef organisms such as algae, sponges, hard corals, etc. have been observed (Aldon *et al.*, 1996-1997).

The fishery practices in the island were also assessed. It was found that the catch per unit effort (kilos per fisher per hour) was highest for spear gun with compressor followed by drift gill net, drive-in gill net, set gill net, spear gun, hook and line. Each of this fishing equipment was designed to catch specific fish. The dominant species caught with these fishing gears were cuttlefish, squid and octopus, fusiliers, groupers, rock cod, needlefishes, half-beaked garfishes, flying

fishes, herring, sardines and scads. Total fish yield was estimated at 9.73 tons per square kilometer per year (Aldon *et al.*, 1996-1997).

Along the socio-economic aspect of the CFRM project, analyses were made on the project activities and institutional arrangement of co-management of fisheries resources. The study showed that project participants conducted several meetings, consultations, and informal discussions that resulted in new organized groups and organizational interactions relating to project activities. At present, the island-based organizations participating in the project are the Fishermen's Association of Malalison Island (FAMI), Barangay Fisheries and Aquatic Resource Management Council (BFARMC), and the Barangay Council. On the other hand, those based in the municipality are the Culasi Sangguniang Bayan and the Municipal Fisheries and Aquatic Resources management Council (MFARMC). Aldon *et.* Al. (1996-1997), reported that the most important achievement of Malalison was the formulation and eventual approval of an ordinance declaring the island's Gui-ob ref as a fish sanctuary. Representatives of community-based institutions (FAMI, FARMC, and the Barangay Council) are presently undertaking activities for the full implementation of the fish sanctuary. With regards to the institutional arrangements in the fisheries co-management in the island, results indicated that respondents with higher education significantly perceived the positive impact of the project. In addition, the higher the respondent's perception of an improved state of fishery conditions in the island, the higher was the perception of the project's positive impact.

The study confirmed the success of the CFRM project in Malalison Island as respondents noted the significant and positive changes on the coastal ecosystem of the island. Improvements on the socio-economic conditions of the fishing community were also evident after the six-year project implementation. However, the fisherfolks' satisfaction with their occupation and their total dependence on fishing for food had a low relationship with the total perceived impact of the project. This could be attributed to the fact that the fishermen are used to freedom in the exploitation of the sea, and that the open access nature of fishery resources reinforces this freedom. The exclusivity of access rights may have been perceived by the respondents as curtailing their freedom for they have been accustomed to fishing anywhere without intervention from government institutions. This could reduce their income especially if their subsistence is solely derived from fishing. This could also mean that the fishermen are still not satisfied with the present co-management arrangement and may want some improvements on them (Aldon *et al.*, 1996-1997).

The Central Visayas Regional Project (CVRP) in the Philippines as described by Bojos (1994), was a pilot project intended to address the declining harvests from degraded resources and rapid population growth resulted in increasing poverty among artisanal fishers in the 5 coastal sites in 4 provinces which included 16 municipalities and 182 villages (barangay) along 223 km of coastline. The program was prepared in 1982 and was implemented for 8.5 years from July 1984 to December 1992. The total project cost was estimated at US$44 million with

financial assistance from the World Bank. The project has three (3) components, namely: (i) up-land agriculture; (ii) social forestry; and (iii) nearshore fisheries, which were supported by activities in infrastructure, institutional strengthening of regional government agencies, applied communications, research, training and technical assistance. The nearshore fisheries components utilized about 10% of the overall project budget having the following primary objectives: (i) to assist coastal communities to improve and sustain the productivity of their coastal waters; (ii) to increase the income of small-scale fishers and profitability of their occupation; and (iii) to strengthen the government's program of decentralization. In this project, organized fisher communities were greatly involved in the development project planning process, implementation and periodic monitoring. Project staff that stayed permanently in the coastal project sites served as facilitators, community organizers and trainors to the fishers.

In the implementation of the project, a community-based approach was used to carry out the project objectives including the following basic aspects, to wit: (i) the community would be the lead agency, not a government agency which was the usual practice. Sustainable resources management could only be implemented and institutionalized within the community if the members were properly organized and trained to develop the needed capability; (ii) resources management interventions were kept simple and appropriate to the needs identified by the community. Implementation was by coastal residents and involved minimal financial risk to project participants. The technical interventions

included: (a) the control of illegal fishing and other habitat-destructive activities; (b) mangrove reforestation and management; (c) the construction, placement and management of artificial reefs; (d) the protection of all coral reefs and the establishment of marine sanctuaries including 10-15% of the total reef area within the municipality; (e) limited small-scale mariculture; and (f) later in the project, the use of deepwater fish-attracting devices harvested only by handlines; (iii) development focused on the barangay or village. The Barangay Development Council (BDC) was activated as the primary planning and implementing body. The BDC could be expanded and made representative of the village and would provide a direct link to the government system. Group of village residents were also organized to implement resources management activities of mutual interest to members; (iv) as more villages were organized, their activities, particularly the control of illegal fishing, were federated at the municipal and then the site level; (v) community organizers involved the community in situation analysis, including the identification and prioritization of issues. Key issues identified by the village were addressed in as a constructive, non-confrontational manner as possible. While coastal resources management issues were always among those with the highest priority, the community was assisted to deal with priority non-resources management issues as well; (vi) community development and technical workers lived in their respective target villages where they served to stimulate and support community action rather than as community leaders; (vii) livelihood of fishers would be improved with better resources management in an overfished

environment, not through the provision of additional fishing gear or boats; (viii) implementation would be done in two stages: (a) determine if the approach would work and if so, (b) institutionalized the successful approach in the community, local governments and government support agencies; (ix) to facilitate devolution of decision making power and to provide secure resources access, the following points were settled with national government agencies in a formal Memorandum of Agreement signed in June 1984: (a) the then Bureau of Forest Development would issue Stewardship Agreements, a 25-year renewable lease in mangrove and other forest land areas. This was the first long-term tenure instrument offered by the government to forest occupants who had previously been considered "squatters", (b) the Bureau of Fisheries and Aquatic Resources agreed to (b.1) allow municipal fishery ordinances, including those establishing municipal marine sanctuaries, to be approved at the regional rather than at the national level; (b.2) permit the licensing of artificial reef use so that access could be controlled; and (b.3) stop the use in Region VII of "*muro-ami*" and "*kayakas*", two fishing practices destructive to coral reefs; and (x) project funds were released directly from the Department of Budget and Management in Manila to the Project Office based in Cebu City without passing through another national government office. Project Site Managers based at the five Site Management Units also had their own checkbooks and were authorized to disburse up to US$3,000 per transaction, provided the item was in their approved workplan and budget. The direct fund

flow and fiscal autonomy by Site Managers reasonably facilitated implementation and was unique at that time.

After 8.5 years, the coastal fishers' associations developed the knowledge and skills in the rehabilitation and management of the nearshore fisheries. Some regional resource management regulations were imposed by the national government like the ban for the operations of "*muro-ami*" and "*kayakas*" in coastal waters. However, several equally important resources management issues were not formally addressed, such as the user rights to artificial reefs and the official recognition of coral reefs with sanctuary that were identified, established and managed by the fishers' associations and the community. This situation prompted most municipal government authorities to pass ordinances supporting the fishers and the community resources management activities. In summary, the intent of CVRP was to work with fishing communities to try to develop what is now termed co-management of coastal resources. Although CVRP was implemented by a specially created government entity, the method used was those of nongovernmental organizations (Bojos, 1994).

The Honda Bay Resource Management Program (HBRMP) of Puerto Princesa City, Palawan as mentioned by Sandalo (1990), is one of the relevant pilot-test projects implemented from June 1989 to December 1990 by the Palawan Integrated Area Development Project or PIADP. It was a multisectoral project funded through a US$47-million loan from the Asian Development Bank (ADB), a 7-million grant from the European Economic Community (EEC) and a counterpart

from the Philippine Government which employed community-based coastal resource management (CBCRM) as a potent strategy towards sustainable development. According to Sandalo (1990), the following were the objectives of HBRMP: (i) provide livelihood alternatives; (ii) relieve the fishing grounds from extractive methods of fishing; (iii) enrich the natural breeding and feeding grounds of marine life; and (iv) strengthen the community values on environmental protection, cooperativism and self-reliance.

The Honda Bay is considered a major fishing ground in the province, especially in Puerto Princesa City. It is located on the eastern side of mainland Palawan within Puerto Princesa City. It is large, approximately 28,000 hectares with 12 charted islands. The islands are generally small, ranging from 1.25 to 45 hectares, and most are surrounded by extensive shallow coral reef platforms, sand cays and mangroves. Coconuts are grown in five of these islands, namely, Fondeado, Fraser, Makesi, Meara, and Ramesamey. Assessment of the bay in the early 1980s showed a relatively good quality of coral reef, seagrass bed and mangrove ecosystems. This is an indicative of good feeding, breeding and spawning grounds of fish and other marine life. Along the coast of Honda Bay, 15 of the 19 villages are directly dependent on it for livelihood. In 1990, of the estimated 2,500 households in these villages, 85% were engaged in fishing, either as a primary or alternative source of income. Tourism establishments and facilities have started to flourish along the beaches and in some of the small islands, namely, Pulding, Meara, and Ramesamey. The islands of Arrecife, Makesi, Bugias and

Tadyo have become inhabited permanent settlers. With the increasing population pressure, fisheries resources are being depleted. Fish catch per unit effort had declined from 36.5 kg in 1985 to 8.4 kg in 1989. This was attributed to the following: (1) destructive fishing methods such as dynamite or blast fishing; (2) encroachment by transients using "more efficient" fishing methods (i.e., trawl, minipurse seine and ring net) within the municipal or coastal waters; and (3) destructive land-based activities such as logging and shifting cultivation causing erosion and siltation, slowly smothering the very foundation of fisheries productivity - the mangroves, seagrass beds and coral reefs.

In order to carry out the project effectively, a Special Projects Unit under the Project Management Department of PIADP Office was set up to undertake HBRMP, the Tamlang Catchment Rehabilitation and Protection Project and the Irawan Catchment Development Project. Within this unit, a three-member technical staff was formed to work on the finer points of the HBRMP operational plan and to supervise its day-to-day activities. The team was composed of a Team Leader - a fisheries graduate (major in business management) with extensive experience in project planning and implementation coordination in both government and nongovernmental organizations (NGOs); a Project Development Officer - an agriculture graduate experienced in project planning; and a Community Organizer - a fresh graduate in political science. In the course of the implementation of the project, the project focused on two communities, Manalo and Sta. Cruz. The Brgy. Manalo with 279 households was chosen because

majority of which are engaged in both farming and fishing and at the same time, they were also a recipient of an earlier project by the Regional Fisheries Training Center (RFTC) of Department of Agriculture (DA). While Brgy. Sta. Cruz, a smaller community with 90 households, only 12 kilometers away from Brgy. Manalo, was selected due to its potential for oyster and mussel culture, considered an alternative to the extractive fishing methods.

In the conduct of the project the HBRMP involved four major activities: project preparation, project implementation, training and preparation of an area management plan. In their objectives, they did not include direct intervention on law enforcement as the team opted to employ "positive strokes" which focused on the needs of people and the ecological habitat. The program on CBCRM, as outlined by Strategic Environmental Plan (SEP) and as pilot-tested by HBRMP, intended to harness the communities in the proper use and protection of the coastal resources within their locale. Basically, this allowed the communities the priority right to use the resources while assuming the primary responsibility to protect these resources. Consequently, the following were adopted as operational strategies: (1) beneficiaries/cooperators shall be considered co-implementors and not mere recipients of inputs, and if possible must be organize into working groups or associations; (2) technologies to be introduced must be complementary in nature and use simple methodologies; (3) technical assistance must include the beneficiaries' secondary occupation such as farming, usually upland; (4) aside from structured seminars/workshops, on-the-job trainings shall be facilitated by

the staff by working and maximizing the beneficiaries' participation; and (5) inputs of other developmental institutions (i. e., DA, DENR, City Government) shall be harnessed and reinforced by starting where these agencies have left off or coordinating/aligning activities with their ongoing programs.

In cooperation with various institutions and with the assistance of PIADP Office, the project beneficiaries of HBRMP were able to start up and/or operationalize the following undertakings: For Barangay. Sta. Cruz with 10 households: (1) oyster and mussel nursery; and (2) artificial reefs and fish shelters; and for Barangay Manalo with 57 households: (1) stationary lift nets; (2) seaweeds culture; (3) fish paste/fish sauce; (4) salt production; (5) mangrove rehabilitation (12 ha); (6) village market; (7) hook-and-line fishing; (8) gill-net fishing; and (9) crab culture/aquasilviculture. After the training on cooperativism, the beneficiaries/participants in Barangay Manalo organized the Manalo Coastal Mangrove Development Association Inc. (MCMDAI) and registered it with the Securities and Exchange Commission (SEC). Since then, more and more organizations had been formed and organized like the Area Development Management Units (ADMU), SAMANMARLUC (Salvacion, Manalo, Maruyogon, and Lucban), BACRUZ (Bacungan and Sta. Cruz) which became partners of the HBRMP staff and beneficiaries themselves. The beneficiaries at Barangay Manalo, who were organized into MCMDAI, affiliated with the SAMANMARLUC ADMU while those of Brgy. Sta. Cruz became members of the BACRUZ ADMU, and evolved later into a cooperative called BACRUZ Coop.

After the 18-month term of HBRMP, indications of improvement have been observed. Trawls and ring nets which used too frequent the coastal waters are operating farther out to sea, while cyanide and blast fishers have been warned and therefore have become more careful and less potent. Also, a 100-ha three-year mangrove reforestation contract worth PhP 1.16 million including the mobilization fund amounting to PhP 108,000.00 was awarded to MCMDAI by DENR.

In this project, there were two primary elements that would like to put forward in defining CBRM or specifically CBCRM as a resources management strategy: (1) the community that utilizes a given resource is organized, either formally or informally; (2) the said organized community actively participates in the proper management of the natural resources. Consequently, the capability for resource management (i.e., technical skills and organizational cohesiveness) of the organized community has to be examined so that its activities and the inputs or assistance provided by "outsider catalysts" (meaning government agencies or NGOs) will be sustained by the said community.

The Community-Based Coastal Resource Management (CBCRM) project in Orion, Bataan, Philippines as reported by Mulekom and Tria (1997), was develop as a solution to the persisting problem of overcrowded and overfished areas. Orion is a medium-sized town on the borders of Manila Bay on the Bataan Peninsula. The town has nine coastal villages (barangays) within a 9-km municipal coastline. In these coastal barangays, approximately 40% of households depend on fishing for their means of livelihood. The population density in the coastal zone

is estimated at 2,250 persons/km^2. An estimated 50,000 fishers derive their livelihood from the 1,500 km^2 Manila Bay whose fishing grounds are severely overfished, polluted and degraded. Although commercial fishing and motorized active gear are illegal, there is still rampant use of motorized gear.

Assisted by community organizers from an NGO, the Philippine Rural Reconstruction Movement (PRRM), and the fishing community of Orion began a community-based fisheries development program in 1991. The community defined an approach to CRM, whereby the fishing grounds would ultimately be managed and controlled by the fishers themselves. In effect, this translates to the establishment of a "*de facto*" community property rights system.

The PRRM's first step was to assist the village-level organizations of fishers to form a municipal-wide association of people's organization called the Samahan at Ugnayan ng Pangisdaan sa Orion or SUGPO which held its first general assembly in June 1992. SUGPO initiated the existing municipal ordinances which prohibit destructive forms of fishing and motorized active fishing gear for both commercial and small-scale fishing, within municipal fishing grounds. Nonmember fishers from the same municipality are restricted to curb the use of destructive gears in the coastal waters.

SUGPO also took on the major task of rehabilitating the degraded fishing grounds. The first step was the reforestation of mangroves at several sites of the municipality. Then the fishing community established a 50 hectare fish sanctuary

with a construction of bamboo and concrete artificial reefs embedded in a 6 km^2 area effectively monitored by the patrol boats.

As early 1997, the project was in its sixth year. SUGPO now represents (either directly or indirectly) 70% of the small scale fishers in Orion, in frequent negotiations with the municipal government. A Municipal Coastal Resource Management Council functions to advise the Municipal Council on a local fisheries management policy and this council, the fishers hold a majority of seats.

In this project, Mulekom and Tria (1997) emphasized the important lesson and insights gained by the community organizers on community-based approaches that the social component in CBCRM can only succeed if the program sufficiently incorporates the perceptions and objectives of the small-scale fishing community with regard to fisheries development. The perceptions of fishers were not always clearly expressed, but the community organizers gradually learned to understand the distinct problems of the small-scale fisheries sector as well as their preferred solutions. In hindsight, the fishers in Orion had a remarkably rational and long-term grasp of fisheries management issues.

Mulekon and Tria (1997), cited the five principal lessons which are seen vital to the success of CBCRM in Orion. First, an organizational work will only gain real momentum once processes were recognized. It became clear that the fishers in the Orion municipality are not one but three socially integrated groups of small-scale fishers. At each step of the development of a fisheries management plan, the grouped reached a certain consensus using a perspective generated from their own

group interests in estimating costs and benefits of a particular proposal. Intergroup consultations would then follow. SUGPO would only address management issues and proposals after the more informal consultation processes were completed. Similarity in gear use, social ties such as extended family, and geographical proximity may all be factors in social group formation;

Second, the issues concerning resource control such as equity in and control over access to the resource should be addressed first. They felt that a management process should incorporate development providing increased and enforceable guarantees that any investment in resource management (time, money or effort) should lead to benefits for them and not dissipated to encroaching outsiders;

Third, is an emerged guiding management principles for the fisherfolk. In Orion, it became clear that fishers wanted management approaches that would not force any fisher from the fisheries and would not negatively affect net incomes. The first could be assisted by supplemental and alternative livelihood development based on voluntary participation; the latter could be compensated for at the individual household levels. Reduction of fishing time and the aggregating effects of artificial reefs are possible approaches. Fisherfolks in Orion also favored a management process that pursues implementation only *alter* consensus-building. This point was exemplified by the influence of a non-associated group of small-scale trawlers on the implementation of the sanctuary. Although the sanctuary in Orion was legally recognized and patrolled, fisherfolk

placed surrounding buoys only after an appropriate level of negotiations on compliance with the non-member community;

Fourth, the diversity in catch and species, instead of over fishing is the key to long-term sustainability for small-scale fisherfolk. Long term management approaches should incorporate continuous flexibility in both catch and economic strategies; and

Fifth, is to develop alternative livelihoods in order to help the small-scale fisherfolk of Orion. Unfortunately, this often leads to development strategies in which fishers are induced to leave their profession. Most fishers in Orion preferred diversification through supplemental livelihood developments combining fishing and nonfishing income generation.

Managing municipal fisheries is an integral component of coastal resource management (CRM). Fisheries are the most significant coastal resource contributing directly to the economy through employment generation and through their contribution to food security. For the past several years, various efforts on the concepts, approaches, and strategies were made to improve management of fisheries and other coastal resources which led to the development of coastal management as a discipline and methodology. Among these coastal management concepts and approaches are the coastal resource management or CRM, community-based fisheries management or CBFM, integrated coastal management or ICM, coastal zone management or CZM, collaborative

management or co-management, and community-based coastal resource management or CBCRM.

Coastal resource management or CRM as defined by DENR, DA-BFAR, DILG, CRMP (2001) is a participatory process of planning, implementing, and monitoring sustainable uses of coastal resources through collective action and sound decision-making. It is the term commonly used to describe coastal management in the Philippines. Its goal is to manage all coastal resources in a sustainable manner while allowing the greatest benefit to accrue to the largest number of people for the longest possible time.

Community-Based Fisheries Management (CBFM) according to Boonchuwong (1998:69), is an effective and fair management system. It is also beneficial to economic administration and makes monitoring and enforcement more effective than central government system. Fisheries community based management leads to responsibility and awareness building of fishermen as the resource owner which brings about longer utilization of resources. Awareness building on the obedience of rules and regulation which are regarded as a part of community culture would be useful for individual fishermen as well as the community as a whole. CBFM also provides an opportunity for communities to develop strategies of management which are consistent with the community conditions and needs because fisheries communities are regarded as mechanism and tool management measures which are more acceptable and easier to monitor and evaluate. CBFM is a method fully utilized traditional local knowledge and

skill so that basic resource information can be used together with biological information in management. Moreover, the method can reduce social conflict and keep society in the community united.

According to White and Lopez (1991), an integrated coastal management (ICM) comprises those activities that achieve sustainable use and management of economically and ecologically valuable resources in coastal areas that consider interaction among and within resource systems as well as interaction between humans and their environment. It encompasses "CRM" being a broader set of activities that emphasize integration within government, non-government, and environmental realms. Integrated coastal management is also commonly discussed in parallel with coastal resource management as a means of improving the state of coastal resources. This term serve as the operating definition for coastal management replacing terms such as fisheries resource management and fisheries development, which are commonly equated with sectoral interventions to increase production output of the fisheries sector (DENR, DA-BFAR, DILG, CRMP, 2001).

DENR, DA-BFAR, DILG, CRMP, (2001) emphasized that integrated coastal management is not just about managing coastal resources, but also managing the human element: people in the communities that impact and depend on resources in the coastal zone. People have a significant impact on coastal resources in their day-to-day activities. They make decisions about how coastal resources will be utilized and they receive many benefits from coastal resources. People stand to lose the most if coastal resources are not managed in a sustainable way, therefore,

their participation in the planning and implementation of coastal resources management is critical.

As viewed by DENR, DA-BFAR, DILG, CRMP (2001), coastal zone management (CZM) comprises those activities that achieve sustainable use and management of valuable resources and land uses in coastal areas as defined through CRM or ICM but with an emphasis on a specified coastal geographical area or zone.

According to Pomeroy (1998), collaborative management or co-management is defined as a partnership arrangement in which government agencies, the community of local resource users (fishers), non-government organizations, and other stakeholders (fish traders, boat owners, business people, etc.) share the responsibility and authority for the management of a fishery. It covers various partnership arrangements and degrees of power-sharing and integration of local (informal, traditional, customary) and centralized government management systems. It may involve recognition and legitimization of traditional local-level management systems. It also involves some degree of communal management of the resource. That is, a recognized group of fishers or an organization establishes and enforces community rules, norms and regulations for catching fish or using the resource, with support from the government.

Sen and Raakjaer-Nielsen (1996), identified five broad types of co-management according to the role played by government and resource users. These are: instructive (minimal information exchange), consultative (consultation

exists), cooperative (cooperation as equal partners), advisory (user advice to government), and informative (delegation of authority to users). They further state however, this typology is a simplification of a very complex situation. There is a multitude of tasks that can be co-managed under a different type of co-management at different stages in the management process. The amount of responsibility and authority that the government and fishers have will depend upon country - and site-specific conditions. Determining what kind and how much responsibility and authority will be shared among the partners is a political decision.

While community-based coastal resource management or CBCRM on one hand, implies that individuals, groups, and organizations have a major role, responsibility, and share in the resource management and decision making process. It is consistent with the tenets of collaborative management since government is always part of the management process. It is a central element of co-management (Pomeroy, 1998).

According to Korten (1987), community-based coastal resource management includes several elements: a group of people with common interests, mechanisms for effective and equitable management of conflict, community control and management of productive resources, local systems or mechanisms for capture and use of available resources, broadly distributed participation in control of resources within the community, and local account-ability in management.

According to Sajise (1995), community-based coastal resource management is "a process by which the people themselves are given the opportunity and/or responsibility to manage their own resources, define their needs, goals and aspirations, and to make decisions affecting their well-being." He further stated that "CBCRM as an approach emphasizes a community's capability, responsibility, and accountability with regard to managing resources". It is inherently evolutionary, participatory and locale-specific and considers the technical, socio-cultural, economic, political and environmental factors impinging upon the community. He further elaborated that CBCRM is basically seen as community empowerment for resource productivity, sustainability and equity.

Ferrer and Nozawa (1997), stated that "CBCRM" is people-centered, community-oriented and resource-based. It starts from the basic premise that people have the innate capacity to understand and act on their own problems. It begins where the people are, i.e., what the people already know, and build on this knowledge to develop furthers their knowledge and creates a consciousness." They further stated that, "it strives for more active people's participation in the planning, implementation and evaluation of coastal resource management programs". CBCRM allows each community to develop a management strategy meets its own particular needs and conditions, thus enabling a greater degree of flexibility and modification. As stated further by the writer, a central theme of CBCRM is empowerment, specifically the control over and ability to manage productive resources in the interest of one's own family and community. It

invokes a basic principle of control and accountability which maintains that control over an action should rest with the people who will bear its consequences.

Felizar (1994) writes, CBCRM can be looked at in various ways. It can be as a process, a strategy, an approach, a goal or a toll. It is a process through which the people themselves are given the opportunity to manage their own resources, define their needs, goals and aspirations and make decisions affecting their well-being. A strategy for achieving a people-centered development, CBCRM has a decision-making focus in which the sustainable use of natural resources in a given area lies with the people in the local communities. CBCRM is an approach through which communities are given the opportunity and responsibility to manage in a sustained way the community resources, define or identify the amount of resources and future needs, and their goals and aspirations, and make decisions affecting their common well-being as determined by technical, socio-cultural, economic, political and environmental factors. It is a tool which facilitates the development of multilevel resource management skills vital to the realization of potentials of the community. He stated further that, CBCRM stands for people empowerment for achieving equity and sustainability in natural resource management. Its key concepts are community, resources, management, access and control over resources, viable organizations and availability of suitable technology for resource management and utilization.

According to Rivera (1997), the CBCRM approach has several characteristics. It is consensus-driven and geared toward achieving a balance of

interests. The emphasis is on communities, and at its core is community organization. It is process of governance and political decision-making and it is geared toward the formation of partnerships and power-sharing. He pointed out that "it can be argued that CBCRM is a politically negotiated process of making decisions on the ownership, control and overall policy directions of coastal resources. Questions of resource allocation, distribution of resource benefits and management arrangements among stakeholders will always have to be included. Moreover, CBCRM's central concern is the empowerment of groups and social actors and a sense of self-reliance at the micro level that stimulates a more synergistic and dynamic linkage to the meso-and macro-levels. He stated that, it can be argued that CBCRM is the route to co-management. It is maintained that power issues are central to the formation of co-management schemes. Hence, partnerships between government and communities should take careful consideration of the capacities of communities in making and sustaining these partnerships. He further stated that in the Philippines, much of the work of NGOs on CBCRM can really be considered as co-management.

A community based-coastal resources management (CBCRM) programs to be meaningful to the people must address the question of equity and sustainability. This has been emphasized by Yogo *et al.,* (2002) in his study on "Perspective Towards a Conceptual Framework for Societal Analysis," that in using the case method for a training program on a community approach to local social development, there are three basic elements to be considered, namely: the

resources, the organization, and the ideas/ways of doing things that must be applied and mobilized to achieve the desired social development goals. He pointed out that for these elements to be effective, they must be taken as a whole. Concentrating on one element alone will result in the other elements lagging behind. Resources are the primary materials for improving the people's livelihood and production activities. Organization is the mechanism for mobilizing the resources and in reorganizing them into an appropriate utilization pattern that will meet the needs of people for daily activities. It is also responsible in creating the ideas or norms by which people would acquire and regulate resources for their production and consumption activities. Ideas on the other hand, refer to the manner or ways of doing things as in organizing resources. It also refers to traditional ways of generating and/or utilizing technology.

All the aforecited literature provided the researcher important inputs in coming up with the ideas that were considered in assessing the status of the implemented CBCRM projects in Samar.

Related Studies

The various studies that are closely related to the present study are narrated as follows:

Marco (1993) in her dissertation entitled "An Assessment of the Maqueda Bay Area Development Program: Basis for the creation of the Maqueda Bay Development Authority" which aimed to assess the extent of implementation of the Maquaeda Bay Area Development Program as a rational basis for the creation of the Maqueda Bay Development Authority. This was conducted within 17 municipalities of Samar. Her findings as to the extent of implementation of the program components as perceived by the five groups of respondents revealed that the program was "least implemented" particularly along Concept and Design, Organization and Management, Land-Based Development and Bay Resource Regeneration. However, the program implementation was perceived as averagely implemented along the program component of Health, Nutrition and Family Planning. In addition to the components "least implemented" were Rural Roads and Enterprise Development and Finance. As to the effects/influence of the program as perceived by the five groups of respondents, it showed that the Maqueda Bay Area Development Project has "least impact" on Productivity Improvement, Enterprise Development, Diversified Production and Job Generation. On the contrary the respondents perceived the effect/influence of the MBADP Bay Resource Regeneration was "average." On the other hand, as to the seriousness of problems encountered in the implementation of the program

components, it revealed that only in Concept and Design component and in Organization and Management that the problems were considered serious. The problems on Land-Based Development, Bay Resource Generation, and Integrated Health, Nutrition and Family Planning were considered "Averagely Serious."

In her study she concluded that immediate legislative enactment from Congress be made for the creation of the development authority that shall be vested with the power to integrate government and non-government efforts and resources for a planned development and a balanced growth of Maqueda Bay area; to undertake massive regeneration activities on Land-base, as well as, marine resources; to reclaim swamps and wastelands and make productive idle lands; to develop a food-catch within the Maqueda Bay Area by increasing agricultural and marine productivity and to adopt a model for development tapping the potentials that may be provided by the regenerated Maqueda Bay; get or undertake an inventory of the projects and activities had in the areas; undertake a massive, but appropriate, technology transfer trainings to improve the resource-mobilization competencies of the people in the area; implementing agencies of development efforts must be selected based on their commitment to help the masses become self reliant and on their credibility to handle funds; encourage more people empowerment so that they can take active participation, not only in the implementation of development efforts, but in the monitoring and evaluation of crisis management. Furthermore, focus greater efforts to population growth-curbing as "high population growth rate puts considerable pressure on the

depleting resources" (ul Haq, 1992); and finally, in the light of the total assessment of the Program characterize with least implementation, less impact to the factors that spell quality life and whose problems are averagely serious, it is humbly recommended that an integrated development plan proposed by development authority, Don Hunrichsen, to Egypt (Hunrichsen,
1992) be adopted in the Maqueda Bay area. It is a development plan that combines population and family planning programmes with environment and resource management.

This study is related to the present study since both involved assessment of coastal resources which is also the same area being assessed by the present study. Moreover, Maqueda Bay is one of the sites where the study is to be conducted. The relevance of the study is also viewed from the stand point of the need to assess the extent and impact of implementation of the Maqueda Bay Area Development Program including the seriousness of the problems encountered as basis for the creation of the Maqueda Bay Development Authority. However, previous study differ from the present study because the previous study aimed to develop a program that will protect, conserve, preserve and enhance the productivity of the coastal resources, while the present study aimed to assess the impact of the CBCRM programs implemented in the area.

Milca (1998) conducted a study to assess the extent of implementation of the fishery laws enforcement program in the Northwest of Samar particularly in the City of Calbayog and four other municipalities in Samar namely: Pagsanghan, Sta.

Margarita, Sto. Nino, and Tarangnan as perceived by the local executives/legislators, law enforcers, fishermen and community folks along the following components: (1) Objectives and strategies; (2) Bantay-dagat task force; (3) Program monitoring; (4) Manpower and Financial Support. The findings of the study revealed that as to the first component which is the objectives and strategies it was "averagely implemented," as to the second component which is on bantay-dagat task force it was also "averagely implemented," as to third component which is on program monitoring it was rated as "least implemented," while on the fourth component on manpower and financial support it was "least implemented." In other words the researcher found out that the fishery law enforcement was not delivered successfully its full force implementation to the community.

The results of the study further revealed that there is a need to provide livelihood projects within the area that will serve as an alternative livelihood to augment income of the fisherfolks and to relieve fishing pressure to the coastal resources. Furthermore, there is a need to disseminate intensely the programs through mass media promotion and provide re-oreintation seminars for education and public awareness and enforce purposively the laws pertaining to coastal resources management.

This study is related to the current study in the sense that both study tried to assess the impact of implementation of coastal resource management in Calbayog City, Pagsanghan, Sta. Margarita, Sto. Nino, and Tarangnan. Moreover,

both studies used the same respondents such as fishermen and community members including locale of the study. But the current study differ from the former study in the sense that the current study try to assess the impact of the CBCRM program while the former study limit only on fishery law enforcement aspect which is one component only of coastal resources management (CRM).

Ventura (2001) in his study on "Co-management Approach of Coastal and Marine Resources in Davao Gulf", reported that the major coastal and marine resources that are vital to co-management in Davao Gulf include mangrove areas, coral reefs, sea grasses, estuaries, shorelines, beach, marine waters, seaweed, and fisheries and aquatic resources. The Gulf's marine fishery resources include skip jack, yellow fin tuna, mackerel, sardines, big-eyed scad, shrimp, bangus fry, grouper, siganid and many others. He pointed out that there were 4 types and levels of participation of stakeholders undertaken namely: advocacy, information and networking (level 1); advisory and recommendatory (level 2); joint project implementation (level 3); and management decision making process (level 4). Results showed that the co-management projects implemented by stakeholders includes mangrove reforestation, artificial reef development, fish sanctuary, bantay-dagat and FARMC organizations, alternative livelihood, training and seminar, and fishery law enforcement. Ventura further states that the co-management approach provided opportunities for active participation of stakeholders in the conservation, rehabilitation, protection, and management of coastal and marine resources in Davao Gulf. It

has also improved the social status and capacity of the fisherfolk in planning and implementation of the program through training, organization, and mobilization of bantay-dagat and FARMC and promoted community-based sustainable alternative livelihood projects such as marine cage seaweed production, value-added processing and fish shelter project thus, increased production and income of fisherfolk in Davao Gulf. He further reported that rehabilitation of the depleted resources was implemented with positive results. Fish stocks in the municipal waters of Davao Gulf has increased as a result of the fish habitat enhancement and protection program and elimination of unsustainable fishing practices like fine mesh net, beach seine, and commercial fishing in Davao. Ventura states further that with regards to the status of the coastal and marine resources of Davao Gulf, he revealed that its mangrove resources was 16 percent damaged already, coral reef 20 percent damaged, beach/shorelines was 17 percent polluted and converted to some other uses while estuarine areas was 18 percent polluted/silted. On the other hand, fisheries and marine waters are 19 percent depleted and 10 percent polluted, respectively. The study of Ventura is closely related to the present study since both dealt on areas of concern of coastal resource management. Howe 74 the previous study differed from the present study since it was conducted in Davao Gulf not in Samar.

Duzon (2003) conducted a study to assess the extent of farm management practices of fish farmers in brackishwater aquaculture in selected towns and

cities of Samar, particularly in Calbayog City, Sta. Margarita, Paranas, Sta. Rita, Villareal, Jiabong, Motiong, Calbiga, Pinabacdao, Tarangnan, San Sebastian, and Pagsanghan as perceived by the fish farmers themselves and fisheries technologist. The findings revealed that fish farmers lack technical trainings and not aware of the existing modern technologies in aquaculture, hence the important activities in pond management necessary to ensure high survival of stocks and higher productivity was never attained. He furthermore stated that the number of technicians to provide technical assistance on appropriate technologies were inadequate. Thus, this justified the claims, of the fish farmers of their low farm productivity. Moreover, the major problem identified was the lack of financial resources of fish farmers for fish farm development. The researcher recommended that curricular offerings of fisheries institutions be strengthened in order to produce competent human resources responsive to the needs of the aquaculture industry.

This study has similar bearing with the present investigation considering that both studies have almost the same locale of the study. More so, brackishwater farms which have been assessed are part of the coastal ecosystem wherein it contributed a significant impact on the management of the coastal resources, more particularly on the conservation of existing mangrove areas into fishponds. Appropriate aquaculture technologies were likewise adopted by the fisherfolks in the different barangays of Samar. Finally, the effectiveness of

Technology transfer of appropriate aquaculture technologies to alleviate socio-economic conditions of fish farm operators was likewise assessed. However, the present study differed from the previous one because its main focus is on the assessment of CBCRM programs in Samar. Also, the present study will only involve fisherfolks while the previous study involved fish farmer and technicians.

Cebu *et al.,* (2003) conducted an assessment of fish habitats and estuaries in Lao-ang, Northern Samar. The objective of the assessment was to determine and identify important fish ecological habitat and to evaluate their status. The findings revealed that coral reefs in the area were in a very poor state with only 5 percent live coral cover. Seagrasses had fewer fish and other associated organisms that lived with it. Mangrove was the only habitat considered healthy and had recovered from human extraction and utilization over the past years. Fish stocks were depleted due to use of fine mesh nets.

It was recommended that the municipality of Lao-ang, Northern Samar should enact a comprehensive municipal fisheries ordinance to implement resource enhancement projects and activities, provide alternative livelihood projects, and provide education and trainings among stakeholders to advocate protection and management of coastal resources.

The study of Cebu *et al.,* in 2003, is closely related to the present study since both aimed to assess the status of the fisheries and coastal resources of Lao-ang, Northern Samar as basis to come up or develop management measures that will ensure the sustainability of the fisheries and coastal resources. However, the

former study differed from the current study because the current study attempted to evaluate and assess the impact of CBCRM programs on the well-being of the coastal ecosystem (including both human and non-human elements) of Samar in order to improve planning and implementation of new CBCRM programs in Samar. More so, it also aimed to determine constraints and problem in the implementation of CBCRM programs.

In 2003, the Bureau of Fisheries and Aquatic Resources (BFAR) with Food and Agriculture Organization (FAO) of the United Nations under the Project FAO/EP/GLO/201/GEF conducted a study on Juvenile and Trash Fish Excluder Device (JTED) in Maqueda Bay and Samar Sea. They used three types of devices: Sorting grid 1, 1.5, and 2 cm. (SG), Rectangular shape window (RSW) and Semi-curved window (SCW) attached to the trawl net to determine the escapement rate of these devices. The results showed that SG2 with the largest bar spacing (2 cm) obtained the highest escapement rate of juvenile fish and unwanted catch fish species with 52.1 percent. The rate of escapement among JTED variation was influenced and in direct proportion to the size of and spacing of the grid. It can be noted that among the sorting grids SG1, SG1.5, SG2 the rate of escapement became distinct in terms of juveniles caught. SG2 indicated about 80 percent of the juveniles were able to escape (Dickson *et al.*, 2003).

This study is related to the present study because it was conducted at the site where the present study will be conducted. The present investigation differed from the previous as it aimed to assess the implementation, impacts and

performance of CBCRM projects in Samar while the former aimed to test the effectiveness of the device to release juveniles and unwanted fish species, and to mitigate the negative impact of trawling.

Rosales (2004) conducted a study about "Fishing Practices in selected Fishing Villages in Calbayog City". His finding revealed that fishers were using different types of fishing gears. Modern active fishing gears like trawls, and traditional passive fishing gears like gill net and fish barriers were used by the respondents. As to fishing practices, fishers employed both legal and illegal methods of fishing which resulted in decreased volume of fish catch among small fisherfolks, as well as the depletion of the coastal resources. He recommended that the city government should provide alternative livelihood projects to fisherfolks to lessen fishing pressure and mitigate overexploitation of the resource base.

The study of Rosales is closely related with the present study for it attempted to assess the fishing practices in selected fishing villages of Calbayog City. However, the present study differed from the former for it assessed the implementation, impacts and performance of CBCRM projects in Samar. In addition, the present study aimed to assess the problems and constraints in the implementation of CBCRM programs in Samar.

Maňoza (2004) in his dissertation entitled "Social Consequences of Fish Sanctuary and Marine Protected Areas in the Management of Marine Ecosystem in the Southeastern Part of Samar Sea," reported that there were 16 fish sanctuaries and marine protected areas in southeastern part of Samar Sea. These were located

in Catbalogan, Daram, Zumarraga, Motiong, Tarangnan, Talalora, and Calbayog City. Results showed that the measured output expressed as social consequences of the establishment of fish sanctuary in the area contributed significantly among the people in the community in terms of improved socio-economic conditions of the fishermen, increased catches, and better living opportunities, better technology transfer, more gender participation, empowerment of fishermen in resource management, and values formation of the people. However, problems and constraints encountered include: illegal fishing, intrusion of other fishermen who were not involved and immediate beneficiaries of the fish sanctuary, and reduction in fishing areas. The study of Mañoza is closely related to the present study since both dealt on areas of concerns of coastal resource management as well as both have similarities of study sites. Moreover, problems and constraints on its establishment and implementation of activities were both assessed. However, the previous study differed from the present study since it focused on fish sanctuaries and marine protected areas which is a part only of the present study that need to be assessed.

Amparado (2005) in his dissertation entitled "The Aquaculture Industry of Samar Province: Proposed Fishery Extension Program for Samar State University (SSU)" which aimed to determine the extent of farming practices in freshwater aquaculture, brackishwater aquaculture, and mariculture, technology delivery system, training needs and problems in the aquaculture industry. This was conducted within 25 municipalities including Calbayog City. His finding revealed

that in mariculture two major crops are being raised by the fish farmers. These are the green bay mussel and grouper. Out of 148 fish farmers practicing the technology 66.37 percent were engaged in green bay mussel farming and 33.63 percent were engaged in grouper cage culture. As to the extent of farming practices the study revealed that in mariculture the respondents assessed that these technologies were moderately practiced. He concluded that one of the problems which hindered fish farmers to practice this technology is the lack of capital to shoulder the cost of production.

He emphasized that aquaculture be given preferential attention by various government agencies particularly the Bureau of Fisheries and Aquatic Resources and the local government units to ensure food security in the province. Furthermore, the implementation of a functional extension program to effects technology transfer through collaborative efforts of the government agencies, non-government organization, and the academe is of primordial concern. Finally, the study recommended that a credit line and loan opportunities at low interest rate with simple terms and conditions be accorded and adequately provided to fish farmers to address their requirement for working capital through proper representation of the concerned authorities and agencies to financial institutions and business organizations.

This study is related to the present study since both involved assessment of mariculture technology which is also one of the areas being assessed by the present study. More so, both studies have the same locale of study. Te relevance of the

study is also viewed from the standpoint of the need to assess the status and extent of intervention of government in the delivery of technological, sociological, and economic services toward development and sustainability of the coastal resources.

The study differed however from the present study since the former aimed to assess the aquaculture industry of Samar Province while the present study will assess the CBCRM programs of Samar.

Diocton *et al.,* (2005) conducted a rapid coastal resource assessment in San Jose, Northern Samar to identify important key habitat for enhancement and protection from further deterioration. The assessment was conducted using scuba gear (line-intercept method) to determine coral cover. Fish visual census was also conducted to determine variety of fish species present. Seagrass identification and ocular survey on mangrove forest to determine mangrove cover were also done. Results showed that live coral reef cover in the area had fair condition (50 percent live coral cover). Sea grasses have relatively few associated fish species. For the past 8 years mangroves had recovered from wanton destruction. It had an estimated forest cover of 369.118 hectares. The average density of standing mature trees increased from 547 in 1996 to 1,030 in 2004. The use of fine mesh nets in river banks caused depletion of fish stocks, particularly fish species that thrived in estuarine areas. Mud crab resources were also decreasing due to the absence of appropriate measures to mitigate over exploitation.

The study of Diocton *et al.,* in 2005, is closely related to the present study since it aimed to assess the status of the fisheries and coastal resources of San Jose,

Northern Samar as basis to come up or develop management measures that will ensure the sustainability of the fisheries and coastal resources. However, the former study differed from the current study because the current study attempted to evaluate and assess the impact of CBCRM programs on the well-being of the coastal ecosystem (including both human and non-human elements) of Samar in order to improve planning and implementation of new CBCRM programs in Samar. More so, it also aimed to determine constraints and problem in the implementation of CBCRM programs.

In 2006, the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office in Manila conducted a two-year similar study on Juvenile and Trash Fish Excluder Devices (JTEDs) in Samar Sea. It used three types of JTED sorting grids made of stainless iron rod attached to bunt of the trawl net using the following specifications: a horizontal sorting grid having 1.5 centimeters distance opening (H15); a vertical sorting grid having 1.2 centimeters opening (V12); and a vertical sorting grid with 1.5 centimeters opening (V15). Twelve commercial trawls were utilized in the study. Fishing effort was controlled, each trawl fishing outfit was given 5 fishing trips per month. Each trawl used all devices and changed one device to another every month. The objective of the study was to determine which of the three devices was appropriate in terms of escapement rate and the adoptability or acceptability of the device as a responsible fishing technology. The results showed that JTEDs was a viable tool in fisheries management. V12 and H15 were found effective practical devices to reduce unwanted catch or rejects and

the exclusion of juvenile fish species. Fishing effort control systems worked well and found useful.

The study is related to the present study because it attempted to introduce a management tool relevant to the management of the fishery resources. Moreover, it is also related to the current study in the sense that Samar Sea is also one of the sites where the present study is to be conducted.

Cebu *et.al.*, (2006), conducted a rapid community and coastal resource assessment in Daram, Samar. The assessment covered identification of existing community organizations, corall reefs, mangoves, and seagrasses. Finding revealed that out of 57 coastal barangays, about 31 organizations only were found to be registered and the remaining 26 organizations were found to be non-registered. These community organizations actively worked on environmental issues, poverty alleviation, social services, and advocacy. To address environmental issues, the organizations focused on marine life preservation, protection of fish sanctuaries, and mangrove reforestations.

The result of the study further revealed that there were relatively few coastal areas in Daram had good coral cover from 51 – 75 percent live corals. These are found in the eastern side of the island. A total of 18 species of mangoves have been identified in all 23 mangal sites. Wide mangrove areas were noted along the southeastern vicinities of the island with an estimated total area of 167 hectares. Sea grasses were also noted in the northern and western coastal areas of the island,

however, they were observed in patches and have significant impact to fishes as their natural habitat.

The study of Cebu *et.al.*, (2006) is closely related to the present study because both aimed to assess the status of the fisheries and coastal resources of Daram, Samar as basis to come up or develop management measures that will ensure the sustainability of the fisheries and coastal resources. However, the former study differed from the current study because the current study attempted to evaluate and assess the impact of CBCRM programs on the well-being of the coastal ecosystem (including both human and non-human elements) of Samar in order to improve planning and implementation of new CBCRM programs in Samar. More so, it also aimed to determine constraints and problem in the implementation of CBCRM programs.

Mohammed Nasimul Islam (2007), the team leader of the group who conducted an evaluation on the implemented Coastal Resources Management (CRM) livelihood projects of ADB-JBIC in Region VIII, reported that the goals and objectives of FRMP in Region VIII were generally realized and successful in many places – most importantly on the area of capacity building and understanding on coastal resources management (CRM) at the local government unit (LGU) level.

He elaborated further in his report that the aim of the livelihood projects implemented by FRMP in the four bays of Region VIII namely: (1) San Pedro Bay, (2) Sogod Bay, (3) Ormoc Bay, and (4) Carigara Bay – including 17 municipalities and 230 barangays in the three provinces of Samar, Leyte and Southern Leyte, was

to alleviate poverty and to stem the depletion of coastal resources by providing alternative livelihood to fisherfolk communities thru self-driven.

In the annual report of the Bureau of Fisheries and Aquatic Resources (BFAR, 2007) Region VIII, posted a fish sufficiency level of 148 percent, which was higher by 18 percent of 134 percent in 2006. All the three sectors, the municipal fisheries, commercial fisheries and aquaculture exhibited increased in production. The biggest production was from the municipal fisheries which registered an upsurge of 12 percent compared to 2006. The sterling performance was attributed to the mariculture areas that have been established region-wide. The commercial fisheries sector also grew by 10 percent despite of very high fuel prices and spare parts. The total fish production in Eastern Visayas was pegged at 191, 409 metric tons.

In the study of Sabido (2010) entitled "Implementation of Coastal Resource Management (CRM) Program in Calbayog City, Western Samar", which aimed to determine the extent of implementation of the CRM program in Calbayog City, Western Samar as perceived by his four (4) groups of respondents, the municipal fisherfolks, commercial fisherfolks, barangay officials, and technologist and department heads in relation to the different areas of concerns such as public education, capability building, legislation and law enforcement, resource regeneration and enhancement, establishment of protected areas, alternative livelihood, and research. This was conducted in 34 coastal barangays of Calbayog

City, Western Samar. His finding revealed that as to the extent of CRM program implementation in Calbayog City, Western Samar,

respondents like the municipal fisherfolks and commercial fisherfolks assessed "legislation and law enforcement" and "capability building" as much implemented, while the rest of the areas of concern were assessed as moderately implemented only. With regards to respondents like the barangay officials, they regard resource regeneration and enhancement, legislation and law enforcement, and capability building as much implemented while the rest of areas of concern they regarded as moderately implemented. On the other hand, technologists/department heads assessed all areas of concern as much implemented except public education which regarded it as moderately implemented.

The researcher concluded that in terms of CRM implementation, the program implementers of Calbayog City are more active in the area of legislation and law enforcement and capability building. Furthermore, the City government of Calbayog was able to accomplish as much project as needed by the community in respond to issues and problems in the coastal communities and its resources.

He further revealed that lack of adequate funding for research activities was one of their problems relative to CRM implementation. Finally, the study recommended that CRM practice in Calbayog City should be strengthen; short term trainings and education regarding CRM should always be conducted; CRM plan and program must be revisited; aquaculture technologies should be

promoted particularly fresh, brackish and inland bodies of water; and credit lines and loan opportunities must be accorded adequately provided to fisherfolks to address their requirement for capital.

This study is closely related to the present study because it both aimed to assess the CRM programs implemented in the different coastal barangays of Calbayog City which is also the proposed site for the present study. The previous study involved fisherfolks as its respondents for the study which is same respondents also that will be used in the present study. More so, that the previous study adopted the descriptive survey method using survey questionnaires which will be the same methods that will be used in the proposed study.

The study however differed from the present study because the proposed study will not only limit its study sites to coastal barangays covered by Samar Sea but it will include coastal barangays covered by Maqueda Bay. Furthermore, the previous study utilizes four (4) groups of respondents while the present study will be utilizing only one group of respondent and that is the fisherfolk only. Moreover, the proposed study will not only assess the status of implemented CRM programs but it will also evaluate and assess the impact of CBCRM programs on the well-being of the ecosystem both human and non-human elements.

The above-cited studies were instrumental in helping the researcher in gaining insights as to the processes that were involved in this study.

Chapter 3

METHODOLOGY

This chapter discusses the methodology how the study was conducted. It includes the research design, instrumentation, validation of instruments, sampling procedure, data gathering procedure, and the statistical treatment of data.

Research Design

This study used the descriptive-development research method of assessing the status and impact of the community-based coastal resources management (CBCRM) programs in Samar using the survey questionnaire, focus group discussions (FGD), interview schedule, and documentary analysis, as the main instruments in gathering the data. The researcher believed that adopting this design and utilizing also the above-mentioned instruments would helped the researcher established valid facts and gathered reliable data vital to this study.

The survey questionnaire was utilized to collect data of the respondents' socio-demographic profile; economic profile; status of the implemented community-based coastal resource management (CBCRM) programs in Samar like research, legislation and law enforcement, education, community organization and development, resource tenure improvement, and environmental conservation and management; and the impact of community-based coastal resource

management (CBCRM) programs in Samar such as ecological status, socio-economic-status, socio-cultural status, and institutional.

Descriptive statistical tools like the frequency counts, percentage, weighted mean, arithmetic mean and standard deviation were computed. To test the hypothesis posed in this study, the Pearson Product Moment Correlation Coefficient and Fisher's t-test were also used.

Instrumentation

The researcher used various instruments like a self-made questionnaire-checklist, focus group discussion (FGD), interview schedule, documentary analysis including observations to verify data that need further clarification.

Survey questionnaire. The questionnaire was the main instrument in gathering data for this study. The researcher prepared three sets of questionnaires for the seven groups of respondents. The first was administered to registered fisherfolks, peoples' organization (PO), and city or municipal fisheries and aquatic resources management councils (C/MFARMCs). The second set was distributed to academe, department head and agricultural technologists (ATs) on fisheries of Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR), and non-government organization (NGO). The last set of survey questionnaire was handed-out to city/municipal agriculture officer (C/MAO), city/municipal planning development officer (C/MPDO), and agricultural technologists (ATs) on fisheries of the local government units (LGUs). The

questionnaire for the first three groups of respondents comprised three major parts, that is, Part I – Part III. Part I is divided into two sub-parts, first is the socio-demographic profile of the respondents which include the following: name of the municipality and barangay, sex, age, civil status, highest educational attainment, household size, ownership of housing, health data, trainings/seminars attended, and length of years involved in CRM; and the second is the economic profile which also include the main source of income, average monthly income, other sources of income, property ownership, income generating projects, rating on the level of income from fishing, community infrastructure existing in respective barangay/municipality/city, resources conditions, coastal zone uses/activities taking place in the community, and the type of fishing activities done in coastal waters. Part II gathered data relative to the status of the implemented CBCRM programs in Samar on research, legislation and law enforcement, education, community organization and development, resource tenure improvement, and environmental conservation and management while Part III determined the impact-indicators of CBCRM programs in Samar on ecological status, socio-economic status, socio-cultural status, and institutional. In Part II and III of the questionnaires set for registered fisherfolks, peoples' organization (PO), and city or municipal fisheries and aquatic resources management councils (C/MFARMCs), the respondents were made to answer for "yes" and "no" only but to quantify their answers on the extent and impact of the implementation of

the CBCRM program in Samar, they have to choose from number 5 (as the highest) to number 1 (as the lowest).

The second and last set of questionnaires is almost the same with the first one. It contains also three parts, Part I, Part II, and Part III. But, part I of the last two sets of questionnaires are different from the first set of questionnaire because the first part of the second set of questionnaire contained only questions which are limited to the name of the municipality or barangay, sex, age civil status, highest educational attainment, occupation, average monthly income, length of years involved in CRM activities, trainings/seminars attended for the last 10 years, community infrastructures existing in respective barangay/municipality/city, perceptions about the resources conditions, coastal zone uses/activities that took place in the respective community, livelihood projects under CBCRM program found in the community, and fisherfolks fishing activities done in respective community. The last set of questionnaire on the other hand, differs from the first set of questionnaire in the sense that the first part of the last set of questionnaire contained questions which are limited also on the name of the municipality, income class of the municipality, internal revenue allotment (IRA) of the municipality, sex, age, civil status, highest educational attainment, occupation, average monthly income, length of years involved in CRM, budget allocation for CRM for the last 10 years, community infrastructure existing in barangay/municipality/city, resources conditions, coastal zone uses/activities in respective community, livelihood projects under CBCRM programs which exist in

respective community, and fisherfolks' fishing activities exist in the community. The Part II and III of the last two sets of questionnaires is the same with the Part II and III of the first set of questionnaire.

To obtain reliable responses from the fisherfolks, peoples' organization, and MFARMCs-respondents who cannot fully comprehend the questionnaire in the English version, a vernacular translation was made and provided to them. The samples of the sets of questionnaires used in the study were all found in the appendices.

Focus Group Discussions. A focus group discussion or FGD was resorted to by the researcher to FARMCs-respondent using the survey questionnaire prepared for them. A focus group discussion (FGD) guide was also made by the researcher to gather data and relevant information which are not found in the survey questionnaires so as to clarify responses and information shared by the respondents. The prepared FGD guide contained questions which focused on occupational structure found in the community, type of organization or management organization existing in the community, aquaculture/mariculture activities implemented in respective coastal waters, type of resource enhancement project (REP) implemented in the community, fishery resources or marine organisms that are used to be present before but are no longer found or rarely caught, fishers and fishing crafts, type of fishing gears used at present and for the last ten years, production of marine-based and land-based resources, eco-tourism

project in the community, research conducted, and enacted fishery ordinances of the community.

Interview schedule. Aside from the survey questionnaire, an interview guide was also prepared by the researcher in order to collect relevant data and vital information during the conduct of the study. With the aid of the survey questionnaire and an interview guide, a direct interview was made by the researcher to the respondents.

Documentary Analysis. In order to guide the researcher in obtaining the necessary data related to the study, information, records and files of the different cities and municipalities that has CBCRM programs was secured first from the Bureau of Fisheries and Aquatic Resources of the Provincial Agriculture Office, Catbalogan, City. The lists of the names of the registered fisherfolks- respondents that were used in the study was taken from the master lists of the registered fisherfolks in BFAR, Region VIII, Tacloban City. The lists of the names of the other groups of the respondents were taken from their respective municipal agriculture office.

Validation of the Instruments

Before the questionnaires were made final for fielding to the different groups of respondents, it was submitted first to the members and chairman of the committee on oral defense for necessary corrections, comments, and suggestions. After which, it was also shown to CRM practitioner in the area, who had worked

already numerous assessments on coastal resources in the province of Samar for further scrutiny and validation and even to look into the content and clarity of language used in the questionnaires before it was finally submitted to his adviser for final comments, corrections, suggestions, improvements and revisions. All of their suggestions and recommendations were considered by the researcher in finalizing the survey instruments. After the instruments were revised, improved and finalized, they were administered to fisherfolks, agricultural technologists on fisheries, faculty on fisheries, community organizers who have worked before in a non-government organizations, and agricultural technologists on fisheries in the local government units who are not included in the study. The test-retest method was applied within one week interval to establish the reliability of the instruments using the Pearson Product-Moment Correlation Coefficient. The computed r_{xy} was 0.83 which indicates that the instruments' reliability was "fairly high" adequate for individual measurement (Ebel, 1965:242).

Sampling Procedure

The procedure of sampling used by the researcher in this study was varied considering that there were seven groups of respondents involved in this study, namely: the registered fisherfolks, the City/MFARMC, the LGUs, (ATs on fisheries, C/MPDO, C/MAO), the peoples' organization (PO), the DA-BFAR (ATs on fisheries, department head), the academe, and the non-government organization (NGO).

All the twenty-three coastal municipalities and chartered cities in the province of Samar except the municipalities of Almagro, Matuginao, and San Jose de Buan were considered in the study, thus no sampling method was employed. The following coastal municipalities and cities were covered by the study: 1) Basey, 2) Calbayog City, 3) Calbiga, 4) Catbalogan City, 5) Daram, 6) Gandara, 7) Hinabangan, 8) Jiabong, 9) Marabut, 10) Motiong, 11) Pagsanghan, 12) Paranas, 13) Pinabacdao, 14) San Jorge, 15) San Sebastian, 16) Sta. Margarita, 17) Sta. Rita, 18) Sto. Niño, 19) Tagapul-an, 20) Talalora, 21) Tarangnan, 22) Villareal, and 23) Zumarraga.

In the selection of the barangays as well as registered fisherfolks-respondents, two stage-cluster sampling (Coronel, *et. al.*, 2004) was utilized, where a random sample of 41 barangays which comprised at least 15 percent of the total number of barangays registered in BFAR Region VIII was selected; from each of the selected barangays, all the registered fisherfolks were taken as respondents and a total of 342 registered fisherfolks were considered as respondents.

In the selection of 41 barangays, the researcher assigned code number from 001 to 270 to the different barangays in Samar (See appendix A.). After which, the researcher randomly selected a row and column from the table of random numbers as the starting point. Numbers selected that coincide with the code numbers assigned to these barangays were considered as respondent-barangays.

In the selection of the registered fisherfolks-respondents, the researcher used the fish bowl technique, where registered fisherfolks-respondents were assigned of code numbers. Their numbers were placed in a box and the researcher picked samples from the box until the desired number of samples was reached. In determining the sample size, Sloven's formula (Santos, 1998:21) was utilized.

Table 1

Summary of the Groups of Respondents

Municipality/ City	Registered Fisherfolks	City/ MFARMC	POs	LGUs	Aca-deme	DA-BFAR	NGOs	TOTAL
Calbiga	8	6	0	2	0	0	0	16
Calbayog	16	10	0	8	0	0	0	34
Catbalogan	-	-	-	-	6	1	-	7
Daram	230	10	169	5	0	7	2	423
Gandara	6	8	0	3	0	1	0	18
Hinabangan	1	10	0	0	0	0	0	11
Jiabong	14	10	0	3	0	0	0	27
Marabut	31	10	3	4	0	0	1	49
Motiong	3	10	0	1	0	0	0	14
Pagsanghan	1	0	0	0	0	0	0	1
Pinabacdao	4	5	0	1	0	0	0	10
Sta. Margarita	13	10	0	1	0	1	0	25
Sta. Rita	2	5	0	1	0	0	0	8
Talalora	13	10	0	1	0	0	0	24
TOTAL	**342**	**94**	**172**	**30**	**6**	**10**	**3**	**657**

In the case of other groups of respondents like the academe, non-government organization (NGO), DA-BFAR (ATs and department heads), and LGUs (ATs, C/MAO, C/MPDO), total enumeration was used in obtaining the number of respondents. For peoples' organization and C/MFARMCs respondents, a Sloven's formula (Santos, 1998:21) and focus group discussion (FGD) were utilized to determine the number of respondents, respectively.

Data Gathering

After the questionnaire-checklist was being revised and validated, finalization and reproduction of it follows. Before it was distributed to the different group of respondents, a communication from the Dean of Graduate Studies was requested by the researcher to indorse him to the different City and Municipal Mayor, Heads of government agencies and national-government organizations and barangay officials for the conduct of his study as a requirement for graduation in the Doctor of Philosophy of Samar State University. Approval was sought first before the fielding of questionnaires to prospective respondents starts.

The list of barangays and address of identified fisherfolk-respondents, BFARMC/MFARMC, LGUs, DA-BFAR, Academe and NGOs were made. To facilitate the fast distribution of the research instrument, the researcher personally fielded the questionnaires to the identified respondents. The questionnaires was grouped by municipality and were distributed and also personally retrieved by

the researcher in order for him to make observations and gathered other pertinent data which would reinforce his findings, at the same time, conduct structured interview with his respondents, as well as ensure that all the questionnaires were accurately and properly answered.

Statistical Treatment of Data

The data that were collected from the respondents was tallied, scored, tabulated, and grouped according to the type of respondents, were organized and collated for appropriate presentations in textual and tabular forms.

In analyzing and presenting the data, the following statistical measures were adopted by the researcher, namely: frequency count, percentage, weighted mean, mean, standard deviation, Pearson Product-Moment Correlation Coefficient (Pearson r), and Fisher's t.

Frequency counts and percentages. This statistical tool was employed by the researcher to present the profile of the CBCRM communities in terms of socio-demographic (civil status, educational attainment, and number of years involved in CBCRM) and economic (occupation, income, and income-generating project).

Weighted mean. A five-point Likert Scale was used to indicate and determine the extent of resource condition of CBCRM communities, implementation of CBCRM programs in Samar (research, legislation and law enforcement, education, community organization and development, resource tenure and development and environmental conservation and management), and

impact indicators of CBCRM projects in Samar (ecological, socio-economic, socio-cultural, and institutional).

Scale	Range	Adjectival Rating
5	4.51 - 5.00	Fully Implemented (FI) Fully Manifested (FM) Excellent (E)
4	3.51 - 4.50	Very Much Implemented (VMI) Very Much Manifested (VMM) Very Good VG)
3	2.51 - 3.50	Much Implemented (MI) Much Manifested (MM) Fair (F)
2	1.51 - 2.50	Moderately Implemented (MI) Moderately Manifested (MoM) Poor (P)
1	1.00 - 1.50	Slightly Implemented (SI) Slightly Manifested (SM) Very Poor (VP)
0	0.00 - 0.99	Not Implemented (NI) Not Manifested (NM)

Arithmetic mean and standard deviation. This statistical tool was employed in the analysis and interpretation of the respondents' age, number of years involved in CBCRM, and income.

Pearson Product-Moment Correlation Coefficient. This statistical tool was used in determining the significant relationship between the status of the implemented CBCRM programs and the impact indicators of CBCRM programs in Samar. The formula (Walpole, 1982: 376) is as follows:

$$r_{xy} = \frac{N \Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N \Sigma X^2 - (\Sigma X)^2][N \Sigma Y^2 - (\Sigma Y)^2]}}$$

where:

r_{xy} - correlation coefficient between the status of the implemented CBCRM programs and the impact indicators of CBCRM programs in Samar;

ΣX - sum of the variables in the first set of independent variables; and

ΣY - sum of the variables in the second set of independent variables.

Moreover, the Pearson r was also used to determine the reliability coefficient of the instrument through the test-re-test method. The value was interpreted using the guide suggested by Ebel (1965:242) as shown in the Table 2.

Table 2

Interpretation Guide of the Computed Reliability Coefficient

Reliability Coefficient	Interpretation
0.95 - 0.99	Very high
0.90 - 0.94	High
0.80 - 0.89	Fairly high, adequate for individual measurements
0.70 - 0.79	Rather low, adequate for group measurements
Below0.70	Low entirely inadequate for individual measurements although useful for group average and surveys

Fisher's t-test. This statistical tool was used to test the significance of the degree of relationship between the status of the CBCRM programs and the impact indicators of CBCRM programs. The formula (Freund and Simon, 1992: 468) used is as follows:

$$\text{Fisher's t} = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

where:

n - refers to the number of pairs; and

r - refers to the computed correlation coefficient.

The hypothesis was tested at .05 level of significance.

Chapter 4

PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter presents the results of the study based on the relevant data gathered and from the responses of the different groups of respondents through interviews, focus group discussions and survey questionnaires fielded to them. It likewise presents the analyses of data based on the specific questions posed in the statement of the problem which are herein presented in tabular forms followed by textual explanations and interpretations.

Characteristics of the Community-Based Coastal Resource Management Communities in Samar Island

This section discusses the characteristics of community-based coastal resources management in terms of: socio-demographic, economic profile, marine-based resources, land-based resources, and eco-tourism projects.

Socio-Demographic Profile. This part specifically discusses the CBCRM communities' age and sex, civil status, educational background, length of years of respondents, involvement in community-based coastal resource management, and trainings or seminars related to community-based coastal resource management attended by respondents.

Age and Sex. Table 3 presents the profiles of ages and sexes of respondents. As to ages, 139 or 21.16% of the male respondents of CBCRM communities belonged to age bracket 39 - 45 years, followed by 135 or 20.54%, 90 or 13.70%, 87 or 13.24%, 74 or 11.26% and 52 or 7.91% with 32 - 38, 25 - 31 and 60 - 66 years age brackets, respectively. The rest of the male respondents fell under

Table 3

Socio-Demographic Profile of Community-Based Coastal Resource Management Communities in Terms of Respondents' Age and Sex

Age	Sex				Total	Percent
	Male		Female			
	Frequency	Percent	Frequency	Percent		
81-87	1	0.15	0	0.00	1	0.15
74-80	0	0.00	0	0.00	0	0.00
67-73	8	1.22	0	0.00	8	1.22
60-66	52	7.91	3	0.45	55	8.37
53-59	90	13.70	13	1.97	103	15.68
46-52	135	20.54	11	1.67	146	22.22
39-45	139	21.16	12	1.82	151	22.98
32-38	87	13.24	5	0.76	92	14.00
25-31	74	11.26	7	1.10	81	12.33
18-24	16	2.43	1	0.15	17	2.59
Not Specified	2	0.30	1	0.15	3	0.46
Total	**604**	**91.91**	**53**	**8.07**	**657**	**100.00**
Mean	**44.56 yrs**	**-**	**45.46 yrs**	**-**	**44.64 yrs**	**-**
SD	**11.12 yrs**	**-**	**10.69 yrs**	**-**	**11.08 yrs**	**-**

the age brackets of 18 - 24 (16 or equivalent to 2.43%), 67 - 73 (8 or equivalent to 1.22%) and 81 - 87 (1 or equivalent to 0.15%). On the other hand, 13 or 1.97% of the female respondents of CBCRM communities belonged to age bracket 53 - 59 years, followed by 12 or 1.82% and 11 or 1.67% which fell within the 39 - 45 and 46 - 52 years of bracket ages. The rest of the female respondents fell under age brackets of 25 - 31 (7 or 1.10%), 32 - 38 (5 or 0.76%), 60 - 66 (3 or 0.45%), and 18 - 24 (1 or 0.15) years.

It can be gleaned from Table 3 that majority of male respondents has an average age of 44.56 years with a standard deviation of 11.12 years which fell under age bracket of 39 - 45 years. Female respondents, on the other hand, have an average age of 45.46 years with equivalent standard deviation of 10.69 years.

As to sex, 604 or equivalent to 91.91% were dominated by males with only 53 or 8.07% were females. Males (X = 44.56 years) were almost the same age with females (X = 45.46 years) having a total mean of 44.64 years or standard deviation of 11.08 years. The result further shows that majority of the resource users (stakeholders) are within the middle-age group of between 31–59 years old. This could be attributed to the fact that fishing and other coastal activities are suited for individual who has younger age considering of the strenuous activities required in order to earn a living. Furthermore, the findings was further attributed by the fact that 54.34% of the respondents were only elementary graduate and elementary level which comprised of the 80.67% of total respondents which were engaged in fishing as their means of livelihood.

Civil Status. Table 4 shows the distribution of the respondents in terms of their civil status. The data shows that out 657 respondents, 613 (93.30%) were married, 29 (4.41%) were single, 10 (1.52%) were widow/widower, 4 (0.61%) were legally separated, and 1 (0.15%) were not specified. Thus, married individual dominates the respondents.

Table 4

Socio-Demographic Profile of Community-Based Coastal Resource Management Communities in Terms of Respondents' Civil Status

Civil Status	Frequency	Percent
Single	29	4.41
Married	613	93.30
Widow/er	10	1.52
Legally Separated	4	0.61
Not Specified	1	0.15
Total	**657**	**100.00**

Educational Background. In terms of educational background, Table 5 shows that majority of the respondents, that is, 244 (37.14%) were in the elementary level only, followed by 113 (17.20%) and 88 (13.39%) who were graduates of elementary and high school levels. Seventy-five or 11.42% and 39 or 5.94% were only high school and college level, and the rest of the respondents such as in no schooling with 18 or 2.74%, with masters' degree 14 (2.73%), with vocational course units 11 (1.67%), with masters' unit 5 (0.76%), with Ph.D. units 2 (0.30%), and graduates in doctoral degree and vocational course 1 (0.15%).

Table 5

Socio-Demographic Profile of Community-Based Coastal Resource Management Communities in Terms of Respondents' Educational Background

Educational Attainment	Frequency	Percent
Ph. D. Graduate	1	0.15
W/ Ph. D. Units	2	0.30
Masteral Graduate	14	2.13
w/Masteral Units	5	0.76
College Graduate	36	5.48
College Level	39	5.94
Vocational Course Graduate	1	0.15
Vocational Course Level	11	1.67
High School Graduate	88	13.39
High School Level	75	11.42
Elementary Graduate	113	17.20
Elementary Level	244	37.14
No Schooling	18	2.74
Not Specified	10	1.52
Total	**657**	**100.00**

Length of Years of Involvement in CBCRM. Table 6 shows the length of years of respondents' involvement in community-based coastal resource management in which it reflects that majority of the respondents, that is 190 (28.92%), had 4-6 year experience, followed by 170 (25.88%), 129 (19.63%), 103 (15.68%), and 40 (6.09%), with 7-9 year experience, 1-3 experience, 10-12 experience, and 13-15 experience, respectively, while the rest, 8 (1.22%), had 16-18 year experience, 4 (0.61%) year experience, 2 (0.30%) year experience, and 1 (0.15%) as the least year of experience in CBCRM.

Table 6

Socio-Demographic Profile of Community-Based Coastal Resources Management Communities in Terms of Length of Years of Respondents' Involvement in CBCRM

Length of Years Involved in CBCRM	Frequency	Percent
31-33	1	0.15
28-30	2	0.30
25-27	1	0.15
22-24	0	0.00
19-21	4	0.61
16-18	8	1.22
13-15	40	6.09
10-12	103	15.68
7-9	170	25.88
4-6	190	28.92
1-3	129	19.63
Not Specified	9	1.37
Total	**657**	**100.00**
Mean	**7.10 yrs**	-
SD	**4.02 yrs.**	-

Demography. The demographic profile of the respondent city and municipalities are presented in Table 7. As can be gleaned from the table, Gandara obtained the highest poverty incidence of 94%, followed Daram 79%, Jiabong 69%, Santa Rita 63%, Motiong 60%, Pinabacdao 59%, Calbiga and Talalora 58%, Sta. Margarita and Pagsanghan 52%, Marabut 50%, Hinabangan 45% and Calbayog 44%. The total population were observed high in Calbayog City with 147,387, Daram 42,823, Santa Rita 39,466, Gandara 35,189, Calbiga 22,213 and Sta. Margarita with 21,740. Total number of households was observed high in Calbayog City and Marabut, Samar with 28,912 and 13,133, respectively. With regards to the total

Table 7

Demographic Characteristics of the CBCRM Communities in Samar

City/ Municipality	PEF Dev't. Index 2003	Poverty Incidence NSCB,2003	Total Population (NSO,2013)	Total No. of Households	Total Land Area (sq.km)	No. of Barangays	Average Family Size	No. of Coastal Barangay	Est. Length of Coast-Line (km)	Est. Marine Territory (sq. km)	Internal Revenue Allotment (DBM,2012)
Calbayog	0.46	0.44	147,387	28,912	90,300	157	-	34	70.89	465.15	625,682,044
Sta. Margarita	0.41	0.52	21,740	4,191	14,440	36	-	-	-	-	46,020,206
Gandara	0.24	0.94	35,198	6,814	49,442	69	5.17	-	-	-	86,762,872
Pagsanghan	0.58	0.52	8,316	1,663	2,760.10	13	-	-	-	-	25,276,943
Calbiga	0.55	0.58	22,213	4,443	28,370	41	-	-	-	-	55,272,619
Daram	0.33	0.79	42,823	8,565	14,026	58	5.5	57	181.97	462.82	59,878,708
Hinabangan	0.63	0.45	13,111	2,622	37,320	21	-	-	-	-	61,529,628
Jiabong	0.46	0.69	17,695	3,539	7,925	34	6	10	30	-	35,234,791
Marabut	0.64	0.50	15,664	13,133	148.25	24	-	24	35.683	518.59	38,757,846
Motiong	0.42	0.60	15,368	3,074	24,700	30	5.04	4	15	-	41,161,847
Pinabacdao	0.54	0.59	16,797	3,359	8,240	24	-	-	-	-	42,663,188
Santa Rita	0.55	0.63	39,466	7,893	22,250	38	-	-	-	-	77,179,543
Talalora	0.45	0.58	8,273	1,655	3,250	11	-	-	-	-	24,645,496

area, Calbayog has the highest with 90,300 km^2, followed by Gandara with 49,442 km^2, Hinabangan 37,320 km^2 and Calbiga with 28,370 km^2. As to the number of barangay, Calbayog had the highest number of covered barangays with 157, followed by Gandara 69 and Daram with 58 barangays. The average family size was high in Jiabong with 6 members per household. As to the number of covered coastal barangays and total length of coastline, Daram recorded to be the highest with 57 coastal barangays and 181.97 km of coastline. As to marine territory, Marabut has recorded the largest marine territory with 518.59 km^2, followed by Calbayog and Daram with 465.15 km^2 and 462. 82 km^2, respectively.

Economic Profile. This section discusses the income and resource conditions of the community-based coastal resource management communities in Samar.

Average Monthly Income. The average monthly income of the respondents is shown in Table 8. Data shows that majority of the respondents, that is, 291 (44.29%) earned an income that ranged from PhP 2,500 - PhP 3,999 followed by 188 (28.61%), 93 (14.16%), 22 (3.35%), 7 (1.07%) and 3 (0.46%) whose earned income ranged from PhP 1,000 - PhP 2,499, PhP 4,000 - 5,499, PhP 5,500 - 6,999, PhP 8,500 - 9,999, and PhP 10,000 - 11,499, respectively. Only 1 (0.15%) respondents earned an income of PhP 10,000 - PhP 11,499. The result further shows that, there were 52 (7.91%) who did not specify their income. This findings could be attributed to the fact that 80.67% (Appendix C) of the respondents in

CBCRM Communities were engaged in fishing where 81.9% (Table 5) of them were elementary level, elementary graduate, high school level, and high school graduate only.

Table 8

Socio-Economic Profile of Community-Based Coastal Resource Management Communities in Terms of Respondents' Average Monthly Income

Income (in Php)	Frequency	Percent
10,000-11,499	1	0.15
8,500-9,999	7	1.07
7,000-8,499	3	0.46
5,500-6,999	22	3.35
4,000-5,499	93	14.16
2,500-3,999	291	44.29
1,000-2,499	188	28.61
Not Specified	52	7.91
Total	**657**	**100.00**
Mean	**Php2840.00**	
SD	**Php1,507.00**	

Furthermore, the data shows that 90.41% (Table 8) of the respondents in CBCRM communities were earning an income below the national monthly poverty threshold for a family of five of PhP 7,107 (NSCB, 2011), which only means that these respondents in CBCRM communities were still living below poverty line.

Table 9

Municipal Fisheries Fish Production in Samar (2008 – 2009)

City/Municipality	2008		2009		2010	
	Production (MT)	Value (PhP)	Production (MT)	Value (PhP)	Production (MT)	Value (PhP)
Almagro	777.23	62,178,640	897.00	-	-	-
Calbayog	6,315.07	505,205,440	7,284.88	-	-	-
Gandara	708.068	56,645,440	816.638	-	21.917	-
Pagsanghan	323.52	25,881,600	373.562	-	-	-
Sta. Margarita	636.36	50,907,800	734.366	-	-	-
Sto Niño	1,195.20	95,616,000	1,378.71	-	-	-
Tagapul-an	819.008	65,520,640	945.292	-	-	-
Tarangnan	1,593.915	127,513,200	1,889.194	-	18.135	-
Basey	1,541.460	123,316,800	-	-	-	-
Calbiga	329.550	26,364,000	380.120	-	-	-
Catbalogan	2,639.888	211,191,040	3,261.674	-	22.23	-
Daram	3,947.190	315,775,200	4,554.524	-	29.64	-
Hinabangan	23.903	1,912,240	33.148	-	-	-
Jiabong	239.97	19,197,600	276.982	-	729.235	-
Marabut	2,385.53	190,842,640	-	-	-	-
Motiong	232.778	18,622,240	268.874	-	-	-
Paranas	200.520	16,041,600	231.792	-	-	-
Pinabacdao	520.553	41,644,240	600.704	-	-	-
San Sebastian	802.298	64,183,840	925,976	-	-	-
Sta. Rita	1,559.333	124,746,640	1,799.012	-	-	-
Talalora	728.265	58,261,200	840.604	-	14.82	-
Villareal	2,699.535	215,962,800	3,114.77	-	281.385	-
Zumarraga	2,920.470	233,637,600	3,369.33	-	-	-
Total	**33,139.62**	**2,651,168,440**	**959,027.17**	**-**	**1117.362**	**-**

Source: DA-BFAR Samar PFO, 2009

Municipal Fisheries Fish Production. Presented in Table 9 are the municipal fisheries fish productions in Samar from 2008 - 2010 only, due to lack of data. It shows here, that in 2008 the total municipal fisheries fish production was 33,139.62 metric tons which valued at PhP 2,651,168,440.00. In 2009, production increased to 959,027.17 metric tons while in 2010, it dropped to 1,117.362 metric tons.

Table 10

Commercial Fisheries Fish Production

City/Municipality	2008		2009	
	Production (MT)	Value (PhP)	Production (MT)	Value (PhP)
Calbayog City	5,475.75	547,575,000	7,146.83	-
Catbalogan City	1,397.38	139,737,500	1,955.10	-
Daram	1,160.025	116,002,000	1,898.58	-
Sto. Niño	1,323.000	132,000,000	1,773.10	-
Tarangnan	-	-	182.00	-
Zumarraga	252.00	25,200,000	273.00	-
Total	9,608.15	960,514,500	13,228.61	-

Source: DA-BFAR Samar PFO, 2009

Commercial Fisheries Fish Production. The data on commercial fisheries fish production for 2008 and 2009 are presented in Table 10. Data shows that only two cities and four municipalities contributed in commercial fisheries fish production during these two consecutive years. The 2008 and 2009 productions were 9,608.15 and 13,228.61 metric tons, respectively.

Resources Condition of CBCRM Communities in Samar. Data on the existing resources condition of community-based coastal resource management communities in Samar are presented in Table 11. Data shows, that the different resources or ecosystems of CBCRM communities in Samar such as mangroves, coral reefs, seagrass or seaweed beds, beaches or shoreline, estuaries

Table 11

Status of the Resource Condition of CBCRM Communities in Samar

Kind of Resources/Ecosystems	Resource Conditions	
	$\bar{X}_m$	Interpretations
1. Mangroves	2.93	Fair
2. Coral reefs	3.25	Fair
3. Seagrass/seaweed beds	3.25	Fair
4. Beaches/shorelines	3.34	Fair
5. Estuaries/coastal lagoons	3.24	Fair
6. Salt marsh and mudflat	3.47	Fair
7. Rocky shores	3.29	Fair
8. Coves	3.41	Fair
9. Bays	3.31	Fair
10. Fishery	3.29	Fair
11. Freshwater	3.45	Fair
12. Upland forest	3.20	Fair
Grand Total	**39.43**	-
Grand Mean	**3.29**	Fair

Legend:

4.51 – 5.00	Excellent (E)
3.51 – 4.50	Very Good (VG)
2.51 – 3.50	Fair (F)
1.51 – 2.50	Poor (P)
1.00 – 1.50	Very Poor (VP)

X_m – Arithmetic Mean

or coastal lagoons, salt marsh or mudflat, rocky shores, coves, bays, fishery, freshwater, and upland forest were described by the respondents as "Fair" with an arithmetic mean of 3.29.

Marine-Based Resources. Presented in Table 12a and 12b are the marine-based resources found in the different municipality of Samar which are caught by various type of fishing gears in different fishing grounds. Data shows that fishes like threadfin breams, long-bodied mackerel, short-bodied mackerel, island mackerel, soldier fish, round scad, grouper, tuna, sole fish, hairtail, lizard fish, black pomfret, hardtail, slipmouth, barracuda, anchovy, bonito, herring, trevally, Philippine jack, yellowfin tuna, yellow leather jacket, garfish and two-finned runner, were all caught by Danish seine, trawl , ring net and drift gill net.

On the other hand, flathead, grunt, snapper, eel, goatfish, croaker, red purple big eye, pomadasid, sting ray, theraponid, moonfish, sharks, mojarra, crabs, threadfish, nemiterid, common whiting, sardines, lizardfish, hairtail, hal-beak, cavalla, anchovy, barracuda, garfish, rabbit fish, mullet, slipmouth and shrimps were also by multiple set long -line, gill net and hook and line. Mudcrab, shrimp, blue crab, wrasses, squids, file fish, parrot fish and pike eel were caught using fish coral, push net, squid jigs and crab/fish/squid net fishing. Moreover, it was observed that fishes that were caught in Samar Sea, Maqueda Bay, Zumarraga Channel were almost the same species of fish caught in Marabut where San Pedro Bay and Leyte Gulf is located. This observation could be attributed by the

fact that, Maqueda Bay, Samar Sea, Zumarraga Channel, San Pedro Bay, Leyte Gulf and Pacific Ocean were all connected to each other.

Table 12a
Marine-Based Resources in CBCRM Communities

City/ Municipality	Fishing Activities	Catch Composition	Major Fishing Grounds
1. Calbayog	Danish seine	1. Threadfin bream (*Nemipterus sp.)*	Samar Sea
		2. Long-bodied mackerel (*Rastrelliger kanagurta)*	
		3. Short-bodied mackerel (*Rastrelliger brachysoma)*	
		4. Soldier fish	
		5. Round scad (*Caranx crumenophthalmus)*	
		6. Island mackerel (*Rastrelliger faughni)*	
		7. Grouper (*Epinephelus sp.)*	
	Trawl	1. Tuna (*Neothunnus macropterus)*	
		2. Sole fish (*Solea sp.)*	
		3. Hairtail (*Trichiurus sp.)*	
		4. Lizard fish (*Saurida sp.)*	
		5. Grouper (*Epinephelus sp.)*	
		6. Black pomfret (*Parastromateus niger)*	
		7. Hardtail (*Megalaspissp.)*	
		8. Slipmouth (*Leiognathus sp.)*	
		9. Barracuda (*Sphyraena sp.)*	
		10.Anchovy (*Stelophorus sp.)*	
	Ring net	1. Barracuda (*Sphyraena sp.)*	
		2. Round scad (*Caranx crumenophthalmus)*	
		3. Black pomfret (*Parastromateus niger)*	
		4. Mackerel (*Rastrilliger sp.)*	
		5. Slipmouth (*Leiognathus sp.)*	
		6. Bonito (*Euthynnus sp.)*	
		7. Herring (*Sardinella sp.)*	
		8. Hardtail (*Megalaspis sp.)*	
		9. Mackerel (*Rasrilliger sp.)*	
		10.Anchovy (*Stelophorus sp.)*	
		11.Trevally (*Caranx sp.)*	

Source: DA-BFAR Samar PFO, 2009

Table 12a Continued

Drift gill net	1. Philippne jack (*Mymnis momsa*)
	2. Hairtail (*Trichiurus sp.*)
	3. Tuna (*Thunnus sp.*)
	4. Yellow leather jacket (*Scomberoides lysan*)
	5. Garfish (*Tylosurus sp.*)
	6. Yellowfin tuna (*Neothunnus macropterus*)
	7. Hardtail (*Megalaspis cordyla*)
	8. Two-finned runner (*Elagatis binipinnulatus*)
	9. Spanish mackerel (*Scomberomorus commerson*)
	10. Barracuda (*Sphyraena sp.*)
	11. Trevally (*Caranx sp.*)
	12. Black pomfret (*Parastromateus niger*)
Multiple set long-line fishing	1. Flathead (*Plathcephalus sp.*)
	2. Grunt (*Plectorinchus sp.*)
	3. Snapper (*Lutjanus sp.*)
	4. Eel (*Muraenesox sp.*)
	5. Goatfish (*Upeneus sp.*)
	6. Croaker (*Pseudosciaena sp.*)
	7. Red purple big-eye (*Monotaxis gandoculis*)
	8. Pomadasid (*Pomadays sp.*)
	9. Stingray (*Dasyatis sp.*)
	10. Theraphonid (*Therapon sp.*)
Gill net fishing	1. Moonfish (*Mene maculata*)
	2. Tuna (*Thunnus sp.*)
	3. Sharks (*Scoliodon sp.*)
	4. Mojarra (*Gerres sp.*)
	5. Crabs (Por*tunus pelagicus*)
	6. Threadfish (*Alectis indicus*)
	7. Barracuda (*Sphyraena sp.*)
Hook & line fishing	1. Nemipterid (*Nemipterus sp.*)
	2. Common whiting (*Sillago sihama*)
	3. Sardines (*Sardinella sp.*)
	4. Tuna (*Thunnus sp.*)
	5. Lizard fish (*Saurida tumbil*)
	6. Theraponid (*Therapon sp.*)
	7. Mojarras (*Gerres sp.*)
	8. Barracuda (*Sphyraena sp.*)
	9. Sardines (*Sardinella sp.*)
	10. Mackerel (*Rastrilliger sp.*)

Table 12a Continued

	Squid jigging	1. Squid (*Loligo sp.*)	
	Fish Corral	1. Hairtail (*Trichiurus sp.*)	
		2. Half-beak (*Hemiramphus sp.*)	
		3. Cavalla (*Caranx sp.*)	
		4. Anchovy (*Stolephorus sp.*)	
		5. Barracuda (*Sphyraena sp.*)	
		6. Garfish (*Tylosurus sp.*)	
		7. Rabbit fish (*Siganus sp.*)	
		8. Herring (*Sardinella sp.*)	
		9. Mullet (*Mugil sp.*)	
		10. Slipmouth (*Leiognthus sp.*)	
		11. Squid (*Loligo sp.*)	
		12. shrimps (*Penaeus sp.*)	
	Push net	1. Crabs (*Portunus pelagicus*)	
		2. Shrimps (*Penaeus sp./Metapenaeus sp.*)	
	Crab/Fish Squid pot fishing	1. Blue crab (Portunus *pelagicus*)	
		2. Wrasses (*Chellinus sp.*)	
		3. Squid (*Loligo sp.*)	
		4. File fish (*Cantherhines sp.*)	
		5. Parrot fish (*Scarus sp.*)	
		6. Pike eel (*Muraenesox sp.*)	
2. Daram	Hook and line fishing	1. Grouper (*Epinephelus sp.*)	Samar Sea; Zumar-raga Channel
		2. Red purple big-eye (*Monotaxis gandoculis*)	
		3. Nemipterid (*Nemipterus sp.*)	
		4. Mackerel (*Rastrilliger sp.*)	
		5. Tuna	
		6. Caranx	
	Gill Net	1. Moonfish (*Mene maculata*)	
		2. Tuna (*Thunnus sp.*)	
		3. Sharks (*Scoliodon sp.*)	
		4. Mojarra (*Gerres sp.*)	
		5. Crabs (Portunus *pelagicus*)	
		6. Threadfish (*Alectis indicus*)	
		7. Barracuda (*Sphyraena sp.*)	
	Crab En-tangle Net	1. Blue crab *(Portunus pelagicus*)	
	Spear Fi-shing	1. Barracuda (*Sphyraena sp.*)	
		2. Red snapper (*Lutjanus sp.*)	

Table 12a Continued

		3. Cuttlefish (*Sepia sp.*)	
		4. Fusilier (*Caesio sp.*)	
		5. Parrot fish (*Scarus sp.*)	
		6. Grouper (*Epinephelus sp.*)	
		7. Siganid (*Siganus sp.*)	
		8. Wrasses (*Cheilinus sp.*)	
3. Jiabong	Crab Lift Net	1. Blue crab (*Portunus pelagicus*)	Maqueda Bay
	Fish trap	1. Mullet	
		2. Rabbit fish	
		3. Slipmouth	
		4. Shrimps	
		5.Crabs	
		6. Half-beak	
	Mussel Farm	1. Green-bay mussel (*Perna viridis*)	
	Oyster Farm	1. Slipper-shaped oyster (*Crassostrea iredalei*)	
4. Motiong	Hook and Line	1. Common whiting (*Sillago sihama*)	Maqueda Bay
		2. Grouper (*Epinephelus sp.*)	
		3. Rabbit fish (*Siganus sp.*)	
		4. "*Anduhaw*"	
		5. Yellowstriped scad (*Selaroides leptolepis*)	
	Gill Net	1. Common whiting (*Sillago sihama*)	
		2. Grouper (*Epinephelus sp.*)	
		3. Rabbit fish (*Siganus sp.*)	
		4. "*Anduhaw*"	
	Fish Corral	1. Shrimps	
		2. Therapon	
	Crab Pot	1. Blue crab (*Portunus pelagicus*)	
		2. Mud crab (*Scylla serrata*)	
5. Marabut	Simple Hook and Line	1. Round-bodied mackerel	San Pedro Bay; Leyte Gulf
		2. Frigate mackerel	
		3. Sardines/Herring	
		4. Barracuda	
		5. Oxeye scad (*Selar boops*)	
		6. Herring	
		7. Rainbow sardine (*Dussumiera acuta*)	

Table 12a Continued

	8. Lizard fish (*Saurida tumbil*)
	9. Squid
	10. Threadfin breams (*Nemipterus sp.*)
	11. Grouper
	12. Hairtail (*Triciurus sp.*)
Multiple Hook and Line	1. Round-bodied mackerel
	2. Frigate mackerel
	3. Sardines/Herring
	4. Barracuda
	5. Oxeye scad (*Selar boops*)
	6. Herring
	7. Rainbow sardine (*Dussumieria acuta*)
	8. Lizard fish (*Saurida tumbil*)
	9. Squid
	10. Threadfin breams (*Nemipterus sp.*)
	11. Grouper
	12. Hairtail (*Triciurus sp.*)
Bottom Set-Gill Net	1. Spanish mackerel
	2. Deep-bodied mackerel
	3. Black pomfret
	4. Indo-Pacific Sailfish (*Istiophorus platypterus*)
	5. Slipmouth
	6. Barracuda
	7. Mullet
	8. Goatfish (*Upeneus sp.*)
	9. Fusilier (*Caesio sp.*)
	10. Blue crab
	11. Red crab
	12 Mudcrab
Drift-Gill Net	1. Spanish mackerel
	2. Deep-bodied mackerel
	3. Black pomfret
	4. Indo-Pacific Sailfish (*Istiophorus platypterus*)
	5. Slipmouth
	6. Barracuda
	7. Mullet
	8. Goatfish (*Upeneus sp.*)
	9. Fusilier (*Caesio sp.*)
	10. Blue crab

Table 12a Continued

	11. Red crab
	12 Mudcrab
Crab Net	1. Blue crab
Crab-lift	1. Blue crab
Net	2. Mudcrab
Squid Net	1. Squid

Source: DA-BFAR Samar PFO, 2009

Table 12b further shows that coral reefs, seagrass beds, and mudflat were also some of the marine-based resources that found in Samar.

Table 12b

Marine-Based Resources in CBCRM Communities

City/ Municipality	Percentage (%) of Live Coral Cover	Coral Reef Area (hectare)	Seagrass Bed Area (hectare)
1. Calbayog	47.76	no data	no data
2. Daram	54.31	154.77	no data
3. Jiabong		16.0	no data
4. Motiong			21.0
			15.0 (mudflat)
5. Marabut			80.0

Source: DA-BFAR Samar PFO, 2009

Mariculture Production. The maricuture productions of mussel and milkfish in cage for Samar are presented in Table 13. Data shows that there were ten municipalities who were engaged in mussel production, namely: Tarangnan, Gandara, Catbalogan, Jiabong, Villareal, Pinabacdao, San Sebastian, Daram, Zumarraga and Talalora. In 2005, Jiabong obtained the highest production for

mussel (7,397.65 metric tons), followed by Villareal (2,086.30 metric tons), Zumarraga (800.00 metric tons), Catbalogan (630.00 metric tons), Talalora (221.65 MT), Tarangnan (135.00 metric tons) and Daram (63.30 metric tons). In 2006, the highest production was observed in Jiabong with 6,431.75 MT, this was followed by Villareal with 2,378.65 MT, then by Catbalogan with 529.05 MT, Talalora with 241.67 MT, Tarangnan with 220.65 MT and Daram with 76.67 MT. In 2008, the highest was Jiabong (172.44 MT), followed by Villareal (157.595 MT), Tarangnan (132.48) MT) and Catbalogan with only 28.90 MT. In 2009, Villareal harvested 86.52 MT, followed by Catbalogan with 62.22 MT, Tarangnan with 53.82 MT, and Jiabong, Pinabacdao and Daram with 28.32 MT, 5.34 MT, and 0.42 MT, respectively. The total production for mussel in 2009 was 236.64 metric tons. In 2010, the highest production for mussel was 57.74 MT (Pinabacdao), followed by 43.77 MT (Villareal), 42.22MT (Jiabong), 29.87 MT (Talalora), 29.07 MT (Catbalogan), 24.70 MT (Tarangnan), 17.2 MT (Daram), 16.02 MT (Zumarraga), 15.68 MT (Gandara), and 9,69 MT (San Sebastian). The total production of mussel in 2010 was 283.96 metric tons. The declined production that was observed all areas particularly in Jiabong was attributed by deterioration of water quality which resulted to massive killings of mussel in 2008.

In the case of milkfish cage culture, Santa Rita harvested 295.262 MT of milkfish in 2009 and 219.33 metric tons in 2010. The total production recorded was 514.592 metric tons.

Table 13

Mariculture Production (in Metric Tons)

City/ Municipality	Mariculture Production (in MT)										
	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	Total
A. Mussel											
1. Tarangnan	24.70	53.82	132.48	-	220.65	135.00	-	-	-	-	566.65
2. Gandara	13.68	-	-	-	-	-	-	-	-	-	13.68
3. Catbalogan	29.07	62.22	28.90	-	529.05	630.00	-	-	-	-	1,279.24
4. Jiabong	42.22	28.32	172.44	-	6,431.75	7,397.65	-	-	-	-	14,072.38
5. Villareal	43.77	86.52	157.595	-	2,378.65	2,086.30	-	-	-	-	4,752.84
6. Pinabacdao	57.74	5.34	-	-	-	-	-	-	-	-	63.08
7. San Sebastian	9.69	-	-	-	-	-	-	-	-	-	9.69
8. Daram	17.2	0.42	-	-	76.67	63.30	-	-	-	-	157.59
9. Zumarraga	16.02	-	-	-	104.17	800.00	-	-	-	-	920.19
10.Talalora	29.87	-	-	-	241.67	221.65	-	-	-	-	493.19
Total	283.96	236.6	491.415	-	9982.61	11333.90	-	-	-	-	22328.53
B. Milkfish											
1. Santa Rita	219.33	295.3	-	-	-	-	-	-	-	-	514.592

Source: DA-BFAR, Samar Provincial Field Office, 2012

Land-Base Resources. Table 14 presented the existing mangrove areas (hectares) of respective CBCRM communities including productive fishpond areas of in Samar. As noticed in the table, Sta. Margarita has the highest existing mangrove area of 1,581 ha, followed by Santa Rita, Gandara, Pagsanghan, Jiabong, Calbayog, Hinabangan, Daram, Calbiga, Pinabacdao, Marabut, Motiong, and Talalora, with 1,061 ha, 530 ha, 445.9 ha, 442.7 ha, 390 ha, 311 ha, 177.7487, 145 ha, 84 ha, 45.5 ha, 21 ha, and 18 ha, respectively. The total mangrove area was 5,252.8487 hectares. The table shows further, that the City of Calbayog, the

municipality of Calbiga, Jiabong, Motiong, Pagsanghan, Pinabacdao, Santa Rita and Sta. Margarita has productive fishpond areas with Fishpond Lease Agreement (FLA) ranging a size from 22.8970 ha to 304.1294 hectares.

Table 14

Land-Base Resources of CBCRM Communities in Samar

City/ Municipality	*Mangrove area (ha.)	**No. of Owners	**Productive Fishponds in Samar Fishpond Area (ha.) having FLA
1. Calbayog	390	3	39.7663
2. Calbiga	145	3	131.5747
3. Daram	177.7487	-	-
4. Gandara	530	-	-
5. Hinabangan	311	-	-
6. Jiabong	442.7	5	99.3910
7. Marabut	45.5	-	-
8. Motiong	21	1	22.8970
9. Pagsanghan	445.9	3	167.7862
10. Pinabacdao	84	2	22.0054
11. Santa Rita	1,061	9	84.64571
12. Sta. Margarita	1,581	12	304.1294
13. Talalora	18	-	-
	5252.8487	38	872.19571

Source: *PENRO, Catbalogan City
**DA-BFAR, SPFO, Catbalogan City

Brackishwater Pond Production. The production of brackishwater ponds in different CBCRM communities are presented in Table 15. Data shows that the highest commodity that was produced in 2008 was mudcrab with 3,224.832 metric tons followed by shrimp with 3,152.648 metric tons, and milkfish with 2,148.77 metric tons only. In 2009, milkfish got the highest production of 1,778.405 metric tons, followed by mudcrab with 18.332 metric tons, and shrimp with 8.779 metric tons only. Higher production (8,526.250 metric tons) was observed in 2008 compared to 2009 production (1,805.516 metric tons).

Table 15

Brackishwater Pond Production in CBCRM Communities

City/ Municipality	Brackishwater Pond Production (MT)							
	2008				2009			
	Milkfish	Mudcrab	Shrimp	Total	Milkfish	Mudcrab	Shrimp	Total
1. Calbayog	69.377	111.003	137.581	317.961	317.961	0.518	1.949	320.428
2. Sta. Margarita	323.057	516.89	419.490	1,259.44	-	5.568	-	5.568
3. Gandara	97.410	155.856	163.711	416.977	-	3.764	-	3.764
4. Pagsanghan	187.143	299.43	253.448	740.021	1.810	0.17	0.14	2.120
5. Tarangnan	384.279	454.846	471.391	1,310.52	37.100	2.125	0.615	39.84
6. Jiabong	235.960	377.537	398.136	1,011.63	11.783	0.745	2.000	14.528
7. Motiong	100.321	160.689	167.117	428.127	1.200	2.100	-	3.3
8. Paranas	149.174	239.159	237.738	626.071	0.010	2.942	0.030	2.982
9. San Sebastian	155.239	184.526	179.537	519.302	519.302	0.400	0.300	520.002
10. Calbiga	95.290	152.464	163.631	411.385	-	-	-	-
11. Pinabacdao	63.613	101.781	111.932	277.326	0.070	-	0.745	0.815
12. Villareal	156.378	260.205	247.663	664.246	0.400	-	-	0.4
13. Santa Rita	131.529	210.446	201.273	543.248	333.080	-	-	333.08
14. Basey	-	-	-	-	555.689	-	3.000	558.689
Total	**3224.832**	**3152.648**	**8526.25**	**1222.72**	**18.332**	**8.779**	**1805.516**	**0**

Source: DA-BFAR, SPFO, 2009

This could be attributed by the fact, that many were attracted to go on mudcrab culture because, among the three aquaculture commodities (milkfish, mudcrab, shrimp), mudcrab command a higher price followed by shrimp and milkfish.

Eco-Tourism Projects. Presented in Table 16 and 17 are the eco-tourism projects found within the community-based coastal resource management communities. This eco-tourism project includes beach resorts and fish sanctuaries or marine protected areas found within the coastal areas of every municipalities or city. Tourism such as resort development, provides for jobs, income, and reduction in national trade imbalance (DENR, DA-BFAR, DILG, 2001). But, in many instances, it can result in many types of adverse impacts to coastal resources. A very prevalent problem is the encroachment of resorts on beaches. Seasonally, large waves or storm activities can erode beaches. If resorts are too close to the water's edge, they can be severely damaged or destroyed. For concrete or high-rise style resorts, the structures cannot be moved or removed and resort owners are often are often forced to install seawalls and revetments to

prevent structural damage or offshore breakwaters and groins to help trap new beach sand. In turn these structures invariably prevent natural replenishment of beaches favorable weather or cause beach erosion at adjacent lands. The net effect is an expanding cycle of beach loss and increase in coastal fortifications, degraded aesthetics, and increased costs for protection and artificial beach replenishment (DENR, DA-BFAR, DILG, 2001).

Table 16

Beach Resorts as Eco-Tourism Project in Different CBCRM Communities

City/ Municipality	Name of Project	Coastline Covered (km)	Economic Activity	Revenue Generated
Calbayog	Burabod Beach Resort	-	Swimming; recreation	no available data
	Bagacay Beach Resort	-	Swimming; receation	no available data
	Mondejares Beach Resort	-	Swimming; recreation	no available data
	Penquit Beach Resort	-	Swimming; recreation	no available data
	Marcatubig Beach Resort	-	Swimming; recreation	no available data
	Malajog Beach Resort	-	Swimming; recreation	no available data
Marabut	Palm Beach Resort	-	Swimming; recreation	no available data
	Marabut Marine Park	-	Swimming; recreation	no available data
	Jasmin Beach Resort	-	Swimming; recreation	no available data
	Frenskiss Beach Resort	-	Swimming; recreation	no available data
	Camauropud-an Beach Resort	-	Swimming; recreation	no available data
	Marakit-dakit Islet	-	Dive site	no available data

Table 16 Continued

Daram	Naratara Islet (Brgy. Rizal)	-	Snorkelling; Scuba Diving	no available data
	Danao-da-nauan Island (Brgy Cabiton-an)	-	Snorkelling; Scuba Diving	no available data
	Losa Cove (Brgy. Losa)	-	Beach Resort; Snorkelling	no available data
(Brgy. Mabini)	Candiwata Rock Formation	-	Rock climbing Scuba Diving	no available data
(Brgy. Cabil-Isan	Badiang Island	-	Snorkelling; Scuba Diving	no available data
(Brgy. Tugas)	Agutay Sea Garden	-	Snorkelling; Scuba Diving	no available data

Presented in Table 16 are the six beaches in Calbayog City which was used mainly for swimming and other recreational activities namely: Burabod Beach Resort, Bagacay Beach Resort, Mondejares Beach Resort, Marcatubig Beach Resort, Penquit Beach Resort and Malajog Beach Resort. In Marabut, six beaches were also known, but only four were considered famous, these were: Palm Beach Resort, Jasmin Beach Resort, Frenskiss Beach Resort, and Marabut Marine Park. The remaining two beach resorts of Marabut were Camuropud-an Beach Resort and Marakit-dakit Islet. All of these resorts were used for swimming and recreations except, Marakit-dakit which was used as dive site.

Fortunately, Daram has also six eco-tourism projects which were used all as dive site, rock climbing and for snorkeling.

Table 17

Fish Sanctuaries and Marine Protected Areas as Eco-Tourism Projects In CBCRM Communities

City/ Municipality	Project Type	Area (ha)/ Year Estab-lished	Barangay	City/ Municipal Ordinance	Enforcement Status Rating	Biophysical Condition
Calbayog	Fish Sanctuary	2009	San Joaquin	No. 2009-01-083	Actively enforced	Fair Condition
	Fish Sanctuary	2007	Tinambacan	No. 2007-10-050	Actively enforced	Fair Condition
Daram	Fish Sanctuary	10.36 ha	Tugas	-	Actively enforced	Fair Condition
	Fish Sanctuary	16.74 ha	San Miguel	-	Actively enforced	Fair Condition
	Fish Sanctuary	10 ha	Betaug	No. 04-2001	Actively enforced	Fair Condition
	Fish Sanctuary	-	Birawan	-	Inactive	Poor Condition
	Marine Reserve	-	Casab-ahan	-	Inactive	Poor Condition
	FS MR	-	Parasan	-	Inactive	Poor Condition
	Fish Sanctuary	-	Rizal	-	Inactive	Poor Condition
	Fish Sanctuary	-	San Jose	-	Inactive	Poor Condition
	Fish Sanctuary	-	Valles-Bello	-	Inactive	Poor Condition

Table 17 Continued

Marabut	Fish Sanctuary	-	Odoc-Ferreras	-	Enforced but not Actively	Good Condition
	FS MR	-	Osmeña	-	Enforced but not Actively	Good Condition
Jiabong	MPA	-	Monbon	-	Inactive	Poor Condition
	MPA	-	Tagisan	-	Inactive	Poor Condition
	MPA	-	Villareal	-	Inactive	Poor Condition
Talalora	Fish Sanctuary	-	Independencia	-	Inactive	Poor Condition
	Fish Santuary	-	San Juan	-	Inactive	Poor Condition
	Fish Sanctuary	-	Victory	-	Inactive	Poor Condition
Santa Rita	Fish Sanctuary	-	Ando Island	-	Inactive	Poor Condition

*FS - Fish Sanctuary
**MR - Marine Reserve
***MPA - Marine Protected Area

Other eco-tourism projects such as Fish Sanctuaries, Marine Reserve and Marine Protected Areas are presented in Table 17. As shown in the table, Calbayog has two declared actively enforced fish sanctuary under good conditions which were located in Brgy. San Joaquin and Tinambacan. In the case of Daram, nine fish sanctuary were declared but only three were considered actively enforced

while the rest were inactive and has poor conditions. For Marabut, there were two declared fish sanctuary but they were not actively enforced. In the case of Jiabong, Talalora and Santa Rita, the first has both three declared fish sanctuary but all were considered inactive, while Santa Rita has only one declared fish sanctuary but it was also inactive.

Status of the Implemented Community-Based Coastal Resource Management Programs in Samar

This part of the chapter discusses the status of the implemented community-based coastal resources management (CBCRM) in Samar in terms of research, legislation and law enforcement, education, community organization and development, resource tenure improvement, and environmental conservation and management.

Research. Presented in Table 18 are the data on the observations of different respondents on the extent of implementation of the community-based coastal resource management or CBCRM in Samar along the area of research. As gleaned from the table, under the first sub-component of research which is on the assessment and inventory of aquatic resources, data shows that only three indicators the finfishes, seaweeds/seagrasses, and mangroves were described as "much implemented" (MI) with weighted means of 2.95, 2.95 and 3.01, respectively. The rest of the indicators were described as "not implemented" (NI), while the sub-mean for this sub-component was rated with 1.86 which described as "much implemented" (MI).

Table 18

Status of the Implemented CBCRM Programs in Samar in Terms of Research

Component of CBCRM/Indicators	$\bar{X}_m$	I
A. RESEARCH		
1. Assessment and inventory of aquatic resources		
1.1 Finfishes	2.95	MI
1.2 Crustaceans	0.49	NI
1.3 Mollusks	0.45	NI
1.4 Echinoderms	0.34	NI
1.5 Coelenterates	2.80	MI
1.6 Seaweeds and Seagrasses	2.95	MI
1.7 Mangroves	3.01	MI
Sub Total	**12.99**	
Sub Mean	**1.86**	**MI**
2. Assessment on sustainable utilization of existing habitat		
2.1 Mangrove swamps	2.99	MI
2.2 Coral reefs	2.95	MI
2.3 Seaweeds and seagrass beds	2.94	MI
2.4 Nearshore soft bottom habitat	0.33	NI
2.5 Nearshore pelagic habitat	0.33	NI
2.6 Estuaries/coastal lagoons	0.34	NI
2.7 Salt marsh/tidal flat	0.29	NI
2.8 Rocky shores	0.30	NI
2.9 Coves	0.33	NI
2.10 Bays	0.34	NI
Sub Total	**11.14**	
Sub Mean	**1.11**	**SI**
3. Investigation & scientific inquiry on issues and problems affecting coastal resources and its environment		
3.1 Resource depletion in coastal areas	2.04	MoI
3.2 Widespread environmental damaged	2.23	MoI
3.3 Destructive effect of upland activities on coastal ecosystem	1.61	MoI
3.4 Poverty among municipal fishermen	2.81	MI
3.5 Low productivity in aquaculture	1.92	MoI
3.6 Underutilized offshore and economic zone	1.23	SI
3.7 Inefficient utilization of fishery products	1.19	SI

Table 18 Continued

Sub Total	**13.03**	
Sub Mean	**1.86**	**SI**
Components of CBCRM/Indicators	$\bar{X}_m$	**I**
4. Inventory of fishing gears		
4.1 Active fishing gears	2.78	MoI
4.2 Passive fishing gears	2.81	MoI
4.3 Municipal fishing vessels	3.40	MoI
4.4 Commercial fishing vessels	3.36	MoI
Sub Total	**12.35**	
Sub Mean	**3.09**	**MoI**
5. Inventory of fisherfolks		
5.1 Municipal fisherfolks	4.00	VMI
5.2 Commercial fisherfolks	3.85	VMI
Sub Total	**7.85**	
Sub Mean	**3.93**	**VMI**
6. Resource and Ecological Assessment		
6.1 Spatial and geographical	0.34	NI
6.2 Oceanographical and ecological	0.27	NI
6.3 Demographic	0.37	NI
6.4 Resource uses and socio-economic conditions	0.31	NI
6.5 Legal and institutional	0.31	NI
6.6 Management issues and solutions	0.30	NI
Sub Total	**1.90**	**-**
Sub Mean	**0.32**	**NI**
Grand Total	**59.26**	**-**
Grand Mean	**2.03**	**MoI**

Legend:

4.51 – 5.00	**Fully Implemented (FI)**	X_m **– Arithmetic Mean**
3.51 – 4.50	**Very Much Implemented (VMI)**	**I - Interpretation**
2.51 – 3.50	**Much Implemented (MI)**	
1.51 – 2.50	**Moderately Implemented (MoI)**	
1.00 – 1.50	**Slightly Implemented (SI)**	
0.00 – 0.99	**Not Implemented (NI)**	

On second sub-component of research which is on the assessment on sustainable utilization of existing habitat, only three indicators such as mangrove swamps (2.99), coral reefs (2.95) and seaweeds or seagrasses beds (2.94) were

described as "much implemented" (MI), while the rest were described as "not implemented" (NI). The sub-mean was rated 1.11 which was described as "slightly implemented" (SI).

As to the third sub-component of research, the fourth indicator which is on poverty among municipal fishermen, it was evaluated by the respondents as "much implemented" (2.81) while the first, second, third and fifth indicators such as the resource depletion in coastal waters (2.04), widespread environmental damaged (2.23), destructive effect of upland activities on coastal ecosystem (1.61) and low productivity in aquaculture (1.92) were evaluated as "moderately implemented" (MoI). The rest of the indicators under this sub-component like "underutilized offshore and economic zone (1.23) and "inefficient utilizations of fishery products (1.19), including the sub-mean were evaluated as "slightly implemented" (1.86).

Under the fourth sub-component of this area, which is the inventory of fishing gears, all the indicators such as "active fishing gears" (2.78), "passive fishing gears" (2.81), "municipal fishing vessels" (3.40), and "commercial fishing vessels" (3.36) were evaluated as "moderately implemented" including the sub-mean with numerical value of 3.09.

The two indicators of the fifth sub-component, the "municipal fisherfolks" and the "commercial fisherfolks" having a mean of 4.0 and 3.85, respectively, were described by the respondents as "very much implemented" including its sub-mean, which has a numerical evaluation of 3.93.

As to the last sub-component, all its indicators including its sub-mean were evaluated as "not implemented" by all of the respondents. The grand mean of the first component of CBCRM was rated 2.03 which categorically described as "moderately implemented".

Legislation and Law Enforcement. Data on the status of the implemented CBCRM programs in Samar in relation to legislation and enforcement are presented in Table 19. Under the legislation and law enforcement components of the CBCRM, the following indicators were evaluated
as "very much implemented" (VMI): "enactment of municipality or city ordinance related to CBCRM" (3.73), "apprehension of violators on fishery laws, rules and regulations" (3.54), "imposition of sanctions" (3.58), "imposition of fines and penalties" (3.51), and "provision of rules and regulations on registration, taxation, licensing, permits and other fisheries activities" (3.59). The rest of its indicators such as "enforcement of fishery laws, rules and regulations and fisheries ordinances" (3.44), "filing of cases among violators in appropriate bodies and courts of laws" (2.96), "provision of adequate and competent numbers of law enforcers" (2.85), "provision of monetary incentives for law enforcers" (2.57), "provision of adequate budgetary support for the maintenance and operation services on law enforcement" (3.04), and ""availability of legal support/services" (2.83), were described as "much implemented". "Not implemented" (NI) was rated to indicator on "enabling legislation on close and open season" having a

mean of 0.23. The mean was evaluated as "much implemented" (MI) with a numerical rating of 2.99.

Table 19

Status of the Implemented CBCRM Programs in Samar in Terms of Legislation and Law Enforcement

Component of CBCRM/Indicators	$\bar{X}_m$	I
B. Legislation and Law Enforcement		
1. Enactment of municipality or city ordinances related to CBCRM.	3.73	VMI
2. Enforcement of fishery laws, rules and regulations and fisheries ordinances.	3.44	MI
3. Apprehension of violators on fishery laws, rules and regulations.	3.54	VMI
4. Imposition of sanctions.	3.58	VMI
5. Imposition of fines and penalties.	3.51	VMI
6. Filing of cases among violators in appropriate bodies and courts of laws.	2.96	MI
7. Provision of adequate and competent numbers of law enforcers.	2.85	MI
8. Provision of monetary incentives for law enforcers.	2.57	MI
9. Provision of adequate budgetary support for the maintenance and operation services on law enforcement.	3.04	MI
10. Availability of legal support/services.	2.83	MI
11. Provision of rules and regulations on registration, taxation, licensing, permits and other fisheries activities.	3.59	VMI
12. Enabling legislation on close and open season.	0.23	NI
Grand Total	**35.87**	**-**
Grand Mean	**2.99**	**MI**

Legend:
4.51 – 5.00 Fully Implemented (FI)
3.51 – 4.50 Very Much Implemented (VMI)
2.51 – 3.50 Much Implemented (MI)
1.51 – 2.50 Moderately Implemented (MoI)
1.00 – 1.50 Slightly Implemented (SI)
0.00 – 0.99 Not Implemented (NI)

X_m – Arithmetic Mean
I – Interpretation

Education. Table 20 shows the status of the implemented CBCRM in Samar in relation to Education in which all the indicators such as "increase knowledge on ecological awareness of community people on CBCRM practices" (3.11), "increase sense of ownership over the resources" (2.94), "recognize their part in the problem, and the capacity to collectively manage and protect the resources" (2.97), "active involvement in finding and implementing solutions to coastal resource issues in the community" (2.64), "participation in research and data gathering" (2.72), "participation in coastal management implementation activities (i.e. law enforcement, fisheries monitoring and evaluation, and sanctuary establishment and management)" (2.98), "provides local and traditional knowledge and experience in resource management" (2.82), "attend training regarding environmental awareness (i.e. policies and regulations on CBCRM, law enforcement, regeneration and conservation, etc.)" (3.2), and "shows willingness and interests in collecting available educational tools and materials on CBCRM" (3.23), were evaluated as "much implemented" (MI), except the item number 10 on "attend symposia and fora on CBCRM" (3.91), which was evaluated as "very much implemented". The mean was evaluated also as "much implemented" having a numerical rating of 3.02.

Table 20

Status of the Implemented CBCRM Programs in Terms of Education

Component of CBCRM/Indicators	$\bar{X}_m$	I
C. Education		
1. Increase knowledge on ecological awareness of community people on CBCRM practices.	3.11	MI
2. Increase sense of ownership over the resources.	2.94	MI
3. Recognize their part in the problem, and the capacity to collectively manage and protect the resources.	2.97	MI
4. Active participation in identifying issues and concerns in the community.	2.76	MI
5. Active involvement in finding and implementing solutions to coastal resource issues in the community.	2.64	MI
6. Participation in research and data gathering.	2.72	MI
7. Participation in coastal management implementation activities (i.e., law enforcement, fisheries monitoring evaluation, and sanctuary establishment and management).	2.98	MI
8. Provides local and traditional knowledge and experience in resource management.	2.82	MI
9. Attend training regarding environmental awareness (i.e. policies and regulations on CBCRM, law enforcement, regeneration and conservation, etc.)	3.2	MI
10. Attend symposia and fora on CBCRM.	3.91	VMI
11. Shows willingness and interests in collecting available educational tools and materials on CBCRM.	3.23	MI
Grand Total	**33.28**	
Grand Mean	**3.02**	**MI**

Legend:
4.51 – 5.00 Fully Implemented (FI)
3.51 – 4.50 Very Much Implemented (VMI)
2.51 – 3.50 Much Implemented (MI)
1.51 – 2.50 Moderately Implemented (MoI)
1.00 – 1.50 Slightly Implemented (SI)
0.00 – 0.99 Not Implemented (NI)

X_m – Arithmetic Mean
I – Interpretation

Community Organization and Development. In Table 21, the status of CBCRM programs in Samar is presented together with its indicators. As reflected from the table, the first two indicators, namely: "organize a fisherfolks organization, associations or cooperatives to form alliances for advocacy and sharing of resources and technologies" and "attend training on capacity building such as basic leadership skills, alternative livelihood projects, etc.", they were rated as " very much implemented" with a mean of 3.93 and 3.56, respectively.

Table 21

Status of the Implemented CBCRM Programs in Samar in Terms of Community Organization and Development

Component of CBCRM/Indicators	$\bar{X}_m$	I
D. Community Organization and Development		
1. Organize a fisherfolk's organization, associations or cooperatives to form alliances for advocacy and sharing of resources and technologies.	3.93	VMI
2. Attend training on capability building such as basic leadership skills, alternative livelihood projects, etc.).	3.56	VMI
3. Find the opportunity to build and sustain organizational structures for CBCRM.	2.76	MI
4. Develop strategies to strengthen their capability to access funds in support for viable and sustainable socio-economic projects.	2.62	MI
5. Initiates Information, Education and Communication activities in the community.	2.51	MI
Grand Total	**15.38**	**-**
Grand Mean	**3.08**	**MI**

Legend:
4.51 – 5.00 Fully Implemented (FI)
3.51 – 4.50 Very Much Implemented (VMI)
2.51 – 3.50 Much Implemented (MI)
1.51 – 2.50 Moderately Implemented (MoI)
1.00 – 1.50 Slightly Implemented (SI)
0.00 – 0.99 Not Implemented (NI)

X_m – Arithmetic Mean
I - Interpretation

The rest of the indicators such as "find the opportunity to build and sustain organizational structures for CBCRM" (2.76), "develop strategies to strengthen their capability to access funds in support for viable and sustainable socio-economic projects" (2.62), and "initiates information, education, and communication activities in the community" (2.51), were evaluated as "much implemented" while the mean of this component was numerically rated at 3.08 which described as "much implemented".

Table 22

Status of the Implemented CBCRM Programs in Samar in Terms of Resource Tenure Improvement

Component of CBCRM/Indicators	$\bar{X}_m$	I
E. Resource Tenure Improvement		
1. Delineated municipal water use zones.	3.44	MI
2. Strict implementation of fishery laws and CBCRM ordinances in community.	3.39	MI
3. Restrictions concerning the rights to harvest the resource.	2.30	MoI
4. Practice limits on resource utilization.	0.97	NI
5. Enable legislations or rules concerning harvesting or resource conservation particularly the close and open season.	1.04	SI
6. Imposed penalty or punishment for those who break the rules.	3.46	MI
Grand Total	**14.60**	**-**
Grand Mean	**2.43**	**MoI**

Legend:			
4.51 – 5.00	Fully Implemented (FI)	X_m – Arithmetic Mean
3.51 – 4.50	Very Much Implemented (VMI)	I - Interpretation
2.51 – 3.50	Much Implemented (MI)	
1.51 – 2.50	Moderately Implemented (MoI)	
1.00 – 1.50	Slightly Implemented (SI)	
0.00 – 0.99	Not Implemented (NI)	

Resource Tenure Improvement. Presented in Table 22 is the status of the implemented CBCRM programs in Samar in relation to resource tenure improvement. Under this component, results shows that indicators 1, 2, and 6 such as "delineated municipal water use zones" with a mean of 3.44, "strict implementation of fishery laws and CBCRM ordinances in community" with a mean of 3.39, and "imposed penalty or punishment for those who break the rules" with a mean of 3.46, were evaluated by different respondents as " much implemented". In the case of indicators 3, 4, and 5 such as "restrictions concerning the rights to harvest the resource", "practice limits on resource utilization", and "enable legislations or rules concerning harvesting or resource conservation particularly the close and open seasons" with a mean of 2.30, 0.97, and 1.04, were evaluated and rated as "moderately implemented", "not implemented", and "slightly implemented", respectively. The computed mean was 2.43 which categorically described as "moderately implemented".

Environmental Conservation and Management. The data regarding the status of the implemented community-based coastal resource management programs in Samar is presented in Table 23. The data shows, that the first indicator which is on "total ban of illegal fishing practices as prescribed in Republic Act 8550" was rated 3.99 which described by respondents as "very much implemented". Other indicators just like "delineated municipal water use zones" (3.26), "imposition of heavier penalties for illegal fishers" (3.37), "establishment of sustainable and environment-friendly livelihood mariculture projects" (2.95),

Table 23

Status of the Implemented CBCRM Programs in Samar in Terms of Environmental Conservation and Management

Component of CBCRM/Indicators	$\bar{X}_m$	I
F. Environmental Conservation and Management		
1. Total ban of illegal fishing practices as prescribed in Republic Act 8550.	3.99	VMI
2. Declaration of open and close season.	0.47	NI
3. Delineated municipal water use zones.	3.26	MI
4. Imposition of heavier penalties for illegal fishers.	3.37	MI
5. Establishment of catch ceilings.	0.61	NI
6. Establishment of sustainable and environment-friendly livelihood mariculture projects.	2.95	MI
7. Establishment of marine/fish sanctuary.	2.98	MI
8. Practice of aquaranching.	1.00	SI
9. Installations of artificial reefs (ARs).	2.95	MI
10. Stock and re-stock of fishes in communal waters.	1.03	SI
11. Imposition of progressive tax/ license on fishing vessels.	3.15	MI
12. Imposition of fisher's license.	2.56	MI
13. Regulations on the distribution of materials use for destructive fishing methods.	0.85	NI
14. Establishment of mangrove reforestation.	2.99	MI
15. Conduct coral and seagrass transplantation.	0.43	NI
Grand Total	**32.59**	-
Grand Mean	**2.17**	**MoI**

Legend:			
	4.51 – 5.00	Fully Implemented (FI)	X_m – Arithmetic Mean
	3.51 – 4.50	Very Much Implemented (VMI)	I - Interpretation
	2.51 – 3.50	Much Implemented (MI)	
	1.51 – 2.50	Moderately Implemented (MoI)	
	1.00 – 1.50	Slightly Implemented (SI)	
	0.00 – 0.99	Not Implemented (NI)	

"establishment of marine/fish sanctuary" (2.98), "installations of artificial reefs" (2.95), "imposition of progressive tax/license on fishing vessels" (3.15), "imposition of fishers' license" (2.56), and "establishment of mangrove reforestations" (2.99), were all evaluated by the respondents as "much implemented". The rest of the indicators such as "practice of aquaranching" (1.00), "stock and re-stock of fishes in communal waters" (1.03), "declaration of open and close season" (0.47), ""establishment of catch ceiling" (0.61), "regulations on the distribution of materials use for destructive fishing methods" (0.85), and "conduct coral and seagrass transplantation" (0.43), were rated as "slightly implemented" and "not implemented", respectively. "Moderately implemented" (2.17) was the rating of the mean in this component.

Impact-Indicators of Community-Based Coastal Resource Management Projects in Samar

This section of the chapter discusses the impact-indicators of community-based coastal resource management along the following areas of development, namely, ecological, socio-economic, socio-cultural, and institutional.

Ecological. Table 24 shows the impact-indicators of community-based coastal resource management project in Samar in relation to the ecological aspect of development. As seen from the table, there were eight indicators under the ecological component, five of which were evaluated by the respondents as "much manifested" and they were as follows: "return of species" (2.98), "increase fish stock/population and diversity" (2.80), "increase production" (2.59), "increase

coral cover inside and adjacent to marine sanctuary" (2.60), and "fully protected mangrove areas" (3.33). The remaining three indicators were evaluated by the respondents as "moderately manifested" and identified as follows: "bigger fishes in greater number in the sanctuary", "steady increase in fish catch", and "fish abundance inside and outside the marine sanctuary" with a mean of 2.43, 2.16, and 2.44, respectively. The mean (2.67) under this component was rated as "much manifested".

Table 24

Impact-Indicators of CBCRM Project in Samar in Relation to the Ecological Areas of Development

Impact-Indicators	$\bar{X}_m$	I
A. Ecological		
1. Return of species.	2.98	MM
2. Increase fish stock/population and diversity.	2.80	MM
3. Increase production.	2.59	MM
4. Bigger fishes in greater number in the sanctuary.	2.43	MoM
5. Steady increase in fish catch.	2.16	MoM
6. Increase coral cover inside and adjacent to marine sanctuary.	2.60	MM
7. Fish abundance inside and outside the marine sanctuary.	2.44	MoM
8. Fully protected mangrove areas.	3.33	MM
Grand Total	**21.33**	-
Grand Mean	**2.67**	**MM**

Legend:
4.51 – 5.00 Fully Manifested (FM)
3.51 – 4.50 Very Much Manifested (VMM)
2.51 – 3.50 Much Manifested (MM)
1.51 – 2.50 Moderately Manifested (MoM)
1.00 – 1.50 Slightly Manifested (SM)
0.00 – 0.99 Not Manifested(NM)

X_m – Arithmetic Mean
I – Interpretation

Socio-Economic. As to the socio-economic areas of development, Table 25 shows the data on the impact of the implemented community-based coastal resource management project in Samar. As observed from the table, there were 16 indicators which were listed under the socio-economic aspect of development.

Table 25

Impact-Indicators of CBCRM Project in Samar in Relation to the Socio-Economic Areas of Development

Impact-Indicators	$\bar{X}_m$	I
B. Socio-economic		
1. Increase in fish catch.	2.78	MM
2. Increase in family income.	2.47	MoM
3. Children are now sent to school.	2.67	MM
4. Fishermen have more money to spend on education and food and are able to save.	2.08	MoM
5. More income derived from other sustainable livelihood projects.	2.04	MoM
6. Owned a house.	4.46	VMM
7. Owned a lot.	2.19	MoM
8. Owned a fishing boats/gear.	2.38	MoM
9. Owned appliances (TV, radio, VCD, DVD microwave oven).	1.99	MoM
10. Owned furnitures (sala/dining set).	1.91	MoM
11. Satisfy family needs.	1.91	MoM
12. Improve quality life.	2.60	MM
13. Alleviate poverty.	2.72	MM
14. With electricity connection.	2.55	MM
15. With cable-TV connection.	4.26	VMM
16. With telephone landline/internet connection.	1.76	MoM
Grand Total	**40.77**	**-**
Grand Mean	**2.55**	**MM**

Legend:
4.51 – 5.00 Fully Manifested (FM)
3.51 – 4.50 Very Much Manifested (VMM)
2.51 – 3.50 Much Manifested (MM)
1.51 – 2.50 Moderately Manifested (MoM)
1.00 – 1.50 Slightly Manifested (SM)
0.00 – 0.99 Not Manifested(NM)

X_m – Arithmetic Mean
I - Interpretation

The two indicators which were rated by the respondents as "very much manifested" (VMM) were "owned a house" and "with cable-TV connections" with a mean of 4.46 and 4.26, respectively . "Increase in fish catch", children are now send to school", "improve quality life", "alleviate poverty", and "with electricity connections" were the indicators which were its mean were numerically rated with 2.78, 2.67, 2.60, 2.72 and 2.55, respectively, and described as "much manifested". The rest of the indicators like "increase in family income", "fishermen have more money to spend on education", "more income derived from other sustainable livelihood projects", "owned a lot", "owned a fishing boats/gears", "owned appliances (TV, radio, VCD, DVD, microwave oven, etc.)", "owned furnitures (sala/dining set)", "satisfy family needs", and "with telephone landline/internet connection", were all evaluated by the respondents as "moderately manifested" and numerically rated of 2.47, 2.08, 2.04, 2.19, 2.38, 1.99, 1.91, 1.91, and 1.76, respectively. The mean of this component, that is, 2.55 was rated as "much manifested".

Socio-Cultural. The impact-indicators of CBCRM program in Samar in relation to the socio-cultural areas of development are presented in Table 26. Data shows that majority of these indicators were rated with "much manifested" especially along the following, namely: "decrease in incident of illegal fishing activities", "positive changes in attitude among people from extraction to conservation", "improve capacities of fisherfolks to manage their own activities",

Table 26

Impact-Indicators of CBCRM Project in Samar in Relation to the Socio-Cultural Areas of Development

	Impact-Indicators	$\bar{X}_m$	I
C.	**Socio-cultural**		
1.	Decrease in incident of illegal fishing activities.	2.73	MM
2.	Positive changes in attitude among people from extraction to conservation.	2.55	MM
3.	Improve capacities of fisherfolks to manage their own activities.	2.67	MM
4.	Increase ecological awareness among local community members.	2.83	MM
5.	Heightened community awareness and support to community programs.	2.93	MM
6.	Increase awareness regarding the role of women in fisheries.	3.05	MM
7.	Fishermen are more active, participative and responsible in managing the resource.	2.96	MM
8.	Active participation in apprehending violators.	2.69	MM
9.	Increase security of households through the provision and facilitation of social services such as health, education and disaster preparedness.	2.89	MM
10.	Mark changes in the attitude of people towards the resources, their rights to a balanced ecology and their attitude fighting for those rights.	2.67	MM
11.	Increase confidence in relating with LGU and other agencies.	3.86	VMM
12.	Representation of women and youth in an organization, Bantay Dagat and FARMCs.	3.47	MM
	Grand Total	**35.30**	
	Grand Mean	**2.94**	**MM**

Legend:

4.51 – 5.00	Fully Manifested (FM)	X_m – Arithmetic Mean
3.51 – 4.50	Very Much Manifested (VMM)	I - Interpretation
2.51 – 3.50	Much Manifested (MM)	
1.51 – 2.50	Moderately Manifested (MoM)	
1.00 – 1.50	Slightly Manifested (SM)	
0.00 – 0.99	Not Manifested (NM)	

"increase ecological awareness among local community members", "heightened community awareness and support to community programs", "increase awareness regarding the role of women in fisheries", "fishermen are more active, participative and responsible in managing the resource", "active participation in apprehending violators", "increase security of households through the provision and facilitation of social services such as health, education, and disaster preparedness", "mark changes in the attitude of people towards the resources, their rights to a balanced ecology and their attitude fighting for these rights", and "representation of women and youth in an organization, Bantay Dagat and FARMCs", with the mean of 2.73, 2.55, 2.67, 2.83, 2.93, 3.05, 2.96, 2.69, 2.89, 2.67, and 3.47, respectively. Indicator like "increase confidence in relating with LGU and other agencies" was rated 3.86 which described as "very much manifested". The mean (2.94) was evaluated as "much manifested".

Institutional. Presented in Table 27 are the data on the impact-indicators of CBCRM along the institutional areas of development. As reflected in the table, there were two out of eleven indicators which were rated as "very much manifested" as indicated by their weighted means. These two indicators were "empowerment of CBCRM program beneficiary" with 4.01 weighted means and "institutionalized participation on people's organization leaders in municipal development planning and decision-making process" with 3.79 weighted mean. The majority of the indicators that were rated as "much manifested" were

identified and rated as follows: "mainstreaming of fishery resource plans in local development plan", 3.08; "annual budget allocation from LGU", 2.83; "effective mechanisms for law enforcement", 3.03; "strong political

Table 27

Impact-Indicators of CBCRM Project in Samar in Relation to the Institutional Areas of Development

	Impact-Indicators	$\bar{X}_m$	I
D.	**Institutional**		
1.	Empowerment of CBCRM program beneficiary.	4.01	VMM
2.	Mainstreaming of fishery resource plans in local development plan.	3.08	MM
3.	Annual budget allocation from LGU.	2.83	MM
4.	Effective mechanisms for law enforcement.	3.03	MM
5.	Strong political will and support of the LGU for the passage of resolutions and ordinances.	3.11	MM
6.	Partnerships among various stakeholders institutionalized through various mechanisms (sanctuary, board, cooperative, through various mechanisms (sanctuary, board, cooperative, law, enforcement group).	2.67	MM
7.	Enlightened and committed leadership.	3.04	MM
8.	Institutionalization of resource management through policies/ordinances.	2.95	MM
9.	Institutionalized participation on people's organization leaders in municipal development planning and decision-making process	3.79	VMM
10.	Facilitated access and provided social services in the areas of health, education, and disaster management	3.32	MM
11.	Restrictions of relevant resource on who has the rights to harvest the resource.	2.85	MM
	Grand Total	**34.68**	-
	Grand Mean	**3.15**	**MM**

Legend:

4.51 – 5.00	Fully Manifested (FM)	X_m – Arithmetic Mean
3.51 – 4.50	Very Much Manifested (VMM)	I - Interpretation
2.51 – 3.50	Much Manifested (MM)	
1.51 – 2.50	Moderately Manifested (MoM)	
1.00 – 1.50	Slightly Manifested (SM)	
0.00 – 0.99	Not Manifested (NM)	

will and support of the LGU for the passage of resolutions and ordinances", 3.11; "partnerships among various stakeholders institutionalized through various mechanisms (sanctuary, board, cooperative, law enforcement group)", 2.67; "enlightened and committed leadership", 3.04; "institutionalization of resource through policies/ordinances", 2.95; "facilitated access and provided social services in the areas of health, education, and disaster management", 3.32; and "restrictions of relevant resource on who has the rights to harvest the resource", 2.85. The mean was evaluated as "much manifested" with a rating of 3.15.

Relationship Between the Status of the Implemented Community-Based Coastal Resource Mangement and the Impact Indicators of CBCRM Programs

Table 28, shows the correlation analysis between the status of the implemented community-based coastal resource management program along research and impact-indicators of CBCRM projects in Samar such as ecology, socio-economic, socio-cultural, and institutional. Result shows that the correlation coefficients for ecological, socio-economic, socio-cultural, and institutional were 0.27, 0.21, 0.28, and 0.37, respectively. Correlation analysis revealed that the Fisher's t-values for ecological (7.18), socio-economic (5.59), socio-cultural (7.56), and institutional (10.16) were numerically higher than the critical/tabulated t-value of 1.96 at $\alpha = .05$ and df = 655 in all areas. Thus, the hypothesis that "there is no significant relationship on the status of CBCRM programs in Samar along research and impact-indicators of CBCRM projects as to ecological, socio-

economic, socio-cultural, and institutional" was rejected. It only implies that research as one component under the implemented CBCRM programs in Samar, significantly affect the ecological system of the fishery and coastal resource, the socio-economic and socio-cultural status of the stakeholders, and the institutional or governance aspect of the aquatic resource.

Table 28

Relationship Between the CBCRM Program Along Research And Impact-Indicators of CBCRM Projects

Area	r_{xy}	Fisher's t	t_{tab}; a=0.05; df=655	Evaluation
Ecological	0.27	7.18	1.96	S/Reject Ho
Socio-Economic	0.21	5.59	1.96	S/Reject Ho
Socio-Cultural	0.28	7.56	1.96	S/Reject Ho
Institutional	0.37	10.16	1.96	S/Reject Ho

Legend: S - Significant
NS - Not Significant

Presented in Table 29 is the relationship between the community-based coastal resource management program along legislation and law enforcement and impact-indicators of CBCRM projects in Samar. Result shows that the variates which are ecological, socio-economic, socio-cultural, and institutional obtained a correlation coefficient of 0.51, 0.27, 0.53, and 0.68, respectively. Correlation analysis revealed that the Fisher's t-value obtained for ecological (15.10), socio-economic (7.16), socio-cultural (16.10), and institutional (23.65) were found

significantly higher than the critical/tabulated t-value of 1.96 at $\alpha = .05$ level of significance and 655 degrees of freedom (df). Thus, the hypothesis that "there is no significant relationship on the status of CBCRM programs in Samar along legislation and law enforcement and impact-indicators of CBCRM projects as to ecological, socio-economic, socio-cultural, and institutional" was rejected. This implies that legislation and law enforcement under the CBCRM programs implemented in Samar has very significant role in improving the condition of the coastal environment, socio-economic and socio-cultural status of the coastal community including the right governance and management of the resources.

Table 29

Relationship Between the CBCRM Program Along Legislation and Law Enforcement and Impact-Indicators of CBCRM Projects

Area	r_{xy}	Fisher's t	t_{tab}; a=0.05; df=655	Evaluation
Ecological	0.51	15.10	1.96	S/Reject Ho
Socio-Economic	0.27	7.16	1.96	S/Reject Ho
Socio-Cultural	0.53	16.10	1.96	S/Reject Ho
Institutional	0.68	23.65	1.96	S/Reject Ho

Legend: S - Significant
NS - Not Significant

The result on the analysis of the relationship between the community-based coastal resource management along with education and impact-indicators of CBCRM projects in Samar is reflected in Table 28. It shows the obtained correlation coefficient and Fisher's t-value of ecological ($r_{xy} = 0.39$; Fisher's t-value =

10.72), socio-economic (r_{xy} = 0.28; Fisher's t-value = 7.59), socio-cultural (r_{xy} = 0.64; Fisher's t-value = 21.21), and institutional (r_{xy} = 0.59; Fisher's t-value = 18.69). Analysis revealed that the obtained Fisher's t-value for ecological, socio-economic, socio-cultural, and institutional were numerically higher than the obtained critical/tabular t-value of 2.021 which led to the rejection of the null hypothesis "that there is no significant relationship that exists between the status of the implemented CBCRM programs in Samar along education and impact indicators of CBCRM projects. The result suggests that education is a big factor for the successful management of fishery and coastal resources.

Table 30

Relationship Between the Implemented CBCRM Program Along Education and Impact-Indicators of CBCRM Projects

Area	r_{xy}	Fisher's t	t_{tab}; α=0.05; df=655	Evaluation
Ecological	0.39	10.72	2.021	S/Reject Ho
Socio-Economic	0.28	7.59	2.021	S/Reject Ho
Socio-Cultural	0.64	21.21	2.021	S/Reject Ho
Institutional	0.59	18.69	2.021	S/Reject Ho

Legend: S - Significant
NS - Not Significant

Table 31 show the correlational analysis between the component of the CBCRM program which is the community organization and development and impact-indicators of the CBCRM projects in Samar. Results showed that ecological, socio-economic, socio-cultural, and institutional obtained a correlation

coefficient of 0.49, 0.28, 0.63, and 0.68, respectively. Correlation analysis revealed that the Fisher's t-values for ecological, socio-economic, socio-cultural, and institutional were 14.40, 7.53, 20.86, and 23.73 greater than the critical/tabulated t-value of 2.021 at $\alpha = .05$ level of significance. Thus, the null hypothesis "that there is no significant relationship between status of CBCRM programs along community organization and development and impact-indicators of CBCRM projects" is rejected. It only manifests that community organization and development is an important and integral component that led to a coastal resource management.

Table 31

Relationship Between the CBCRM Program Along Community Organization and Development and Impact-Indicators of CBCRM Projects

Area	r_{xy}	Fisher's t	t_{tab}; a=0.05; df=655	Evaluation
Ecological	0.49	14.40	2.021	S/Reject Ho
Socio-Economic	0.28	7.53	2.021	S/Reject Ho
Socio-Cultural	0.63	20.86	2.021	S/Reject Ho
Institutional	0.68	23.73	2.021	S/Reject Ho

Legend: S – Significant
NS – Not Significant

The relationship between the CBCRM program along resource tenure improvement and impact-indicators of CBCRM projects are presented in Table 32. Results revealed that the variates such as ecological, socio-economic, socio-cultural, and institutional, obtained a correlation coefficient and Fisher's t-value of

0.46 and 13.31, 0.20 and 5.11, 0.49 and 14.45, and 0.55 and 16.76, respectively. Statistical analysis shows that the obtained Fisher's t-values were numerically greater than the critical/tabulated t-value of 1.96 at .05 level of significance and evaluated as significant. Since the evaluation was significant therefore the null hypothesis that "there is no significant relation between the status of CBCRM program along resource tenure improvement and impact indicators of CBCRM projects" is rejected. This implies that resource tenure improvement has something to do in the ecological, socio-economic, socio-cultural, and institutional aspects of the resource.

Table 32

Relationship Between the CBCRM Program Along Resource Tenure Improvement and Impact-Indicators of CBCRM Projects

Area	r_{xy}	Fisher's t	t_{tab}; α=0.05; df=655	Evaluation
Ecological	0.46	13.31	1.96	S/Reject Ho
Socio-Economic	0.20	5.11	1.96	S/Reject Ho
Socio-Cultural	0.49	14.45	1.96	S/Reject Ho
Institutional	0.55	16.76	1.96	S/Reject Ho

Legend: S - Significant
NS - Not Significant

Presented in Table 33 is the relationship between the community-based coastal resource management program along environmental and conservation and management and impact-indicators on CBCRM projects in Samar. Result shows that the variates which are ecological, socio-economic, socio-cultural, and

institutional obtained a correlation coefficient of 0.44, 0.31, 0.58, and 0.47, respectively. Correlation analysis revealed that the Fisher's t-value obtained for ecological (12.63), socio-economic (8.46), socio-cultural (18.17), and institutional (13.59) were found significantly higher than the critical/tabulated t-value of 1.96 at $\alpha = .05$ level of significance and 655 degrees of freedom (df).

Table 33

Relationship Between the CBCRM Program Along Environmental Conservation and Management and Impact-Indicators of CBCRM Projects

Area	r_{xy}	Fisher's t	t_{tab}; a=0.05; df=655	Evaluation
Ecological	0.44	12.63	1.96	S/Reject Ho
Socio-Economic	0.31	8.46	1.96	S/Reject Ho
Socio-Cultural	0.58	18.17	1.96	S/Reject Ho
Institutional	0.47	13.59	1.96	S/Reject Ho

Legend: S – Significant
NS – Not Significant

Thus, the hypothesis that "there is no significant relationship on the status of CBCRM programs in Samar along environmental conservation and management and impact-indicators of CBCRM projects as to ecological, socio-economic, socio-cultural, and institutional" was rejected. This implies that environmental conservation and management if implemented and applied religiously and considered it as a tool in improving the management of the coastal resources, there

is no doubt that resource conditions and quality of life of stakeholders will not be improved.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter contains the summary of findings, conclusions and recommendations which could provide vital information that would fill the gap of knowledge relative to the implemented community-based coastal resource management in Samar and could be used in the future in improving the management of our coastal resources.

Summary of Findings

The following are the major important findings of the study:

1. Majority of the respondents were male which comprise 604 or equivalent to 91.91%, while the female respondents comprise only 53 or equivalent to 8.07% out of the 657 total respondents. The average age of male respondents was 44.56 years old which majority fell under the age bracket of 39-45 years, while female respondents posted an average age of 45.56 years which majority fell under age bracket of 53-59 years old.

2. As to civil status, out of 657 respondents, 613 respondents or equivalent to 93.90% were married, 29 or 4.41% were still single, 10 or 1.52% were widow/widower and 4 or 0.61 % were legally separated.

3. In terms of educational background, majority of the respondents were in the elementary level representing 244 or equivalent to 37.14%, 113 or

17.20% and 88 or 13.39% were graduates of elementary and high school, 75 or 11.42% and 39 or 5.94% were only high school and college levels, 18 or 2.74% were no schooling, 14 or 2.73% obtained master's degree, 11 or 1.67% had vocational course units, 5 or 0.76% had masters' unit, 2 or 0.30% had Ph.D. units and 1 or 0.15% graduated in doctoral degree and 1 or 0.15% graduated in vocational course.

4. Relative to respondents' length of years or experience in CBCRM, majority of the respondents have an average years of experience of 7.10 years.

5. Pertaining to data on demographic characteristics of CBCRM communities, Gandara obtained the highest poverty incidence of 94%, followed by Daram 79%, Jiabong 69%, Santa Rita 63%, Motiong 60%, Pinabacdao 59%, Calbiga and Talalora 58%, Sta. Margarita and Pagsanghan 52%, Marabut 50%, Hinabangan 45% and Calbayog 44%. The total populations were observed high in Calbayog City with 147,387, Daram 42,823, Santa Rita 39,466, Gandara 35,189, Calbiga 22,213 and Sta. Margarita with 21,740. Total number of households was observed high in Calbayog City and Marabut, Samar with 28,912 and 13,133, respectively. With regards to the total area, Calbayog has the highest with 90,300 km^2, followed by Gandara with 49,442 km^2, Hinabangan 37,320 km^2 and Calbiga with 28,370 km^2. As to the number of barangay, Calbayog had the highest number of covered barangays with 157, followed by Gandara with 69 barangays and Daram with 58 barangays. The average family size was high in Jiabong with 6 members per household. As to the number of covered coastal barangays and total length of coastline, Daram recorded to be the highest with 57 coastal barangays and 181.97

km of coastline. As to marine territory, Marabut was recorded the largest marine territory with 518.59 km^2, followed by Calbayog and Daram with 465.15 km^2 and 462. 82 km2, respectively.

6. For the monthly income, majority of the respondents representing 291 or 44.29% had earned a monthly income that ranged from P 2,500 - 3,999, 188 or 28.61% earned a monthly income that ranged from P1000 - 2,491, 93 or 14.16% earned an income that ranged P4,000 - 5,499, 22 or 3.35% had earned a monthly income that ranged P5,500 - 6,999, 7 or 1.07% earned a monthly income that ranged between P8,500 - 9,999, 3 or 0.46% had earned a monthly income that ranged from P7,000 - 8,499 and one respondent earned a monthly income that ranged from P10,000 - 11,499 pesos. The average income of the respondents was P 2,840.00. Result shows that 90.41% of the respondents were earning an average monthly income below the national monthly poverty threshold for a family of five of P 7,017.00 pesos (NSCB, 2011).

7. Pertaining to municipal fisheries fish production, Samar has recorded in 2008 a total municipal fisheries fish production of 33,139.62 MT which valued at P 2,651,168,440.00. The total production in 2009 was posted at 959,027.17 MT, while in 2010, only 1,117.362 MT was reported.

8. The production of commercial fisheries in 2008 and 2009 were 9,608.15 MT and 13,228.61 MT, respectively.

9. As regards to status of the resources condition in Samar, majority of the respondents claimed that all the resources that were found in their respective

coastal waters such as mangroves, coral reefs, seaweeds/seagras beds, beaches/shorelines, estuaries, coastal lagoons, salt marsh, mudflat, rocky shores, coves, bays, fishery, freshwater and upland forest were all in "Fair" conditions as revealed in the result of the grand mean of 3.29 which described also as "Fair".

10. The marine resources caught in different coastal municipalities and cities in Samar such as threadfin bream, short-bodied mackerel, long-bodied mackerel, island mackerel, spanish mackerel, round scad, grouper, tuna, hairtail, black pomfret, hardtail, barracuda, slipmouth, bonito, herring, anchovy, trevally, Philippine jack, yellow leather-jacket, yellow-fin tuna, two-finned runner, sole fish, lizard fish, and garfish were all caught by commercial and municipal fishing gears like Danish seine, trawl, ring net and drift gill net. Fishes like flat head, grunt, snapper, eel, goatfish, croaker, red purple big-eye, pomadasid, stingray, theraponid, moonfish, sharks, mojarra, crabs, threadfish, nemipterid, common whiting, sardines, lizard fish, hairtail, half-beak, cavalla, anchovy, barracuda, garfish, rabbit fish, mullet, slipmouth, shrimp, crab, and mudcrab were all caught by fishing gears like multiple set long-line, gill net, and hook and line. Mudcrab, shrimp, blue crab, wrasses, squids, file fish, parrot fish, and pike-eel were caught also using fishing gears like fish corral, push net, and crab/fish/squid net fishing and the use of squid jigs. Coral reef, seagrass beds, and mud flat, were also some of the marine-based resources found in Samar.

11. In terms of brackishwater pond production, among the three commodities produced in Samar, mudcrab obtained the highest production in

2008 with 3,224.832 MT, followed by shrimp with 3,152.648 metric tons, and milkfish with 2,148.77 metric tons. In 2009 brackishwater pond production, milkfish obtained the highest production with 1,778.405 metric tons, followed by mudcrab with 18.332 metric tons, and shrimp with 8.779 metric tons only. Higher production was observed in 2008 with 8,526.250 metric tons compared to 2009 production with 1,805.516 metric tons only.

12. The land-based resources found in CBCRM communities in Samar were as follows: Calbayog with 390 ha mangroves and 39.7663 ha of productive fishponds, Calbiga with 145 ha mangroves and 131.5747 ha of productive fishponds, Daram with 177.7487 ha of mangroves, Gandara with 530 ha of mangroves, Hinabangan with 311 ha of mangroves, Jiabong with 442.70 ha of mangroves and 99.3910 and productive fishponds, Marabut with 45.50 ha of mangroves, Motiong with 21 ha of mangroves and 22.8970 ha of productive fishponds, Pagsanghan 445.90 ha of mangroves and 167.7862 ha of productive fishponds, Pinabacdao with 84 ha of mangroves and 22.054 ha of productive fishponds, Santa Rita with 1,061 ha of mangroves and 84.64571 productive fishponds, Sta. Margarita with 1,581 ha of mangroves and 304.1294ha of productive fishponds and Talalora with 18 ha of mangroves.

13. In terms of brackishwater pond production, milkfish (*Chanos chanos*), mudcrab (*Scylla serrate*) and shrimp (*Penaeus monodon*) were the commodities produced in Samar.

14. The eco-tourism projects that were found in the coastal municipalities and cities in Samar were beach resorts and marine or fish sanctuaries. Beaches found in Calbayog include Burabod Beach Resort, Bagacay Beach Resort, Mondejares Beach Resort, Pingkit Beach Resort, Malajog Beach Resort and Marcatubig Beach Resort. Palm Beach Resort, Jasmin Beach Resort, Frenskiss Beach Resort, Camurupod-an Islet, Marabut Marine Park, and Marakit-Dakit Islet were some of the beach resorts and dive site that were found in Marabut. In Daram Island, Nara-tara islet, Danao-danauan Islan, Losa Cave, Candiwata Rock Formation, Badiang Island and Agutay Sea Garden were some of the eco-tourism projects that were used as dive site, for scuba diving and snorkeling.

15. As to status of the implemented CBCRM programs in Samar in relation to research, indicators under the first sub-component such as finfishes, coelenterates, seaweeds and seagrasses, and mangroves were perceived by the respondents as "much implemented" while the others were described as "not implemented". The area mean was 1.86 which was described as "much implemented". On the second sub-component, indicators like mangrove swamps, coral reefs, and seaweeds/seagrass beds were perceived by the respondents as "much implemented" with the rest described as "not implemented" The area mean for this sub-component was 1.11 which was perceived by the respondents as "slightly implemented". On the third sub-component which is on investigation and scientific inquiry on issues and problems affecting coastal resources and its

environment, indicators like resource depletion in coastal areas, widespread environmental damaged, destructive effect of upland activities on coastal ecosystem and low productivity in aquaculture, were all perceived by the respondents as "slightly implemented" with a mean of 2.04, 2.23, 1.61, and 1.92. The area mean was 1.86 described as "slightly implemented". In the fourth sub-component along the area of research which is on inventory of fishing gears, all the indicators such as active fishing ears, passive fishing gears, municipal fishing vessels and commercial fishing vessels, were all perceived by the respondents as "moderately implemented" with a sub-mean of 3.09 which also means as "moderately implemented". On its fifth sub-component which is on inventory of fisherfolks, all the indicators were perceived by the respondents as "very much implemented", including its sub-mean. The last sub-component which is on resource ecological assessment, all indicators were perceived by the respondents as "not implemented" with a mean of 0.32 which only means "not implemented". The grand mean for the area of research were perceived by the respondents as "moderately implemented".

16. Relative to status of implemented CBCRM programs in Samar along its second component which is on legislation and law enforcement, indicators such as enactment of municipality on ordinances related to CBCRM, apprehensions of violators on fishery laws, rules and regulations, impositions of sanctions, and impositions of fines and penalties, were perceived by the respondents as "very

much implemented", while the area mean of 2.99 was perceived as "much implemented" only.

17. As regards to the third components of status of CBCRM programs in Samar, along with education, only one indicator such as "attend symposia and fora in CBCRM" was perceived by the respondents as "much implemented". The area mean was rated 3.02 which described as "much implemented".

18. As to status of implemented of CBCRM programs in Samar along with community organization and development, this component was perceived by the respondents as "much implemented having an area mean of 3.08.

19. In terms of resource tenure improvement, it was perceived by the respondents as "moderately implemented" with an area mean of 2.43.

20. Pertaining to environmental conservation and management, the indicator such as "total ban of illegal fishing practices as prescribed in RA 8550" was perceived by the respondents as "very much implemented" with a mean of 3.99. The area mean of 2.17 was perceived by the respondents as "moderately implemented".

21. Relative to impact indicators of the CBCRM program along with ecological aspect, indicators such as return of species, increase fish stock/population and diversity, increase production, fish abundance inside and outside the marine sanctuary, and fully protected mangroves were perceived by the respondents as "much manifested". The rest were regarded as "moderately

manifested". The area mean of 2.67 was perceived by the respondents as "much manifested".

22. As regards to second impact indicators of CBCRM programs which is on economic aspect, results revealed that indicators such as increase in fish catch, children are sent to school, improve quality life, and alleviate poverty were perceived by respondents as "much manifested". Indicators like owned a house and with cable TV connection, were perceived as "very much manifested" by the respondents. The area mean of 2.55 was perceived as "much manifested".

23. As to socio-cultural impact of CBCRM programs in Samar, indicator like increase confidence in relating with LGUs and other agencies was perceived by the respondents as "very much manifested". The rest of the indicators were treated by the respondents as "much implemented". The area mean of 2.94 was regarded as "much manifested".

24. Pertaining to institutional impact of CBCRM program in Samar, results revealed that indicators like empowerment of CBCRM program beneficiary and institutionalized participation in people's organization leaders in municipal development planning and decision-making process, they were perceived by the respondents as "very much manifested". The rest of the indicators were perceived as "much implemented" by the respondents. The area mean of 3.15 rated as "much manifested".

25. As regards with the relationship between the status of the implemented CBCRM programs in Samar on the area of research and the impact-

indicators of CBCRM project such as ecological, socio-economic, socio-cultural, and institutional, correlation coefficient revealed that computed t-value or Fishers' t-value of 7.18, 5.59, 7.56, and 10.16 for ecological, socio-economic, socio-ecological and institutional were numerically higher than the critical or tabulated t-values of 1.96 which led to the rejection of the null hypothesis and evaluated as "significant".

26. Pertaining to relationship between the status of implemented CBCRM program in Samar along with its component legislation and law enforcement and the impact indicators of CBCRM projects towards ecological condition, socio-economic, socio-cultural and institutional, findings of the correlation coefficient and Fishers' t-test revealed that the Fishers' t-value of 15.10, 7.16, 16.10, and 23.65 for ecological condition, socio-economic, socio-cultural, and institutional were numerically higher compared to tabulated t-value of 1.96 which resulted to rejection of the null hypothesis and led to evaluation of the statistical result as "significant".

27. On the relationship between the status of the implemented CBCRM programs in Samar along with its third component which is education and the impact indicators of CBCRM projects towards ecological condition, socio-economic, socio-cultural, and institutional, statistical analysis revealed that the results of the Fishers' t-test for ecological (10.72), socio-economic (7.59), socio-cultural (21.21), and institutional (18.69), were numerically higher than the critical/tabulated t-value of 2.021 at .05 level of significance which resulted to the

rejection of the null hypothesis and led to the evaluation or conclusion of the statistical result as "significant".

28. As to the relationship between the status of the implemented CBCRM programs in Samar along with its fourth component on community organization and development and impact-indicators of CBCRM projects towards ecological condition, socio-economic, socio-cultural, and institutional, correlational analysis revealed that the Fishers' t-test results such as 14.40 (ecological), 7.53 (socio-economic), 20.86 (socio-cultural), and 23.73 (institutional) were significantly higher than the critical/tabulated t-value of 2.021 at .05 level of significance. This led to the rejection of the null hypothesis and come up into conclusion that the relationship that exists was "significant".

29. Pertaining to the relationship between the status of the implemented CBCRM programs in Samar along with its fifth component which is the resource tenure improvement and the impact-indicators of CBCRM projects towards ecological conditions of the resource, socio-economic, socio-cultural, and institutional, it was revealed that the compute Fishers't-value for ecological (13.31), socio-economic (5.11), socio-cultural (14.45), and institutional (16.76) were all numerically higher than the critical/tabulated t-value of 1.96 at .05 level of significance which resulted to the rejection of the null hypothesis and led to the evaluation and conclusion that the relationship was "significant".

30. On the relationship between the status of the implemented CBCRM program in Samar along with environmental conservation and management and

impact-indicator of CBCRM projects towards ecological condition, socio-economic, socio-cultural, and institutional, reveals that Fishers' t-value of 12.63, 8.46, 18.17, 13.59 for ecological, socio-economic, socio-cultural, and institutional were observed higher than the critical/tabulated t-value of 1.96 at .05 level of significance, hence it led to the rejection of the null hypothesis and concluded or evaluated the statistical results as "significant".

Conclusions

Based on the findings of the study, the following conclusions were drawn:

1. The implemented community-based coastal resource management (CBCRM) programs in Samar and all its related activities are majority participated in by male fisherfolks as evidenced by 91.91% male respondents.
2. Community-based coastal resource management activities in Samar are actively participated by middle-age group of respondents both male and female as evidenced by greater percentage under age bracket 39 -45 (male - 21.16%; female – 1.82%), 46 – 52 (male – 20.54%; female – 1.67%), and 53 – 59 (female – 1.97%).
3. Majority of the fisherfolks involved in community-based coastal resource management programs are elementary level and elementary graduate who do fishing as their means of income.

4. Fisherfolks involve in community-based coastal resource management programs in Samar have an average years of experience of 7.10 years.

5. The average monthly income of the respondents is PhP 2,840.00, lower than the national monthly poverty thresholds for a family of five of PhP 7,017.00 (NSCB, 2011), which only means that the fisherfolks-respondents in Samar are still living below the poverty line.

6. As to the extent of implementation of different components of community-based coastal resource management program in Samar, it is concluded that research is "moderately implemented", legislation and law enforcement is "much implemented", education is "much implemented", community organization and development is "much implemented", resource tenure improvement is "moderately implemented", and environmental conservation and management is "moderately".

7. As to impact of CBCRM programs in Samar, it is concluded that the impact of CBCRM towards ecological condition is "much manifested" socio-economic is "much manifested", socio-cultural is "much manifested" and institutional is "much manifested".

8. The components of CBCRM programs in Samar such as research, legislation and law enforcement, education, community

organization and development, resource tenure improvement and environmental conservation and management is significantly affect the resources ecology, socio-economic, socio-cultural, and institutional.

Recommendations

In the light of the findings of the study and the corresponding conclusion drawn, the following are herein recommended:

1. All coastal municipalities and cities should strictly implement and enforce fishery laws, rules and regulations and fisheries ordinances.
2. All local chief executives must show strong commitment and political willingness to stop illegal fishing and other forms environmental destruction.
3. All coastal municipalities and cities must be required their own Coastal Resource Management Plan.
4. The Local Government Units must provide regular ecological training on fisherfolks to heightened community awareness and support the community programs.
5. All local government units (LGUs) must allocate budget for coastal resource management to support for the maintenance and operation services on law enforcement.

6. All LGUs must enable legislations on catch ceiling and practice limits on resource utilization.
7. Provide sustainable and environment-friendly livelihood mariculture projects.
8. All coastal municipalities and cities should conduct resource and ecological assessment to update their data on the status of their coastal resources.
9. Research must be given preferential attention in every coastal municipality to identify and evaluate the various policy options at both the national and sectoral level, which, if implemented could reduce the ill-effects of the environmental problems.
10. A similar study should be conducted to validate the results of the study.

Chapter 6

PROPOSED COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT (CBCRM) MODEL IN SAMAR PROVINCE

Rationale

This chapter presents the proposed community-based coastal resource management (CBCRM) model in the province of Samar focusing on the basic strategies and activities and different components of managing a coastal resource using the community-based coastal resource management as an approach. The proposed model is based on the results of the foregoing study designed purposely to improve the strategies and approaches in managing a coastal and fishery resource particularly in the province of Samar.

Objectives

1. To develop a framework or model for community-based coastal resource management that can be applied and use in the province of Samar.
2. To provide additional source of information on how community-based coastal resource management will be implemented.

Components

The following are the components of the proposed coastal resource management model for Samar:

The Public Sector. This component includes the National Government Agencies such as the Department of Environment and Natural Resources (DENR), Bureau of Fisheries and Aquatic Resource (BFAR), Department of Interior and Local Government (DILG), Philippine Navy (PN), Philippine Coast Guard (PCG), Philippine National Police-Maritime, Regional Development Council (RDC), Non-Government Organization and Academe.

Under the Provincial Government Agencies, the following are included: the Governor, Vice-Governor or the Sangguniang Panlalawigan Members, Provincial Planning and Development Office (PPDO), Provincial Agriculture Office (PAO), Integrated Fisheries and Aquatic Resource Management Council (IFARMC), Provincial Development Council (PDC), Provincial Environment and Natural Resource Office (PENRO), Non-Government Organization (NGO) and the Academe.

For Municipal or City Government Agencies, the following are also included: the Mayor, Vice-Mayor, Municipal/City Planning Development Office (M/CPDO), Municipal/City Agriculture Office (M/CAO), Municipal/City Agriculture Office (M/CAO), Municipal/City Development Council (M/CDC), Municipal/City Fisheries and Aquatic Resource Management Council (M/CFARMC), Municipal/City Environment Office (M/CEO) and Municipal/City Environment Council (M/CEC).

In the case of Barangay level, the Barangay Chairman/Council, Barangay Development Council (BDC), Barangay Fisheries and Aquatic resource

Management Council (BFARMC), Bantay Dagat or the Fish Wardens, Fishermen's Association and the People's Organization (PO).

The Private Sector. This includes the Non-Government Organizations (NGOs) either from the National, Provincial or Local, the Academe, (National, Provincial or local schools), Cooperatives, Civic Groups Organizations, Church or Mosques and Religious Organizations including Corporations and Bilateral and Multilateral Funding Institutions.

The Program Strategies. The program strategies are the second component of the proposed CRM model. The following are the strategies, namely: Fisheries Management, Habitat Management, Shoreline Management, Coastal Zoning, Enterprise and Livelihood Management, Coastal Tourism Management, Waste Management, Watershed Management and Legal Arrangement and Institutional. All these strategies or activities will be implemented under the CBCRM context as to the biophysical, economic, social, political and institutional components of the resource.

In the adoption of this model, the following CBCRM guiding principles will also be used, namely: (i) balancing growth and equity; (ii) sustainable development; (iii) priority on sustainable food production; (iv) strengthening organization capabilities; and (v) promotion of gender-sensitive development.

The CBCRM Components. This includes the following components: research, law enforcement, education, sustainable enterprise development,

establishment of protected areas, resource tenure improvement, and community organization and development.

The Conceptual Framework

As reflected in the conceptual framework of this model, appearing in the lower left box is the public sector which is composed of the different National Government Agencies and Provincial Government Agencies, the Municipal or City Government Agencies and the Barangay Level in which hay have great roles to portray. The roles of the different agencies under the national government include policy direction, legislation, planning, technical assistance, training, monitoring and evaluation, and enforcement. On the part of the provincial government agencies their roles are: policy harmonization, planning, technical assistance, training, monitoring and evaluation, and information management. As to the municipal or city government level, their roles includes: planning, regulation, legislation, enforcement, revenue generation, technical assistance, training, and monitoring and evaluation. For Barangay level, the role that they can play involves: identification of issues and concerns of the community, participation in research and data gathering, participation in the planning and implementation of CRM efforts, community-based enforcement and self-regulation, and monitoring and evaluation.

On the lower right box are the private sectors which also play a vital role in coastal resource management. These are non-government organizations including

academe that can advocate for community participation, provide technical assistance, training, alternative livelihood development, research, and education. Local NGOs can also help to provide structure and play a facilitation role in the local community. While other stakeholders such as cooperatives which focus on economic activities, can be involved in the planning process because of their expertise in utilizing coastal resources. Civic groups can play an active role in environmental advocacy and education. Churches, mosques, and religious organizations can play a role in community outreach, conflict resolution, facilitation, dissemination of information, and fostering participation. On the other hand, corporations can provide special projects and funding including communication campaign materials, while bilateral and multilateral funding institutions can grants for CRM program implementation and loans for CRM programs and alternative enterprises.

All these sectors will work hand-in-hand to support the given programs or strategies such as fisheries management, habitat management, shoreline management, coastal zoning, enterprise and livelihood management, coastal tourism management, waste management, watershed management, and legal arrangement and institutional in order to meet the desired objectives in managing a fishery and coastal resources.

Implementation Strategy of the Proposed CRM Model

1. **Fisheries Management.** The resources to be managed here include fish, invertebrates, seaweeds and other fishery products. The activities to be regulated are capture and culture fisheries.

Objectives

1. To increase productivity of fisheries resources in order to achieve food security;
2. To reduce access to the municipal waters and reserve its resources or the benefits of the municipal fishers;
3. To regulate the exploitation of fisheries resources and limit fishing efforts to sustainable levels;
4. To ensure the rational and sustainable development and management of the fishery resources;
5. To develop monitoring, control and surveillance mechanisms and strengthen law enforcement units; and
6. To ensure equity in fisheries exploitation.

Strategies and Activities

1. Establishment and management of marine protected areas of fish/marine sanctuaries.
    a. Identification of potential site of marine protected area;
    b. Conduct of biophysical and socio-economic assessment of the potential site;

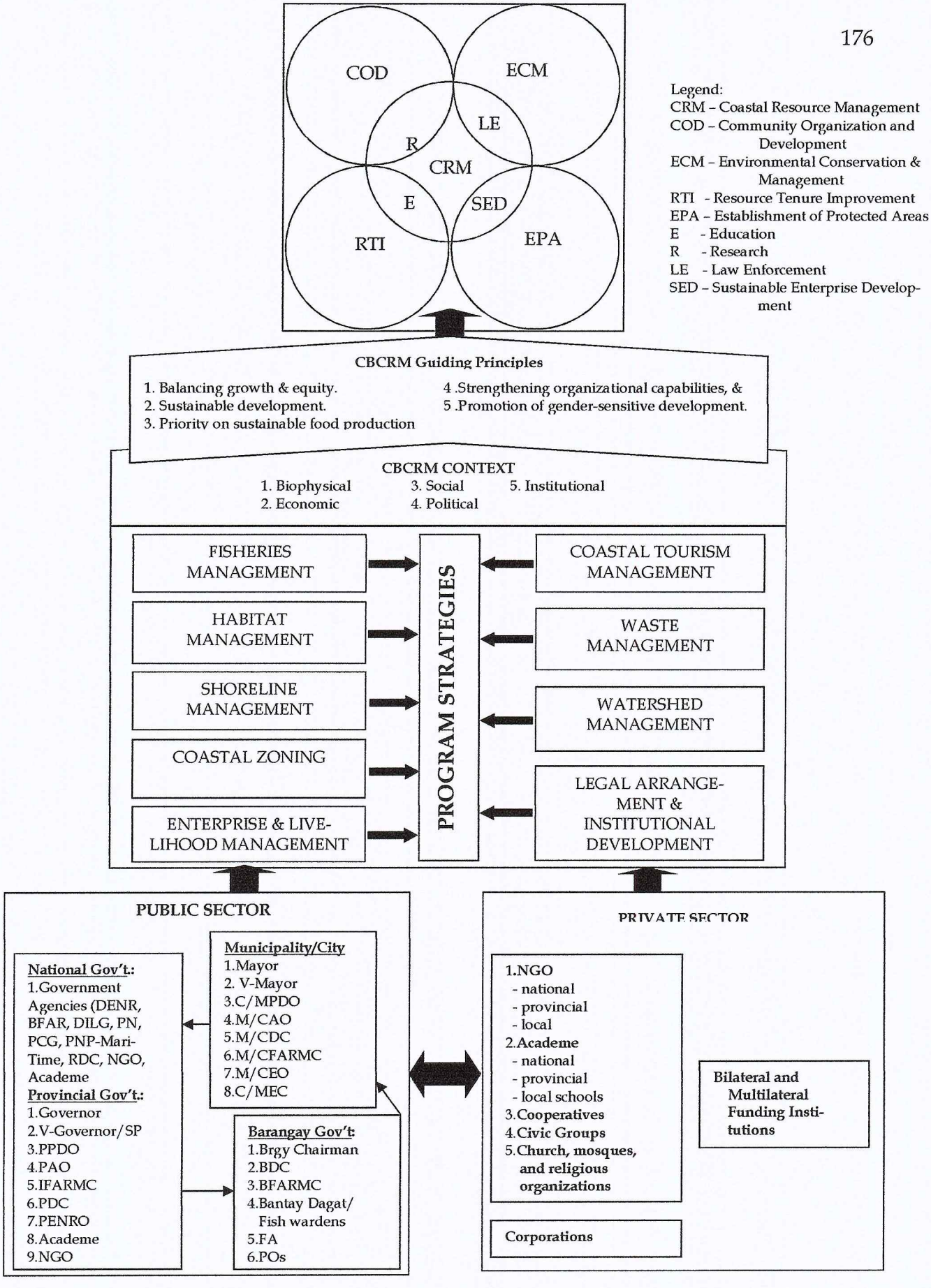

Figure 3. Framework of the Proposed CBCRM Model in Samar

Conduct of IEC on marine protected area;

c. Legislation of necessary resolutions and ordinances;

d. Formation of community-based management committee;

e. Formulation of management plan;

f. Enforcement of the ordinance and implementation of the management plan;

g. Conduct of continuous IEC; and

h. Conduct of participatory monitoring and evaluation.

2. Designation of closed season in harvesting commercially and ecologically-important fish and invertebrates during their spawning season and/or their juvenile stage.

   a. Conduct of study on the biology and ecology of target species and on the socio-economic impact of closed season;

   b. Conduct of IEC on closed season as a fishery management strategy;

   c. Legislation of necessary resolutions and ordinances;

   d. Enforcement of the ordinances;

   e. Conduct of continuous IEC; and

   f. Conduct of participatory monitoring and evaluation.

3. Designation of closed areas for identified migration route of commercially and ecologically-important fish.

a. Conduct of study on migration route of commercially and ecologically-important fish;
b. Conduct IEC on designation of closed areas as a fishery management strategy;
c. Legislation of necessary resolutions and ordinances;
d. Enforcement of the ordinance;
e. Conduct of continuous IEC; and
f. Conduct of participatory monitoring and evaluation.

4. Licensing and permitting of fishers, fishing gears and fishing boats.
   a. Conduct of registration of municipal fishers and their fishing gears, fishing boats and fishing activities;
   b. Conduct of IEC on licensing as a fishery management strategy;
   c. Identification of fishing gears and fishing activities to be allowed in the municipal waters;
   d. Color and Letter Coding of fishing boats;
   e. Conduct and renewal of licenses;
   f. Conduct of participatory monitoring and evaluation;
   g. Computerization of licensing system and data-banking.
5. Sustainable management of coastal aquaculture.

a. Identification and delineation of potential sites for aquaculture activities;
b. Identification, pilot-testing and modeling of environment-friendly and economically-feasible aquaculture activities;
c. Conduct of IEC on sustainable aquaculture;
d. Formulation of technical and social guidelines on aquaculture;
e. Setting-up of water quality and fishery production monitoring mechanisms; and
f. Conduct of participatory monitoring and evaluation.

6. Regulation on the deployment, use of and access to artificial reefs.
   a. Inventory, mapping and monitoring of existing artificial reefs in the municipal water;
   b. Setting-up of guidelines on the use of and access to artificial reefs.
7. Regulation of the construction and operation of fish corals, other fishing gears and fishing activities that occupy space in the coastal waters.
   a. Inventory, mapping and monitoring of existing fish corrals and other fishing gears and activities;
   b. Setting-up of guidelines on the construction and operation of fish corrals and related fishing gears.

8. Restriction of commercial fishing vessels in the municipal waters.
    a. Delineation and delimitation of municipal waters;
    b. Formulation of ordinance restricting operation of commercial fishing vessels in the municipal waters;
    c. Enforcement of the ordinance;
    d. Strengthening of different law enforcement groups in the monitoring of the municipal waters.
9. Enforcement of environmental and fisheries laws.
    a. Acquisition of patrol boats and communication equipment;
    b. Deputation and strengthening of fish wardens;
    c. Strengthening of FARMC and other community law enforcement groups;
    d. Conduct of periodic law enforcement activities.
10. Setting-up of fisheries monitoring mechanism.
11. Information, education, and communication (IEC) campaign.
    a. Production and distribution of IEC materials on different fisheries management strategies;
    b. Conduct of community education on fisheries management strategies.
12. Community organizing and formation of fishers' organization for protection and conservation.

a. Identification of core group members in each of barangay, formulation of vision,, mission and goal, and conduct of organization development and leadership trainin;
b. Setting-up of formal organization structure, formulation of constitution and by-laws, and election of officers;
c. Registration of the fishers' organization with the Securities and Exchange Commission (SEC) or with other concerned government agencies;
d. Accreditation of the fishers' organization with the Sangguniang Bayan;
e. Formulation of organizations' workplan.

2. **Habitat Management.** The resources to be managed include corals, mangroves, seagrass beds, benthic or soft-bottom communities, and estuarine. It likewise regulates capture and culture fisheries, infrastructure, tourism, and other activities that directly and indirectly affect the habitats.

Objectives

1. To protect, conserve and rehabilitate existing habitats;
2. To improve productivity and biodiversity of corals, seagrasses, mangroves and estuaries;
3. To enhance community participation in the management of the habitats.

Strategies

1. Establishment of marine protected areas (corals, mangroves, seagrass).
    a. Establishment and management of marine protected areas or fish/marine sanctuaries;
    b. Identification of potential site of marine protected area;
    c. Conduct of biophysical and socio-economic assessment of the potential site;
    d. Conduct of IEC on marine protected area;
    e. Legislation of necessary resolutions and ordinances;
    f. Formation of community-based management committee;
    g. Formulation of management plan;
    h. Enforcement of the ordinance and implementation of the management plan;
    i. Conduct of continuous IEC;
    j. Conduct of participatory monitoring and evaluation.
2. Management of mangroves under the Community-Based Forest Management (CBFM) framework.
    a. Identification of possible sites for mangrove management;
    b. Conduct of IEC on mangrove management, particularly on CBFM;
    c. Processing of application for CBFMA;
    d. Formulation of CRMF, AWP, and RUP;

e. Conduct of participatory monitoring and evaluation.

3. Protection of seagrass beds by regulating fishing activities destructive to the habitat.
   a. Conduct of resource assessment and mapping of seagrass beds;
   b. Conduct of IEC on the ecological importance of seagrass;
   c. Inventory and mapping of fishing gears used in the seagrass beds;
   d. Identification of fishing gears destructive to the seagrass beds;
   e. Legislation of necessary resolutions and ordinances;
   f. Enforcement of the ordinance;
   g. Conduct of participatory monitoring and evaluation.
4. Enforcement of environmental and fisheries laws.
   a. Acquisition of patrol boats and communication equipment;
   b. Deputation and strengthening of fish wardens;
   c. Strengthening of FARMC and other community law enforcement groups;
   d. Conduct of periodic law enforcement activities.
5. Conduct of information, education and communication (IEC) campaign.
   a. Production and distribution of IEC materials on different habitat management strategies;

b. Conduct of community education on habitat management strategies.

6. Community organizing and formation of fishers' organization for protection and conservation.

a. Identification of core group members in each of barangay, formulation of vision, mission and goal, and conduct of organization development and leadership training;

b. Setting-up of formal organizational structure, formulation of constitution and by-laws, and election of officers;

c. Registration of the fishers' organization with the Securities and Exchange Commission (SEC) or with other concerned government agencies;

d. Accreditation of the fishers' organization with the Sangguniang Bayan;

e. Formulation of organizations' workplan.

3. **Coastal Zoning.** The focus of coastal zoning is to manage the municipal waters and one kilometer inland (as part of coastal area) and to regulate all fishery activities.

Objectives

1. To delineate zones for specific uses or activities in the municipal waters;

2. To eliminate use conflict in the utilization of the municipal waters;
3. To regulate activities in the different zones.

Strategies

1. Delineation of municipal waters boundaries.
    a. Identification of land boundaries or coastal terminal points with immediate neighbor municipalities/cities;
    b. Enactment of Sangguniang Bayan/Panglungsod Resolution requesting technical assistance from National Mapping and Resource Information Authority (NAMRIA);
    c. Conduct of public hearing, in coordination with immediate neighbor municipalities/cities;
    d. Enactment of Municipal Ordinance delineating and/or delimiting municipal waters;
    e. Installation of marker bouys and other land markers;
    f. Conduct of regular monitoring, control and surveillance of the area, in coordination with the Philippine national Police, fish wardens, Barangay/Municipal FARMCs, and people's organization.
2. Designation of zones for specific uses (for strict protection, rehabilitation, aquaculture, tourism, trade and navigation, etc.).

a. Conduct of site inspection and mapping of the area using GPS;

b. Delineation of zones and installation of marker buoys and/or land markers;

c. Monitoring and surveillance of the zones.

3. Regulation of fishing activities and use of fishing gear in every zone.

a. Identification of fishing gears and fishing activities to be allowed in each of the zone, through community consultation, in coordination with the Barangay/Municipal FARMC;

b. Formulation of ordinance indicating the fishing gears and fishing activities to be allowed in each of the zone;

c. Conduct of regular monitoring, control and surveillance in each of the zone, in coordination with the Philippine National Police, fish wardens, Barangay/Municipal FARMCs, and people's organization.

4. Conduct of massive information, education and communication (IEC) campaign.

a. Production and distribution of information materials about the rationale and benefits of zoning, and the different zones of the municipal waters;

b. Installation of map in conspicuous areas showing the zonation schemed of the municipal waters.

5. Community organizing and formation of fishers' organization for protection and conservation.

a. Identification of core group members in each of barangay, formulation of vision, mission and goal, and conduct of organization development and leadership training;

b. Setting-up of formal organizational structure, formulation of constitution and by-laws, and election of officers;

c. Registration of the fishers' organization with the Securities and Exchange Commission (SEC) or with other concerned government agencies;

d. Accreditation of the fishers' organization with the Sangguniang Bayan; and

e. Formulation of organizations' workplan.

4. **Shoreline Management.** The resources to be managed include foreshore area, beaches, and mangroves. It also regulates reclamation, port development, erosion control facilities, tourism, other activities that directly and indirectly affect the status of the shoreline.

Objectives

1. To protect the shoreline from further degradation due to destructive activities;

2. To maintain access of the people to foreshore area;
3. To regulate activities in the foreshore area that would affect the condition of the shore;
4. To minimize erosion and loss of beach to natural and human induced forces.

Strategies

1. Regulation of sand and coral mining.
    a. Enactment of ordinance regulating gathering of sand;
    b. Implementation of national laws banning the mining or gathering of corals;
    c. Conduct of monitoring, control and surveillance, in coordination with the Philippine National Police, fish wardens, Barangay/Municipal FARMCs, and people's organization.

2. Protection and conservation of mangroves.
    a. Identification and mapping of mangrove species in the area;
    b. Identification of potential sites for mangrove rehabilitation project;
    c. In coordination with the Department of Environment and Natural Resources and the fishers' organizations, undertake

mangrove rehabilitation project under the framework of Community-Based Forest Management;

d. Conduct of monitoring, control and surveillance, in coordination with the Department of Environment and Natural Resources, Philippine National Police, fish wardens, Barangay/Municipal FARMCs, and people's organization.

3. Setting-up and maintenance of coastal setbacks for all development.

   a. Implementation of national law prohibiting the establishment of structures within the 20-meter foreshore area;

   b. Enactment of ordinance prohibiting the issuance of Mayor's Permit, Business Permit and other permits being issued by the municipal government to any person who wish to establish and/or have established structures within the 20-meters foreshore area;

   c. Conduct of monitoring, control and surveillance, in coordination with the Department of Environment and Natural Resources, Philippine National Police, fish wardens, Barangay/Municipal FARMCs, and people's organization.

4. Construction and maintenance of seawall.

   a. Identification of areas being degraded by erosion;

b. Construction of seawall, in coordination with the Department of Public Works and Highways and the Department of Environment and Natural Resources;

c. Preventive maintenance of seawall.

5. Conduct of massive information, education and communication (IEC) campaign.

   a. Production and distribution of information materials on how to prevent soil erosion.

6. Community organizing and formation of fishers' organization for protection and conservation.

   a. Identification of core group members in each of barangay, formulation of vision, mission and goal, and conduct of organization development and leadership training;

   b. Setting-up of formal organizational structure, formulation of constitution and by-laws, and election of officers;

   c. Registration of the fishers' organization with the Securities and Exchange Commission (SEC) or with other concerned government agencies;

   d. Accreditation of the fishers' organization with the Sangguniang Bayan; and

   e. Formulation of organizations workplan.

5. **Coastal Tourism Management.** The resources that need to be managed are natural and man-made tourism spots and facilities, tourism services and activities. It likewise regulates construction and operation of tourism facilities and tourism services.

Objectives

1. To provide economic incentives for the municipality and the coastal communities by optimizing the tourism potential of certain areas;
2. To develop local capability in ecotourism projects that contribute to better coastal management and community development;
3. To develop incentives for resource conservation.

Strategies

1. Regulation on the number of tourism facilities and activities.
2. Maintenance of wastes disposal facilities.
3. Ecotourism product development.
4. Visitors' education and management.
5. User fees and appropriate business development.
6. Conduct of massive information, education and communication (IEC) campaign.
7. Community organizing and formation of fishers' organization for protection and conservation.

6. **Enterprise and Livelihood Mangement.** This strategy is designed to manage raw materials (land and marine), environment, skills and technology to lessen dependence of fishers on the sea. Enterprise and livelihood activities that affect the status of resources and the quality of the coastal environment are the one regulated.

Objectives

1. To develop alternative and supplement employment to fishers in order to lessen their fishing effort and pressure to the sea;
2. To diversify income source of the fishers to lessen dependence on fishing;
3. To develop environment-friendly enterprise and livelihood projects.

Strategies

1. Identification and implementation of environment-friendly and economically-feasible projects;
2. Identification of beneficiaries.

7. **Waste Management.** Focus on the maintenance of environmental quality (land and water) mitigation of impacts. It also regulates the collection, disposal and treatment of wastes.

Objective

1. To eliminate or minimize the potential adverse impact of wastes to human and environmental health.

Strategies

1. Water quality monitoring;
2. Domestic waste segregation;
3. Sewage waste management, especially for tourism and industrial facilities;
4. Monitoring, control and surveillance;
5. Conduct of massive information, education and communication (IEC) campaign.

8. **Watershed Management.** It managed the upland area (within the coastal zone) and regulates the impact on the coastal area.

Objective

1. To reduce the potential adverse impact of soil erosion by improper forestry, agriculture, mining, or construction practices and land reclamation which poses threats to aquatic resource ecosystems.

Strategies

1. Implement total log banned.
2. Conduct reforestation on denuded areas.
3. Regulations on mining.
4. Regulations on the disposal of run-off from agricultural or mining areas.
5. Monitoring, control and surveillance

6. Conduct of massive information, education and communication (IEC) campaign.

9. **Legal Arrangements and Institutional Development.** This activity will help capacitating the municipal government and other institutions to effectively and efficiently implement management programs. It likewise helped managing and governing people and institutions.

Objectives

1. To improve mechanisms and arrangements for local governance on coastal management;
2. To enhance community participation in coastal management planning, legislation, implementation, monitoring and evaluation;
3. To strengthen environmental and fishery law enforcement;
4. To improve the delivery of coastal management-related services;
5. To strengthen network and linkage with other government units, national government, international and local organizations and community and people's organizations.

Strategies

1. Legislation of comprehensive CRM ordinance.
   a. Review of existing ordinances and resolutions;

b. Drafting of comprehensive ordinance with inputs from the CRM plan TWG, Municipal FARMCs, Barangay officials, People's organizations and other stakeholders;

c. Finalization of the proposed CRM ordinance and submission to the Mayor for endorsement to the Sangguniang Bayan for legislative action;

d. Conduct of committee hearing and floor deliberation;

e. Enactment of CRM Ordinance;

f. Implementation of the ordinance;

g. Monitoring and evaluation of the implementation of the ordinance.

2. Formation and strengthening of people's organizations.

a. Identification of core group members in each barangay, formulation of vision, mission and goal, and conduct of organization development and leadership training;

b. Setting-up of formal organizational structure, formulation of constitution and by-laws, and election of officers;

c. Registration of the fishers' organization with the Security of Exchange Commission (SEC) or with other concerned government agencies;

d. Accreditation of the fishers' organization with the Sangguniang Bayan; and

e. Formulation of organizations' workplan.

3. Strengthening of FARMC, Bantay Dagat, and Fish Warden.
   a. Formation of FARMC at the barangay level;
   b. Federation of barangay FARMCs into a Municipal FARMC;
   c. Conduct of training on law enforcement and deputation of fish warden, in coordination with the Philippine National Police, Philippine Coast Guard, and the Bureau of Fisheries and Aquatic Resources;
   d. Setting-up of incentive and benefit mechanisms to the FARMC, Bantay Dagat and Fish Warden.
4. Monitoring, Control and Surveillance.
   a. Purchase of patrol boats and monitoring equipment such as diving gears, GPS, radios, etc.;
   b. Setting-up of regular enforcement schedule;
   c. Strengthening of FARMC, Bantay Dagat and Fish Warden in conducting MCS.
5. Institutionalization of CRM in the local government unit.
   a. Setting-up of CRM Section under the Municipal Agriculturist's Office;
   b. Appointment of personnel to the CRM Section;
   c. Conduct of staff training on CRM implementation;

d. Conduct of regular training on CRM implementation for barangay officials, community leaders, barangay and municipal FARMC, and other stakeholders;

e. Setting-up of regular and permanent department on CRM and hiring of personnel; and

f. Review and formulation of strategic and operation plans, programs, and policies.

6. Information, Education and Communication.

   a. Production and distribution of IEC materials on CRM;

   b. Conduct of regular IEC activities and formation of core group in each of the barangay and school.

7. Fund Sourcing.

   a. Submission of the CRM Plan to different national and international funding institutions;

   b. Preparation of feasibility studies and project proposals for funding;

   c. Networking and linkaging with other regions and Luzon-based non-government organizations.

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APPENDICES

Appendix A

REQUEST FOR THE APPROVAL OF DISSERTATION PROPOSAL

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan, Samar

August 25, 2004

The Dean
College of Graduate Studies
Samar State University
Catbalogan, Samar

Madam:

I have the honor to submit for approval on the title for my dissertation proposal, preferably number **1**.

1. "COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT (CBCRM) MODEL IN SAMAR".

2. "THE COMMUNITY EXTENSION SERVICE PROGRAMS (CESP) OF PUBLIC TERTIARY SCHOOLS IN SAMAR ISLAND: AN EVALUATION".

3. "RESEARCH CAPABILITY,PRODUCTIVITY, AND UTILIZATION IN SUCs IN EASTERN VISAYAS: AN ASESSMENT".

Very truly yours,

(Sgd.) RICARDO T. SEVERO, JR.
Researcher

APPROVED:

(Sgd.) MARILYN D. CARDOSO, Ph. D.
Dean, College of Graduate Studies

Appendix B

ASSIGNMENT OF ADVISER

Republic of the Philippines
SAMAR STATE UNIVERSITY
COLLEGE OF GRADUATE STUDIES
Catbalogan, Samar

September 4, 2004

Dear: Dr. Luisito M. Quitalig,

Please be informed that you have been designated as adviser of RICARDO T. SEVERO, JR., candidate for the degree in Ph. D. (Educ'l. Mg't.) who proposes to write a thesis/dissertation on **"COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT (CBCRM) MODEL IN SAMAR".**

Thank you for your cooperation.

Very truly yours,

(Sgd.) MARILYN D. CARDOSO, Ph.D.
Dean, College of Graduate Studies

CONFORME:

(Sgd) LUISITO M. QUITALIG, Ph.D.
Adviser

Appendix C

REQUEST TO CONDUCT A DRY-RUN OF SURVEY QUESTIONNAIRE

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan City

_____
Date

Dear Respondent:

You have been selected as respondent in this research entitled **"COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT MODEL IN SAMAR"**. The main purpose of the study is to assess the current status, implementation, performance and impact of community-based coastal resource management program (CBCRMP) in Samar in order to obtain data/information that will serve as basis for improving planning and implementation of the new and existing CBCRM projects in Samar.

May I therefore solicit your assistance to supply the data for this study by answering as honestly and clearly as possible every item in this questionnaire.

Rest assured that your answers to this questionnaire will be treated confidentially and will be used solely for the purpose of this study and will not jeopardize you in any way.

Thank you for your valued cooperation.

Very truly yours,

RICARDO T. SEVERO, JR.
Researcher

Appendix D

SURAT PARA HA MOLOPYO PARA MAKAKUHA IMPORMASYON PINAAGI HAN PAG PAGPAKIANA HAN KAHIMTANG HAN CBCRM NGA PROGRAMA HAN SAMAR

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan City

_____
Date

Tinahud nga Sangkay:

Maupay nga adlaw!

Napili ka nga tagbaton hini nga pag-aradman nga may titulo **"COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT MODEL IN SAMAR"**, nga an katuyu-anan amo an pagkuha hin datos ug impormasyon bahin han kahimtang, implementasyon, mga nahimo ug epekto han "community-based coastal resource management (CBCRM) nga programa ha Samar. Ine nga mga impormasyon mahihimo nga basehan pagpaka-upay han mga plano ug implementasyon han mga daan ug bag-o nga mga ti-arabot pa nga proyekto han CBCRM dinhe ha Samar.

Sanglit alayon pagbaton hin tangkod ngan hul-os ha iyo kasing-kasing an mga paki-ana.

Akon igpapatapod nga an iyo mga baton gagamiton la hine nga pag-aradman ngan dire makakaruba ha iyo hin bisan ano nga pama-agi.

Salamat han iyo hul-os nga kooperasyon.

Malipayon nga pasko ug mainuswagon nga bag-o nga tuig ! ! !

An imo sangkay,

RICARDO T. SEVERO, JR.
Researcher

Appendix E

REQUEST LETTER TO THE RESPONDENTS TO CONDUCT SURVEY

Republic of the Philippines
SAMAR STATE UNIVERSITY
Catbalogan City

_____
Date

Dear Respondent:

You have been selected as respondent in this research entitled **"COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT MODEL IN SAMAR"**. The main purpose of the study is to assess the current status, implementation, performance and impact of community-based coastal resource management program (CBCRMP) in Samar in order to obtain data/information that will serve as basis for improving planning and implementation of the new and existing CBCRM projects in Samar.

May I therefore solicit your assistance to supply the data for this study by answering as honestly and clearly as possible every item in this questionnaire.

Rest assured that your answers to this questionnaire will be treated confidentially and will be used solely for the purpose of this study and will not jeopardize you in any way.

Thank you for your valued cooperation.

Very truly yours,

RICARDO T. SEVERO, JR.
Researcher

Appendix F

Materyal Ha Pagsurvey
(Waray Bersyon - Para ha Molopyo)

GIYA-INTERBYU PAMAKI-ANA PARA "COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT MODEL IN SAMAR" (Para han mga Fisherfolks, PO's, MFARMCs)

UNA NGA BAHIN:

A. HULAGWAY HAN SOSYO-PANKATAWHAN

Taramdan: Alayon pagsurat o pagbagis (check) han iyo baton ha linya antes o pagkatapos han pamak-iana.

Ngaran han Bungto: _____ Ngaran han Barangay: _____

1. Ngaran han Tagbaton (Opsyunal): _____
2. Ikinatawo: [ ] Lalake [ ] Babaye
3. Edad: _____ (pira ka tuig)
4. Estado Sibil: [ ] Daraga/Ulitawo [ ] Balo
   [ ] May-asawa [ ] Bulag ha asawa
5. Pinaka-hitaas nga inadman?
   [ ] Waray kina-adman [ ] Kutob la elementarya [ ] Gradwado elementarya
   [ ] Kutob la sekondarya [ ] Gradwado sekondarya [ ] Waray makatapos han bokisyunal
   [ ] Waray makatapos ha kolehiyo
   [ ] Gradwado kurso ha bokisyunal: _____ espesyalisasyon: _____
   [ ] Gradwado kurso ha kolehiyo: _____espesyalisasyon:_____
6. Kadamuon han mga naukoy ha iyo balay? (upod na an tagbaton) _____
7. Balay
   a. Pag tag-iya. An imo balay ba [ ] kalugaringon? [ ] plenitihan? Pira man? _____
      [ ] taga-bantay la? [ ] Iba pa (pakisurat) _____
   b. Kun imo kalugaringon, [ ] hatag han mga kag-anak [ ] pinalit
      papaano nagin imo? [ ] pinahimo [ ] Iba pa (pakisurat)_____
   c. Klase hin materyales [ ] *nipa/cogon* payag [ ] kahoy/kawayan, yero an atop
      han imo balay: [ ] konkreto (semento) [ ] Iba pa (pakisurat) _____
   d. Gamit pambalay/aplayanses: [ ] radyo [ ] sala set [ ] katre

e. Gamit nga suga ha balay: [ ] lampara [ ] petromax
[ ] "generator-operated" [ ] Samelco

f. Klase han kaselyas: [ ] antipolo type [ ] "water sealed"
[ ] di-buhos [ ] waray iniduro (diin ginhahapil an hugaw?)

8. Inpormasyon parte panlawas:
   a. Diin tikang an iyo tubig?: [ ] salog/burabod [ ] atabay
   [ ] bumba/"artesian well" [ ] gripo pan-publiko [ ] gripo pan-kalugaring

   b. Dinadaopan kun nagpapabulong:
   [ ] lokal *hilot/albularyo* [ ] health clinic [ ] pribado nga doktor
   [ ] ospital (isurat kun pribado o kanan gobyerno) _____
   [ ] iba pa (pakisurat) _____

9. Gin-atendiran nga pag-aradman (training) nga may kalabutan han CRM ha naglabay nga napulo (10) ka tuig. (Alayon la pagbagis (check) an iyo mga na-atendiran)

[ ] "Philippine Fisheries Code of 1998" (RA 8550)	[ ] Integrated CRM short-term course
[ ] Fishery Law Enforcement Team Training (FLETT)	[ ] Basic Ecological Awareness
[ ] Coastal Resource Management Orientation	[ ] Municipality/City Ordinance
[ ] Artificial Reef Establishment & Management	[ ] Fish Warden Orientation
[ ] Coastal Tourism Planning & Management	[ ] Coastal Law Enforcement
[ ] Strategic Planning for Coastal Management	[ ] Trainor's Training on CRM
[ ] Mangrove Rehabilitation & Management	[ ] Sustainable Aquaculture
[ ] Participatory Coastal Resource Assessment (PCRA)	[ ] Fishing Technology
[ ] Coastal Solid Waste Management	[ ] CRM Planning
[ ] Monitoring, Control & Surveillance (MCS)	[ ] Livelihood Trainings on Aquaculture
[ ] Delineation of Municipal Boundaries in Municipal Waters	[ ] Fish Processing/Value-Added Products
	[ ] Iba pa (pakisurat) _____
[ ] _____	[ ] _____

10. Kahalawig han panahon nga nagin kaapi ka han CBCRM? _____ (ka tuig)

B. HULAGWAY PAN-EKONOMIYA

11. Ano an pinagkukuhaan mo han imo pinagkakakitaan?
[ ] pangisda [ ] pag-uma [ ] iba pa (pakisurat)_____
[ ] negosyo (pakisurat [ ] pag-hayupan _____
kun ano nga negosyo) _____
Kun waray ka pinagkakakitaan,, ano man an imo kininkuhaan han pagpakabuhi? _____

12. Kun an imo kinabubuhi tikang han pangisda, pira man an imo igo nga kita ha kada bulan?

[ ] 1,000.00 below	[ ] 6,000.00 - 7,000.00	[ ] 12,000.00 - 13,000.00
[ ] 2,000.00 - 3,000.00	[ ] 8,000.00 - 9,000.00	[ ] 14,000.00 - 15,000.00
[ ] 4,000,00 - 5,000.00	[ ] 10,000.00 - 11,000.00	[ ] 15,000.00 and above

13. May-ada ka ba iba nga pinagkaka-kitaan? (pakisurat) _____.
Kun may ada man, pira man an imo igo nga kinikita ha kada bulan? _____

b. Panagat. [ ] sarakyan di-makina (pira ka bug-os _____)
[ ] baluto (pira ka bug-os _____)
[ ] pukot (klase han gamit han pukot ngan pira ka bug-os _____)
[ ] iba pa nga kagamitan pangisda (pakisurat _____)

c. Kalugaringon nga hayop. [ ] karabaw, pira ka bug-os _____
[ ] baka, pira ka bug-os _____
[ ] manok, pira ka bug-os _____
[ ] kabayo, pira ka bug-os _____
[ ] pato, pira ka bug-os _____
[ ] baboy, pira ka bug-os _____
[ ] kanding, pira ka bug-os _____

15. Proyekto pag-pauswag kinabuhi (Income-generating projects)
a. An iyo ba pamilya o may miyembro ba han iyo pamilya nga nagbubuhat han mga proyekto pagpauswag panginabuhi? [ ] oo [ ] dire
b. Kun oo, ano nga proyekto? _____
c. Hino ha iyo pamilya an kaurogan nga nagbubuhat hine? _____
d. Pira man an kinikita han imo pamilya hini? _____(an igo nga kita kada bulan)

16. Kun ikukumpara nimo an lebel han imo kita han pangisda yana ngan hadto nga waray pa ig-implementar an CBCRM, pira an imo ighahatag nga marka? (an paghatag marka 1 = gihaboboi, 5 = gihatataasi)
Yana _____ Antis pa an CBCRMP _____

17. Inpra-istruktura pang-komunidad nga matatad-an ha iyo barangay/municipality/city. Alayon la pagbagis (check) .

[ ] ospital	[ ] primarya iskwelahan	[ ] "medical clinic/health center"
[ ] drug store	[ ] sekondarya iskwelahan	[ ] tubig publiko suplay para mga balay
[ ] elektrisidad	[ ] serbisyo telepono	[ ] tubo imburnal o kanal
[ ] merkado publiko	[ ] hotel or inn	[ ] "sewage treatment facility"
[ ] restorant	[ ] gasolinahan	[ ] "septic or settling tanks"
[ ] banko	[ ] "television reception"	[ ] transportasyon pampubliko
[ ] radio/TV istasyon	[ ] "airport"	[ ] sementado nga mga kalsada
[ ] "bus terminal"	[ ] pantalan	[ ] sinehan
[ ] panaderiya	[ ] tindahan	[ ] simbahan
[ ] "basketball court"	[ ] "tennis court"	[ ] "volleyball court"

[ ] iba pa (pakisurat) _____

18. Alayon la pagbagis (check) han kondisyon han iyo karikuhan-pandagat (resources).

Resources	Maraot hinduro	Maraot	Dire maupay, dire maraot	Maupay	Maupay Hinduro
	(1)	(2)	(3)	(4)	(5)
Mangroves (Katung-gan)					

Salt marsh and mudflat (Hubasan)					
Rocky shores (Kababto-an)					
Coves (Kobehura)					
Bays (Kahimab-wan nga kadagatan)					
Gulfs (Gulpo)					
Fishery (parti han dagat nga pinapanagatan)					
Freshwater (Tubig nga matab-ang)					
Upland forest (Kagugub-an)					

19. Pakibagis (check) kun ini nga mga masunod nga aktibidades in ginbubuhat ba ha iyo kabay-bayunan ug kadagatan ngan kun hino an mga nagbubuhat hini nga mga buruhaton. Mga lokal ba nga residente o dire mga residente han iyo komunidad?

Gamit/aktibidades	Residente	Dire-residente
[ ] Pangisda	[ ]	[ ]
[ ] Industriya	[ ]	[ ]
[ ] transportasyon pandagat	[ ]	[ ]
[ ] Turismo	[ ]	[ ]
[ ] "Aquaculture/mariculture"	[ ]	[ ]
[ ] Tinitindugan han mga balay	[ ]	[ ]
[ ] Konstruksyon nga reklamasyon	[ ]	[ ]
[ ] Panguha han bato ngan baras	[ ]	[ ]
[ ] Iba pa (pakisurat) _____	[ ]	[ ]

20. Pakibagis (check) han mga klase han panagat o pangisda nga aada nakikit-an o binubuhat dinhe han iyo barangay o bungto.

[ ] Ligkop/kubkuban	[ ] Paanod	[ ] Palubog/panti/largarite
[ ] Kitang	[ ] Pangawil	[ ] Saprahan
[ ] Buno-an	[ ] Sud-sod	[ ] Pan-noos
[ ] Pamana	[ ] Pamintol	[ ] Pan-ngaham/pan-kaham
[ ] Pamangti	[ ] Panguha gulaman	[ ] Panguha hin balat
[ ] Trawl	[ ] Pahulbot	[ ] _____
[ ] _____	[ ] _____	[ ] _____

IKA-DUHA NGA BAHIN: KAHIMTANG HAN GIN-IMPLEMENTAR NGA CBCRM NGA PROGRAMA HA SAMAR

Taramdan: Alayon pagbaton han **Oo** kun **Dire** an mga pamulong ha ubos. Kun an imo baton "**Oo**," alayon pagpili han numero nga nauyon han imo pag-ino-ino hiton nga mga pamulong bahin han kahimtang han gin-implementar nga Community-Based Coastal Resource Management Program (CBCRMP) ha iyo komunidad.

5 = Hul-os nga pag-implemetar 2 = Tala la nga pag-implementar

A. MA-PAMAAGI NGA PAG-IMBESTIGA (Research)	Baton		Tubtob Diin				
	Oo	Dire	5	4	3	2	1
1. Pag-imbestiga ngan pag-inbentaryo han karikuhan-dagat							
1.1 Kaisda-an (Finfishes)							
1.2 Kamasagan, pasayan, alimango, banagan (Crustaceans)							
1.3 Tahong, talaba, bukawil, sarad, ug iba pa (Mollusks)							
1.4 Balat, tayum, starfish, ug iba pa. (Echinoderms)							
1.5 Korals, bodol, kibot (Coelenterates)							
1.6 Lato, goso, lusay, ug iba pa (Seaweeds and seagrasses)							
1.7 Mga Katunggan -kamiyapin-an; kabakhawan (Mangroves)							
1.8 Iba pa (pakisurat)							
2. Pag-imbestiga han sustenable nga paggamit han puruy-an	Oo	Dire	5	4	3	2	1
2.1 Katunggan (Mangrove swamps)							
2.2 Takot o bagang-bang (Coral reefs)							
2.3 Goso, lato ngan mga lusay (Seaweeds & seagrass beds)							
2.4 Kahanangan ha tabi nga puroy-an han mga isda.							
2.5 Puroy-an han mga isda nga nabawbaw ha tabi							
2.6 Lugar kun diin nagtatapo an tubig-dagat ngan han tubig-tab-ang (Estuaries/Coastal lagoons)							
2.7 Hubasan (Salt marsh/Tidal flats)							
2.8 Kabab-toan (Rocky shores)							
2.9 Kubehado (Coves)							
2.10 Kahimab-wan nga kadagatan (Bays)							
2.11 Gulpo (Gulf)							
2.12 Iba pa (pakisurat)							
3. Inbestigasyon ngan siyentipiko nga pamakiana bahin han isyu ug problema nga nakaka-apekto han aton kadagatan	Oo	Dire	5	4	3	2	1
3.1 Pagkaubos han mga "yaman-dagat" ha aton kadagatan							
3.2 Madagmit nga pagkaruba han aton kadagatan							
3.3 Nakakaruba nga epekto han pagkaubos han kakahuyan ha kabukiran ngadto han kadagatan.							
3.4 Padayon nga kapobre han gugti nga parapangisda							
3.5 Hamubo nga produksyon han akwakultura							
3.6 Dire nagagamit nga kalawdan ug "economic zone"							
3.7 Dire episyente nga paggamit han produkto kadagatan							
4. Inbentaryo han mga kagamitan pagdakop isda	Oo	Dire	5	4	3	2	1
4.1 Nagkikiwa nga klase han panagat							
4.2 Dire nagkikiwa nga klase han panagat							
4.3 Panagat naubos han 3 gross toneladas							
4.4 Panagat lahos han 3 gross toneladas							
5. Inbentaryo parte parapangisda	Oo	Dire	5	4	3	2	1
5.1 Parapangisda an sakayan ubos 3 gross toneladas							
5.2 Parapangisda an sakayan lahos 3 gross toneladas							
6. Pag-imbestiga han karikuhan-dagat ngan ekolohiya							
6.1 Kahimtang han usa nga lugar han kadagatan							
	Oo	Dire	5	4	3	2	1
6.2 Kadagatan ug an iya palibot							
6.3 Populasyon							
6.4 Gamit han karikuhan pan-dagat ngan kondisyon pan-							

mahiunong han CBCRM nga programa.							
2. Pag-enpwersa han mga ordinansa ug balaudnon pangisda.							
3. Pag-aresto han mga nagbayolar han mga balaudnon pandagat							
4. Paghatag han igo nga penalidad							
5. Paghatag hin multa							
6. Pag-akusar ha korte hadton mga nagbayolar parte balaud-non pandagat.							
7. Paghatag hin igo nga kadamuon ngan maabilidad nga mga taga-enpwersa han balaudnon pandagat.							
8. Paghatag hin igo nga kwarta nga makakaenganyar hadton mga nag-ienpwersa han balaudnon pandagat.							
9. Paghatag hin igo nga badyet para igsuporta han pagmen-tinar han operasyon pag-enpwersa han balaud.							
10. Abilable nga serbisyo ug suporta-legal para han nag-ienpwersa han balaud.							
11. Pagahatag balaudnon parte hiton pagparehistro han mga sasakyan pandagat, pagbayad buwis, paglukat lisensya ug permit ngan iba pa nga aktibidades parte pangisda.							
12. Pagpadulot han balaudnon para han open ngan close season							
13. Iba pa (pakisurat)							
C. EDUKASYON	**Baton**		**Tubtob Diin**				
	Oo	**Dire**	**5**	**4**	**3**	**2**	**1**
1. Paghitaas hibaro han katawhan labi na gud an hibaro pan-ekolohiya mahiunong han mga buruhaton han CBCRM.							
2. Paghitaas han ira inaabat nga pag-ugop ngadto han karikuhan pandagat.							
3. Pagkilala nga ka-parte hira han mga problema ngan an kapasidad pagkaurosa pagtimangno ug pagprotehir han karikuhan pandagat han komunidad.							
4. Madagmit nga partisipasyon pagkilala han mga isyu ngan pagtagad ha komunidad.							
5. Madagmit nga partisipasyon pamiling ngan paghatag hin tama nga solusyon bahin hin mga isyu pan-komunidad nga may kalabutan han CBCRM.							
6. Partisipasyon han inbestigasyon ngan pagkolekta han mga ungod nga inpormasyon.							
7. Partisipasyon hin pagmanihar ug pag-implementar han mga aktibidades para han kabaybayunan.							
8. Paghatag hin local ngan tradisyunal nga hibaro ug eksperyensya pag-atiman han karikuhan-pandagat.							
9. Presensya ha mga pag-aradman mahiunong hin hibaro ha palibot.							
10. Presensya ha mga katitirok bahin han CBCRM.							
11. Nagpapakita hin karuyagon ngan interes pag-arog hin kalugaringon nga mga materyales ug kagamitan pag-aradman mahiunong han CBCRM							
12. Iba pa (pakisurat)							

D. PAG-PAUSWAG HAN ORGANISASYON PAN-KUMONIDAD (Community Organizing and Development)	**Baton**		**Tubtob Diin**				
	Oo	**Dire**	**5**	**4**	**3**	**2**	**1**

3. Pagbiling han oportunidad para mahimo ngan masustenir an istruktura han organisasyon para CBCRM .							
4. Paghimo istratehiya pagpakusog han ira abilidad agud makakuha igo nga pundo pag-suporta para han possible ngan sustenable nga proyekto pan-ekonomiya han katawhan.							
5. Nagin tinikangan han mga aktibidades para han inpormasyon, edukasyon, ngan komunikasyon dida han komunidad.							

E. PAG-PAUSWAG HAN KATUNGOD HA MGA KARIKUHAN PAN-KADAGATAN (Resource Tenure Improvement)	**Baton**		**Tubtob Diin**				
	Oo	**Dire**	**5**	**4**	**3**	**2**	**1**
1. Pagtulitol han giutan han kanan munisipyo nga katubigan							
2. Hugot nga implementasyon ha komunidad han balaud-non pandagat ngan CBCRM nga ordinansa .							
3. Pagpugong nga dire katagan han pagtagad an waray mga katungod pagkuha han mga produkto pandagat .							
4. Magin batasan kunta nga pirmi may limitasyon an paggamit ug pagkuha han mga karikuhan-pandagat ha kadagatan.							
5. Pirmi ipadulot an balaudnon nga naghahatag pagtagad han panakop han isda ngan pag-konserba han yaman-pandagat pareho han "open" ngan "close season."							
6. Tagan hin patok o penalidad adton mga dire nasunod han balaud-non.							
7. Iba pa (pakisurat)							

F. PAGDUMARA NGAN PAG-KONSERBAR HAN KADAGATAN (Environmental Conservation and Management)	**Baton**		**Tubtob Diin**				
	Oo	**Dire**	**5**	**4**	**3**	**2**	**1**
1. Hul-os nga pag-dire han mga illegal nga pangisda nga kun diin aton makikita dida ha Republic Act 8550							
2. Pagdeklara han "open" ngan "close season".							
3. Pagtulitol han giutan han kanan munisipyo nga katubigan							
4. Paghatag han mabug-at nga penalidad para hadton ilegal nga parapangisda.							
5. Pagpahimutang han limitasyon an kadamuon han mga nada-dakop nga isda.							
6. Pagkamay-ada han sustinable ug "environment-friendly" livelihood mariculture projects"							
7. Pagbutang han sanktwaryo han isda ha kadagatan.							
8. Magin batasan naton an paggamit han "aquaranching."							
9. Pagtaod han mga "artificial reefs "(ARs)							
10. Pagbuhi han mga isda ha ngatanan nga mga katubigan							
11. Ipadulot an balaud pagpa-hitaas han buwis/lisensya para han mga sasakyan-pandagat.							
12. Ipadulot an balaud paglukat lisensya para han parapangisda.							
13. Pagkontrol pagdistrebwer han mga materyales nga ginagamit paghimo han nakakaruba nga klase han panagat							
14. Pagka-may-ada han taramnan han kamiyapin-an/kabakhawan							
15. Pagbuhat han transplantasyon han mga koral ug lusay .							
16. Iba pa (pakisurat)							

IKA-TULO NGA BAHIN: EPEKTO HAN CBCRM NGA PROGRAMA

Taramdan: Alayon pagbaton han **Oo** kun **Dire** an mga pamulong ha ubos. Kun an imo baton **Oo**, alayon pagpili han numero nga nauyon han imo pag-ino-ino hiton nga mga pamulong bahin han epekto han gin-implementar nga "Community-Based Coastal Resource Management Program" (CBCRMP) ha iyo komunidad.

5 = Hul-os nga nakikita
4 = Labi nga nakikita
3 = Igo la nga nakikita
2 = Tala la nga nakikita
1 = Dire nakikita

A. EKOLOHIYA (Ecology)	Baton		Tubtob Diin				
	Oo	Dire	5	4	3	2	1
1. Pagbalik han mga ka-isdaan.							
2. Hitaas nga populasyon han magkadurodilain nga isda							
3. Hitaas han produksyon.							
4. Damo ug dagko nga mga isda an nakikita ha sanktwaryo.							
5. Permanente nga paghitaas han mga nadadakop nga isda.							
6. Marampag nga mga koral ha sakob ug sapit han sanktwaryo.							
7. Damo nga kaisdaan ha sakob ug gawas han sanktwaryo							
8. Hul-os nga pagprotiher han katung-gan.							
9. Iba pa (pakisurat)							
B. EKONOMIYA-PAN KATAWHAN (Socio-economic)	**Baton**		**Tubtob Diin**				
	Oo	**Dire**	**5**	**4**	**3**	**2**	**1**
1. Pagdamo han mga nadadakop nga isda.							
2. Hitaas nga kita han pamilya.							
3. Pakag-aram han mga kabataan ha mga pag-aradman.							
4. Damo nga kwarta han mga parapangisda para makatirok, makapalit pagkaon, ngan makapa-aram han ira mga anak.							
5. Hitaas nga kita nga nakukuha tikang han mga proyekto-panginabuhi-an nga sustainable.							
6. Kalugaringon nga balay.							
7. Kalugaringon nga tuna/lote.							
8. Kalugaringon nga panagatan.							
9. Kalugaringon nga mga aplayanses (radio, TV, VCD, DVD, ngan iba pa).							
10. Kalugaringon nga gamit-panimaly pareho han sala set, iba pa.							
11. Katuman han mga kinahanglanon han pamilya							
12. Pag-uswag han panginabuhi.							
13. Paka-lingkawas han mga kakurian							
14. May elektrisidad.							
15. May "cable-TV" koneksyon.							
16. May telepono/"internet" koneksyon.							
17. Iba pa (pakisurat)							

C. KULTURA-PAN KATAWHAN (Socio-cultural)	Baton		Tubtob Diin				
	Oo	Dire	5	4	3	2	1
1. Hamubo nga insidente o aktibidades han illegal nga pangisda.							
2. Positibo nga pagbag-o han panulos han mga tawo tikang han							

mga programa pan-komunidad.							
6. Dugang nga kina-adman parte han mga buruhaton ug partisipasyon han mga kababayin-an ha "fisheries".							
7. Aktibo, napartisipar ug responsible nga mga parapangisda nga nagdudumara han karikuhan-dagat.							
8. Aktibo nga partisipasyon panakop hanmga bayolar han balaud							
9. Hitaas nga seguridad han mga sulod-balay pinaagi han paghatag han serbisyo-pan-katawhan pareho han maupay nga panlawas, edukasyon, ngan pagigin-andam kun panahon han ka-delikaduhan.							
10. Marka han pagbabag-o han panulos han tawo ngadto han karikuhan-pandagat, an ira katungod para han balanse nga palibot ngan an ira mga panulos pag-ato para han ira mga katungod.							
11. Hitaas nga pagtapod pakig-usa ha lokal nga gobyerno ug iba pa nga ahensya.							
12. Representasyon han mga kababayin-an ug kabataan dida han mga organisasyon, Bantay Dagat ngan FARMCs.							
13. Iba pa (pakisurat))							

D. PAGPAHAMTANG HAN BALAUDNON (Institutional)	Baton		Tubtob Diin				
	Oo	Dire	5	4	3	2	1
1. Paghatag poder han tagdumara han CBCRM nga programa.							
2. Pagpahimutang han mga plano karikuhan-pandagat dida ha mga plano pagpa-uswag han lokal nga pan-gobyernuhan.							
3. Paghatag hin pondo kada tuig tikang ha LGU.							
4. Epektibo nga pamaagi pag-enpwersa han balaud.							
5. Makusog ug pursigido nga pamunuan ngan suporta han local nga pan-gobyernuhan pagpasa han mga resolusyon ug ordinansa.							
6. Pagburublig han mga parapangisda nga gin-usa hin damo nga Mga pama-agi, pareho han sanktwaryo, board, kooperatiba, balaud, ngan tag-enpwersa nga grupo)							
7. Hilarum an pag-intindi, haluag an paglantaw, abri an huna-huna ug komitido nga klase han liderato.							
8. Pagpahimutang pagdumara han karikuhan-pankadagatan pinaagi han mga polisiya/ordinansa.							
9. Pagpahimutang han mga lideres han iba-iba nga organisasyon pag-api ha mga paghihimu-on nga plano ug desisyon han kada tagsa nga bungto.							
10. Madagmit pagkuha ngan paghatag serbisyo-pankatawhan ha mga sitwasyon pareho han maupay nga panlawas, edukasyon, ngan pagdumara han ka-delikaduhan.							
11. Pagpugong hadton mga waray katungod pag-gamit/pagkuha han mga karikuhan-pandagat.							
12. Iba pa (pakisurat)							

IKA-UPAT NGA BAHIN: **MGA PROBLEMA HAN GIN-IMPLEMENTAR NGA PROGRAMA HAN CBCRM HA SAMAR**

Taramdan: Alayon pagbaton han **Oo** kun **Dire** an mga pamulong ha ubos. Kun an imo baton **Oo**, alayon pagpili han numero nga nauyon han imo pag-ino-ino hiton nga mga pamulong bahin han mga problema han gin-implementar nga Community-Based Coastal Resource Management Program (CBCRMP) ha iyo komunidad.

5 = Hul-os nga problema
4 = Labi nga problema
3 = Igo la nga problema
2 = Tala la nga problema
1 = Dire problema

A. MA-PAMAAGI NGA PAG-IMBESTIGA (Research)	Baton		Tubtob Diin				
	Oo	Dire	5	4	3	2	1
1. Kakulangan han hibaro han mga higamit ug pamaagi pag-inbestigar han karikuhan-pandagat.							
2. Kakulangan han pondo para han mga aktibidades han hini nga klase han pag-aradman.							
3. Kakulangan han mga tawo nga nagbubuhat hini nga siyentipiko nga pag-imbestigar.							
4. Kulang han koneksyon ha mga "research institutions" nga nag-bubuhat han mga pag-aradman bahin han CBCRM.							
5. Gawas han prayoridad an pagbuhat han "research".							
6. Iba pa (pakisurat)							

B. PAG-ENPWERSA HAN MGA BALAUD-NON (Legislation and Law Enforcement)	Baton		Tubtob Diin				
	Oo	Dire	5	4	3	2	1
1. Dire pagpadulot han mga lokal nga ordinansa bahin han CBCRM.							
2. Masamok nga implementasyon, polisiya ngan balud han prog-Rama							
3. Pagkulang han interes han mga pulitiko pag-implementar han balaud ug pag enpwersa han programa.							
4. An pagka-may ada han *padrino*, ug suhol nga nakaka-aghat han mga illegal nga buruhaton.							
5. Maluya nga implementasyon han mga ordinansa, balaud, regu-lasyon parte han CBCRM ngan pag-konserbar han kadagatan							
6. Dire pag-enpwersa han balaud han tawo nga may kalabutan pagpa-dulot han balaud.							
7. Maluya nga koordinasyon han mga ahensya nga may kalabutan pag-enpwersa han balaud.							
8. Pagkakulang han pag-aradman han mga nag-ienpwersa han balaud.							
9. Waray klaro nga ahensya nga mangungulo pag-enpwersa han balaud.							
10. Kakulangan han kagamitan, suplay ngan materyales para han hugot nga pagbantay ug pagpatrolya ha kadagatan.							
11. Maluya nga sistema han aton hustisya ngan hudikatura tungod							

nakatalapas.							
15. Kakulangan han hibaro han mga tawo han ahensya han gobyerno han mga pamaagi pag pasaka han reklamo ngan kaso kontra han mga nakatalapas.							
16. Maluya nga pag-uswag han ekonomiya ha ligid han kadagatan ngan kulang nga altenatibo pakabuhi-an para han mga para-pangisda ngan iba pa nga direkta nga nadepende han kada-gatan.							

C. EDUKASYON	Baton		Tubtob Diin				
	Oo	Dire	5	4	3	2	1
1. Kulang han hibaro an mga parapangisda mahiunong han im-portansya han CBCRM.							
2. Kulang an kapabilidad han mga tawo han ahensya han gobyerno pagtuman han mga aktibidades pag-aradman mahi-unong han CBCRM.							
3. Kakulangan han mga materyales pag-aradman han CBCRM.							
D. PAG-USWAG HAN ORGANISASYON PAN-KUMONIDAD (Community Organization and Development)	**Baton**		**Tubtob Diin**				
	Oo	**Dire**	**5**	**4**	**3**	**2**	**1**
1. Pagigin dire aktibo han katawhan tungod han pagkaka-iba han ira lebel han interes parte han karikuhan-pandagat.							
2. Kulang han kadasig ug pag-suporta tikang ha lokal nga pan-gobyernuhan pag-undong nga umapi an komunidad.							
3. Kakulangan han pag-aradman nga teknikal nga kaangayan mismo han mga nag-iimplementar han programa labi na an "community organizer".							
4. Kahulopanon han mga nag-iimplementar han programa han CBCRM.							
5. An pagkontra ngan pagigin-negatibo usahay han katawhan.							
6. Kakulangan han kadamuon han personales nga may kapasidad pagtuman han ira buruhaton pagpahitaas han kapasidad.							
7. Kakulangan han pinansyal nga karikuhan para han mga buru-haton nga pagpahitaas han kapasidad.							
8. Kakulangan han oportunidad para han katawhan pag-atender han mga pag-aradman (trainings, seminars) ngan iba pa nga aktibidades mahiunong han CBCRM ngan nagpapahitaas pa han ira kapabilidad.							

E. PAG-PAUSWAG HAN KATUNGOD HA MGA KARIKUHAN PAN-KADAGATAN (Resource Tenure Improvement)	**Baton**		**Tubtob Diin**				
	Oo	**Dire**	**5**	**4**	**3**	**2**	**1**
1. Problema bahin han "open access"							
2. An kawaray giutan (boundary) han nasasakupan nga kadagatan han munisipyo.							
3. Pagpabaya han implementation han balaud ha kadagatan ngan mga ordinansa han CBCRM ha komunidad.							
4. An dire pag-dire hadton mga waray katungod pangisda han dire ira katubigan.							
5. An dire pagpadulot ngan maluya nga implementasyon han mga lokal nga ordinansa, regulasyon hadton CBCRM ngan konserbasyon han produkto-pandagat							

1. Maluya nga pag-enpwersa han mga balaudnon parte han konserbasyon ngan preserbasyon han karikuhan-pandagat.							
2. Kakulangan han aksyon pagprotehir han panguha han karikuhan-pandagat mismo han mga katawhan.							
3. Kakulangan suporta-pinansyal para epiktibo nga maprotehiran an karikuhan-pandagat.							
4. Kakulangan han hibaro ug ka-angayan pagpabalik ngan pag-paursa han aton karikuhan-pandagat.							
5. Kulang han mga personales nga may igo nga kinaadman pag-implementar han mga proyekto nga magpapabalik ngan mag-papa-ursa han karikuhan-pandagat.							
6. Iba pa (pakisurat)							

Salamat hinduro han iyo hul-os nga kooperasyon.

Appendix G

Survey Questionnaire
(For Respondents – English Version)

INTERVIEW GUIDE QUESTIONNAIRE FOR COMMUNITY-BASED COASTAL RESOURCE MANAGEMENT MODEL IN SAMAR
(For LGUs)

PART I – SOCIO-DEMOGRAPHIC PROFILE

Direction: Please complete the following information by filling up the blanks and tables or checking inside the parenthesis provided below.

1. Name of Municipality: _____
2. Income Class: _____
3. Internal Revenue Allotment (IRA): _____
4. Name of Respondent (Optional): _____
5. Sex: [ ] Male [ ] Female
6.
7. Age: _____
8. Civil Status: [ ] Single [ ] Widow/widower [ ] Others (specify) ___
   [ ] Married [ ] Legally separated _____
9. What is your highest educational attainment?

   [ ] High School Level [ ] High School Graduate [ ] Post Secondary Level
   [ ] College Level [ ] With Masteral Units [ ] With Doctoral Units
   [ ] Post-Secondary Course Completed: _____ Specialization: _____
   [ ] Bachelor's Degree Completed: _____ Specialization: _____
   [ ] Master's Degree Completed: _____ Specialization: _____
   [ ] Doctoral Degree Completed: _____ Specialization: _____

10. Occupation _____
11. What is your average monthly income (in pesos)?
    [ ] 1,000.00 – 2,000.00 [ ] 10,000.00 – 12,000.00 [ ] 22,000.00 – 25,000.00
    [ ] 3,000.00 – 4,000.00 [ ] 13,000.00 – 15,000.00 [ ] 26,000.00 – 30,000.00
    [ ] 5,000.00 – 6,000.00 [ ] 16,000.00 – 18,000.00 [ ] 35,000.00 – 40,000.00

13. Trainings/Seminars attended related to CRM for the last 10 years (Please check)

[ ] "Philippine Fisheries Code of 1998" (RA 8550)
[ ] Fishery Law Enforcement Team Training (FLETT)
[ ] Coastal Resource Management Orientation
[ ] Artificial Reef Establishment & Management
[ ] Coastal Tourism Planning & Management
[ ] Strategic Planning for Coastal Management
[ ] Mangrove Rehabilitation & Management
[ ] Participatory Coastal Resource Assessment (PCRA)
[ ] Coastal Solid Waste Management
[ ] Monitoring, Control & Surveillance (MCS)
[ ] Delineation of Municipal Boundaries in Municipal waters
[ ] Others (specify) _____

[ ] Integrated CRM short-term course
[ ] Basic Ecological Awareness
[ ] Municipality/City Ordinance
[ ] Fish Warden Orientation
[ ] Coastal Law Enforcement
[ ] Trainor's Training on CRM
[ ] Sustainable Aquaculture
[ ] Fishing Technology
[ ] CRM Planning
[ ] Livelihood Trainings on Aquaculture
[ ] Fish Processing/Value-Added Products
[ ] _____

14. Budget Allocation for Coastal Resource Management (CRM) for the last 10 years.

Year	Amount ((PhP)
2010	
2009	
2008	
2007	
2006	
2005	
2004	
2003	
2002	
2001	

15. Community infrastructures existing in your barangay/municipality/city. (Please check)

[ ] hospital
[ ] drug store
[ ] electric service
[ ] public market
[ ] restaurant
[ ] banking service
[ ] radio/TV station
[ ] bus terminal
[ ] bakery/bakeshop
[ ] basketball court
[ ] others (specify) _____

[ ] primary school
[ ] secondary school
[ ] telephone service
[ ] hotel or inn
[ ] gas station
[ ] television reception
[ ] airport
[ ] port
[ ] stores
[ ] tennis court

[ ] medical clinic/health center
[ ] public water supply piped to homes
[ ] sewage pipes or canal
[ ] sewage treatment facility
[ ] septic or settling tanks
[ ] public transportation
[ ] hard top road access
[ ] movie houses/theater
[ ] church
[ ] volleyball court

16. Kindly indicate your perceptions about the condition of your resources.

Resources	Very Bad	Bad	Neither good nor bad	Good	Very Good
	(1)	(2)	(3)	(4)	(5)
Mangroves					
Coral reefs					
Seagrass/seaweed beds					
Beaches/shorelines					
Estuaries/coastal lagoons					
Salt marsh and mudflat					

17. Coastal activities

➢ Coastal zone uses/activities taking place in the community. (Please check)

[ ] Fishing
[ ] Industry
[ ] marine transportation
[ ] Others (specify) _____
[ ] Aquaculture/mariculture
[ ] Residential development
[ ] coastal & seabed mining
[ ] Tourism
[ ] Coastal construction and reclamation
[ ] _____

18. Livelihood projects under CBCRM program existing in your coastal waters.

[ ] seaweed farming
[ ] milkfish cage culture
[ ] grouper cage culture
[ ] multiple long-line fishing
[ ] fish/squid pot fishing
[ ] vacuum-packed smoked fish
[ ] others (specify) _____
[ ] _____
[ ] _____

19. Fisherfolk's fishing activities done in your coastal waters.

[ ] Trawl
[ ] Baby ring net fishing
[ ] Hook and line fishing
[ ] Crab/fish/squid pot fishing
[ ] Sea cucumber gathering
[ ] Gleaning (mollusk, crustacean)
[ ] Danish seine
[ ] Multiple set long-line fishing
[ ] Squid jigging
[ ] Shrimp gathering w/o gear
[ ] Seaweed gathering
[ ] Others (specify) _____
[ ] Gill net fishing
[ ] Drift gill net fishing
[ ] Spear fishing
[ ] Fish corral
[ ] Push net

PART II. STATUS OF THE IMPLEMENTED CBCRM PROGRAMS IN SAMAR

Direction: Check the box under column **YES** if the following components of CBCRM program were implemented in your area and **NO** if it were not implemented. If your answer is **YES**, mark the corresponding rating by checking only the number that best describe the extent of implementation of CBCRM programs in your community. In rating, **1 (indicates the lowest)** and **5 (indicates the highest)**.

A. RESEARCH	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Assessment and inventory of aquatic resources							
1.1 Finfishes							
1.2 Crustaceans							
1.3 Mollusks							
1.4 Echinoderms							
1.5 Coelenterates							
1.6 Seaweeds and seagrass							
1.7 Mangroves							
1.8 Others (specify)							
2. Assessment on sustainable utilization of existing habitat	YES	NO	5	4	3	2	1
2.1 Mangrove swamps							
2.2 Coral reefs							
2.3 Seaweeds and seagrass beds							
2.4 Nearshore soft bottom habitat							
2.5 Nearshore pelagic habitat							
2.6 Estuaries/coastal lagoons							
2.7 Salt marsh/tidal flat							

3. Investigation and scientific inquiry on issues and problems affecting coastal resources and its environment	3	NO	5	4	3	2	1
3.1 Resource depletion in coastal areas							
3.2 Widespread environmental damaged							
3.3 Destructive effect of upland activities on coastal ecosystem							
3.4 Poverty among municipal fishermen							
3.5 Low productivity in aquaculture							
3.6 Underutilized offshore and economic zone							
3.7 Inefficient utilization of fishery products							
4. Inventory of fishing gears	YES	NO	5	4	3	2	1
4.1 Active fishing gears							
4.2 Passive fishing gears							
4.3 Municipal fishing vessels							
4.4 Commercial fishing vessels							
5. Inventory of fisherfolks	YES	NO	5	4	3	2	1
5.1 Municipal fisherfolks							
5.2 Commercial fisherfolks							
6. Resource and ecological assessment	YES	NO	5	4	3	2	1
6.1 Spatial and geographical							
6.2 Oceanographical and ecological							
6.3 Demographic							
6.4 Resource uses and socio-economic conditions							
6.5 Legal and institutional							
6.6 Management issues and solutions							
6.7 Others (specify)							

. LEGISLATION AND LAW ENFORCEMENT	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Enactment of municipality or city ordinances related to CBCRM							
2. Enforcement of fishery laws, rules and regulations and fisheries Ordinances							
3. Apprehension of violators on fishery laws, rules and regulations							
4. Imposition of sanctions							
5. Imposition of fines and penalties							
6. Filing of cases among violators in appropriate bodies and courts of laws							
7. Provision of adequate and competent numbers of law enforcers							
8. Provision of monetary incentives for law enforcers							
9. Provision of adequate budgetary support for the maintenance and operation services on law enforcement							
10. Availability of legal support/services							
11. Provision of rules and regulations on registration, taxation, licensing, permits and other fisheries activities							
12. Enabling legislation on close and open season							
13. Others (specify)							

. EDUCATION	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Increase knowledge on ecological awareness of community							

5. Active involvement in finding and implementing solutions to coastal resource issues in the community							
6. Participation in research and data gathering							
7. Participation in coastal management implementation activities (i.e., law enforcement, fisheries monitoring and evaluation, and sanctuary establishment and management)							
8. Provides local and traditional knowledge and experience in resource management							
9. Attend training regarding environmental awareness (i.e.policies and regulations on CBCRM, law enforcement, regeneration and conservation, etc.)							
10. Attend symposia and fora on CBCRM							
11. Shows willingness and interests in collecting available educational tools and materials on CBCRM							
12. Others (specify)							

D. COMMUNITY ORGANIZATION AND DEVELOPMENT	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Organize a fisherfolk's organization, associations or cooperatives to form alliances for advocacy and sharing of resources and Technologies							
2. Attend training on capability building such as basic leadership skills, alternative livelihood projects, etc.)							
3. Find the opportunity to build and sustain organizational structures for CBCRM							
4. Develop strategies to strengthen their capability to access funds in support for viable and sustainable socio-economic projects							
5. Initiates Information, Education and Communication activities in the community.							
6. Others (specify)							

E. RESOURCE TENURE IMPROVEMENT	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Delineated municipal water use zones							
2. Strict implementation of fishery laws and CBCRM ordinances in community							
3. Restrictions concerning the rights to harvest the resource							
4. Practice limits on resource utilization							
5. Enable legislations or rules concerning harvesting or resource conservation particularly the close and open season							
6. Imposed penalty or punishment for those who break the rules							
7. Others (specify)							

F. ENVIRONMENTAL CONSERVATION AND MANAGEMENT	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Total ban of illegal fishing practices as prescribed in Republic Act 8550							
2. Declaration of open and close season.							

8. Practice of aquaranching							
9. Installations of artificial reefs (ARs)							
10. Stock and re-stock of fishes in communal waters							
11. Imposition of progressive tax/ license on fishing vessels							
12. Imposition of fisher's license							
13. Regulations on the distribution of materials use for destructive fishing methods							
14. Establishment of mangrove reforestation							
15. Conduct coral and seagrass transplantation							
16. Others (specify)							

PART III. IMPACT-INDICATORS OF CBCRM PROGRAMS IN SAMAR

Direction: Check the box under the column "**YES**" if the following impact-indicators of CBCRM program were manifested and in column "**NO**" if it were not manifested. If your answer is **YES**, mark the corresponding rating by checking only the number that best describe the extent of impact of CBCRM programs in your community. In rating, **1 (indicates the lowest)** and **5 (indicates the highest)**.

A. ECOLOGICAL	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Return of species							
2. Increase fish stock/population and diversity							
3. Increase production							
4. Bigger fishes in greater number in the sanctuary							
5. Steady increase in fish catch							
6. Increase coral cover inside and adjacent to marine sanctuary							
7. Fish abundance inside and outside the marine sanctuary							
8. Fully protected mangrove areas							
9. Others (specify)							
10.							

B. SOCIO-ECONOMIC	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Increase in fish catch							
2. Increase in family income							
3. Children are now send to school							
4. Fishermen have more money to spend on education and food and are able to save							
5. More income derived from other sustainable livelihood projects							
6. Owned a house							
7. Owned a lot							
8. Owned a fishing boats/gear							
9. Owned appliances (TV, radio, VCD, DVD microwave oven)							
10. Owned furnitures (sala/dining set)							
11. Satisfy family needs							
12. Improve quality life							
13. Alleviate poverty							
14. With electricity connection							

C. SOCIO-CULTURAL	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Decrease in incident of illegal fishing activities							
2. Positive changes in attitude among people from extraction to Conservation							
3. Improve capacities of fisherfolks to manage their own activities							
4. Increase ecological awareness among local community Members							
5. Heightened community awareness and support to community Programs							
6. Increase awareness regarding the role of women in fisheries							
7. Fishermen are more active, participative and responsible in managing the resource							
8. Active participation in apprehending violators							
9. Increase security of households through the provision and facilitation of social services such as health, education and disaster preparedness							
10. Mark changes in the attitude of people towards the resources, their rights to a balanced ecology and their attitude fighting for those rights							
11. Increase confidence in relating with LGU and other agencies							
12. Representation of women and youth in an organization, Bantay Dagat and FARMCs							
13. Others (specify))							

D. INSTITUTIONAL	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Empowerment of CBCRM program beneficiary							
2. Mainstreaming of fishery resource plans in local development Plan							
3. Annual budget allocation from LGU							
4. Effective mechanisms for law enforcement							
5. Strong political will and support of the LGU for the passage of resolutions and ordinances							
6. Partnerships among various stakeholders institutionalized through various mechanisms (sanctuary, board, cooperative, law, enforcement group)							
7. Enlightened and committed leadership							
8. Institutionalization of resource management through policies/ Ordinances							
9. Institutionalized participation on people's organization leaders in municipal development planning and decision-making Process							
10. Facilitated access and provided social services in the areas of health, education, and disaster management							
11. Restrictions of relevant resource on who has the rights to harvest the resource							
12. Others (specify)							

PART IV. PROBLEMS ENCOUNTERED ON THE VARIOUS COMPONENTS OF THE IMPLEMENTED CBCRM PROGRAMS IN SAMAR

Direction: Check the box under column **YES** if the following problems on various components of CBCRM were encountered and **NO** if it were not encountered. If your answer is **YES**, mark the corresponding rating by checking only the number that best describe the extent of problems encountered on the various components of CBCRM programs in your community. In rating, **1 (indicates the lowest)** and **5 (indicates the highest)**.

A. RESEARCH	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Inadequate knowledge on resource assessment tools and Methodologies							
2. Lack of adequate funding for research activities							
3. Inadequate number of personnel to carry out scientific investigation							
4. Poor linkage with research institutions carrying out research activities on CBCRM							
5. Conducting research is not within the priority							
6. Others (specify)							
7.							

B. LEGISLATION AND LAW ENFORCEMENT	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Non-enactment of local ordinances on CBCRM							
2. Conflicting policies and laws and implementation programs							
3. Lack of political will to implement laws and enforcement Programs							
4. *Padrino* or incentive system that promote illegal activities							
5. Poor implementation of ordinances, rules and regulation on CBCRM and fisheries conservation							
6. Leniency of personnel in-charge in the enforcement of the laws							
7. Weak coordination between and among law enforcement Agencies							
8. Lack of trained coastal law enforcement units							
9. Lack of clear "lead" agency in coastal law enforcement							
10. Inadequate facilities, supplies and materials for efficient monitoring and patrol							
11. Slow justice system with judiciary and prosecutors unfamiliar with fisheries							
12. Lack of awareness and laws and consequences of illegal Activities							
13. Poor cooperation among stakeholders to pursue cases on violators in courts and appropriate bodies							
14. Lack of legal support to personnel involved in pursuing cases in courts among violators							
15. Inadequate knowledge among local personnel in filing appropriate complaints and cases to violators							
16. Slow economic development in coastal areas and lack of livelihood alternatives for fishers and those dependent directly							

C. EDUCATION	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Lack of environmental educational awareness among stake-holders on the importance of CBCRM							
2. Lack of competent personnel to carry out educational activities on CBCRM							
3. Inadequate educational tools and materials on CBCRM							
4. Others (specify)							

D. COMMUNITY ORGANIZATION AND DEVELOPMENT	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. In-active participation of stakeholders due to diversified "stake" or level of interest in coastal resources							
2. Less effort of support from the local government to promote Involvement of community							
3. Inadequate relevant training and technical skills among program implementers particularly the community organizer							
4. Low morale of program implementers on CBCRM.							
5. Hostility of some stakeholders							
6. Inadequate number of personnel locally trained to carry out capability building activities							
7. Inadequate financial resources for capability building activities							
8. Lack of opportunities for stakeholders to attend trainings, seminars, and other capability building activities related to CB-CRM							
9. Others (specify)							

E. RESOURCE TENURE IMPROVEMENT	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Open access problem							
2. Not delineated municipal water use zones							
3. Laxity in the implementation of fishery laws and CBCRM ordinances in community							
4. Unrestricted rights to harvest the resource							
5. Non-enactment and poor implementation of local ordinances, rules and regulations on CBCRM and fisheries conservation							
6. Unlimited utilization of the resource							
7. Very light imposition of penalty and punishment for those who break the rules							
8. Others (specify)							

F. ENVIRONMENTAL CONSERVATION AND MANAGEMENT	Response		EXTENT				
	YES	NO	5	4	3	2	1
1. Poor enforcement of fishery laws, rules and regulations on the conservation and preservation of coastal resources							
2. Lack of conservation measures in extracting coastal resources among stakeholders							
3. Inadequate financial support to efficiently and effectively manage coastal resources							
4. Inadequate knowledge and skills in resource regeneration and							

Appendix H

SURVEY RESULT ON THE QUESTIONAIRE

The Sampling Frame by Barangay/Municipality/City

Sample Barangay	Municipality	Number of Registered Fisherfolks	Sample Size
Barangay 6 (Pob.)	Calbiga	1	1
Barobaybay		37	7
Malajog	Calbayog	51	9
Palanas		8	2
Payahan		3	1
Peña		20	4
San Roque	Daram	108	19
Mongol-bongol		140	24
Mayabay		98	17
Malingon (Pob. 2)		169	29
Saugan		98	17
Marupangdan		75	13
Manduyocan		73	13
Sua		74	13
Real		30	6
Nipa		43	8
San Jose		86	15
Losa		130	22
Hilaba (Pob. 1)		36	6
Tugas		164	28
Malayog	Gandara	33	6
Rawis	Hinabangan	2	1
Alejandria (Brgy. 8)	Jiabong	25	5
Jia-an		41	7
Malobago (Villalinda)		7	1
Catalina		1	1
Logero	Marabut	12	2
Ferreras		13	3

Table continued

Sample Barangay	Municipality	Number of Registered Fisherfolks	Sample Size
Osmeña			
Roño		55	10
Poblacion 1	Motiong	16	3
Cambaye	Pagsanghan	5	1
Calampong	Pinabacdao	23	4
Monbon (Pob.)	Sta. Margarita	41	7
Ilo		21	4
Inoraguiao		7	2
Salvacion	Sta. Rita	4	1
Bougainvilla(Pob.2)		5	1
Poblacion 1	Talalora	11	2
Poblacion 2		27	5
Navatas Daku		33	6
	Total	**1,919**	**342**

Socio-Demographic Profile of Community-Based Coastal Resource Management Communities in Terms of Respondents' Trainings/ Seminars Attended in Relation to CBCRM

Trainings/Seminars Attended	Frequency	Percent
"Philippine Fisheries Code of 1998" (RA 8550)	415	63.17
Fishery Law Enforcement Team Training (FLETT)	4	0.61
Coastal Resource Management Orientation	299	45.51
Artificial Reef Establishment & Management	11	1.67
Coastal Tourism Planning & Management	216	32.88
Strategic Planning for Coastal Management	137	20.85
Mangrove Rehabilitation & Management	23	3.50
Participatory Coastal Resource Assessment (PCRA)	29	4.41
Coastal Solid Waste Management	26	3.96
Monitoring, Control & Surveillance (MCS)	28	4.26
Delineation of Municipal Boundaries in Municipal Waters	16	2.44
Integrated CRM short-term course	16	2.44
Basic Ecological Awareness	57	8.68
Municipality/City Ordinance	31	4.72
Fish Warden Orientation	174	26.48
Coastal Law Enforcement	18	2.74
Trainor's Training on CRM	16	2.44
Sustainable Aquaculture	16	2.44
Fishing Technology	21	3.20
CRM Planning	306	46.58
Livelihood Trainings on Aquaculture	51	7.76
Fish Processing/Value-Added Products	35	5.33
None	56	8.52

Socio-Economic Profile of Community-Based Coastal Resource Management Communities in Terms of Respondents' Occupation

Occupation	Frequency	Percent
Fishing	530	80.67
Fishing, Farming	45	6.85
Fishing, Paghayupan	9	1.37
Fishing, business	6	0.91
business (buy and sell, Fish vendor)	12	1.83
fishing, farming, Paghayupan	3	0.46
Others: Gov't employee, Motor boat operator	4	0.61
Fishing, Farming, Pagahayupan & business	2	0.30
Not Specified	46	7.00
Total	**657**	**100.00**

Fishing Gear Profile in Samar

City/Municipality	Motorized Fishing Boats	Non-Motorized Fishing Boats	Total
1. Almagro	94	369	463
2. Calbayog City	766	2,991	3,757
3. Gandara	86	335	421
4. Pagsanghan	39	154	193
5. Sta. Margarita	77	302	379
6. Sto. Niño	145	566	711
7. Tagapul-an	99	389	488
8. Tarangnan	193	756	949
9. Basey	187	730	917
10. Calbiga	40	156	196
11. Catbalogan City	378	1,261	1,639
12. Daram	478	1872	2,350
13. Hinabangan	6	8	14
14. Jiabong	29	114	143
15. Marabut	289	1,131	1,420
16. Motiong	28	111	139
17. Paranas	24	96	120
18. Pinabacdao	63	247	310
19. San Sebastian	97	381	478
20. Sta. Rita	189	739	928
21. Talalora	88	346	434
22. Villareal	327	1,280	1,607
23. Zumarraga	354	1384	1,738
Total	4,076	15,718	19,794
No. of Fisherfolks	20,380	23,579	43,957

Lists of Commercial Fishing Gears

City/Municipality	Danish Seine	Trawl	Ring Net	Total
1. Calbayog City	13	4	-	17
2. Catbalogan City	4	-	3	7
3. Daram	3	-	7	10
4. Sto Niño	4	-	1	5
5. Tarangnan	-	-	2	2
6. Zumarraga	-	-	3	3
Total	24	4	16	44
No. of Fisherfolks	317	55	16	643

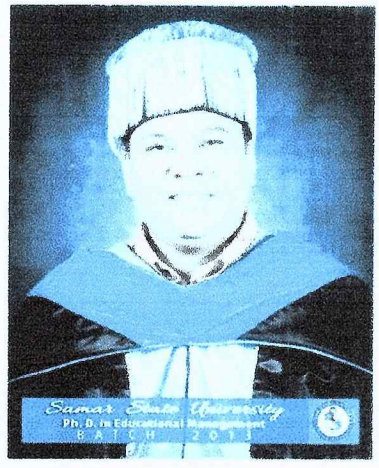
Source: DA-BFAR Samar PFO, 2009

Socio-Economic Profile of Community-Based Coastal Resource Management Communities in Terms of Respondents' Income Generating Project (IGP)

IGP	Frequency	Percent
Boat/Banca Maker	1	0.15
Mussel Farming	8	1.22
Seaweeds Farming	1	0.15
Fish Corral	1	0.15
Poultry Raising	1	0.15
Vegetable Gardening	1	0.15
Do not Engaged in IGP	644	98.02
Total	**657**	**100.00**

CURRICULUM VITAE

CURRICULUM VITAE



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