



CARICOM Fisheries Unit



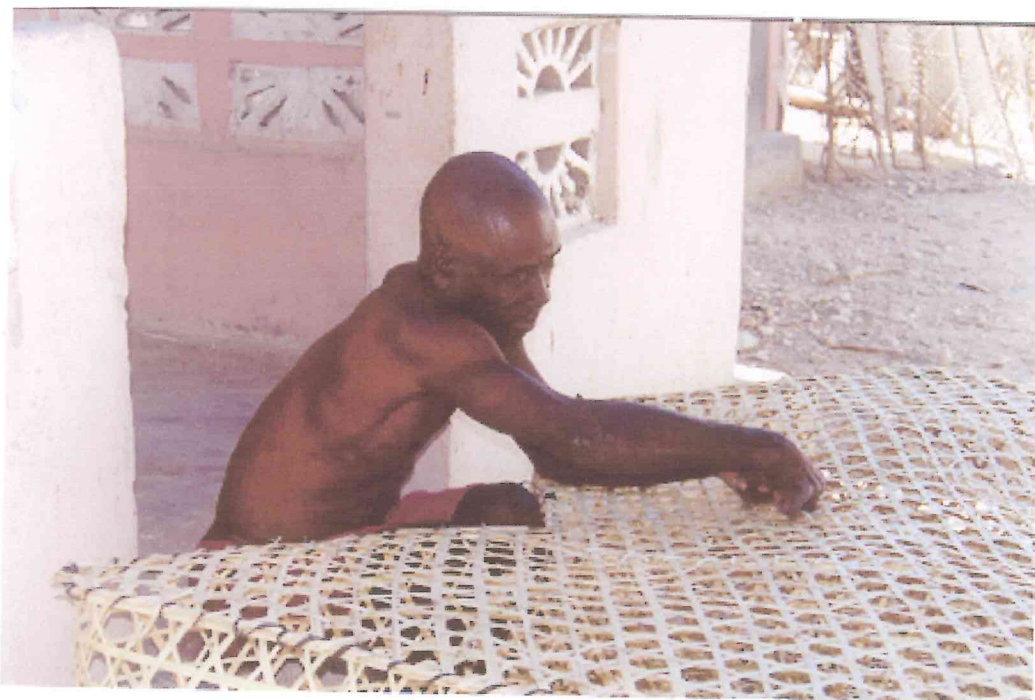
Haiti



European Union

Integrated Caribbean Regional Agriculture and Fisheries Development Programme - Fisheries Component

WORK PROGRAMME FOR HAITI (April 2000 – March 2005)



Haitian fisherman making fish trap. Photo by M. Haughton

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LIST OF ACRONYMS

| | |
|---------|--|
| ACP | African, Caribbean and the Pacific States (associated to European Union) |
| BDC | Biological Data Collection |
| CARISEC | CARICOM Secretariat |
| CFO | Chief Fisheries Officer |
| CFU | CARICOM Fisheries Unit |
| CFRAMP | CARICOM Fisheries Resource Assessment and Management Program |
| CFTDI | Caribbean Fisheries Training and Development Institute |
| CIDA | Canadian International Development Agency |
| CRFM | Caribbean Regional Fisheries Mechanism |
| DM | Data Manager |
| DOF | Department of Fisheries |
| DRAO | Deputy Regional Authorising Officer |
| DSA | Daily Subsistence Allowance |
| ECU | European Currency Unit |
| EDF | European Development Fund |
| FAC | Fisheries Advisory Committee |
| FAO | Food and Agriculture Organization of the United Nations |
| FD | Fisheries Department |
| FISDC | Fisheries Institutional Strengthening and Development Component |
| FMP | Fisheries Management Plan |
| GEF | Global Environmental Fund |
| HACCP | Hazard Analysis and Critical Control Point |
| IAC | International Agricultural Centre, Wageningen, The Netherlands |
| ICCAT | International Commission for the Conservation of Atlantic Tunas |
| ICLARM | International Centre for Living Aquatic Resource Management |
| ICRAFDP | Integrated Caribbean Regional Agriculture and Fisheries Development Programme (EDF - funded) |
| IMA | Institute of Marine Affairs |
| LRS | Licensing and Registration System |
| MCS | Monitoring, Control and Surveillance |
| NGO | Non-Governmental Organisation |
| NFW | National Fisheries Workshops |
| NMFS | National Marine Fisheries Service (U.S.A.) |
| NRMU | National Resource Management Unit |
| OVI | Objectively Verifiable Indicators |
| PPCU | Programme Promotion and Co-ordination Unit |
| R & T | Research and Training |
| RAU | Resource Assessment Unit |
| RDP | Rural Development Project |
| SFO | Senior Fisheries Officer |
| SVG | St. Vincent and the Grenadines |
| TA | Technical Assistance |
| TAP | Technical and Administrative Provisions (annexed to Financing Agreement) |
| TCDC | Technical Co-operation between Developing Countries |
| TIP | Trip Interview Program (Data collection software package) |
| T & T | Trinidad and Tobago |
| UNDP | United Nations Development Programme |
| UWI | The University of the West Indies |
| WBS | Work Breakdown Structure |
| WECAFC | Western Central Atlantic Fisheries Commission of the FAO, United Nations |
| WP | Work Programme (Work Plan/Cost Estimate/Financial Plan) |

JB

WAT

EXECUTIVE SUMMARY

This five-year programme of support to the Fisheries Department of Haiti is made possible under the Financing Agreement between the Commission of the European Community and the Member States of CARIFORUM under the ICRAFD programme. It will be implemented in two-year Work Plan cycles within agreed areas of focus identified as sub-projects, and monitored annually under an agreed CFU – Government of Haiti (Fisheries Department) arrangement.

The programme has been prepared by the Fisheries Department of Haiti in collaboration with the CARICOM Fisheries Unit (CFU) and is based on information obtained during the recent planning mission to Haiti by a team of five officers from the CFU, Belize, 12 -17 February 2001. The team gathered information through literature review of existing documents, discussion sessions with fisheries staff, and meetings with policy makers and other stakeholders in the fisheries sector. Some information was also collected from interaction with respondents of the interviews conducted with the multi-disciplinary survey instruments, which were administered during the mission.

Based on the resources available under the CARIFORUM Project and the constraints faced by the Fisheries Department, it will not be possible to undertake activities in all areas needed to achieve sustainable development and conservation of the fishery resources of Haiti. The Work Plan will therefore seek to address some of the critical issues affecting the fisheries sector by focusing on:

- development of clear and adequate planning and policies framework;
- improving the fisheries database, information management systems and flow of information to stakeholders for planning and management decision making;
- strengthening human and institutional capacities for administration, resource management and conservation;
- empowerment of resource users so that they can assume greater responsibility for sustainable use and management of the fisheries ;
- improving public awareness of the benefits and importance of the fisheries sector and the need for sustainable resource management;
- strengthening aquaculture production by rehabilitating the research, production and training facility at the Fisheries Department compound;
- exploring the potential for development of small-scale pelagic fisheries and the cultivation of sea moss (*Gracelaria spp*).

Fishery management decision-making and planning must be informed by quantitative information on the structure of the sector and the status of the resources. To this end, the Project will seek to address those issues associated with providing fisheries data for assessment and management and as an effective tool for monitoring and regulating catch and fishing effort.

Establishing and operating a national data collection system requires a great deal of effort, resources, expertise and cooperation among all the stakeholders in the fisheries. Haiti does not have in place the basic organisational and institutional capability or sufficient knowledge of the resource for successful establishment and operation of a national data collection system.

The project will therefore take a step-by-step approach to the establishment of a data collection system and the generation of data and information for policy making, management planning and monitoring of the fisheries. As a first step, a national sample based fishery survey will be done to better understand the scope, status and socio-economic contribution of the fisheries sector to the national economy. This sample survey will focus on the collection of basic data on catch, effort, biological and socio-economic aspects of the fisheries. The data and information obtained will be used to design a data collection system for on going monitoring of the fisheries.

The information on the status of the fisheries in Haiti is incomplete, fragmentary, contradictory and difficult to locate. An important component of this work plan will be a search and compilation of existing documentary material on the fisheries in Haiti. The project will also provide support for the collection of biological and socio-economic data on the commercially important species groups as well as technical assistance for the analysis and interpretation of the data and preparation of management recommendations to guide future policy. Support will also be provided to enable scientists and resource managers from Haiti to participate in regional and sub-regional initiatives such as the fisheries assessment and management workshops.

Technical assistance will be provided to the Fisheries Department to improve the institutional capability of the Department, strengthen the planning and policy framework and improve the system of governance. Specifically the Project will:

- I. Assist with the preparation of a comprehensive national fisheries policy, fisheries management plan, and work plan for the fisheries department.
- II. Assist with preparation and establish a mechanism for providing policy advice and enhancement of participatory approaches to decision-making regarding the fisheries sector.
- III. Support a strategic review and preparation of recommendations for strengthening of the legal framework, organisational structure and operational arrangements of the Fisheries Department, and provide resources to assist with the implementation of the recommendations agreed upon.
- IV. Provide long and short term training opportunities for staff of the fisheries department.

The activities designed to strengthen Community Involvement and Education will directly tackle the major knowledge gaps and human relations problems facing the artisanal fisheries sector. These are the absence of a functional extension unit in the Fisheries Department, the lack of awareness of conservation and management issues among resource users, the absence of effective mechanisms for enforcing management measures, and the weak links between the department and the resource users and other stakeholders.

The strengthening of resource user organizations and the strengthening of operational linkages between resource users and the department of fisheries will be addressed through a deliberate mobilizing and organizing program to be coordinated by staff of the fisheries department, and supported by the CFU, which will build capacity for field work organizing and mobilizing fisher-folks. Technical support will be provided to fisher-folk organizations that will eventually emerge. Public Relations input will cement relations between the department and the resource user groups. Work with NGOs will be conducted through the Fisheries Department of the Government of Haiti.

The project will promote greater awareness by planning and promoting a public awareness campaign that will utilize group, print and mass media, supplemented by a radio call-in program, in which all stakeholders will be active participants. This will be supported by a National Dialogue Group of representatives of all major stakeholders that will meet regularly to deliberate on burning issues related to the improvement of the industry and the sustainability of the resources. Output of this forum will feed into the public awareness campaign.

BACKGROUND

About The Work Programme

The Work Programme for Haiti is a key document under which project activities are planned, implemented, monitored, and assessed. Program funds and technical assistance will be provided to Haiti and spending will be based on an approved Work Plan and Cost Estimate. The Work Programme has therefore been prepared with the aim of providing as clearly and concisely as possible a comprehensive description of the project activities, responsibilities, budget, implementation schedule, and reporting requirements.

A 5-year programme of support will be implemented in two-year work plan cycles. This work programme is based on preliminary data garnered during a recent planning mission to Haiti by a team of five officers from the CFU, Belize, 11th - 17th February 2001. The team gathered information through literature review of existing documents, discussion sessions with fisheries staff, meetings with policy makers and other informed stakeholders at the landing sites and communities. Some information was also collected from interaction with respondents of the interviews conducted with the multi-disciplinary survey instruments. The latter included:

Key Informant Interviews

Interviews on the status of the Data Collection programs of Haiti

A Baseline Survey of the Fisheries Department of Haiti

A Baseline Survey of seven (7) fishing communities in Haiti

The Fisheries Department will be responsible for implementing the activities in this Work Programme. Technical assistance and support will be provided by the staff of the CFU, technical experts from the other CARIFORUM Countries (through TCDC arrangements) and consultants where necessary.

Introduction

Fisheries and aquaculture presently make a significant contribution to the economies of CARIFORUM countries. This contribution can be enhanced by a combination of management and development interventions. Within the EDF Funded Integrated Caribbean Regional Agriculture and Fisheries Development Program, there is a component designed to promote the sustainable utilization and management of the fisheries of the CARIFORUM countries. The overall objective of the fisheries program is optimal utilization of marine fishery resource in CARIFORUM countries through optimal sustainable harvesting and optimal post harvest utilization of marine fishery resources. Fishery management would be enhanced by strengthening the capacity of national Fisheries Departments and regional institutions which are responsible for formulation of fishery management policy and implementation. The CARICOM Fisheries Unit, located in Belize, Central America, is executing this project.

It is recognized that one of the fundamental problems facing the fisheries of the region is the open access, common property nature of the resource system. Accordingly, one of the main challenges faced by Caribbean ACP countries is the transformation towards a closed access system with clearly defined and equitable rights of access to the resource. Other significant problems include:

- the lack of high level support and clear policy for fisheries,
- lack of reliable data and information for planning, decision-making, and policy formulation;
- inadequate human resource and weak institutional arrangements for research, planning, and decision-making at both governmental and non-governmental levels;
- inadequate resource management regimes and lack of enforcement of regulations;
- limited involvement of resource users and other stakeholders in planning and decision-making; and
- lack of public awareness of fisheries conservation and management issues and consequential lack of support for interventions designed to protect fisheries.

The situation in Haiti is very challenging owing to the overall low level of development. There is widespread poverty, lack of basic services and infra-structure, severe environmental degradation and large number of persons who are dependent on the fisheries resources for survival. The situation is further compounded by the lack of adequate fisheries legislation, lack of capability for monitoring and enforcement; lack of financial resources for fisheries programs; lack of organization and institutional capability for fisheries development and management, including physical office space and facilities. For example, the Fisheries Department office has no running water, no electricity during the days-light hours (the area is supplied with 2-4 hours of electricity each night), no telephone services. There is no budget for fisheries programs. For these reasons it is difficult to formulate and implement the work program as currently designed within the framework of the ICRAFD Programme. Haiti must therefore be treated as a special case reflected in a program of work designed to capture the unique socio-economic, and cultural environment of the country.

Despite these constraints, there are some positive factors around which we can work to improve the fisheries situation in Haiti. There is a cadre of trained personnel with general fisheries background employed by the Fisheries Department. There is a staff of 22 persons including 11 university graduates, six of whom have post-graduate training in fisheries and aquaculture. There is an abandoned physical facility with substantial aquaculture installations. Both the building and the aquaculture facilities are in a state of disrepair. There are several well organized and active NGOs, fisher's organizations and Universities in Haiti involved in the fisheries sector. It will therefore be possible to develop and implement a carefully targeted program of work to gradually improve the national and local capability for sustainable fisheries development and management, and consequently enhance the contribution of fisheries and aquaculture to the economic development of the country.

The CARICOM Fisheries Unit through the ICRAFD Programme will support the efforts of the Fisheries Departments of the Caribbean ACP States and seek to address some of these critical issues including: development of a clear and adequate policy framework; improving information management systems and information flow for management decision making; strengthening human and institutional capacities for resource management and conservation; empowerment of resource users and gradual transfer of responsibility for resource management to the users through co-management programs; and improving public awareness of the benefits and importance of fisheries management, thereby increasing public support and involvement in schemes for conservation and sustainable use of the fisheries resources.

It is recognized that this project does not have the resources to solve all the problems affecting the fisheries sector in Haiti. Stakeholders, including government departments, resource user organizations, NGOs, academic and research organizations, particularly the Universities in Haiti and throughout the Region must continue to commit themselves to sustainable fisheries and in this regard provide the human, financial and institutional resources needed to transform the sector into a more sustainable system.

Sustainable fisheries development and management in Haiti will be enhanced by technical assistance to the Fisheries Department and other national and local organizations associated with the fisheries sector. This will be accomplished through the following activities:

- Strengthening National and Regional Fishery Management and Policy and Planning capability;
- Promoting the establishment of Fishery Advisory/Decision-Making mechanisms at the national Level;
- Improving the information available for planning and decision making;
- Establishing Mechanisms for participation of fishers and fishing industries in Fishery Management;
- Enhancing public awareness of fisheries management issues;
- Enhancing Linkages and cooperation between Government fisheries officials and stakeholders in Haiti;
- Strengthening national Human Resource Capability through Training;
- Assessing the Status and Potential of Critical Resources in cases where this can be done; and
- Enhancing aquaculture development to improve food security and generate employment.

The main thrust of the program will be undertaken through implementation of the following activities:

- Formulation of Draft National Fishery Management Policy and Plan;
- Strengthen national capability for fisheries planning and management
- Conduct of a comprehensive sample survey of the fisheries of Haiti
- Design and support implementation of programs to enhance the involvement of fishers in fisheries planning and management;
- Provide support for public education and awareness building programs;
- Long and short-term training for staff of the fisheries departments;
- Research to generate information for planning and policy formulation;
- Establishment of mechanism for closer co-operation between stakeholders in the fisheries sector in Haiti
- Strengthen capability for aquaculture research and development
- Establishment of a pilot project for sea moss cultivation and marketing;
- Provide support for improvement in monitoring, control and surveillance;
- Provide support for improvement in post-harvest handling and marketing of fish;
- Participate in the establishment of the CRFM;
- Provide support for pilot project for development of small scale pelagic fisheries; and
- Support to participate in the activities of ICCAT through the Regional Pelagic Working group.

WBS 300: FISHERIES MANAGEMENT DATA SYSTEMS

Introduction

Fisheries management, decision-making and planning must be informed by quantitative information on the structure of the sector and the status of the resources. From information garnered during the Planning Mission to Haiti and informal discussions and interviews held with Fisheries Department staff, it was obvious that qualified and eager human resources exist to support the establishment of an embryonic Data Management System.

At present, data on the marine resources are obtained from import and export records. A sampling plan to facilitate the process of collecting routine catch, effort and biological data in a statistically sound manner does not exist and no formal fisheries census has been conducted. Without this information, it is impossible to make informed decisions pertaining to fisheries planning, development, and management. In this regard, the FAO Code of Conduct for Responsible Fisheries highlights the importance of establishment and maintenance of at least a reliable catch and effort statistical system. It is therefore necessary to conduct a complete census of the fisheries of Haiti (e.g. fishers, gears, vessels, sites). However, due to financial constraints a National Sample Survey of the Fisheries in Haiti will be conducted instead. This will involve collecting data by stratifying and sampling randomly instead of collecting data from every fisher, boat, and landing site in each fishery. Basic social and economic data on the fishery will also be gathered during the census, to enable the development and incorporation of appropriate social and economic objectives into fisheries management planning. To acquire a preliminary indication of fishery activity levels and hence potential for further development, the census will also capture data on fishing trends, e.g. catch and fishing effort trends (monthly and annual), species composition, fishing grounds if possible. The results of the census could then be used to facilitate short-term fisheries management decisions, and to determine a suitable sampling frame for a basic catch and effort monitoring system to acquire quantitative information on fishing trends and the state of commercially important fish resources.

Data obtained from the Multidisciplinary Survey Instruments and information provided during group discussions with stakeholders revealed the following problems: -

1. Lack of equipment (such as computer and scientific data collection equipments) and basic office resources, such as paper and desk/chairs. The lack of basic resources will be a challenge in implementing this project.
2. No persons are assigned to collect data at landing sites.
3. Catch, effort and biological data are currently not being collected on a regular basis or in a statistically sound manner, as there is no sampling plan.
4. There is no data management software for data storage and manipulation.
5. Lack of trained data collectors.
6. Lack of resources for the data collection programs such as transportation and fuel.

The lack of equipment and basic office supplies will pose a particular and unique challenge to the implementation of a routine data collection and management program. Given the present state of the Fisheries Department and the unavailability of basic data on the fisheries, intervention at this stage will have to be at a basic level. Conducting a National Survey of the Fisheries would initiate the practice of collecting data on a regular basis and provide baseline data for future evaluation. The FD staff will be trained in basic computer manipulation, basic data collection skills, how to work with and obtain data from the fishermen and the use of scientific equipment to collect routine catch, effort and biological data. Data forms will be developed and the staff will be trained to fill these forms and enter the data into the CFU database software.

For the catch and effort data collection system, data element such as species, weight, number of boats by gear type, number of fishermen, and boat size will be recorded. Length frequency and maturity data are the biological elements that will be collected for main commercial species. The number of days at sea will be recorded for the vessels that perform trips involving several days. For the rest of the fishing vessels, the number of trips will be recorded.

Objectives of the Subproject

The aim of this sub-project is to provide a Data Collection and Management System to collect fisheries data for assessment and management to be utilized as an effective tool for monitoring and regulating fish catch and fishing effort.

Planned Activities

Establishing and operating a national data collection system requires a great deal of effort, resources, expertise and cooperation among all the stakeholders in the fisheries. Haiti does not have in place the basic organisational and institutional capability or sufficient knowledge of the resource for successful establishment and operation of a national data collection system.

The project will therefore take a step-by-step approach to the establishment of a data collection system and the generation of data and information for policy making, management, planning, and monitoring of the fisheries. As a first step, a national sample based fishery survey will be done to better understand the scope, status and socio-economic contribution of the fisheries sector to the national economy. This sample survey will focus on the collection of basic data on catch, effort, biological and socio-economic aspects of the fisheries. The data and information obtained will be used to design a data collection system. The activities described below will be undertaken within the framework of a national sample-based fishery survey.

These survey activities include:

- conducting a literature review to obtain information on the total number of fishermen, types of boats, the total number of landing sites, the main commercial species and the level and seasonality of the fishing activity at the landing sites etc.
- developing the sampling plan to collect catch, effort, biological, economic and social data. The sampling will be stratified by district, type of landing site, fishing gear, level and pattern of fishing activity and species of marine resources harvested. The possibility of commencing a Licensing and Registration System will be examined.
- developing a database to store the data collected during the survey
- analyzing the data collected during the survey and make recommendations.

WBS 310.3: Train Fisheries Divisions Staff in Data Collection

All existing staff will be trained in basic computing (Word processing, and Spreadsheets) and data collection and management. The CFU staff in collaboration with the Fisheries Department of Haiti, the National Autonomous University of Haiti, and Regional Fisheries Departments, will conduct the Training Workshops.

Purpose

The purpose of this activity will be to upgrade the computer and data collection and management skills of existing FD staff.

Approach

The training will be delivered by resource personnel from the CFU, CARIFORUM Member States, the Fisheries Department (Haiti) and the National Autonomous University.

Outputs

Fisheries staff trained in areas of computer use and data collection and management.

WBS 310.4: Database software for data storage, basic analysis and reporting

Currently the department has no software for data (catch, effort, biological and economic) entry, storage, manipulation and analysis. The Fisheries Department staff expresses the need for data management software.

Purpose

The purpose of this activity will be to:

- Provide database software.
- Consider the suitability of Trip Interview Program (TIP). This is the CFU promoted database software being used in many CARICOM countries for catch, effort and biological data entry, storage, manipulation, basic analysis and reporting.
- Identify and train suitable persons to manage/operate the system.

Approach

- A resource person with data management skills and experience in using database software from within the region or a consultant will undertake the assignment in collaboration with the Fisheries Department. This individual will have a working knowledge of TIP, experience in data storage, manipulation, basic statistical analysis and reporting.

Output

An implementation plan, with schedules to implement the recommendations for the refinement of the software.

- The availability of database software for data storage, manipulation, basic analysis and reporting.
- Individuals identified and trained to operate the system.

WBS 315: Train Fisheries Divisions Staff in Using the Database Software for Data Entry, Analysis and Reporting

All existing staff involved in data collection and management will participate in annual training workshops (national and regional) on data entry, analysis and reporting using the database software. At these workshops, the participants will be trained in data entry, manipulation, quality control, basic analysis, and reporting.

Purpose

The purpose of this activity will be to upgrade the skills of existing data collection and management staff as well as train the new recruits.

Approach

The training will be delivered by resources personnel from CFU, regional personnel under TCDC and the Fisheries Department (Haiti).

Outputs

Fisheries staff trained in areas of data entry, manipulation, quality control, basic analysis and reporting.

WBS 310.6/320.7: Provide Resources for Implementation

Data collected during the survey will require computers for data entry. Scientific equipment, office supplies and motorcycles will be provided. The project will provide the agreed resources for implementing the National Survey.

WBS 310.8/320.7: Monitoring and Provision of Technical Assistance

The Data Manager will monitor the implementation of work program activities and make monitoring visits to Haiti over the life of the program to evaluate the progress of the activities associated with the data collection system and to provide assistance and advice during implementation of the project activities.

WBS 310.9: National Survey of Fisheries in Haiti

Fishing in Haiti is mainly artisanal with some amount of semi-industrial fishing done using Cuban boats and technology under a Cuban Technical Assistance Project. In developing the infrastructure for monitoring and managing the fisheries, a national survey of the fisheries in Haiti, including a survey of fishing trends will be conducted. It is important that the complexities of artisanal fisheries, the low level of education, heterogeneity of the fleet and the large number of fishermen are taken into consideration. The survey of fishing trends will yield information on species targeted, species composition of the catch, and trends in both catch and effort (seasonal and annual) per species and fishery type. This information will provide both a preliminary indication of recent trends in species abundance, and valuable baseline data to guide future monitoring and management of the fisheries concerned. The survey of fishing trends will be incorporated into the overall National Survey of Fisheries in Haiti, to facilitate data accumulation at the same time.

The availability of information on the hydro climatic conditions of the coast, type of fisheries, the main fish species captured, the important/major landing sites, the fishing activity patterns, information on the movement of the fish from the time its caught by the fisher to the time it reaches the consumer, distribution of the landing sites, accessibility of the landing sites and estimation of the level of fishing activity at the landing sites will be critical in designing the National Survey. Most of this information will be collected during phase one of the survey and will be utilized in guiding the development of the sampling plan in phase two.

Purpose

A national sample based fishery survey will be done to better understand the scope, status, trends and socio-economic contribution of the fisheries sector to the national economy. This sample survey will focus on the collection of basic data on catch, effort, biological, and socio-economic aspects of the fisheries.

The data collected will facilitate: the estimation of fisheries exploitation trends; the acquisition of baseline data on the fisheries; the estimation of the relative commercial importance of the different species and species groups; the development of a suitable sampling frame for long-term monitoring of the fisheries and a National Fisheries Management Plan (FMP). Ultimately this information will be utilized in formulating future policies and in designing a data collection system for on-going monitoring.

Approach

The survey will be conducted in two phases:

- **Phase One:**

During Phase 1 a census will be conducted to develop a frame for the sample survey. Detailed preparation will also be made for the more detailed sample survey that will be conducted during Phase 2. Training will be provided to the fisheries staff and other persons who will be involved in this activity. A comprehensive public awareness program will be conducted to create awareness and build support for the activity among all stakeholders. The detailed stratified sampling plan for Phase 2 will be developed. The equipment and material needed for Phase 2 will be procured.

The team will visit all the landing sites and document all fishing activities including the name of the landing sites, a description of the landing site, the type and number of boats, boat ownership, number of crew per vessel, the method of propulsion of the boat, type of fishing activity, total number of fishers, and description of the fisheries-emphasizing the types of gears used. The Department of Fisheries staff with support and technical guidance from the CFU staff will implement this activity. The Fisheries Officers will be trained in collecting data from fishers, data collection and management, and species identification, prior to the commencement of the survey. This phase will be conducted during the first eight months of the project.

During this phase it is critical that the Community Involvement and Education program (WBS 534: Rational and Support for Data Collection) aimed at training the Fisheries Officers to work with the fishers should be implemented simultaneously or before this activity commenced. The following activities will be implemented:

- i. Literature survey
- ii. Develop detailed plan for census to develop sampling frame, including preparation of data collection forms.
- iii. Identify and train fisheries staff and other collaborators
- iv. Prepare posters, radio programs, brochures and other literature for the conduct of a public awareness campaign
- v. Procure equipment and other material for census and detailed survey
- vi. Field visits
- vii. develop the sampling plan, guided by information gathered during phase one of the survey
- viii. develop the data collection forms
- ix. develop a database

- **Phase Two:**

This phase will involve

- i. Visits to selected landing sites over a 12 month period
- ii. Collect catch, effort, economic, social and demographic data for a period of one year.
- iii. Quality control checks and entering of data in the database
- iv. At the end of the data collection period, the data will be analyzed and a report produced.
- v. A national workshop will be held at which the results of the survey will be presented and discussed

The Department of Fisheries, with support and technical guidance from the CFU staff, will implement this activity.

- The CFU Data Manager/Analyst and Senior Biologist with support from CFU staff will co-ordinate this activity. The Haitian Fisheries Department (FD) staff will do the assignment with technical backstopping support from the CFU staff.
(It is critical that both a community awareness program and a training program for the FD staff in the area of communication with the fishermen be conducted before the field survey commences).
- The CFU Data Manager/Analyst and the Senior Biologist will, with support from other CFU staff, develop the sampling plan, the data collection forms, and the database for storing the data. The plan will specify the sampling technique, the data elements to be collected, the different strata, and the sample size.
- The CFU staff will work in close collaboration with the Director of Fisheries, the Fisheries Officers, and the Data Collectors to do the assignment and facilitate technology transfers to these personnel.
- The CFU staff will visit Haiti to conduct training sessions and to develop the initial groundwork prior to the survey. The FD staff will continue data collection for one year after which the data will be analyzed and a report prepared. The findings will be presented to the various stakeholders at a workshop.
- The results of the survey will be used to prepare a national data collection plan for Haiti.

Outputs

The outputs of this activity will be:

- Completion of a National Survey of the fishing activities in Haiti
- Analysis of the data collected and the production of a report documenting the fishing activities in Haiti. The findings will be presented at a National Workshop.
- The availability of data on the fishing activity in Haiti. The Report will include estimates of the total catch by species or species groups, value of the fisheries, number of persons employed, socio-economic profile of the fishers, number of boats by type, location, and size of fishing beaches etc.
- Estimation of recent fishing trends and trends in species abundance, based on fisher interview data.
- Baseline data for incorporation into development of appropriate sampling frame, and for monitoring further development and management of the fisheries concerned.
- Updated estimates of the relative importance of individual species, species group and fishery types to the Haiti fishing industry.
- Trained Fisheries Department staff in design and execution of fisheries survey.
- A database with the data collected during the survey.
- A report documenting the survey findings.
- The results of the survey will be used to prepare a data collection plan for Haiti.

WBS 400. RESOURCE ASSESSMENT

The basic purpose of fish stock assessment is to provide advice on the optimum exploitation of the aquatic living resources. Fish stock assessment may be described as the search for the exploitation level which in the long run gives the maximum yield in weight from the fishery. The task of assessing resource status and sustainable harvest is difficult. The cost of acquiring information of the resource is high, relative to terrestrial resources and considerable information required to draw conclusions about the status of the resources.

Approximately 35% of the Caribbean fishing stocks are over-exploited or unsustainably fished (UNEP, press release, 2001). Haiti's marine resources are not exempted from this situation. In the case of Haiti, the assessment of marine resources becomes critical due to the fact that many fishing resources appear to be lost even before the scientists have the chance to account for their existence.

The information on fisheries in Haiti is incomplete, fragmentary, contradictory and difficult to locate and compile. Much of the information is not available in Haiti. A critical component of this work plan should be a search for and compilation of documentary material on the fisheries for analytical purposes. Without this information it will be difficult to evaluate the current state of exploitation of the marine resources and to appreciate the practical fishing potential based on real facts such as catch and effort, biological, social and economic data and information. This activity could be the starting point for planning future projects and activities within the sector.

In relation to the fisheries resources in Haiti, FAO (1999) emphasized the requirement of good statistical information systems, covering the collection of catch and effort data, as well as biological data, essential for adequately monitoring growth and determining appropriate levels of optimum effort. FAO also emphasized the urgent need to undertake studies on the biology of the Haitian lobster, in order to determine the species being caught, length at first maturity and general status of the lobster stocks.

Due to the limited coral reef available in the marine waters of Haiti and the fish depletion in Haiti's coastal waters, the option of providing artificial reefs may be investigated as well as to explore the possibility to use them as "protected areas" to enhance fishery recovery. Another potential area is the currently under-exploited deep-water demersal, and nearshore pelagic resources. This area should be explored with caution, however, general steps should be taken in order to increase the fisheries management to improve yield to sustainable levels, and to improve the collection of fisheries data.

Based on the resources available for Haiti under the resources assessment component of the CARIFORUM Project, it would not be possible to undertake activities in all the areas where weaknesses have been identified and strengthening is needed. It is thought that assessment of some marine resources in Haiti have been done by different individuals and international agencies with the exception of the conch assessment. Most of that information is not available in Haiti and their final destiny is now unknown. During the planning mission to Haiti it was confirmed that there was no current data collection system in place, neither was there a resource assessment program. In view of this and with the intention of providing information for improved management, the Project is proposing to assist the Fisheries Service in Haiti to undertake a bibliographic study of the Haitian fisheries, to conduct a preliminary study to identify and characterize potential areas for the establishment of Marine Reserves; to take advantage of the existing platform for research provided by the Cuban Technical Assistance Mission to monitor and provide support for gathering biological data on the main species caught during the fishing expeditions of the 4-5 Cuban boats (lobster, shrimp, pelagic fishes) and Haitian commercial vessels, when possible.

PLANNED ACTIVITIES

WBS 410/412: Assessment of Pelagic Fisheries & Reef Fishes/Enhance Sampling Program

WBS 410.1 Bibliographic study on the Haitian Fisheries

The bibliographic study of the Haitian fisheries will be the backbone that will support all the other research activities under the 5-year Work Programme for Haiti.

This assignment will focus on compiling and analyzing the reports and references on the principal works and projects planned and/or undertaken in Haiti's fisheries sector, and in making recommendations for future studies.

Purpose

- To search for papers documenting studies about the fisheries in Haiti. The search will include: the internet, public, and private libraries, in research centers, universities, international organizations, etc, in and out of Haiti
- To compile the documents found
- To review and analyze the documents found
- To improve understanding of the status of data and information on Haiti's fishery sector
- To prepare an annotated bibliographic review of the information gathered
- To write a report on the state of exploitation of the main marine fishery resources in Haiti and provide recommendations for future studies and management measures
- To publish the report on the findings
- To provide the Government of Haiti (Fisheries Department) with copies of the documents found)

Approach

The CFU staff will collaborate with the Fisheries Service and provide financial support for the design and implementation of this study. The study will include the following activities:

1. The first activity will be a comprehensive survey of literature and documents related to fisheries in Haiti and which could be found on internet, public, and private universities, libraries, and local and international organizations around the world.
2. The second activity will be to compile all the documents found in a database (hard copies or electronic base)
3. The third activity will be to review and evaluate the information found
4. The fourth activity will be to summarize the information found in a bibliographic report with annotations on findings, identifying gaps, and achievements of the past and current fisheries projects in Haiti
5. Based on the literature review, to evaluate and write a report on the state of knowledge on Haiti's marine resources specifying clearly the trends in the exploitation of the main marine fishery resources in Haiti. This assignment will provide recommendations for future studies and management measures

This activity could be undertaken by a student from the biology, economics or agriculture department of any university in Haiti or any other CARIFORUM country or can be done by a resource person from Haiti or another CARIFORUM country.

Outputs

The results of these activities will provide the Fisheries Administration of Haiti, the CFU and other stakeholders with information that can be used for planning and decision making. The specific outputs will be:

- An annotated bibliographic report on the status of the marine fisheries information in Haiti
- A report on the evaluation of the status of marine fisheries resources in Haiti based on the literature review
- A data-base of the marine fisheries resources of Haiti
- Enhancement of the reference library at the Haiti Fisheries Department
- Knowledge on the status of the fisheries in Haiti, if that information can be extracted from the Literature found and reviewed

WBS 410/412.1: Review of data collected during Cuban fishing expeditions

Interviews and discussions held with several representatives from the fisheries sector, including fish processors and fishers, indicated an urgent need to develop a small-scale large pelagic fishery. The development of such a fishery would provide much needed relief of fishing pressure on near-shore resources, as well as to increase overall catches by weight. At present, there is a collaborative arrangement between the governments of Haiti and Cuba to increase fish production in Haiti. The Cuban government has provided five multipurpose vessels to accommodate exploitation of offshore and under-utilized resources by Haitian fishers. The Cuban vessels are used as 'mother' ships, and can transport up to 6 traditional Haitian vessels and their crew to offshore fishing grounds. The 'mother' ships also carry food and fuel supplies to sustain the crew and fishing activities for several days. Following completion of a fishing trip, the 'mother' ship transports the crew, boats, and catch back to port for off loading, marketing, and refuelling for the next trip. All species are targeted during these fishing trips, ranging from shrimp and lobster to the large billfishes.

It is recommended that the CFU through the CARIFORUM project collaborate with the Haitian and Cuban scientists to collect, analyse and interpret the data collected during the fishing trips conducted under the Cuban Technical Assistance Project. These data and/or completed reports of analyses of the data collected to date, should be made available to the CFU in order to determine the usefulness of this technical assistance project as a possible source of biological data for specified species. Additionally, the data and reports will provide useful background information for assisting with the formulation of a proposal for a feasibility study to examine the potential for development of a pilot project for a small-scale pelagic fishery.

Purpose

Search, compile, and analyse fisheries data already collected during the fishing trips conducted under the Cuban technical assistance project.

Approach

- The resource person(s), with support and assistance of the Fisheries Service staff and the Cuban Experts, will search for and compile the fisheries data already collected during the fishing trips conducted by the boats operating under the Cuban Technical Assistance Project.
- In preparing for the study, the resource person (s), with support and assistance from staff of the Haiti Fisheries Department, will review, analyze, and interpret data collected,
- The resource person will review available reports of completed analyses of data collected during Cuban assisted fishing trips.

Outputs

- A database with catch , effort and biological data on the fisheries in Haiti
- Data collected during the Cuban assisted expeditions analyzed and interpreted
- Report on findings and recommendations prepared

WBS 410/412.2: Biological data of pelagic fishes

At present, the Cuban Technical Assistance Project is doing experimental fishing with FADs. The large Cuban vessels (2-3) are used as mother ships transporting up to 6 Haitian boats and their crew to the fishing grounds offshore. Together with the lobster and shrimp biological monitoring activities it is suggested that the Fisheries Service in Haiti use the opportunity provided by the presence of the Cuban mission to gather catch, effort and biological data and information on pelagic fisheries during the fishing season.

Purpose

The purpose of this study is to conduct preliminary assessments of the pelagic fisheries in Haiti. The staff of the Haitian Fisheries Service in collaboration with the Cuban Experts and CFU support will first determine the suitability of using the Cuban assisted fishing expeditions to:

- to initiate a program to collect catch, effort, and biological data on the pelagic fishes caught
- review cost and benefits of Cuban FADs for catching large pelagics.

The data and information obtained will be analyzed to determine species composition, size distribution, sex composition, maturity, catch rates, and other basic characteristics of the stocks.

Approach

Under the supervision and advice of the Director of Fisheries and the CFU staff, the staff of the Fisheries Service who have already been assigned to assist the Cuban mission will undertake these activities. The CFU will collaborate with the Fisheries Service in the design and implementation of the above activities and will provide technical and financial support. This component will include seven interrelated but discrete components, which will be conducted to improve understanding of biological aspect of the pelagic fisheries in selected areas of Haiti:

1. After reviewing the data available on fisheries activities, the CFU resource person (s), with the support of the Fisheries Service staff in Haiti will develop a data collection form for the collection of biological elements
2. The CFU resource person (s), with the support of the Fisheries Service staff in Haiti will provide training in collection of biological data of pelagic fishes
3. The resource person (s) from the Fisheries Service assigned to this activity will participate in all possible fishing trips where pelagic fishes are targeted
4. The resource person (s) or data collectors will gather data on catch and effort, length, weight of the main pelagic species catch as well as data on sex and maturity, and hard parts for ageing when possible
5. The resource person (s) will compile the data collected during the fishing expeditions and will input the data in a database
6. The resource person (s) from the Fisheries Service in Haiti, with the support of CFU staff will undertake preliminary analysis of the data
7. The resource person will produce reports on findings

Outputs

- A system in place for data collection/monitoring of biological elements of the large pelagic fishes caught.

- A database of species, catch, effort, and biological data elements on large pelagic fishes caught in Haiti.
- Staff of the Fisheries Department in Haiti trained in collection of biological data elements for large pelagic fishes
- Periodic report on the findings
- Improvement of the collaboration among the Fisheries Department-Cuban mission-CFU

WBS 413.2: Enhancement of the IMA Fish Aging Laboratory

Since 1995, CFRAMP has been providing resources (financial, equipment, human) for the establishment and operation of the Regional Fish Age and Growth Laboratory at the IMA. The existing laboratory was enhanced by CFRAMP support, with the addition of two staff members, provision of fish ageing laboratory equipment and a training consultancy. Laboratory research outputs are used primarily for input into the Biological Data Collection Activities, length-based assessment and estimation of growth parameters.

Under the 5-year Work Plan of the Fisheries Component of ICRAFD for Haiti, the research program of the laboratory will be supported as part of a growing regional effort to coordinate fish resource assessment and management activities. Samples collected from the fisheries in Haiti will be sent to the fish-ageing laboratory at the IMA for processing, interpretation and use in stock assessment studies.

WBS 414.1 Participation in Regional Pelagic, Reef and Slope Fish Resource Assessment Activities

Assessment analyses are essential for determining the health of the fisheries concerned, and for development of appropriate management strategies. The fisheries component of the ICRAFD project provides a suitable regional forum for coordinating regional assessment and management of several large pelagic resources. The Caribbean Regional Fisheries Mechanism Working Group on Large Pelagic Resources (CRFM LPWG) was recently established: (i) to coordinate assessment and management of regional large pelagic resources; (ii) to advise on similar activities undertaken by ICCAT for those species managed by ICCAT; and (iii) to provide technical advice on the development of regional strategies for dealing with ICCAT and other shared resource management issues.

Two other similar resource working groups will be established in 2001: the CRFM Reef and Slope Resource Working Group (CRFM RSWG), and the CRFM Small Coastal Pelagic Resource Working Group (CRFM SCPWG). The RSWG will provide a much needed regional forum for exchange of information and technical expertise on the assessment and management of reef and slope fish resources, and the various applications of marine reserves in reef resource conservation and management.

Small coastal pelagic resources may be shared by two or more territories. Consequently, statistics, research and assessment of the fisheries will have to be coordinated by all the parties concerned. In view of this, the SCPWG will focus on development of fundamental resource information on fishery status and distribution of small coastal pelagic species (mainly Carangidae, Clupeidae), within CARIFORUM countries. The CFU will serve the role of technical secretariat for co-coordinating the activities of the aforementioned resource working groups.

Purpose

- To develop appropriate management objectives and assessment approaches for pelagic, reef and slope fish resources.
- To provide technical advice on the assessment and management of pelagic, reef and slope resources.
- To train fisheries personnel in statistical and assessment analyses and fisheries monitoring.
- Preparation of management advice on pelagic, reef and slope fish resources.

Approach

- It is recommended that this activity be accommodated with a similar effort being carried out at present by a number of other CARIFORUM countries.
- The Pelagic and Reef Senior Biologist, with assistance from the Data Manager, will be responsible for the assignment.
- The CFU resource person (s) will work closely with the Director of the Haiti Fisheries Department, the Data Manager, and fisheries officers responsible for data compilation, analyses and assessment, to review and develop further management objectives of the pelagic, reef and slope finfish fisheries in Haiti.

Outputs

- Regional collaboration and coordination in handling international large pelagic fisheries issues, and optimization of benefits of participation in international activities for all countries concerned.
- Improvements in national pelagic, reef and slope fisheries statistics, research, assessment and management.
- Annually updated information on the status of shared tuna and tuna-like stocks, and on regionally/internationally agreed management recommendations for these fisheries.
- Completed national and regional assessments of pelagic, reef and slope fisheries, given available data.
- Development of assessment and management approaches suited for these fisheries.
- Evaluation of small coastal pelagic fisheries relative to other commercial fisheries on the basis of landings, providing important inputs into coastal management discussions and decisions.
- Training of Fisheries Department staff in techniques of statistical data analysis and stock assessment.

WBS 426.6: Shrimp Fishery Assessment

WBS 426.6.1: Monitoring of Shrimp fishery

The fishing boats operating under the Cuban Technical Assistance Project have been very successful in catching shrimp in the Southwest (around Yle de la Gonave and Petit Trou du Nip) of Haiti using trawl net. Apparently there is a conflict between the Cuban operation and the fishers of the community who use the same area for fish. Biological data are not being collected from the catch. There is a need to begin the collection of basic data and information to improve understanding of the shrimp fisheries in Haiti. A biological data collection and monitoring program for shrimp should be developed and implemented.

Purpose

The purpose of this assignment is to start a monitoring program of the shrimp targeted fisheries in Haiti by assisting the Fisheries Department to collect catch, effort and biological data elements of the shrimp caught during the expeditions by the boats operating under the Cuban Technical Assistance Project. The data collected will be analyzed to provide preliminary assessment reports on the status of the shrimp fishery including species composition, size frequency distribution and the determination of population parameters.

Approach

Staff from the Department of Fisheries in Haiti will undertake this assignment with the support of the CFU resource person (s). The CFU will collaborate with the Fisheries Service in the design and implementation of the above activities and will provide technical and financial support. This component will include five interrelated but discrete components which will be conducted to improve understanding of biological aspects of the shrimp fisheries in selected areas of Haiti:

1. With the support of the CFU staff and the Director of Fisheries in Haiti, the resource person (s) from the Fisheries Department will search, compile, and review all the available documentation on the shrimp fisheries in Haiti.
2. With the support of the CFU staff and the Director of Fisheries in Haiti, the resource person (s) from the Fisheries Department will design and develop a data collection form and a data collection program in order to gather biological data elements of the shrimp based on the catch of the Cuban fishing expeditions and/or Haitian commercial fishing boats.
3. The resource person (s) will participate in all possible fishing expeditions conducted under the Cuban Technical Assistance Project where the catch of shrimp is planned. And for each fishing trip, data on catch, effort, length, weight, sex, and maturity will be collected when possible. Also, data such as number and type of fishing gear, crew number, days at sea, etc, will be collected.
4. The data collected during each fishing trip will be compiled and a database will be built.
5. The data collected will be analyzed periodically using the statistical program available and reports will be produced highlighting the findings and providing recommendations for future studies on the shrimp resource.

Outputs

- A system in place for biological data collection and monitoring of the shrimp fishery in Haiti.
- A form for collection of biological data elements prepared
- A database of biological elements for the shrimp caught in Haiti will be created
- Report on the findings and recommendations of the study will be prepared.
- Collaboration among the Cuban Technical Assistance Mission/CFU/Fisheries Service established

WBS 430.1 Assessment of Queen Conch Fishery

The collection of catch and effort biological data elements and monitoring of the Queen Conch fishery in Haiti will be undertaken jointly with the biological monitoring of lobster, using the fishing expeditions conducted under the Cuban Technical Assistance Project as a basic platform. Specific sub-activities for assessment of the conch resource will be developed in the second 2-year cycle of implementation. Basic catch, effort and biological data on the queen conch will be collected and analysed and assessment reports with recommendations prepared.

WBS 430.2: Assessment of lobster Fishery

WBS 430.2.1: Biological monitoring of lobster

The Haitian legislation has a closed season for lobster from April 1 to September 30. Puga et al (1998) reported that in Aquin Bay, more than 90% of the lobster caught was believed to be juveniles. There is an

urgent need to undertake studies on the biology of the Haitian lobster in order to determine the species being caught, length at first maturity, and peak spawning season and general status of the lobster stocks. Because a platform for the establishment of reliable research activities is not in place in the Fisheries Service, and also due to the fact that the work that the Cuban mission is doing in Haitian waters is oriented mainly to increasing fish production, it will be a good opportunity for CFU to collaborate with the Fisheries Service in Haiti by giving support to gather biological data of selected species caught by the boats operating under the Cuban Technical Assistance Project. Attempts will also be made to sample commercial landings by the Haitian fishermen.

Purpose

Initiate a program of collection of biological data elements for the Spiny Lobster, *Panulirus argus*, as a starting point for the biological study of this resource in Haitian waters. Conduct preliminary assessment of the lobster fishery using the data collected.

Approach

Staff from the Department of Fisheries in Haiti will undertake this assignment with the support of the CFU resource person (s). The CFU will collaborate with the Fisheries Service in the design and implementation of the above activities and will provide technical and financial support. This component will include five interrelated but discrete components, which will be conducted to improve understanding of biological aspects of the spiny lobster fisheries in selected areas of Haiti:

1. With the support of the CFU staff and the Director of Fisheries in Haiti, the resource person (s) from the Fisheries Department will search, compile and review all the documentation available on the fisheries of lobster in Haiti
2. With the support of the CFU staff and the Director of Fisheries in Haiti, the resource person (s) from the Fisheries Department will design and develop a data collection form and a data collection program in order to gather biological data elements of lobsters based on the lobsters caught during the fishing expeditions conducted under the Cuban Technical Assistance Project or during the commercial catches made by the Haitians fishermen.
3. The resource person (s) will participate in all possible fishing expeditions conducted under the Cuban Technical Assistance Project where the catch of lobster is planned. And for each fishing trip data on catch, effort, length, weight, sex and maturity will be collected when possible.
4. The data collected will be compiled and a database will be built
5. The data collected will be analyzed periodically and reports will be produced highlighting the findings and providing recommendations for future studies on the lobster resource

Outputs

- A review of the lobster fishery in Haiti based on the documentation available
- A system in place for data collection/monitoring of biological elements of the spiny lobster.
- A database of biological elements of the spiny lobster in selected fishing grounds in Haiti
- Staff of the Fisheries Department in Haiti trained in collection of biological data elements for spiny lobster
- Periodic reports on the findings
- Improvement of the collaboration among the Fisheries Department-Cuban mission-CFU
- Preliminary assessments on the status of the lobster fishery in Haiti

WBS 430.2.2: Monitoring of the "casitas"

In terms of fisheries management, the limited amount of habitats available for many commercially important fishes and lobsters in Haiti suggests that habitat enhancement could play an important role.

Based on this rationale, the Cuban mission has introduced the "Cuban casitas" to catch lobster. This device uses a car tire in which three holes are made to allow air to escape and water to get inside the tire. The water in the tire makes it sink. The holes also allow the lobster to enter into the tire, which serves as a shelter for these animals. Haitian fishers are also using their locally built "casitas" in addition to those being introduced by the Cubans. Trials with artificial lobster habitats could be beneficial but the number and type of artificial reefs need to be studied with caution. As artificial reefs would add a new habitat it may be possible to encourage fishermen not to fish in certain reefs by establishing small protected areas for possible stock enhancement.

Purpose

To determine the number and location of the casitas placed in the seabed during the Cuban/Haitian fishing expeditions and monitor their success or failure in congregating lobsters

Approach

Under the supervision and advice of the Director of Fisheries and the CFU staff, the staff of the Fisheries Service will undertake these activities. The CFU will collaborate with the Fisheries Service in the design and implementation of the above activities and will provide technical and financial support. This component will include six interrelated but discrete components which will be conducted to improve understanding of biological aspect of the lobster in selected areas of Haiti:

1. With the support of the CFU staff and the Director of Fisheries in Haiti, the resource person (s) from the Fisheries Department will search, compile and review all the documentation available (if any) on the Cuban casitas/Haitian casitas design, development and performance in Haitian waters, including cost involved in the construction of these devices.
2. The resource person (s) will participate in all possible fishing expeditions by the Cuban Technical Assistance Project where the catch of lobster is planned. When possible the research person(s) will take samples from the commercial vessels where the Haitians casitas are used to fish lobster. The resource person (s) will determine the number of the casitas placed in each location and their geo-reference will be recorded using a GPS .
3. With the support of the CFU staff and the Director of Fisheries in Haiti, the resource person (s) from the Fisheries Department will design a selectivity study for the Cuban/Haitians casitas in Haitian waters. The number and size of lobster caught for every casita will be recorded
4. The data collected during every fishing trip will be compiled and a database will be built
5. The monitoring of the casitas will be made jointly with the collection of biological data elements (length, weight, sex and maturity), information of spawning, and closed season.
6. The data collected will be analyzed periodically and a report will be produced highlighting the findings and providing recommendations for future studies

Outputs

- A review of the cost-effectiveness of using the casitas as a device to aggregate lobster, if data and information are available
- A data collection program for monitoring the performance of the Cuban/Haitians casitas in Haitian waters
- A database with the number of the casitas and their spatial and temporal variation in numbers and locations in the waters of Haiti

- Periodic reports on the findings
- Improvement of the collaboration among the Fisheries Department-Cuban mission-CFU

WBS 430.3: Preliminary study to identify and characterize potential areas for establishment of Marine Reserves

It has been recognized that traditional fisheries management measures, which in most cases are based on single-species population models, are insufficient to achieve the sustainable use of the fisheries resources, especially where biodiversity conservation is an important component of the management plan. It has been demonstrated that Marine Fisheries Reserves are cost-effective tools where others measures of management have not been successful (Plan Development Team, 1990; Alcalá & Russ, 1990; Cole et. al.; 1990; Bennett y Attwood, 1991; Roberts & Polunin, 1991; Roberts, 1995). With the exception of the Navassa Island, no marine parks have been established in Haiti. There exists a proposal for the creation of a biosphere reserve, which would include the island of La Gonâve and other areas with similar flora and fauna. Twelve areas have been identified (Fisheries Services) for further study to determine their suitability for the creation of Marine Reserves. These include:

1. Baie de Fort-Liberté
2. Yle Caimites
3. Yle de la Gonâve
4. Yle à Rat
5. Yle Kayalo ou Caye a L'eau
6. Yle de la Navase
7. Yle à Vache
8. Yle de la tortue
9. Labadie
10. Petit Paradis
11. Pointe de Grosses Cayes
12. Les 3 Yles Arcadins

These 12 sites together cover an area of 27,792 Ha. Even though the importance of Marine Reserves in replenishing adjacent fishing areas and in protecting essential habitat for the various ontogenetic stages of fish and other living marine resources has been recognized, it is also true that in designing and establishing a protected/closed area, all the stakeholders (especially the primary resource users) should be consulted and their views considered very valuable. Following the approach used in other countries such as The Bahamas, a scoring system that ranked all candidates' sites according to ecological and socioeconomic criteria is being recommended to assist in selecting the most suitable site for Marine Reserves.

Purposes

- Development of a ranking system based on ecological, biological and socio-economical criteria for the design and establishment of Marine Reserves in Haiti
- Applying the ranking system to the 12 areas suggested above and to other potential areas
- Selecting areas for the establishment of Marine Reserves
- Conducting a baseline survey of habitats in areas pre-selected as potential Marine Reserves

Approach

The CFU will collaborate with the Haitian Fisheries Service in the design, financing and implementation of this study. The Fisheries Service, with the support of CFU staff and with staff of the Ministry of Environment, will undertake this assignment. This study will include five interrelated but discrete components that will be conducted to improve understanding on essential habitat requirements for the species targeted by the fishery and for better understanding of the entire marine environment.

- 1) The first activity will be a literature review of the Marine Protected Areas on the Caribbean Region

- 2) The second activity will be the development of a ranking system for choosing areas as potential marine reserves based in ecological (such as habitat diversity) and socioeconomic criteria (such as fishing impact and community benefits, etc.) using local and regional indicators
- 3) The third activity will be to undertake a socioeconomic baseline survey in the communities that could be directly affected by the establishment of a marine reserve in order to better understand the involvement and/or dependence of the community on their local marine resources.
- 4) Based on the findings of the community baseline survey and on the ranking system, pre-select one or two of the proposed areas and undertake a baseline survey of these areas by estimating habitat diversity, including the assessment of the number and type of species of commercial importance in fisheries, their abundance and distribution. This activity could be made by visual censuses in shallow waters and by analysis of catch composition.
- 5) Prepare a report on findings

Outputs

The results of these activities will provide the Fisheries Service in Haiti, the CFU and other stakeholders with useful information that can be used in planning and policy formulation and as a non-traditional fisheries management tool. The specific outputs will be:

- A literature review on Marine Reserves
- Development of ecological and socioeconomic criteria for the design and establishment of Marine Reserves in Haiti

A diagnosis of the socio-economic aspects of the local communities identified as primary users of the marine resources of the proposed Marine Reserves

- Results of the baseline survey on the people and marine habitats selected
- Report with the findings and recommendations of the study

WBS 438.1/438.2 Conch & Lobster Working Groups

Since 1994 CFRAMP has been implementing lobster and conch assessment in at least seven Caribbean countries. The purpose of these assessments has been to provide data and information regarding lobster resources to permit sustainable utilization and management of these resources. Activities have included a review of the fisheries and data systems within the countries; biological data collection and training; and provision of resources for analysis and interpretation of the data collected. Several workshops have been held and among the conclusions and recommendations arising from the meetings were the need for establishment of assessment working groups for lobster and conch; the need to harmonize management measures; the need to strengthen institutional capacities to facilitate cooperation between countries of the region; the need to strengthen data collection systems; and, the need for national workshops to disseminate information to stakeholders.

Under the 5-year work plan of the fisheries component of ICRAFD, the CFU-CARIFORUM project will provide financial support to enable representatives of the government of Haiti to participate in the various activities of the Queen Conch & Lobster Working Groups.

WBS 400.4 Monitoring and Provision of Technical Assistance

CFU staff will be making monitoring visits to Haiti over the life of the program to evaluate the progress of the Resource Assessment activities and to provide assistance and advise during implementation of the project activities.

WBS 500 FISHERIES RESOURCE MANAGEMENT

Introduction

This component constitutes one of the main expected results of the project, viz. the strengthened national and regional institutional management capacities. It is the key to the rational utilisation of the resources, and is the product of the articulation of biological, social, economic, statistical and environmental knowledge. Although there are gaps in the information available there is evidence to suggest that the major fisheries are being exploited at or near their optimum sustainable levels. Fisheries management therefore needs to be improved, and the type of measures that are needed are also clear, even though more research is needed to determine the most optimum measures and strategies of implementation. It should be clearly understood that a thorough multi-disciplinary knowledge is required for effective management, and that this field cannot be claimed by a single discipline. This is reflected in the project's strategy of establishing multidisciplinary survey teams to collect integrated information on the resource users, their numbers, attitudes, strategies, expectations, frustrations, perception of need for management and suggested solutions to problems. The activities have been organized and described under the following headings:

| | |
|----------|---|
| WBS 510 | Strengthened National Fisheries Management |
| WBS 520. | Strengthened Regional Fisheries Management |
| WBS 530 | Support Fishers and Community Involvement/Education |
| WBS 540 | Long-term training |
| WBS 550 | Technical Information and Documentation |
| WBS 560 | Post-harvest Handling, Processing and Marketing. |
| WBS 570 | Fisheries Development Planning |
| WBS 580 | Fisheries Surveillance and Enforcement |

The Fisheries Resource Management approach of the project will be similar to the one adopted by CFRAMP, consisting of: strengthening of national fisheries management capability through training, technical assistance and support in the preparation of Basic Fisheries Policy Documents, Fishery Management Plans, establishment of mechanisms for planning and decision making, the establishment and strengthening of a Regional Fisheries Management Mechanism, which is expected to continue to provide support for the regional fisheries initiatives. Support will also be provided to empower fishers and fishers' organisations to enhance their involvement in planning and resource management.

WBS 510: Strengthened National Fisheries Management

Overview

There are certain important features that distinguish Haiti from other CARIFORUM countries and that must be taken into consideration when seeking to address the problems and promote sustainable fisheries development. The per capita GDP in Haiti is approximately US\$358 (1998 est.). The standard of living and the socio-economic conditions of Haiti, including the fishers and their families is substantially lower than in the other CARIFORUM countries. The fisheries are essentially artisanal and subsistence activities to provide food for consumption and income for survival. Poverty and illiteracy are widespread. The natural environment and the coastal resources appear to have been severely degraded by overexploitation and pollution.

The Fisheries Department has responsibility for the sustainable development and management of the fisheries resources. As such, the Department must be equipped, organized and staffed to undertake the complex tasks associated with these responsibilities. At present the Department has a small team of qualified staff but there is neither a budget nor other resources for these people to work with. The Department is therefore not able to fully carry out its responsibilities, given the numerous beaches, some in remote locations and large expanse of maritime waters under its jurisdiction. There is a need to review the organizational structure and develop a program to strengthen and upgrade the capability of the Department through staff training, provision of equipment, as well as development of clear policies, legislative framework and work programs.

At this time, the Government of Haiti does not have in place the basic organisational and institutional capability, legislative framework, sufficient knowledge of the resource systems, or a clear policy or plan for sustainable development and conservation of the fisheries resources. The CFU will therefore recommend a step-by-step approach to the establishment of the organisational, policy and legal framework needed to facilitate sustainable development and conservation of the resources. As a first step, a national fisheries and aquaculture policy and management plan should be prepared with technical assistance from CFU staff, local, regional or EU consultants or through TCDC collaboration with expertise from another CARIFORUM country. The Plan will draw heavily from the results of the multi-disciplinary survey and the results of past research conducted on the fisheries of Haiti. The CFU will also conduct a comprehensive review of the fisheries department and assist in strengthening the capability of this organisation to ensure that it is able to provide basic support and guidance to the fisheries sector.

PLANNED ACTIVITIES

WBS 511: National Fisheries Policy and Fisheries Development and Management Plan for Haiti

Three sub-activities will be addressed. These are:

- WBS 511.1. Preparation of Comprehensive National Fisheries and Aquaculture Policy
- WBS 511.2. Preparation and Implementation of National Fisheries Management Plan (FMP) and national work plan for the fisheries department.
- WBS 511.4. Preparation and Implementation of National Fisheries Advisory Committee (FAC)

Purpose

The specific goal of this activity is to strengthen the fisheries management and planning capabilities of the fisheries department of Haiti. Technical assistance will be provided to:

- i) recommend and design a comprehensive national fisheries policy,
- ii) define and recommend a national fisheries development and management plan
- iii) recommend the establishment of a National Fisheries Advisory Committee.

Approach

The first step is formulation of a fishery policy and a fisheries management plan. The CFU will work in cooperation with the Government and other stakeholders to develop and document a comprehensive Fishery Policy for Haiti.

Preparation of a Fisheries Development and Management Plans and establishment of a National Fishery Advisory Committee will be addressed during the life of the project.

The main input in this activity will be technical assistance and funding to the Fisheries Department to define and implement the planned activities. The technical assistance will be from CFU staff, local, regional or EU consultants or through TCDC collaboration with expertise from another CARIFORUM country.

Terms of reference will be developed for provision of technical assistance in preparing and implementing:

1. The National Fishery and Aquaculture Policy
2. Fisheries Development and Management Plans (including work plan for the fisheries department) based on the policies of the Government and the available information regarding the needs of the sector and
3. Options for establishing the national advisory/decision making mechanisms.

Consultant/resource person will be recruited, logistical arrangements made for their work and the Fisheries Policies, Fisheries Management Plan and options for national advisory/decision making mechanism prepared.

The process will involve extensive consultations with all stakeholders, including government officials, the private sector and the resource users. A series of consultations will be organised at the national level and at community level to discuss the issues and obtain broad-based input and support for the exercise. These consultations will begin with the National Fisheries Conference and the National Dialogue group which will be formed to review and discuss the results of the Multi-disciplinary Survey. The results of the Multi-disciplinary survey will provide valuable information to facilitate the planning and formulation of fisheries sector policies and programs on research, resource development and management, conservation, data collection, human resource development, community involvement and public education, infrastructure development, monitoring control and surveillance, quality control and post-harvest technology, regional cooperation, aquaculture development, and marketing and trade in fish and fishery products.

Output

The overall output will be that fishery management policy and a work program for the fisheries department staff is formulated with stakeholder participation and insofar as possible within the time frame of the project, implemented

WBS 512.1: Strategic Review and Up-grading of the Legal framework and Organizational Structure and Capability of the Fisheries Department

Purpose

The purpose of this activity is to assist in strengthening the legal, organisational, and institutional structure of the Fisheries Department, to enable Haiti to discharge its national and international responsibilities regarding sustainable development and management of the fisheries sector in an effective and efficient manner. The specific objective is to provide the Government of Haiti with a plan for restructuring and enhancing the legal and institutional capacity of the Fisheries Department in Haiti, including improvements in the physical office and equipment.

Approach

The Fisheries Department has been vested with the responsibility and authority to promote sustainable development and management of the fisheries resources for the benefit of the people and the social and economic development of the country. As such, the Department must be empowered, equipped, organized and staffed to undertake the complex tasks associated with these responsibilities.

An external strategic management assessment of the Fisheries Department will be undertaken during which the key variables that offer opportunities for achieving the overall goal of ensuring sustainable socio-economic benefits from the fisheries sector, and threats that should be avoided, are identified and or validated. The external assessment should focus on identifying and evaluating the trends, events and developments locally, regionally and globally, which could have significant implications for the functioning and success of the Fisheries Department. This will include examination of International Conventions and Agreements such as UNCLOS and the UNFAO Code of Conduct for Responsible Fisheries, regional initiatives such as CRFM and WECAFC, and national developments such as the new fisheries.

An internal management assessment of the Fisheries Department will also be conducted. The assessment will identify its existing internal strengths and weaknesses in the functional areas that are considered necessary for the successful operation of the Department. This will include management and administration (including finance and accounting), fisheries data and information systems, fisheries conservation and management, fisheries development, monitoring and enforcement, trade and quality assurance, training, the provision of extension and other support services to the aquaculture and fisheries sector.

A review of the existing legal framework for development and management of the fisheries will also be undertaken with assistance of a legal expert. Recommendations for upgrading the legal framework will be made.

The review should examine and identify the relationship among the various units and functional areas of the Department, including important aspects of the organizational structure that will assist in strengthening the organizational structures. The key success factors and distinctive competencies of the Fisheries Department which have been acquired since its inception and which cannot be easily matched by other organizations should be clearly identified. The review should also examine and document the current mandate, functions and responsibilities of the Fisheries Department and the organizational structure and human resources required to discharge these responsibilities

Based on the above review, a revised organizational structure will be recommended for the Fisheries Department to create the organizational and institutional capability necessary to effectively and efficiently discharge the mandate, functions and responsibilities in accordance with the Government policy directives, the evolving needs of the fishing sector, technological advances particularly in information systems, and the new challenges and opportunities identified.

The CFU will provide Technical assistance and funding to undertake this review and assist with the implementation of the recommendations to upgrade and strengthen the Fisheries Department.

Output

This will be undertaken as one of the first major activities under the project since an upgraded Fisheries Department will facilitate the implementation of other planned activities.

The output of this activity will be a management review of the organizational structure of the Fisheries Department and a plan for restructuring and enhancing the capacity of the Fisheries Department in Haiti.

A review of the existing fisheries legislation and regulations will also be undertaken and recommendations made to upgrade the legal framework for sustainable fisheries development and management in Haiti.

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Provide Resources to Restructure and Enhance the Fisheries Department

Introduction

Sustainable development and management of the fisheries of Haiti will be possible only if there is adequate legal and organisational capability to provide policy direction and implement development and management programs in cooperation with stakeholders. The CFU will work with the Government of Haiti to implement the recommendations of the strategic Review for Restructuring and Upgrading the Capability of the Fisheries Department and the review and recommendations of the legal and regulatory framework.

Purpose

The purpose of this activity is to provide the agreed resources and equipment identified to restructure and enhance the capability of the Fisheries Department.

Output

The CFU will contribute resources to assist with implementation of the agreed recommendations of the study to Review and Up-grade the Organisational Structure and Capability of the Fisheries Department and the legal and regulatory framework for the fisheries sector. It is anticipated that the study will make specific recommendations for office equipment and implementation of other measures to rehabilitate and enhance the Offices of the fisheries department. Various options of providing back-up power to the fisheries office should be explored including installation of photovoltaic systems using solar energy. The Government would be expected to assist with some of these expenses while the CFU will assist with others.

WBS 512.3. Provide Technical Assistance and Monitoring

CFU staff will monitor the implementation of the above activities and provide technical support and advice to the Fisheries Department staff and other stakeholders involved in the implementation of the project activities. Monitoring will include periodic visits, desk, and electronic initiative.

WBS 520: STRENGTHENED REGIONAL FISHERIES MANAGEMENT

The CARIFORUM Countries have been working to define and establish a Caribbean Regional Fisheries Mechanism (CRFM) to facilitate management of shared stocks and promote cooperation among Caribbean States. Development of the CRFM is one of the main areas of focus of the CFRAMP project at this time. The ICRAFD project will provide support for officials of the Government of Haiti to fully participate in this initiative to define and establish the Caribbean Regional Fisheries Mechanism. Funding will be provided to enable representatives of the Haiti to attend the workshops and regional meetings on the CRFM.

Output

This activity will be completed during the second year of the project. The objectively verifiable indicator that this activity has been completed will be the establishment of the CRFM as an organization serving regional fisheries interest.

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WBS 530 COMMUNITY INVOLVEMENT AND EDUCATION

INTRODUCTION

This five-year work plan recognizes the unique problems of the fisheries of Haiti and takes them into consideration in formulating strategies for promoting the sustainable utilization of the marine resources of the country. The most obvious problem is the almost depleted and still dwindling stocks of the in-shore fisheries, due to the operations of thousands of artisanal fishers on the narrow continental shelf. Decreasing yields have also been partly caused by the degradation of the habitats such as the mangroves, traditionally used as a domestic energy source and construction material; the coral reefs and sea grasses, damaged by several factors, including the use of drag nets (seine nets), small mesh sizes, which are indiscriminate in the harvesting of fish, and socio-economic factors, such as lack of effective surveillance and enforcement, fuelled by lack of fiscal and qualified human resources.

These conditions have also been exacerbated by pollution of the sea environment with solid waste, engine oils and plastic materials. Severe deforestation of the hillsides through traditional agricultural practices and human habitat construction has caused erosion and sedimentation of the watersheds and coastal waters. These have resulted in the progressive degradation of the coastal ecosystems. Lack of appropriate education, widespread poverty and high levels of unemployment and under-employment, do not help in encouraging the resource users to readily and easily appreciate the need for observing management regulations, or placing any premium on adopting conservation methods. The general outcome of these factors is the continuing pressure being made to bear on the dwindling resources in the inshore fisheries.

Government is anxious to increase production in a sustainable manner, in order to promote food self-sufficiency, to drastically reduce the high levels of importation of fish and fish products, and to improve the lot of the fishers and fishing communities. Scientific observers have noted that one of the means of reducing pressure on the inshore fisheries in order to allow the near-shore stocks to recuperate, is to provide the right infrastructure and promote the shifting of fishing effort to the off-shore grounds, such as the West Coast, as well as around the Gulf of Gonave. This would facilitate the small fishers to target offshore migratory pelagic-, and deep-water demersal species. Unfortunately, the technology utilized by the artisanal fishers is outmoded. The majority of the fishers still row and sail to and from the near shore fishing grounds. The lack of appropriate technology drastically reduces the capacity of the small-scale fishers, still crowded in the inshore fishery grounds, for deep-sea fishing operations.

The department of fisheries has a number of qualified technical staff, who, provided with the right facilities, and capacity to confront and tackle these problems (in collaboration with the resource user groups and stakeholders in the fishing communities), could make a difference. They could begin to chart a course towards the sustainable conservation and management of the fishery resources of Haiti. Unfortunately, apart from there being no tradition of working with the resource users at the landing sites and in the fishing communities, there is a severe lack of basic resources and lack of the appropriate capacity, to provide the necessary motivation and technical support, that would prepare the resource users for the task of becoming co-managers of the resources.

The latter task would also depend on the existence of strong, well-organized resource-users. A recent development has been the mushrooming of a number of fisher folk organizations, particularly in the 'Artibonite', West (Ouest), and southern departments (provinces). These developments have accelerated at a pace that has been difficult to monitor. These fledgling organizations need to be sustained and their capacities built, whilst ensuring that the initial motivation and incentives are kept alive. The support of a developmental and environmentalist NGO called FONHADES of Port-Au-Prince is acknowledged. During the Mission this NGO was in the process of providing technical support to the departments' organizations in building 'provincial' umbrella organizations. GWOUNP INSYATIV POU YON MOUVMAN NASYONAL PECHE ORGANIZE (GIP) or the Federation of Organizations of Fishers in Haiti founded in 1997, having already brought together, KOOPECH, made up of 11 primary organizations in the West (OUEST) department and KOPDA, made up of 13 primary organizations in the 'Artibonite' Department.

The goals of these organizations seem to be seeking to promote their interests; to play the regulatory role that has not been effectively promoted by the government; to develop viable economic entities with access to credit facilities; to participate in community welfare activities and to seek to reduce their dependency on government largesse.

Whilst these developments are going on, one organization at Lully, in the OUEST department is already calling itself a national umbrella organization called, ASSOCIATION NATIONALE DES PERCHEURS (HAITIEN) OR A.N.P, claiming to have 10,000 members. Obviously, the potential for conflict among the contending parties has been injected into the process that might undermine the social cohesion in these groups and the fishing communities, and derail the fledgling institutional structures. There is therefore, an urgent need to consolidate the positive efforts, and that is where the department's Fisheries Extension Officers, yet to be appointed, have their initial task cut out for them. The building of the capacities of both the fisher folk organizations and the Extension staff should be high priority areas to be addressed by this work plan. Work with the NGOs and fisher-folk organizations will be conducted through the Government Fisheries Department.

This work plan will attempt to address some of these issues, expecting the other sub-projects to tackle other problems as appropriate.

The Objectives of this Sub-project

To seek solutions to some of the problems facing the fisheries of Haiti through:

- Building the capacities of the Fisheries Field Officers (Extension) for providing the technical support to the fisher-folk organizations.
- Consolidating, and stabilizing the fisher folk organizations.
- Building and strengthening the capacities of approved fisher-folk organizations.
- Formulating strategies for reducing poverty among small-scale fishers.
- Developing strategies for promoting the sustainable utilization of the fisheries resources, and,
- Building the foundation for the promotion of the concept of co-management in the fishing communities.

The Expected Outputs

By the end of the five-year implementation period, there should be a cadre of trained field officers capable of providing technical support to stronger fisher folk organizations; the latter with the capacity of participating in the management of the resources; having an appreciably improved standards of living, and having an understanding and appreciation of the concept of co-management.

Planned Activities

WBS 330.0: Multidisciplinary Survey

The multidisciplinary survey conducted by a Team of 5 technical specialists on a mission out of which a 5-year work plan would be prepared for Haiti, consisted of 4 mini-surveys, namely A Baseline Survey of the Fisheries Department, Key Informant Interviews, The Status of Fisher folk Organizations and a Community Baseline Survey. The Sociologist will be analyzing the data from these studies and prepare a report, which, once finalized, will bring this activity to a closure.

WBS 532.0: National Fisheries Workshop

The report of the multidisciplinary survey will highlight certain critical issues that should be further deliberated on by invited stakeholders at a two-day National Fisheries Workshop. The outcome of this workshop will be recommendations to be submitted by the stakeholders to government for policy-making

considerations. It will also build the foundation of a comprehensive agenda to be deliberated upon by a National Dialogue Group that will be elected by the Workshop, to be the mouthpiece of the resource users and other stakeholders, and will form the beginnings of a future Fisheries Advisory Committee. This workshop is therefore a crucial milestone in the drive to ensure that the voices of the fishers and their communities are heard in the policy making process.

WBS 533.1.1: Stabilizing and Strengthening Fisher folk Organizations

This activity is geared towards developing in the field officers, the habit of working closely with the target groups in their communities and at the landing sites. They will be providing technical assistance to the fledging organizations with the view to stabilizing them. Chief among the activities will be the periodic organizing of community meetings to which fishers and other community-based stakeholders will be invited, and at which critical issues of concern and interest to fishers will be discussed and decisions made, and furnished to the decision making establishment. New developments in the industry, and others planned for the future will be examined.

Some of the activities include:

- Periodic community meetings to discuss matters of interest to the fishing industry.
- Scheduled visits to landing sites and fishing communities for one-on-one and group discussion of matters of mutual interest.
- Playing the role of participant observers at organizational and community development activities.
- Attending monthly and general annual meetings organized by fishers' organizations to represent the department and to provide technical advice and information as needed.
- Monitoring the activities of the National Dialogue Group
- Production of quarterly newsletters on activities of the fisher folk organizations, the fishing communities, other stakeholders groups, and the fisheries department.

A budget allocation will be made for the purchase of 2 motor bicycles for the Extension staff to facilitate their movement to the communities and landing sites, and other out-of-town activities under this sub-project.

WBS 533.1.2: Introducing Sea Moss Cultivation

The highly indented and shallow coastline of Haiti could facilitate the cultivation of Irish moss. Its introduction could create alternative income earning source for the artisanal fishers and may lead to easing the fishing effort pressure on the over fished, close-to-shore fisheries. This could contribute to the recuperation of the in-shore fisheries. This exercise will begin with a public sensitization campaign targeting the fisher folk groups and their households to explain the biological aspects, the socioeconomic importance and the potential markets for the both the raw and the processed product. Second, this will be followed by a registration exercise and a participatory research activity to identify suitable sites for the cultivation of the sea moss, including identifying the communities to be linked to the various cultivation sites.

Third, through a TCDC arrangement, Fisheries Extension Officer(s) at the Fisheries Division of St. Lucia will undertake the transfer of technology to groups of fishers in various communities, mainly through demonstration exercises.

Fourth, the cultivation of the sea moss will be organized on a community to community basis, and a Sea Moss Cultivators Association, the executive body of which will coordinate the search for solutions to problems and other issues, particularly marketing, affecting the industry, will be formed.

Fifth, a second trip by the TCDC officer will be done in the second year to monitor progress and to trash out any emerging problems that ensue. The video on Sea Moss Cultivation in St. Lucia, produced by the

CFU, and a second one entitled, "A Guide to Sea Moss Cultivation" by the Fisheries Department of St. Lucia, will be used at the demonstration exercises.

WBS 533.2: Capacity Building for Fishers and other Stakeholders

WBS 533.2.1: Fisheries Training Programs

The Extension staff will develop a program for training fishers in the principal fishing communities on relevant issues on resource conservation, resource management and management planning, fisheries legislation and regulations, both the existing ones and for the future, and issues relating to post-harvest technology. They will prepare the necessary educational materials and organize these training programs in the fishing communities, targeting fishers, other stakeholders and students. The choice of topics will be relevant to the peculiar conditions in Haiti and will be heavily determined by the fisher folk organizations and other stakeholder groups. The monthly programs will be planned in a way that will benefit as many communities as possible. An overhead projector will be procured for use in the field training activities.

WBS 533.2.2: Fisheries Radio Call-in Program

It is important that issues which are critical to the development and management of the fisheries resources of Haiti are not only restricted to the active fisher-population, but also be shared by the stakeholders and indeed the general public. A radio call-in program will provide excellent opportunities for educating the general public at large. The topics will be similar to those dealt with in the training programs, the report of the Multidisciplinary Survey, and those deliberated upon at the National Fisheries Workshop and by the National Fisheries Dialogue Group.

A communication consultant (specialist in Radio Communication or has adequate experience in the field of broadcast journalism) and who is well versed in the Haitian Creole dialect will be the ideal type. He/She will be engaged to develop a format for the monthly program, prepare scripts for a number of high priority topics and provide general technical advice on the mode of implementation.

The Extension staff will be responsible for giving the program wide publicity among the fisher folk organizations and the fishing communities, using print materials and other electronic means. They will also prepare reports on the programs, for publication in the Quarterly Newsletter. A Monitoring and Advisory Committee of prominent fishers, technical experts and other stakeholders will be formed to provide guidance on how to improve the program.

WBS 533.3: Equipment Procurement and Educational Materials Production

To support public awareness building and fisheries training programs, the following equipment will be procured for use of the Extension Staff in the preparation of educational materials for use in field activities.

- 1 Computer
- 2 TV-VRC Combo sets
- 1 Printer (Colour)
- A number of video documentaries translated from English into Haitian Creole.
- 1 Scanner.
- 1 Overhead Projector & Screen
- 1 Stand-by Generator

A specialist in the area of Desk Top Printing, local or external through TCDC will be engaged to train the staff in the use of the equipment and how to produce educational materials such as posters, fact sheets, brochures and particularly, a monthly Newsletter designing and publishing.

WBS 533.6: Monitoring and Evaluation

The Sociologist will undertake monitoring to assess progress of activities being implemented and to advise on further improvement in implementation. Short-term seminars for the benefit of the fisheries field officers will be organized. Monitoring will include visits by the sociologist, desk and electronic support activities.

WBS 534.0: Building the Capacities of the Fisheries Field Officers

WBS 534.1: Quarterly/ Short-Term Seminars

In order to build up the capacities of the Extension staff for their work with the fishing population, the Sociologist will organize two-to-three-day seminars at which participants will be introduced to the basics of field extension work, the preparation and use of educational materials, the organizing of public awareness programs, fundamentals of community mobilizing and organizing, elements of resource conservation and management as they relate to the conditions in Haiti etc. At least one such seminar will be held once every quarter.

WBS 534.2: First Fisheries Field Officers Training Workshop

The task of providing technical support to the fishers' groups and communities to develop their institutions and become involved in the planning and decision making process lies with the Fisheries Field Officers who interact with the resource users on a daily basis. Their capacity to perform these tasks needs to be built and strengthened. For this purpose, all fisheries officers who, by the nature of their jobs need to interact constantly with fishers and other stakeholders at the landing sites and in the fishing communities, need to benefit from training programs. These programs will be open to all Extension Officers, Data Collectors and other fisheries officers.

The first of these two-week training workshops will be held in the second year, and the second in the fourth year of implementation.

The first training workshop will include the following subject areas:

- Extension Principles and Methods
- Co-operative Principles and Methods
- Leadership Training
- Group Dynamics
- Public Relations & Social Interaction
- Community Organizing
- Communication Techniques
- The Rationale for Data Collection and Licensing & registration
- Elements of Resource Conservation and Management

WBS 534.3: Second Fisheries Field Officers Training Workshop

The second training Workshop to which almost the same participants as for the first will be invited, will tackle subjects arising from the monitoring reports of the fieldwork activities that followed the first workshop in the 3rd Year. It may involve dealing with some of the subjects covered in the first workshop. It might also involve dealing with entirely new subject areas.

WBS 535.0: National Dialogue Group

A significant outcome of the National Fisheries Workshop (532.0) will be the creation, through an election process by the stakeholders represented at the workshop, of a National Dialogue Group to continue discussing the major issues broached at the workshop and coming up with tangible fisheries advisories.

The initial agenda of this group will emerge from the issues on which dialogue was commenced at the National Fisheries Workshop. Subsequently, it will deal with issues on existing fisheries policy and management, future fisheries policy and management, resource users concerns and priorities. It will also make recommendations for changes to fisheries policy, legislation and technology. It will also play a role in monitoring developments in the industry, and making recommendations thereon. It will also promote more positive social and working relations between the industry and government.

The group will begin regular meetings. How it will be structured and how it will function, will initially be determined by the National Fisheries Workshop. Any subsequent changes will be self-promoted activities. A long-term objective is to ensure that this body becomes more and more representative of the constituent groups they are supposed to be representing.

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WBS 540: LONG TERM TRAINING

Objectives

The aim of this activity is to enhance institutional capability in Haiti for sustainable fisheries development and management. This will be accomplished by training of staff of the Fisheries Department in Haiti through long-term scholarships, short courses and short-term attachments.

Planned Activities

Scholarships and Short-term Training

The development of the necessary skills for fishery assessment and management in Fisheries Divisions of participating countries is the cornerstone of a long-term approach to improved fisheries management. New concepts and methods for data analysis and resource assessment are continually being developed. The Fisheries Department staff will be best able to carry out the resource assessments and resource management activities if they are familiar with these concepts and competent in the newest methods. There is a need within the Fisheries Department for expertise in data collection, data management, resource assessment and resource management. Advanced degree training is therefore needed in data collection and management, resource assessment and resource management. At least two scholarship years of advanced level (Masters degree) training in fisheries will be provided to the fisheries staff in Haiti. Scholarships are tenable at universities in the CARIFORUM states or EU member countries. Candidates receiving scholarship support are expected to conduct research in priority areas that are of direct relevance to sustainable development and management of the fisheries in their countries. Several of these study topics have been described under WBS400 and WBS 500. In addition support will be provided for existing staff of the Fisheries Department to upgrade their skills and or conduct research projects at a local university in Haiti in areas directly relevant to the sustainable development of the fisheries sector. Full or part sponsorship will be provided to successful candidates.

| NAME | PROGRAM | INSTITUTION |
|-----------------------|---|--|
| Fisheries Dept. staff | M.Sc. degree in Fisheries Assessment and management | University in the CARIFORUM Region or a EU Country) |
| Fisheries Dept. staff | B.Sc. Degree in Fisheries related discipline | University of Haiti, and other regional university e.g. DR, Guyana |
| Fisheries Dept. Staff | Short-term training courses or attachments | Regional or in EU countries, training courses |
| | | |

Output

The expected outputs are enhanced capability within the Fisheries Department for sustainable fisheries development and management through trained Fisheries Officers, Fisheries Assistants, and Field Officers.

WBS 550: TECHNICAL INFORMATION AND DOCUMENTATION

The project will provide support to prepare and disseminate the results of research and other assignments undertaken under this project. The purpose of this activity is to provide technical assistance and financial support to publish and distribute technical documents and reports produced to improve stakeholder access and use of the available information.

WBS 560: POST-HARVEST HANDLING PROCESSING AND MARKETING

In order to optimise the returns from the fish captured significant improvement is needed in post-harvest handling, processing and marketing of fish in the CARIFORUM region. To better understand the problems and needs of CARIFORUM countries regarding post-harvest handling, processing and quality control these needs will be studied by a consultant and a report prepared. The report will define a strategy and a project proposal for enhancing regional institutional capability to meet these requirements. Possible areas for examination would be quality control, upgrading legislation, strengthening of inspectorate, marketing intelligence and value added processing. The Consultant's report will be discussed by the CARIFORUM Countries at a regional workshop. The Consultant will revise the report and project proposal in light of the discussion and conclusions of the workshop. The proposal will then be submitted to a donor for funding.

This is a regional initiative which will benefit all the CARIFORUM Countries. Haiti will participate in the study, including the regional workshop and development of the project proposal. Financial resources will be provided to support the participation of a representative of Haiti in the regional workshop.

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WBS 570.1 Development of Small Scale Pelagic Fishery

In Haiti, a lack of modern equipment hinders the fishing industry. Fishing in Haiti occurs basically in shallow coastal waters due to the limited capacities of the country's traditional fishery; depletion of stocks in shallow coastal waters and, lack of capacity for deep-sea operation. The results of various studies conducted in Haiti showed that there is a progressive degradation of the coastal ecosystems followed by a decreased in the fisheries yield (Célestin, 1999). The coastal-demersal species are over-exploited because they are the most accessible to the fishermen. It is known that "Fish Aggregation Devices" (FADs) allow the aggregation of fishes for different reasons depending on the year season, currents, deep and location. In general, the small pelagic such as jacks can be found in schools close to the surface area while large pelagic fishes such as tunas can be located between 50 to 300 meters of deep. Due to the limited coral reef available in the marine waters of Haiti, the option of providing FAD should be explored with fishers in order to allow them to get benefits from the pelagic resources. However, this area should be studied with caution, by implementing in a first step, a pilot-exploratory project, in one or more selected areas. In Dominican Republic several projects introducing the use of FAD's have been implemented with good results by PROPECAR-SUR (1993-1994) and CIBIMA (2000). In experiments conducted by PROPECAR-SUR (1993) the economic and operational viability of FADs was demonstrated in the Dominican Republic. And fishermen now routinely use FADs to assist them in capturing various species of pelagic fishes. FADs generally aggregate the fishes and therefore reduce the search time and operational cost of the fishermen. The main purpose of this activity is to design and implement a pilot project for development of responsible small-scale pelagic fishery. The use of FADs to improve the harvest of pelagic species will also be explored.

The specific purposes of this assignment are to:

- explore the potential for the development of responsible small-scale pelagic fishery in the coastal waters of Haiti using technology that would be affordable and accessible to Haitian fishermen.
- demonstrate the feasibility of catching and marketing coastal pelagic species of fish.
- transfer technology for harvesting of pelagic fishes from fishermen in the Dominican Republic to Haitian fishermen.
- conduct exploratory and experimental fishing for pelagic fishes in the coastal waters of Haiti.
- construction and deployment of FADs to facilitate capture of pelagic species.

As a part of this assignment the following sub-activities should be implemented:

- a) basic statistic on the local fishing fleet, including number of fishers and fishing boats, capacity and areas of operation.
- b) information on the fishing gear and techniques used by the fishers as well as cost and benefits involved in the fishing effort
- c) basic information on the demand and distribution of the market and on the availability of transportation for the product
- d) literature review on existing biological and fishery data and information about the pelagic resources, their abundance, distribution and seasonality
- e) explore transfer of Dominican experience in FAD technology to Haitian fishers (this can be done by assisting Haitian fishers to travel to DR to learn how to make the FADs with PROPECAR or CIBIMA experiences or by providing funds to technical staff of CIBIMA/PROPECAR and fishermen from DR to visit Haiti and help the Haitian fishers with this project.
- f) provide training in construction and establishment of FADs
- g) build FADs
- h) identify and procure suitable boats and fishing equipment

- i) organize and conduct fishing expeditions
- j) fishing will be done around the FADS as well as in areas without FADS

To monitor the fisheries activities around the FADs, by:

- a) estimating total catch and effort of fishing units operating around FADs
- a) determining the number of fishers involved in this type of fishing
- b) determining the success of FADs in catching migrating pelagic species
- c) if possible, monitoring biological parameters for selected pelagic fishes. In a first step this assignment will be done with selected species collected from the Cuban boats.
- d) collecting basic socio-economic and marketing data for pelagic fisheries in Haiti

Approach

This activity will be undertaken in collaboration with the Directorate of Fisheries and fishermen from the Dominican Republic. The Dominican fishermen and technical experts from CIBIMA/PROPESCAR-SUR will either host Haitian fishermen in the DR or alternatively they will visit Haiti and work directly with the fishermen to transfer the technology.

The CFU will facilitate and supervise this initiative and provide the necessary resources. It is proposed to work with one of the established Haitian fishermen's cooperative to implement this activity. Between 2-3 small boats will be used to conduct this pilot project. The catch will be marketed to local processing plants or retail establishments. Any proceeds from this operation will be reinvested in the operation during the exercise. The pilot project is expected to run for about 18 months.

Output

The pilot project is expected to demonstrate the feasibility of small-scale pelagic fishing operation using fishing technology used by fishermen from the Dominican Republic. Haitian fishermen will learn how to harvest pelagic fishes. They will learn how to construct and deploy FADs.

WBS 570.2. Rehabilitation of Aquaculture Research and Development Facility

Aquaculture is an important way of producing fish and other aquatic organism to satisfy nutritional needs and growing demand for fish for consumption, create employment, earn foreign exchange and diversify the economic base of the country. Capture fisheries will not be able to produce enough fish to meet growing demand because they are now either near or beyond their sustainable limits. Any significant expansion in fish supply will therefore have to come from aquaculture production. In addition to producing fish, shellfish and aquatic plants (e.g. sea moss) for direct human consumption, aquaculture can provide other products for a wide variety of purposes such as aquarium industry, health products and food additive. Haiti should begin now to build the foundation for expansion of aquaculture production. Four of the senior technical staff of the fisheries department have received, advanced training in aquaculture. In addition the fisheries department has approximately 25 acres of fishponds that could be easily brought into production with minimal investment.

Purpose

The purpose of the study is not only to rehabilitate the aquaculture facilities at the fisheries department, but also to begin research, development and extension activities to significantly expand aquaculture production in Haiti.

Approach

This activity will be conducted in two phases. Phase 1 will be a feasibility study. The outcome of Phase 1 will determine the activities of Phase 2 which will focus on the actual research and production of fish.

The project will therefore assist by conducting a feasibility study for rehabilitating the aquaculture research and development facility at the compound of the Fisheries Department. A consultant or a TCDC initiative will be commissioned for this study which should produce recommendations and a plan for the actual rehabilitation of the facilities and initiation of research and productive activities. The plan will also include performance targets for transfer of aquaculture technology to small farmers in Haiti.

Output

The main output of this activity is the rehabilitation of the aquaculture facilities at the Fisheries Department premises in Port-au-Prince. The fishponds should be rehabilitated and research and development activities re-introduced. Sales of fish from the ponds will contribute operating funds to promote the sustainability of the fisheries department's future endeavours in this area. The fisheries department will use the facility to provide technical support and training to small fish farmers to facilitate the expansion of aquaculture in Haiti. In addition the technical staff will visit rural villages and provide technical assistance to small farmers in the establishment of small-scale aquaculture farms.

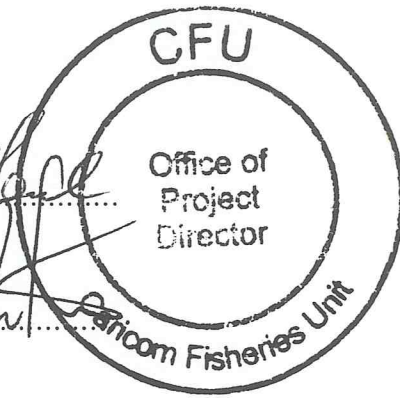
WBS 580: SURVEILLANCE AND ENFORCEMENT

Surveillance and enforcement need to be improved in the CARIFORUM region to successfully manage the fisheries. The purpose of this activity is to promote regional co-ordination of surveillance and policing of marine fisheries resource. To better understand the problems and needs of the countries regarding surveillance and enforcement and develop a co-ordinated regional approach, a consultant will be engaged to study the issues and develop proposals to resolve the problems. This is a regional initiative which will benefit all the CARIFORUM Countries. Haiti will participate in the study, including the development of the project proposal. Resources will be provided to support the participation of Haiti in the regional workshop.

For the CARICOM Fisheries Unit

Mr. Hugh Saul
Project Director

Mr. Milton Haughton
Scientific Director



For the Government of Haiti:

Mr. Bonel Jean Baptiste
Director General
Ministry of Agriculture and Natural Resources

Mr. Pierre Guy La Fontant
Director, Department of Natural Resources
Ministry of Agriculture and Natural Resources

Mr. Jean Robert Badio
Director, Department of Fisheries
Ministry of Agriculture and Natural Resources



**APPENDIX I
SUMMARY BUDGET**

| WBS # | ACTIVITY | BUDGET |
|---------------|--|-------------------|
| WBS100 | MANAGEMENT AND SUPPORT | US\$ |
| | | |
| 111 | General Administration - Belize | 43,394.00 |
| 112 | Procurement - CFU | 14,800.00 |
| 114 | Emoluments (Mgmt input) | 77,472.00 |
| 141 | Programme Coordination and Auditing | 20,000.00 |
| 150 | Meeting of Fisheries Forum | 13,200.00 |
| | | |
| | SUB-TOTAL | 168,866.00 |
| | | |
| WBS300 | FISHERIES DATA AND INFORMATION SYSTEM | US\$ |
| | | |
| 310.3 | Train Fisheries divisions staff in data collection | 15,000.00 |
| 310.4/314.1 | Database Software/Upgrading TIP and LRS | 10,000.00 |
| 310.5/320.4 | Train DOF Staff in Data Entry, Analysis and reporting (TIP & LRS) | 8,000.00 |
| 320.2 | Enhance the Licensing and Registration System | 3,000.00 |
| 310.9 | National Fisheries Survey | 80,000.00 |
| 314.2 | Establishing a Regional Database | 9,000.00 |
| 310.6/320.3 | Provides Resources for Implementation(Computers, data collection equipment & supplies) | 30,000.00 |
| 310.7/320.4 | Preparation and Dissemination of Articles and Technical Reports | 3,000.00 |
| 310.8/320.7 | Monitoring and provision of technical assistance | 5,000.00 |
| | | |
| | SUB-TOTAL | 163,000.00 |

| | | |
|------------|---|------------------|
| 400 | FISHERIES RESOURCE ASSESSMENT | US\$ |
| 410.1 | Review & analysis of historical data/Bibliographic Study | 7,000.00 |
| 410.2/412 | Assessment of Pelagic Fish. & Reef Fishes/Enhance Sampling Program. | 6,000.00 |
| 400.4 | Monitoring and technical assistance | 5,000.00 |
| 413.2 | Enhancement of the IMA Fish Ageing Laboratory | 5,000.00 |
| 414.1 | Working group Large Pelagics/Participation on ICCAT activities | 6,000.00 |
| 426.6 | Shrimp Fishery Assessment | 7,000.00 |
| 428 | Workshops | 5,000.00 |
| 430.1 | Assessment of Conch Fishery | 3,000.00 |
| 430.2 | Assessment of Lobster Fishery | 4,000.00 |
| 430.3 | Baseline Survey of Marine Reserves | 15,000.00 |
| 438.1 | Lobster Working Group | 2,500.00 |
| 438.2 | Conch Working Group | 2,500.00 |
| | SUB-TOTAL | 68,000.00 |

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|----------------|---|-------------|
| WBS 500 | FISHERIES MANAGEMENT | US\$ |
| | | |
| 511.1 | Preparation of comprehensive national Fisheries and Aquaculture Policy, | 14,000.00 |
| 511.2 | Preparation & Implement National FMP and Work Plan | 15,000.00 |
| 511.4 | Preparation and Implement of Plan for FAC | 12,000.00 |
| 512.1 | Strategic Review and upgrading Legal and organizational structure of the Fisheries Department | 10,000.00 |
| 512.1 | Provide resources to Restructure and Enhance Department | 50,000.00 |
| 512.3 | CFU staff Monitoring and provision of technical assistance | 6,000.00 |

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|---------------|---|-------------------|
| 512.4 | Development of mech. for Conflict Resolution(reallocated-570.1) | |
| | Sub-total | 107,000.00 |
| | | |
| WBS520 | Regional Fisheries Management | US\$ |
| 520.1 | Participation in the Development of the CRFM | 13,600.00 |
| 520.2 | Regional Cooperation: Participation of fisheries staff in regional/international fisheries management fora (including CFRAMP WBS500 Terminal | 10,000.00 |
| | SUB-TOTAL | 23,600.00 |
| | | |
| WBS530 | COMMUNITY INVOLVEMENT AND PUBLIC AWARENESS | |
| | | |
| 330/532 | National Fisheries Workshop | 48,000.00 |
| 533.1 | Community Mobilization & Organization Formation | 60,000.00 |
| 533.2 | Educational Equipment and Materials Procurement | 58,000.00 |
| 533.3 | Mobilization/Training in Organizational Management | 47000.00 |
| 533.6 | Monitoring & Process Evaluation | 35,000.00 |
| 534 | Fisheries Field Officers and Institutional Strengthening Workshops | 96,000.00 |
| 535 | National/Regional Dialogue Group | 60,500.00 |
| | SUB-TOTAL | 404,500.00 |

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| WBS 540 | HUMAN RESOURCE DEVELOPMENT (TRAINING) | |
| 540.1 | Long-term training and scholarships | 40,000.00 |
| 540.2 | Short-term scholarships, training courses and attachments | 12,000.00 |
| | SUB-TOTAL | 52,000.00 |

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|----------------|--|-----------------|
| WBS 550 | TECHNICAL INFORMATION AND DOCUMENTATION | |
| 550.1 | Publication of technical information | 1,000.00 |
| 550.2 | Documentation Centre operation | 1,000.00 |
| | SUB-TOTAL | 2,000.00 |

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|----------------|--|-----------------|
| WBS 560 | POST-HARVEST HANDLING PROCESSING AND MARKETING | |
| 560.1 | Development of a regional strategy and proposal for improved post- | 4,000.00 |
| | SUB-TOTAL | 4,000.00 |

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|----------------|--|-------------------|
| WBS 570 | FISHERIES DEVELOPMENT PLANNING | |
| 570.1 | Development of small-scale Pelagic Fisheries | 45,000.00 |
| 570.2 | Aquaculture Development | 80,000.00 |
| | SUB-TOTAL | 125,000.00 |

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|----------------|---|-----------------------|
| WBS 580 | FISHERIES SURVEILLANCE AND ENFORCEMENT | |
| 580.1 | Development of Regional Approach to MCS | 4,000.00 |
| | SUB-TOTAL | 4,000.00 |
| | TOTAL | \$1,121,966.00 |