

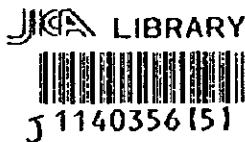
Japan International Cooperation Agency (JICA)

Secretary of Agriculture and Livestock
Republic of Honduras

THE MASTER PLAN STUDY
ON
THE SMALL SCALE FISHERIES DEVELOPMENT PROJECT
ON THE NORTH COAST
OF
THE REPUBLIC OF HONDURAS

FINAL REPORT

OCTOBER, 1997



SYSTEM SCIENCE CONSULTANTS, INC., TOKYO

AFF
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**Secretary of Agriculture and Livestock
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PREFACE

In response to the request from the Government of the Republic of Honduras, the Government of Japan decided to conduct the Master Plan Study on the Small Scale Fisheries Development Project and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent to Honduras a study team headed by Dr. Tamotsu Tomiyama, System Science Consultants Inc. five times during the period from December 1995 to July 1997.

The team held discussions with the officials concerned of the Government of the Republic of Honduras, and conducted field studies at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between two countries.

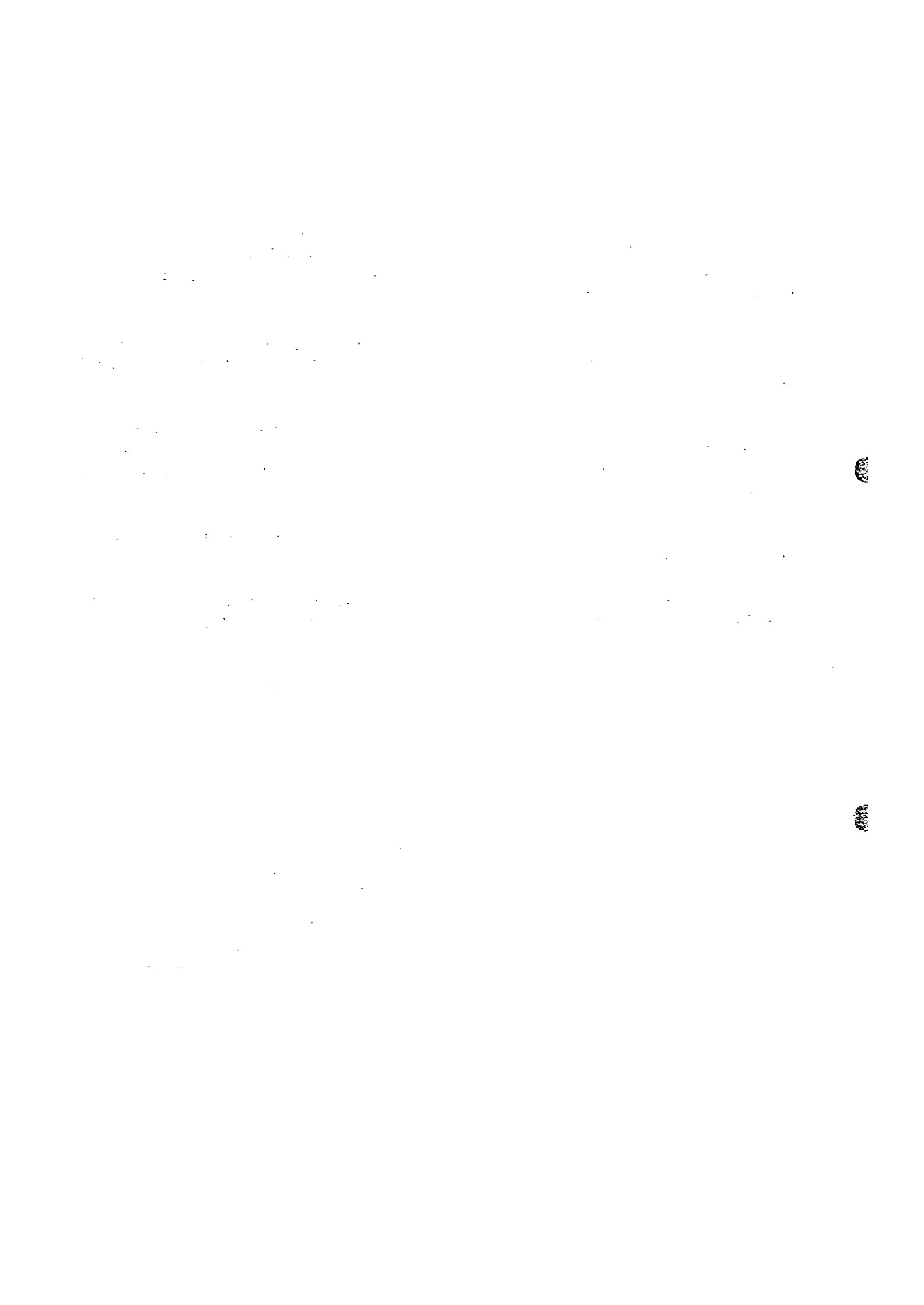
I wish to express my sincere appreciation to the officials concerned of the Republic of Honduras for their close cooperation extended to the team.

October, 1997



Kimio Fujita
President

Japan International Cooperation Agency



October 1997

Mr. Kimio Fujita
President
Japan International Cooperation Agency

Letter of Transmittal

We are pleased to submit to you the report on the Master Plan Study on the Small Scale Fisheries Development Project in the Republic of Honduras.

This study was conducted by System Science Consultants, Inc., under a contract to JICA, from October 20, 1995 to October 24, 1997. In conducting the study, we have formulated the master plan on the small scale fisheries development on the basis of upgrading the living standard of fishermen with due consideration to the present conditions of Honduras.

We wish to take this opportunity to express our sincere gratitude to the concerned officials of JICA, the Ministry of Foreign Affairs and the Ministry of Agriculture, Forestry and Fisheries in Japan. We also wish to express our deep gratitude to the concerned officials of the former SECPLAN, SAG, DIGEPESCA and the Embassy of Japan in Honduras for their close cooperation and assistance extended to the team during the study.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,



Tamotu Tomiyama

Project Manager

The Master Plan Study on the Small Scale
Fisheries Development Project
System Science Consultants, Inc.

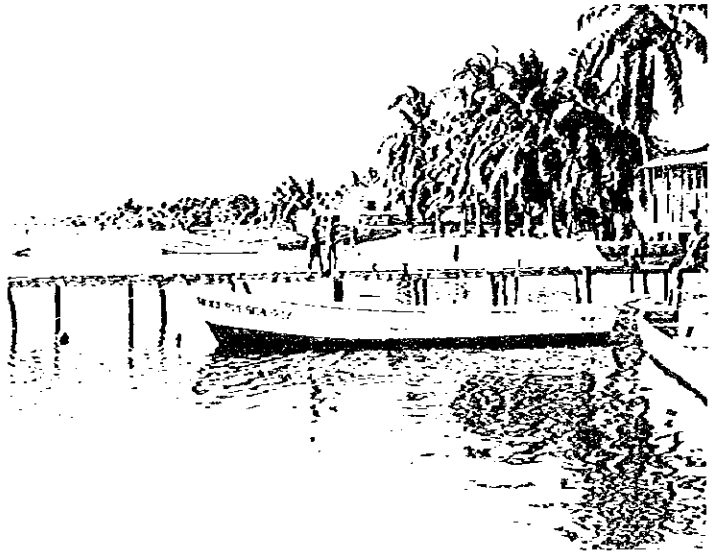


Photo 1 Trujillo MODERPESCA Project

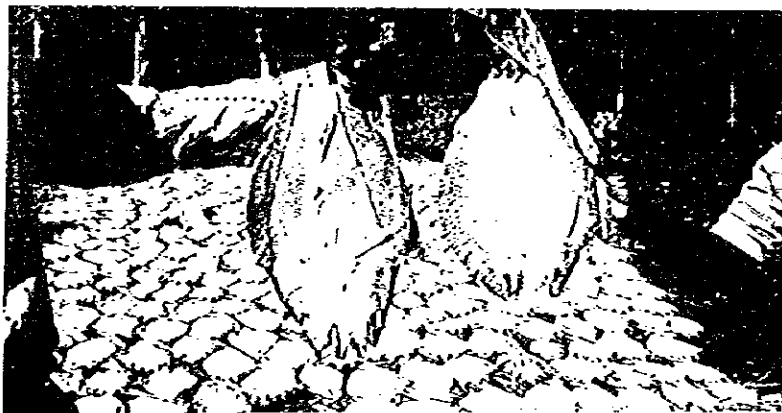
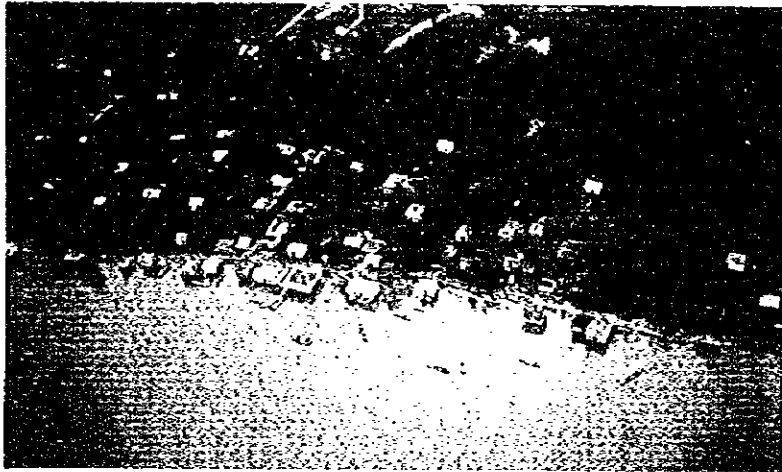
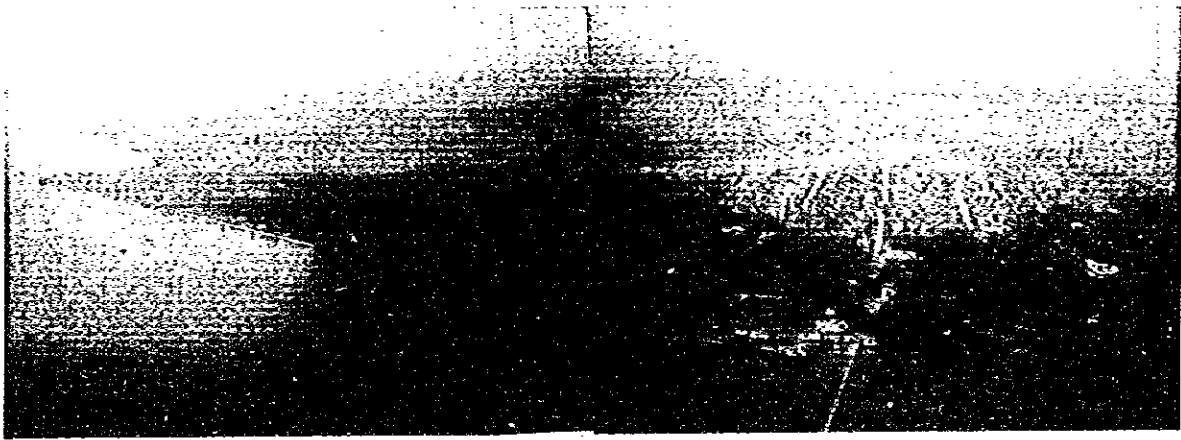


Photo 2 Overview of the Eastern Region.
From the top, scenes of fishing villages in
Pt. Lempira, Brus Laguna and Cruta.
At bottom, scenes of salted and dried fish
processing, popular in the Eastern Region.

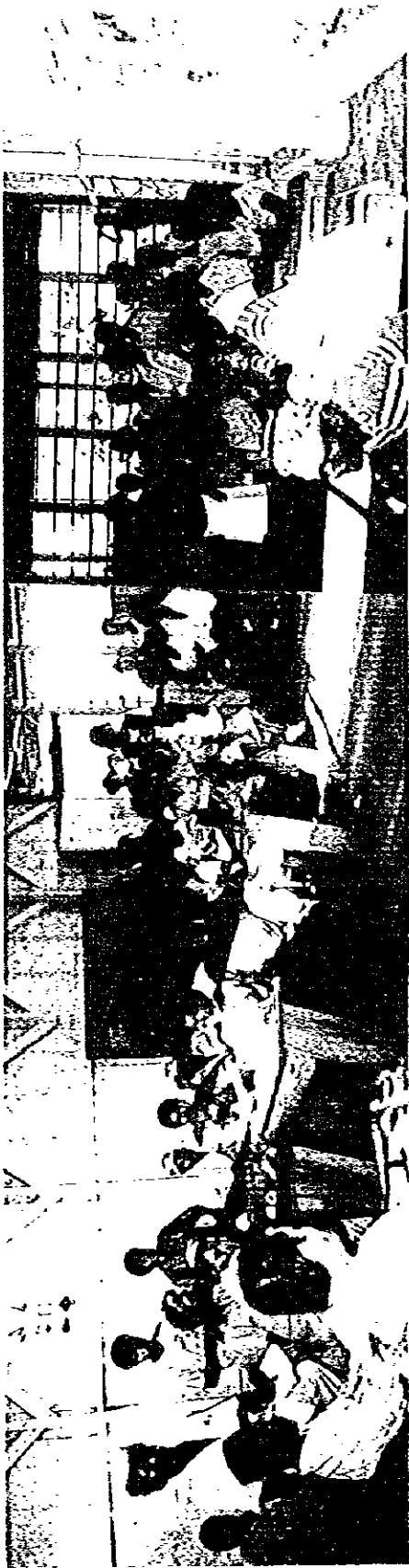


Photo 3. Surveys thinking much of planning through resident participation.
Top two: Meeting in the Eastern and Western Region.
Bottom: Scenes of fisheries census survey in Eastern Region.

SUMMARY

SUMMARY

1. Objective of The Study

The objectives of the Study are to formulate a master plan to promote artisanal fisheries with the aim of improving the life of fishermen and promoting artisanal fisheries of the entire northern coastal area of Honduras.

The mini-technical assistance project, "Modernization of the Coastal Fishing Villages of Trujillo", was implemented in the Trujillo Area by the Japanese government from 1991 to 1994, which produced some successful results in improving the life of fishermen and modernizing fishing villages in the area west of Colon Department of the north coast.

In order to extend these results throughout the northern coastal area, the Honduran government requested the Japanese government for technical assistance in formulating a small fisheries development plan in the northern coastal area in September 1994. In addition, it also requested the provision of buildings, fishing boats, outboard engines, ice-making machines, cold storage facilities, etc. for six areas in the western region (Trujillo, Limon, Santa Rosa de Aguan, La Cciba, Tela, Omoa) along the north coast under a grant aid project.

In answer to this request, the study was intended to formulate the master plan as well as to implement a survey to collect data, etc. required for the basic design study to provide buildings, fishing boats, outboard engines, ice-making machines, cold storage facilities, etc. in the objective area of the requested grant aid project, as the priority area.

The basic design study was implemented on a grant aid project mentioned above, "The Project for Modernization of Small-scale Fisheries in the North Coast of the Republic of Honduras", from May to October 1996, which was a project to modernize artisanal fisheries in four areas, excluding Tela and Omoa. Based on the results of the basic design study, the E/N was signed by the two countries in March 1997 to implement this project.

2. Study Area

The entire north coast of the Republic of Honduras is the targeted study area (see the

first page figure). In this area, as will be explained later, there is a marked disparity in the ethnic composition, culture, social structure, type of fisheries, infrastructure, etc. of the fishermen community in between the area west Colon Department and the area of Gracias a Dios Department. As a result, the northern coastal area was divided into two large regions in this Study. The coastal area west of Colon Department (Colon, Atlantida and Cortes Department) was referred to as the Western Region and the coastal area of Gracias a Dios Department was referred to as the Eastern Region.

3. Present Condition of the Study Area

3.1 Fisheries Production

The fisheries of the Western Region is run mainly by Galifuna fishermen. The consumption areas such as Trujillo, Tocoa, La Ceiba, Tela, Puerto Cortes, Omoa, San Pedro Sula etc. exist behind fish production areas. The fish catch is supplied to these consumption areas by middlemen as well as local consumption in fishing villages. Some exporting traders buy high valued fishes such as groupers, snappers, etc.

The fisheries of the Eastern Region is run mainly by the Miskito fishermen. This Region is very isolated from others, because most of basic infrastructures have not been developed, especially there is no road to connect with neighbor departments. Accordingly there is currently no means of shipment of fresh fish to the Western Region and fish catch is obliged to be consumed only in local villages or to ship in the form of salted and dried fish.

The following is the estimated number of fishermen and production of artisanal fisheries in the North Coast.

Estimated Number of Fishermen and Production of Artisanal Fisheries
in North Coast in this Study (1995 / 1996)

	Number of Fishermen	Production (MT/year)
North Coast	5,354	5,481
Western Region	2,240	3,293
Eastern Region	3,114	2,188

The general characteristics in the fisheries production structure of the North Coast are as follows:

- 1) Industrial fisheries and artisanal fisheries are bipolarized, and the latter lacks the self-reliant fishermen using modernized production means.
- 2) Export-oriented industrial fisheries is distinguished, and the supply volume to urban areas is quite small.

As for artisanal fisheries, fishermen lack in management mind, lack in capital fund, and are in low level of fisheries technology. Their productivity is low. Current fishing does not create a confident basis of their livings, which causes further stagnancy of their management mind and technology.

3.2 Marketing of Fisheries Products

A characteristic of the marketing system in the Western Region is that the distribution of fresh fish from the fishing villages to the urban areas through middlemen, is relatively developed, and that a segment of the purchased fish finds its way into the export market. However most middlemen usually purchase fish only in small volume and not periodically. This is one of the largest obstacles of scheduled production for most fisherman who do not have any means of fish storage. Middlemen keep initiative in fish price formulation through offering different prices in different villages for the same type of fish. From the situation of middlemen side, fish collection from widely scattered fishing villages is not easy works. Provision of a fish collection base in a production area would be a measure in order to establish smooth and fair trading services between fishermen and retailers/consumers.

The fish marketing structure in the Eastern Region is very simple. Approximately 75 percent (1,645 tons) of the total fish catch volume for 1995 (2,188 tons) was consumed in the region as fresh fish; and about 23 percent (495 tons) was processed as salted and dried fish. The remaining 2 percent (48 tons) was distributed to the Western Region as fresh fish through a dozen middlemen. The fish consumption in the Eastern Region is limited due to its small population.

Salted and dried fish are distributed outside the region through middlemen. The production of dried fish is important cash income measure for fishermen. However their income is very season since the demand for dried fish is concentrated during one week of Semana Santa. Therefore the year-round shipment of fresh fish to the

Western is the greatest issues for fishermen in the Eastern region.

Fresh fish is presently transported to the Western Region by a private cargo vessel originating from the Western Region. However, the transport vessel does not operate regularly and its cold storage facilities for fish are either missing or unreliable. As a result, shipping fresh fish to the Western Region is restricted. Presently, there are no fishing boats that store ice for their fishing operations. Consequently, one of the factors why fish transport to the Western Region has not developed is because there is no system whereby good quality fish can be efficiently shipped.

3.3 Fishermen Organization

The following two types of fishermen organizations exist in the Honduras.

- a) Association (Asociación)
- b) Cooperative (Cooperativa)

Fishermen cooperatives are presently single bodies, small-scale fishing production cooperatives with no coordination or organization active on a regional or national scale. Fishermen associations exist on a community, area (municipality or department), and national level and they are substantially artisanal fishermen organizations.

Since fishermen's associations have been established recently, their assets, materials, etc. are incomplete as yet. In addition, the level of fisheries and economic activities of their members is low. As a fishermen's association, the organizations are still in their infancy. In addition, with the exception of a segment of the fishermen's associations, the majority suffer from a lack of staff members capable of managing and operating the association efficiently. For these associations to evolve fully into fishermen organizations, the level of fishing and economic activities of each member need to be improved, the organization has to establish a financial base, human resources must be fostered in management and operations, the awareness of fishermen must be reformed, educational programs for fishermen must be implemented, etc.

3.4 Fishing Communities and Gender

A Maquinadora (industrial park) and a large-scale banana plantation are located behind the coastal fishing communities in the Western Region, which provide favorable employment opportunities in simple manual labor for women. However, it has been reported that nearly 80 percent of the women householders in fishing communities that are predominantly Garifuna, are illiterate, a factor that has restricted employment

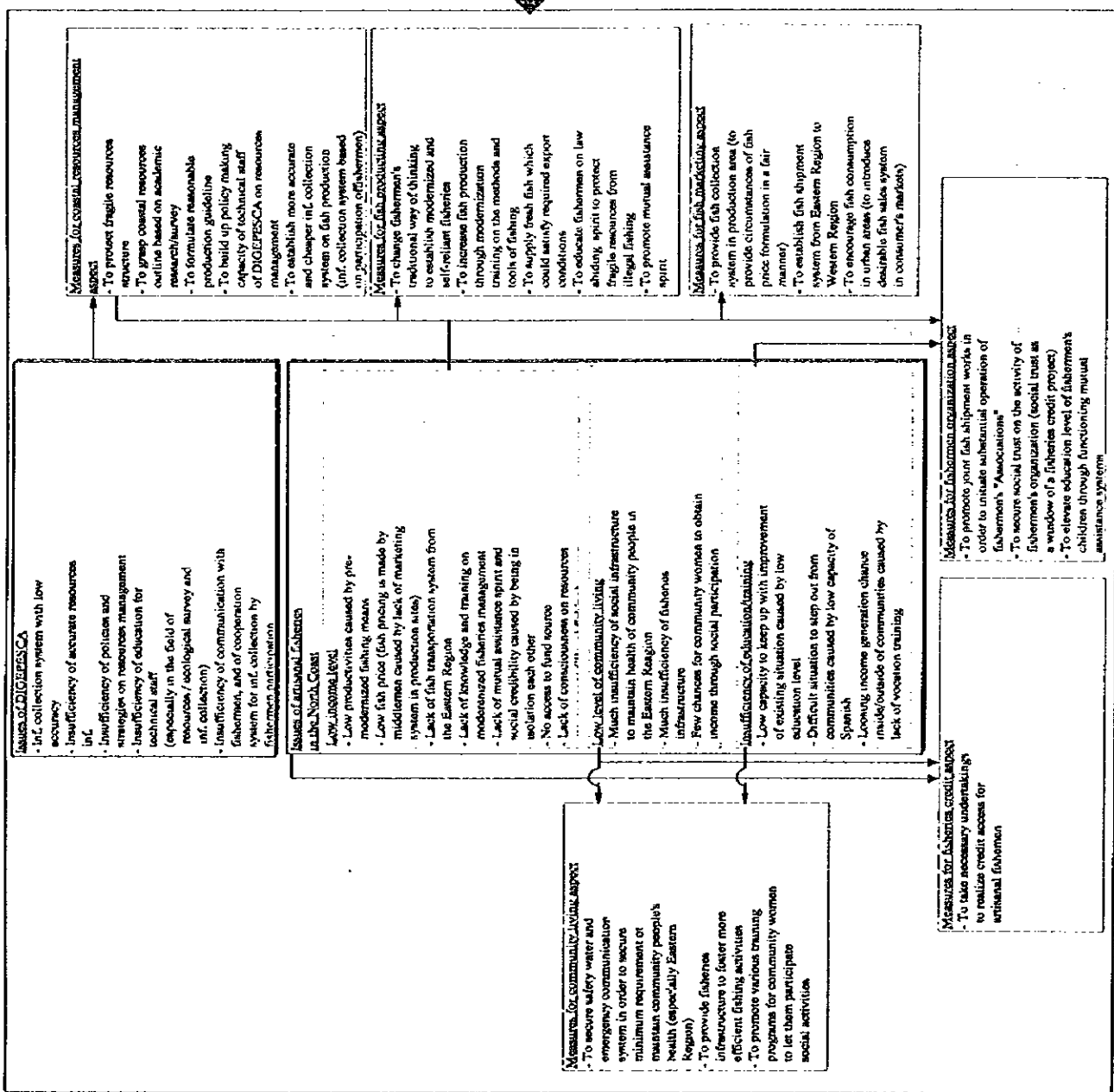
opportunities. Therefore, it is important that gender assistance programs seek to strengthen literacy education for women and to create vocational training opportunities, in order to raise the awareness of women to participate in society.

In the Eastern Region, presently, there are no industries in this Region and the advent of industries in this area is not anticipated in the near future. As a result, there are no foreseeable opportunities for local women to enter into society at this time. Therefore, the most effective means of promoting women's participation in fisheries activities is through measures to promote artisanal fisheries and to improve the fisheries infrastructure. For example, training and supervision of work that requires patience, precision, and take specific physical and mental qualities of women into consideration, such as repairing or making nets, making salted fish products, etc. are possibilities.

The existence of only two junior high schools and the lack of a high school or a higher educational facility has kept the educational level of the local populace low and impeded opportunities for social advancement. In particular, the factor of low comprehension of the Spanish language prevents people from stepping out to the Western Region. Increasing the regional scope of Spanish language education for adults will be effective.

3.5 Issues and Measures on Artisanal Fisheries in the North Coast

Issues and measures on the fisheries are summarized in the following Figure.



Issues and Measures on Artisanal Fisheries Development in the North Coast

4. Master Plan

4.1 Target of the Plan

(1) Target Year

The first year of the plan is set up in 1998, and the plan period is 15 years, that is, the last year is 2012. This is divided into three short-terms, the 1st, 2nd, and 3rd short-terms. Each short-term is for five years.

(2) Target Fish Production Volume

This plan will provide the total volume of the deficiency of the future fish supply in north coast and the planned increase of fish exports. The target volume of fish products in the end of the 2nd short-term and in the end of the 3rd short-term are as follows:

In the end of the 2nd. short-term (2007)	: about 1,500 tons/year
In the end of the 3rd. short-term(2012)	: about 2,100 tons/year

(3) Target Income Level of Fishermen

This plan will raise current income level of fishermen in both Regions which are shown in "4.3 Income Level of Fishermen" at least up to the following level by the end of the 2nd short-term.

Region	Income (\$/family/year)		Growth Rate(%)
	Current	Target (2007)	
Western Region	1,078	1,246<1	15.6
Eastern Region	853	1,078	26.4

4.2 Development Strategy

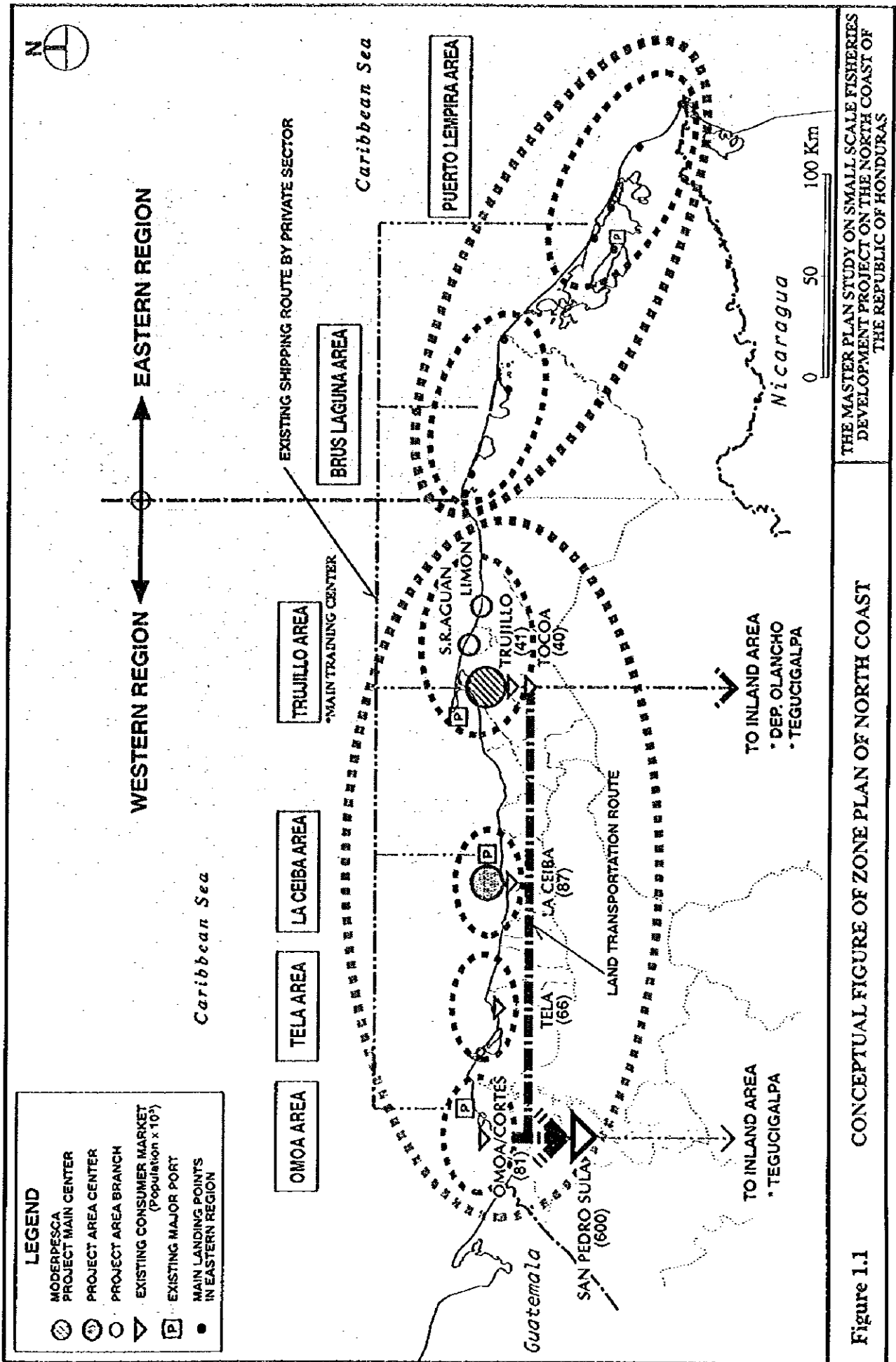
(1) Basic Approach to the Development Measures

Development Measures	Basic approach (contents of sector plan)
1) To harmonize fisheries development with sustainable utilization of coastal resources.	To provide capacity building program for coastal resources management to establish fishing guideline based on scientific evidence and monitoring system of fishing activities.
2) To modernize fisheries activities and to make fishermen aware of self-reliant fisheries.	To provide modernization training program in order to foster self-reliant fishing groups.
3) To improve marketing system of fish products.	The model base construction program for concentration/sale of fish products and the base management training program. The transport system program of fish products from Eastern Region to Western Region. The installation program of model fish sale unit at consumer's markets in the Western Region.
4) To improve the infrastructure of fishing communities for the efficient and healthy fishing activities.	The equipment supply program to improve community infrastructure by village people's self-support efforts.
5) To support women's participation in the fishing activities.	The training program to foster the core active women's groups
6) To activate fishermen organizations.	The training programs centered to joint fish shipment to activate fishermen's association.
7) To promote fisheries credit projects to foster self-reliant fisheries.	The fisheries credit program for the core fishermen groups.

(2) Development by Zone

Western Region is divided into 4 Development Areas, and Eastern Region is into 2 Development Areas.

Department	Western Region (Area)				Eastern Region (Area)	
	Omoa	Tela	La Ceiba	Trujillo	B. Laguna	P. Lempira
	Cortes	Atlantida	Atlantida	Colon	G. a Dios	G. a Dios



THE MASTER PLAN STUDY ON SMALL SCALE FISHERIES DEVELOPMENT PROJECT ON THE NORTH COAST OF THE REPUBLIC OF HONDURAS

CONCEPTUAL FIGURE OF ZONE PLAN OF NORTH COAST

Figure 1.1

(3) Stage-wise Development

1) Order of development by Region level

The development of Western Region precedes that of Eastern Region. The reasons are as follows:

- Better infrastructure conditions of Western Region makes the development easier.
- The related project will be preceded at Trujillo Area/La Ceiba Area in Western Region.
- Before the fisheries development of Eastern Region, it is necessary to improve fish marketing system in Western Region.

2) Order of development among sector plans

- The programs which can generate income have priority among sector plans.
- Before the implementation of credit programs, the program of fishermen modernization training needs to be carried out.

4.3 Sector Plans

4.3.1 Plan of Capacity Building for Coastal Resources Management

(1) Objectives

In order to achieve sustainable use of fisheries resources in the north coast, it is necessary for the government to grasp current resources conditions scientifically, and based on that, to make resources management policies and fish production guideline which could be acceptable by fishermen side.

(2) Plan Target

Taking into consideration current limited performance on resources management by DIGEPESCA, following targets have been set up by this sector plan which requires the support of foreign technical assistance.

- a) To accumulate biological information of main target fishes for fishing through surveys on resources conditions and water body characteristics of the main fishing grounds.
- b) To train technical staff of DIGEPESCA and build up their capacity of policy making on resources management.

- c) To establish proper information collection system of fisheries activities.
- d) To promote education to fishermen / fishermen organization relating to sustainable use of fisheries resources.

4.3.2 Plan of Small-Scale Fisheries Modernization

(1) Objectives

To foster core fishermen through education/training to plant in them senses of self-reliable fishing and sustainable utilization of coastal resources.

(2) Plan contents

1) Training program for fisheries modernization

i) Implementation of basic training program

- To implement basic training program
- To implement a basic fisheries training and select candidate fishermen expected to be core fishermen for fisheries

ii) Selection procedure of core fishermen groups

- To lend modernized fish production means (motorized boat, fishing gears, etc.) to fishermen groups composed by three members per one group, each group of which is organized by each candidate of core fishermen selected by above-mentioned basic training program.
- To select core fishermen groups within one year based on the every 3 months evaluation results obtained from the procedures of repeated monitoring and advising on manners and achievement of fishing management conducted by fishermen groups organized by candidates of core fishermen.

iii) Establishment of fish production structure by core fishermen groups

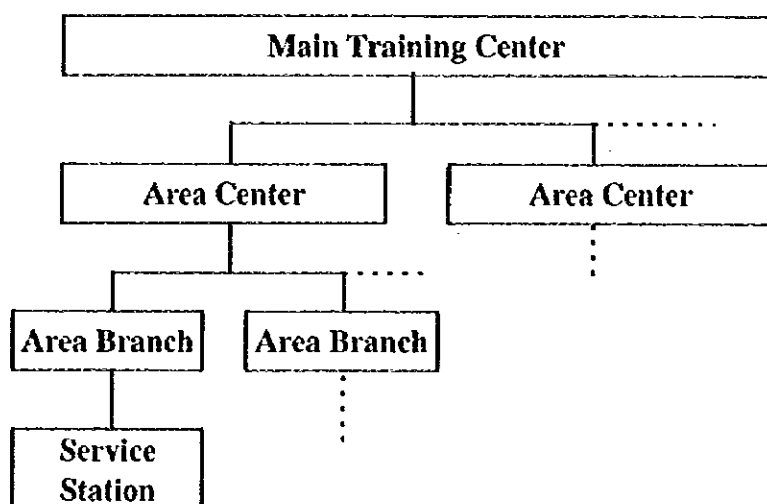
The core fishermen group will receive fishing training by using modernized fish production means lent by this project, and produce fish.

Target of Annual Production Increase per Planned Boat

		Western region	Eastern region
Annual fish catch/boat	Planned (lb/boat/year)	12,000	21,600
	Current (lb/boat/year)	5,700	1,500
Planned production increase	(lb/boat/year)	6,300	20,100
	(kg/boat/year)	2,860	9,134

2) Planned functions of training facilities and their locations

Four (4) kinds of training facilities are to be provided in the following organizational structure:



Basic functions of each facilities are as follows:

- a. Main Training Center (MTC)
 - To provide all the necessary facilities/equipment for the basic training programs and assign full-time trainers.
 - To evaluate overall training activities through collecting and analyzing relevant information from the Area Center
 - To train trainers of the Area Center to upgrade their technology level
- b. Area Center
 - To provide full time trainers trained at MTC.
 - To provide facilities/equipment necessary for fishing training and other training required repeating practices.
- c. Area Branch
 - To have a branch function of the Area Center without full-time trainers.
 - To provide sufficient space and equipment enough to carry out an itinerating training of more or less once a week
- d. Service Station
 - To be facilitated as such a place that fishing training and its monitoring are more focused on among menu of the training programs.

4.3.3 Plan of Fish Marketing Improvement

This sector plan consists of following three (3) sub-plans following three (3) sub-plans:

- Plan of Trujillo Fish Collection Base development
- Plan of fish marketing improvement in the Eastern Region
- Plan of fresh fish marketing improvement in this marketing improvement in the Eastern Region
- Plan of e Eastern Region
- Plan of fresh fish marketing improvement in the coastal consumers markets

(1) Plan of Trujillo Fish Collection Base development

1) Objective

- To develop a model of fish collections base in Trujillo Area (hereinafter referred to as TFCB) in order to establish fair trading system between fishermen and fish traders.
- To develop a marketing system of fish products shipped from the Eastern Region.
- To train fishermen organization members to let them conduct joint fish shipment using planned facilities.

2) Activities of TFCB

- (i) Organizing activities to introduce buy/sell system of fish in order to give advantages to fishermen
- (ii) Marketing of fish shipped from the Eastern Region
- (iii) Operation training to fishermen organization members

(2) Plan of fish marketing improvement in the Eastern Region

1) Objective

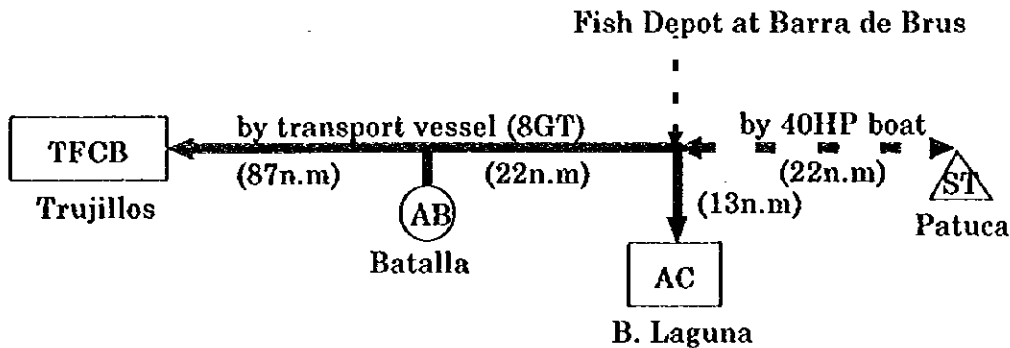
To establish periodical shipment system of fish products by fishermen themselves from the Eastern Region to TFCB in the Western Region in order to convert current seasonal fishing activities to year-round ones

2) Plan contents

- a. Case of the Brus Laguna Area
 - To connect between TFCB and the B. Laguna Area Center by one (1) transport vessel of 8 gross tonnage (100HP).

- To connect between the Area Center and Patuca Service Station by one transport boat (40HP) with 500kgs loading capacity.

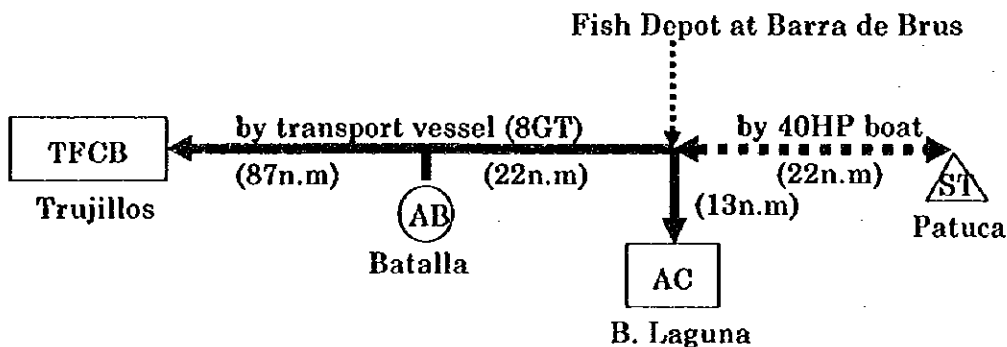
The network is shown as follows:



b. Case of the Puerto Lempira Area

- To connect between TFCB, the P. Lempira Area Center and Cruta Area Branch by one (1) transport vessel of 8 gross tonnage's (100HP).
- To connect between the Cruta Area Branch and the Barrita Service Station by one small transport boat(40HP) with two 500kg capacity

The network is shown as follows:



(3) Improvement Plan of Fresh Fish Sales Method in Consumer's Markets

1) Objective

Most of existing consumers markets are designed as an agricultural product market. Fish is being sold in unsanitary and bad looking conditions. The objective of this plan is to stimulate the coastal people to consume more fish through providing

samples of sanitary and better looking fish sales units in the coastal consumers markets.

2) Plan contents

To provide following two types of fish sales units to Trujillo, La Ceiba, Tela, Omoa Areas in the Western Region.

- a. Fixed-type unit to be installed inside consumers markets
- b. Mobile type unit to be kept at the Area Center and to be used by core women groups

4.3.4 Plan of Fishing Community Infrastructure Improvement

(1) Objective

- To improve fishing community infrastructure within the scope of maintaining minimum healthy lives of community people and for contributing to upgrade the efficiency of fishing activities.
- To foster the spirit of self-government and mutual assistance among community people through the implementation of this plan.

(2) Plan contents

1) Contents of infrastructure improvement

- (i) Improvement for contributing to upgrading the efficiency of fishing activities
 - Construction/repair of bridges and roads to connect community with landing sites.
 - Construction of wooden jetty at landing site (limited only inside lagoons).
 - Cleaning canals passing to rivers and sea (removal of fallen trees)
 - Improvement of roads connecting to other communities (for transport of fish products).
- (ii) Improvement for contributing to healthy lives
 - Installation of a shallow well with a manual pump.
 - Improvement of drainage ditches.
 - Installation of communication equipment for an emergency case.

4.3.5 Plan of Fisheries Community Women Support

(1) Objective

This plan intend to help women to become self-supporting and to promote their participation in fisheries activities through conducting education and training, and finally generates their fisheries income and creates a system to improve the living standards of the fishing communities by women themselves.

(2) Plan Contents

The plan will be implemented by stage. The short-term stage will focus on fostering core women groups, the mid-term stage will aim to expand women groups in each fishing village, and the long-term objective will be to set up access to small-scale financing which will assist the self-supporting activities of women in fisheries and the fishing community.

The sub-plans under this sector plan will be comprised of the following training programs.

Sub-Plans	Training Programs
1. Foster women groups in fishing village communities.	<ul style="list-style-type: none">• Organize and foster core women groups, and establish a base for their training.• Foster and propagate women groups in fishing villages.
2. Help generate fisheries related revenue (Support for income generation in fisheries field.)	<ul style="list-style-type: none">• Supplementary technical guidance of fisheries related activities• Guidance on fish processing and quality control of improved fish.
3. Improve and disseminate living standards	<ul style="list-style-type: none">• Guidance on fish sales• Guidance on informal basic education• Guidance on simple vocational training• Guidance on improved nutrition and hygiene

4.3.6 Plan of Fishermen Organization Improvement

(1) Objectives

The fishermen association is considered as the organization that represents the core role for promotion of artisanal fisheries in the north coast. This plan intends to carry out activities to foster and strengthen their association to realize such fishermen

organization that could contribute to improvement of members income level and life conditions.

(2) Plan contents

- 1) To foster the fishermen organization as an organization to enable members to cooperate and assist each others.
- 2) To foster and strengthen economic activities and establish a financial base of the organization.
- 3) To carry out welfare works for fishermen and their family by the surplus of their economical activities.
- 4) To upgrade social trust of the organization through above mentioned activities , to be a window of artisanal fisheries credit system and to promote members fisheries modernization.
- 5) To strengthen the operation and management capacity of the organization, and in future to conduct agency works of a part of works burdened to DIGEPESCA derived from the implementation of the master plan.

4.3.7 Plan of Small-Scale Fisheries Credit

(1) Objectives

To foster self-reliant fisheries through providing artisanal fishermen with a small-scale credit access in order to purchase modernized fish production means.

(2) Plan contents and schedule

1) Original fund source

The original credit fund is to be received as a grant from international cooperation agencies. This original fund is deposited as a trust fund to the National Agriculture Development Bank (BANADESA) and to be used for this project.

2) Management body

Actual credit services will be managed by BANADESA or other agencies such as NGO entrusted by BANADESA.

3) Role of fishermen organizations

BANADESA would entrust partial credit service works to a fishermen organization

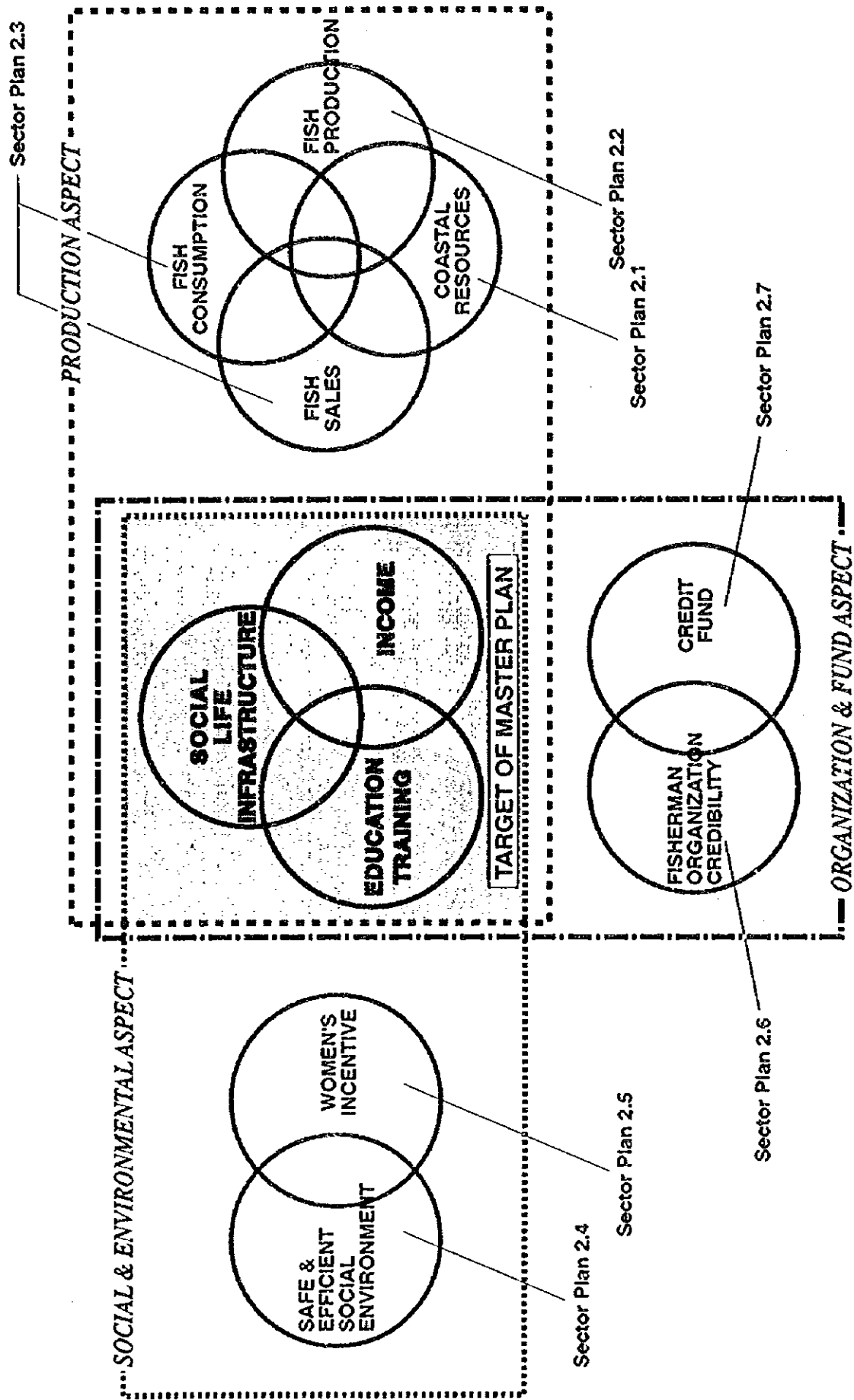
which is evaluated as an autonomous management body after receiving the management training by the project of "Plan of Fishermen Organization Improvement".

4) Credit guideline

The credit guidelines and screening systems will be set up among relevant agencies such as original fund donors, BANADESA, DIGEPESCA, fishermen organization, etc.

5) Credit scale

The credit scale of one application would be set up such amount that enable fishermen to purchase one set of fish production means such as boat, outboard engine, fishing gear, etc. This credit plan should meet such fund scale as to be enough amount to procure required number of boats to make balance of supply and demand in the north coast at the final year of this master plan period(the year 2,012). Total required amount is estimated at approximately US\$1.08 million.



RELATION BETWEEN MASTER PLAN TARGET & SECTOR PLANS

Relation of Sector Plans with Development Area Division

Sector Plan	Western Region				Eastern Region		
	Omoa Area	Tela Area	La Ceiba Area	Trujillo Area	Brus Laguna Area	Puerto Lempira Area	Central DIGEPESCA
(1) Cap. Building / Resources Management							
- Wet Lab.	0	-	-	0	0	-	-
- Equipment	0	-	-	0	0	-	0
- Expert (Oversea)	0	-	-	0	0	-	0
(2) Modernization of Artisanal Fisheries							
- Training center	0	0	(0)	(0)	0	0	-
- Equipment for training, etc.	0	0	(0)	(0)	0	0	-
- Expert (Oversea)	-	-	-	-	-	-	-
- Trainer (Domestic)	0	0	0	0	0	0	-
(3) Improvement of Fish Marketing System							
- TFCB	-	-	-	0	-	-	-
- Transportation vessels, etc.	-	-	-	0	0	0	-
- Fish sales unit	0	0	0	0	-	-	-
- Expert (Oversea)	-	-	-	0	0	-	-
- Trainer (Domestic)	-	-	-	0	-	-	-
(4) Community Infrastructure Improvement							
- Storage, etc.	{0}	{0}	{0}	{0}	{0}	{0}	-
- Tools, etc.	0	0	0	0	0	0	-
- Expert (Domestic)	+	+	+	+	+	+	-
(5) Community Women Support							
- Office, etc.	{0}	{0}	{0}	{0}	{0}	{0}	-
- Equipment for processing, etc.	0	0	0	0	0	0	-
- Expert (Oversea)	-	-	-	0	-	-	-
- Expert (Domestic)	+	+	+	+	+	+	-
- Trainer (Domestic)	0	0	0	0	0	0	-
(6) Fishermen Organization Support							
- Office, etc.	{0}	{0}	{0}	{0}	{0}	{0}	-
- Office equipment, etc.	0	0	0	0	0	0	-
- Expert (Oversea)	-	-	-	0	-	-	-
- Trainer (Domestic)	{0}	{0}	{0}	{0}	{0}	{0}	-
(7) Fisheries Credit							
- Office equipment	-	0	-	0	0	0	-
- Credit fund	-	-	-	-	-	-	0
- Expert (Oversea)	-	-	-	0	-	-	0
- Expert (Domestic)	-	0	-	0	0	0	-

Remarks) 0 ; planned - ; not planned () ; by related projects [] ; commonly use + ; whwn necessary

Summary of Facility, Equipment Component of Sector Plan

Region/Area/Sub-area	CENTRAL	WESTERN REGION												EASTERN REGION											
		CSMOA AREA			TILA AREA				LACYBA AREA			TILIBI AREA				EBUS LAGUNA AREA				PUERTO LEMPIRA AREA					
		AC	B	S	AC	B	S	S	AC	B	S	MC	TFC	B	B	B	AC	PDS	B	S	AC	PDS	B	S	
DIGEPESCA & OTHER ORGANIZATION	OMDA	BAJA MAR	MASCA	TELA	TORNABE	EL TRUJUNO	MIAMI	LA CEIBA	NUEVA ARMENIA	EL PORVENIR	TRUJILLO	PUERTO CASTILLA	SANTA ROSA DE AGUAN	LIMON	BRUS LAGUNA	BARRA DE BRUS LAGUNA	PALACTOS	PATUCA	PUERTO LEMPIRA	BARRA DE CABATASCA	CRUTA	BENK	HABITA		
I Main Component																									
A Cap. Building / Resources Management																									
1. Field Research Lab. (Wet Lab)																									
2. Research Boat (Rotation)																									
3. Office Equipment/Vehicle																									
B Modernization of Artisanal																									
B-1: Construction																									
1. Training Meeting Monitoring																									
2. Administration Office																									
3. Workshop																									
4. Ice Making and/or Supply																									
5. Generator																									
6. Waste Water Treatment																									
7. Fuel Depo																									
B-2: Equipment For Training																									
1. Training Boat With Motor																									
2. Fishing Gear																									
3. Workshop Tools																									
4. Administration & Monitoring																									
B-3: Equipment For Production																									
1. Fish Boat With Motor																									
2. Fishing Gear																									
3. Handling Box & Equipment																									
		(20+11)			(40+25)			(31)			(62)				(12+10+5)				(30+25)						
		(20+11)			(40+25)			(31)			(62)				(12+10+5)				(30+25)						
C Improvement of Fish Marketing System																									
C-1: Construction																									
1. Loading/Unloading Facilities																									
2. Storage																									
C-2: Equipment																									
1. Transportation Boat (100 HP)																									
2. Transportation Boat (40 HP)																									
3. Transportation Boat (25 HP)																									
4. Communication System																									
5. Transportation Vehicle / Motor Cycle																									
C-3 (中環促進)																									
1. Marketing Promotion Unit-1																									
2. Marketing Promotion Unit-2																									
D Community Infrastructure Improvement																									
1. Equipment Unit For Self-support																									
2. Material Unit For Self-support																									
E Community Women Support																									
1. Training & Educational Unit-1																									
2. Training & Educational Unit-2																									
F Fishermen Organization Support																									
1. Support Equipment																									
2. Support Unit-1																									
3. Support Unit-2																									
G Fisheries Credit																									
1. Support Equipment																									
II No. of Boats In 2007																									
1. Fishing Boat With Motor																									
2. Fishing Gear Unit																									
3. Insulation B. s For Boat																									
III Current Infra. Condition																									
Electricity																									
Public Water																									
Telephone																									
Road																									

(REMARKS)

MC: Main Center
 AC: Area Center
 B: Area Branch
 S: Service Station
 FDS: Fish Depot Station
 TFC: B Trujillo Fish Collection Base

O: To be planned
 * : To be planned with low or standard
 X: none
 . : Not planned
 P: Very poor
 E: Existing

S0: 1996-1997 M1: 2003-2004
 S1: 1998-1999 M2: 2005-2007
 S2: 2000-2002

4.5 Summary of Project Cost

Unit : US\$1,000	
Sector Plan	Amount
A Cap. Building / Resources Management ^{<1}	512
B Modernization of Artisanal Fisheries	5,050
C Improvement of Fish Marketing System	2,349
D Community Infrastructure Improvement	116
E Community Women Support	84
F Fishermen Organization Support	72
G Fisheries Credit	34
- Sub-total	8,217
H Contingency (7%)	575
I Consultancy Fee (8%)	657
J Investment by fishermen ^{<3}	167
- Total	8,959

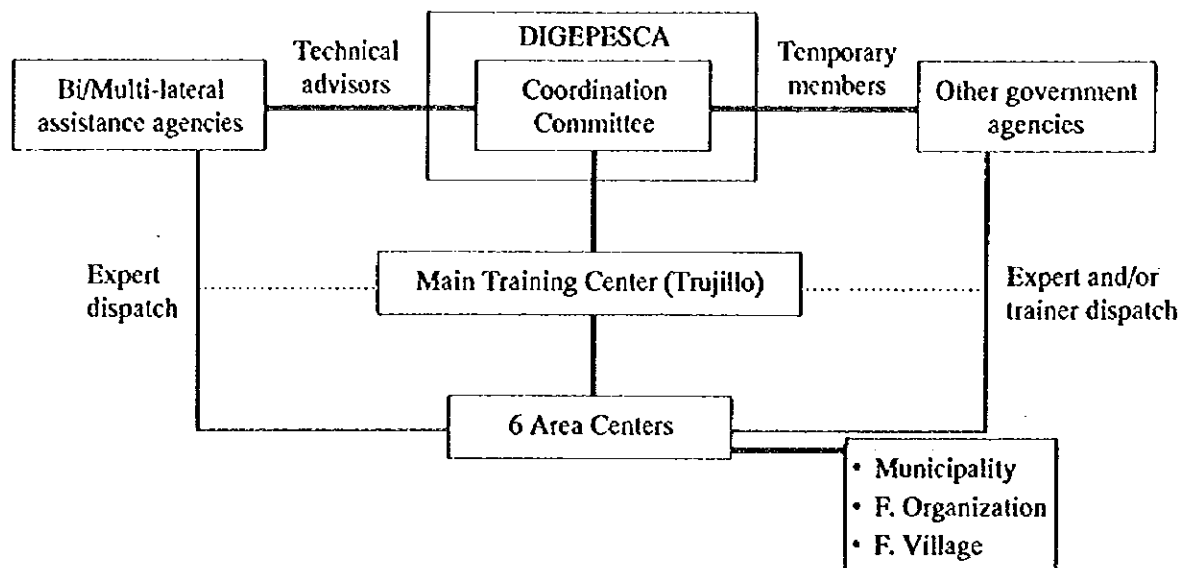
Remarks <1 : Not included the construction cost for related project in Trujillo and La Ceiba assisted by Japan.

<2 : Not included planned credit fund.

<3: Investment by the fund collected from recipient fishermen trained by the project of artisanal fisheries modernization.

4.6 Operation

This master plan is to be implemented principally under following operation organization system as shown in the figure below. It is required to set up some specific coordination committee inside the responsible ministry, tentatively named "The Coordination Committee of Artisanal Fisheries Development in the North Coast" (hereinafter referred to "The Coordination Committee"). Prior to the implementation of each sector plan, the Coordination Committee will set up relevant project execution committee through the procedures of opinion adjustment by inviting temporary members from other government agencies when necessary. Each Area Center will organize an Area Execution Committee consisting members of representatives of related municipalities, fishermen organization, fishing villages, etc.



4.7 Project Evaluation

(1) Economic Evaluation

The EIRR has been estimated at 6.2%. This value can not be said high although this master plan covers some sector plans not accruing direct benefits, such as Plan of Community Infrastructure Improvement, Plan of Community Women Support, etc. As mentioned above, direct benefits are derived only from two sector plans out of seven sector plans. Since total costs of all sector plans was burdened to the benefits of these two sector plans, such low value of EIRR has been obtained.

The EIRR indicates 13.6% if the master plan excludes following three sector plans.

- Plan of Resources Management
- Plan of Infra. Improvement
- Plan of Women Support

Furthermore the EIRR would indicate more than 16% if the building space for fishermen's training of the Plan of Fisheries Modernization is reduced to 70 - 80% of the planned space which currently includes some common use space for other sector plans.

(2) Financial Evaluation

According to the statement of profits/losses, the profit before depreciation will be

deficit during the first 2 years, but will change into surplus after the 3rd year. The net profit will be deficit during the whole plan period. As for the cash flow, cash will be insufficient in the first 2 years, however, from the 3rd year it is constantly surplus during the plan period. In case the construction is done by a grant fund of the government or of foreign assistance, maximum cash shortage during the first 2 years is less than US\$50,000. Therefore it is desirable to provide this amount as an government capital for this project at the initial stage of the plan implementation. In the case of financial evaluation for 30 years period in order to check the financial conditions after the plan period (15 years), after the 23rd year, large amount of cash shortage will happen because much expenditure will accrue for the renewal of buildings, ice plants, transport vessels, etc.

The core purpose of this master plan is to modernize current fisheries through training of artisanal fishermen, and the buildings are provided for this purpose. Therefore it might not be necessary for DIGEPESCA to renew the buildings if it takes the stance that fishermen should make efforts by themselves to achieve self-reliant fisheries after fostering sufficient number of core fishermen through the training programs within the life period of the buildings.

In the cases of fish transport service and ice sales, these are financially viable. Therefore fishermen organizations can continue these projects by investing the renewal for these vessels and ice factories using the loan by "Plan of Small-scale Fisheries Credit" after receiving the training on operation/management of these projects during the period of 20 years.

Taking into account above mentioned discussions, the implementation of the master plan is sufficiently viable from the financial view points.

(3) Environmental Impact Evaluation

Through the discussions on the contents of this master plan among the Study team, DIGEPESCA, DECA, Environmental Committee and Environmental Impact Evaluation Dept. of SEDA, it was agreed that the projects of the master plan are expected to induce favorable results from economic and environmental view points by balancing fisheries modernization with resources management.

In order to attain sustainable fisheries, the capacity building for resources

management and the improvement of statistical reliability of DIGEPESCA are required. And it is essential measure for future resources management of Honduras to establish and intensify self-imposed management system by fishermen organizations and/or by fishing communities. The possibility of marine pollution would be least by the introduction of training boats because they are small in scale and not many in number.

5. Conclusion and Recommendations

5.1 Conclusion

(I) Policies promoting artisanal fisheries

1) Policy content and financial resources

In order to foster sustainable and independent artisanal fisheries in the area targeted by the Study, it is necessary to integrate the improvements in the aspects of "fisheries production", "fishermen organizations and financing", and "fishing community life and environment." A master plan to implement countermeasures to improve seven sectors in these three aspects has been formulated in this Study. Based on the project evaluation of this master plan, it has been determined that it is financially feasible to implement a plan for all sectors, if foreign assistance or special government subsidies is invested for the initial investment cost. As a result, the total sector plans have been included in the master plan. Since the financial conditions of the government have not improved, foreign assistance should be actively pursued as the source of financial resources needed for the initial investment.

2) Countermeasures for resources management

Due to the weak structure of fisheries resources in the north coast, the conditions surrounding resources of major fish species must be immediately and scientifically understood, in order to devise suitable resources management countermeasures. As a result, priority was given to implementing the "Plan of Capacity Building for Coastal Resources Management", one of the sector plans.

3) Beneficiaries and regional priority

Development targeting the poverty class, such as artisanal fishermen, must produce a large number of beneficiaries. But, the effectiveness of an assistance system

that maintains complete impartiality is doubtful. Therefore, fishermen capable of fulfilling a nucleus role in modernizing fisheries over a short period of time will be put in priority and be fostered in this plan, in the anticipation that they will be influential in changing the awareness of neighboring fishermen.

In terms of regional priority, the Western Region was selected due to ongoing related projects; and the need to expand the sustained impact of current and related projects both horizontally and vertically.

4) Recruiting technical experts

One of the major factors to consider when implementing this master plan, is the difficulty in recruiting technical experts in the Honduras for each sector plan. Technical experts in the following fields must be recruited with the foreign assistance.

- Analysis of coastal resources, coastal management policies
- Processing technology in fisheries
- Management and operations of cooperative shipping activities
- Management and operations of fishermen organizations

Technical experts in these fields will be actively recruited and allocated from abroad in this plan.

(2) Impact of the study

Due to the implementation of this master plan which aims to modernize fisheries, the impact of educational and training programs for fishermen, fishermen organizations, and women in fishing communities will rise; and independent, modernized fisheries operations and a more active fishing community lifestyle will be fostered.

Presently, approximately 10,000 people are engaged in fisheries in the north coast, of which about 5,300 are engaged in fisheries retail activities. This plan will enable about 30 percent of the fishermen or 1,700 individuals to conduct self-supporting fisheries operations during its 15 year implementation; and its disseminating impact will be large. The present income level of fishermen will rise 48 percent in the Western Region and 83 percent in the Eastern Region.

The fisheries resources of the north coast are fragile and chaotic development of these resources will lead to overexploitation. Therefore, the dynamics of these resources

will be scientifically studied and fisheries production guidelines will be established based on this scientific analysis. In addition, due to a change in the awareness of fishermen, the foundations of a system based on sustainable use of resources will evolve with the cooperation of the government and the fishermen.

This plan will address the issue of poverty in Honduras and will alleviate the distrust of the central government by the ethnic groups in the region. The Garifuna who inhabit the coastal area of the Western Region engage in fisheries activities; and roughly 70 percent of the Misquito Indian population in the Eastern Region inhabit the coastal area, maintaining a livelihood based on a combination of farming and fisheries. Very limited public assistance has been extended to these ethnic groups and their living standards have remained low, which has led to a distrust of the central government. If this plan is implemented, it is expected that the majority of the beneficiaries will be these ethnic groups. It will contribute to raising their living standards and help alleviate their distrust.

This plan will completely concur with the policies of the Honduran government which is currently undergoing economic structural adjustments, since it aims to improve the living standards of the poverty class in a short period of time with minimal investment, promote export, and control the contribution of the public sector.

As a result, it has been concluded that the implementation of this project is extremely significant from a national standpoint.

5.2 Recommendations

(1) System of implementation

Seven sector plans according to region and time stage have been intricately adopted in this plan. Therefore, the overall progress must be accurately grasped and adjusted. Arrangements to procure the cooperation of foreign technical experts and financial assistance from donor countries during the initial stages of the plan must also be pursued in a timely manner. Therefore, a "coordination committee for the promotion of small-scale fisheries of the north coast" (tentatively named) should be formed immediately within DIGEPESCA, to begin the preparations for plan implementation.

When the plan of community women support is implemented, it is desirable that the coordination and instruction to the implementation program are to be made from view point of women's situation. Accordingly it is necessary to take into consideration to make careful member selection for the said coordination committee.

(2) Procure human and financial resources

One of the major themes of this plan is to scientifically grasp the coastal resources and to formulate a strategy on resources management. This will require a study of four to five years in duration. However, the number of technical staff members specializing in fisheries biology is extremely limited in DIGEPESCA. Therefore, it is important that DIGEPESCA procure counterparts that will work with foreign experts and to set up a budget for local funding.

(3) Request for assistance

It is necessary to request assistance for the initial investment from foreign donors, in accordance with the implementation schedule. Since the replies to such requests are often made very late, DIGEPESCA must obtain a consensus from within government circles and actively pursue preparations for the request.

(4) Improvements in fish marketing

The fisheries consumption volume in Honduras is still at low levels and this is largely due to the food habits of the country. However current fish sales method in existing consumption markets lessen the incentives to purchase fishes and there is room for improvement. In addition, there is no distribution system of fisheries products for the poverty areas in the mountainous regions. In order to rectify this situation, DIGEPESCA needs to implement a survey, adopt a strategy for improvement, and strive to raise the fisheries consumption level of the population.

(5) Credit system for artisanal fisheries

Presently, there is no credit system available in the country for artisanal fisheries. By the end of the 2nd short-term period, a large number of fishermen able to manage modernized fisheries will evolve. In order for a credit system to successfully develop, DIGEPESCA must actively negotiate with relevant ministries and also study the feasibility of different types of credit, the required human resources, guidelines, etc.

(6) Changing the awareness of artisanal fishermen

In order to enable fishermen to achieve self-supporting fisheries activities, the training program only to raise the level of fish production by lending modernized means of production is insufficient. In order for fishermen to qualify for public credit, they must have management capability to balance viability of fishing activities with repaying their loans used for procurement of fishing boat and gear.

(7) To secure initial operation capital by the government budget

It is necessary to provide the initial operation capital by the government budget to implement the projects of "Plan of Small Scale Fisheries Modernization" and "Plan of Fish Marketing Improvement" that will generate direct benefit, it is necessary to make sure to provide following initial operation capitals.

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ABBREVIATION

BANADESA	Banco Nacional Desarrollo Agricola (National Agriculture Development Bank)
CRIPCCA	Centro Regional de Investigaciones Pesqueras del Caribe Centroamericano (Regional Fisheries Investigation Center of Central American Caribe)
DIGEPESCA	Direccion General de Pesca y Acuicultura (Directorate General of Fisheries and Agriculture)
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EU	European Union
FAO	Food and Agriculture Organization
FENAPASCAH	Federacion Nacional de Pescadores Artesanales de Honduras (National Federation of Artisanal Fishermen in Honduras)
FRP Boat	Fiberglass Reinforced Plastic Boat
GDP	Gross Domestic Products
HOMIBAT	Honduras Miskita Indian Buzoka Asla Takank (Honduras Miskito Indian Divers Union)
IMF	International Monetary Fund
lb	Pound (1kg=approximately 2.2 pounds)
Lps.	Lempira
JICA	Japan International Cooperation Agency
MASTA	Mosquitia Asla Takanka
MODERPESCA	Proyecto Modernizacion Pesca Artesanal, Trujillo (Modernization Project of Artisanal Fisheries in Trujillo)
MOPAWI	Mosquitia Pawisa
NGO	Non-Government Organization
PRADEPESCA	Programa Regional de Apoyo al Desarrollo de la Pesca en el Istmo Centroamericano (Regional support program of Fisheries Development in Central American Isthmus)
SECPLAN	Secretaria de Coordinacion, Planificacion y Presupuesto (Secretary of Coordination, Planning and Budget)
SEDA	Secretaria de Estado en el Despacho del Ambiente (Secretary of Environment)
TFCB	Trujillo Fish Collection Base
UNAH	Universidad Nacional Autonoma de Honduras (National Autonomous University, Honduras)