UNITED NATIONS ENVIRONMENT PROGRAMME

PROJECT DOCUMENT

SECTION 1 - PROJECT IDENTIFICATION

1.1 Title of Sub-Programme: **Sub-programme:**

1.2 Title of Project: **Reduction of Environmental Impact from Tropical Shrimp Trawling, through the Introduction of By-catch Reduction Technologies and Change of Management**

1.3 Project Number: **GF/**

FAO Symbol: **EP/GLO/201/GEF**

1.4 Geographical Scope: **Global**

1.5 Implementing Agency: **UNEP**

1.6 Executing Agency: **FAO**

1.7 Duration of the Project: **Five years**

Commencing: **February 2002**

Completion: **January 2007**

1.8 Cost of Project:

	US$	%
Cost to Trust Fund (GEF):	4 780 000	52
Cost to Counterpart Contribution (countries):	3 250 000	35
Cost to the Implementing Organization/ UNEP (in kind):	110 000	2
Cost to the Executing Organisation /FAO (in kind):	1 010 000	11
Total Cost of the Project:	9 150 000	100

Signatures:

For the Food and Agriculture Organization (FAO)

Henri Carsalade
Assistant Director-General
Technical Cooperation Department (TCD)

Date: _____

For the United Nations Environment Programme (UNEP)

Edmundo Ortega
Chief, Budget and Fund Management Unit,
UNON

Date: _____

1. IDENTIFIERS

PROJECT NUMBER	**EP/GLO/201/GEF**
PROJECT NAME/TITLE	**REDUCTION OF ENVIRONMENTAL IMPACT FROM TROPICAL SHRIMP TRAWLING THROUGH THE INTRODUCTION OF BY-CATCH REDUCTION TECHNOLOGIES AND CHANGE OF MANAGEMENT.**
DURATION	5 years
IMPLEMENTING AGENCY	UNEP
EXECUTING AGENCY	FAO
REQUESTING COUNTRIES	CAMEROON, COLOMBIA, COSTA RICA , CUBA, INDONESIA, IRAN, MEXICO, NIGERIA, PHILIPPINES, VENEZUELA, TRINIDAD AND TOBAGO, (PLUS BAHRAIN)[1]
ELIGIBILITY	ALL 11 COUNTRIES Eligible under paragraph 9(b) of the GEF Instrument
GEF FOCAL AREA	International waters, with relevance to Biological Diversity
GEF PROGRAMMING FRAMEWORK:	OPERATIONAL PROGRAM #9 INTEGRATED LAND AND WATER MULTIPLE FOCAL AREA

2. SUMMARY

Shrimp exploitation by tropical trawl fisheries generates significant amounts of non-shrimp by-catch. In some countries, by-catch has become an important source of income and contributes to food supply. In others, by-catch of fish, particularly small-sized, is discarded at sea. The capture of juveniles of valuable food fish constitutes a threat to the sustainable production of fish from an area. Extensive removal of non-target fish is also a threat to the biodiversity in a fishing area. If the introduction of fishing technologies and practices that reduce the capture of juveniles is successful in a few selected countries in various regions, it can be assumed that such technology and practices would be adopted by other shrimp fishing countries also experiencing problems with by-catch. In addition to the expected increased fish production and conservation of biodiversity as a result of project intervention, shrimp trawling will earn an improved reputation and so continue to produce needed export income for several poor developing countries.

3. COSTS AND FINANCING

GEF	
Project	US$ 4, 450 000
PDF Block B	US$ 330 000
Sub-Total GEF	**US$ 4 ,780 000**
CO-FINANCING	
UNEP	
Project (in kind)	US$ 100 000
PDF Block B (in kind)	US$ 10 000
FAO	
Project (in kind)	US$ 950 000
PDF Block B (in kind)	US$ 60 000
Governments and private sector of participating countries (in kind)	US$ 3, 200 000
PDF Block B (in kind)	US$ 50 000
Sub-Total	**US$ 4, 370 000**
TOTAL COST OF THE PROJECT	**US$ 9, 150 000**

4. FOCAL OPERATIONAL POINTS ENDORSEMENT

Cameroon: Mr. J.S. Amougou, Direction de la Faune et des Aires Protégées, Ministère de l'Environnement et des Forests, Yaoundé, Cameroon: Date of receipt 7.9.2000

Colombia: Ms. C. Hoyos, Oficina de Cooperación Internacional, Ministerio del Medio Ambiente, Santa Fé de Bogotá, Colombia: Date of receipt 4.9.2000

Costa Rica: Ms. Erika Harms, Deputy Chief of Mission, Embassy of Costa Rica, Washington, D.C. USA: Date of receipt 26.9.2000

Cuba: H. Arango Sales, Director for International Collaboration, Ministry of Science, Technology and Environment, Havana, Cuba: Date of receipt 1.9.2000

Indonesia Mr. E. Sumardja, Deputy for Law Enforcement and EIA, Environmental Impact Management Agency (BAPEDAL) Jakarta, Indonesia. Date of receipt 12.9.2000

Islamic Republic of Iran: Mr. Mr. Bozorgmehr Ziyaran; Director-General for International Affairs, Ministry of Foreign Affairs, Tehran, Islamic Republic of Iran. Date of receipt 26.9.2000

Mexico: Mr. R. Ochoa, Director, International Financial Institutions, Ministry of Finance of Mexico, Mexico . Date of receipt 14.9.2000

Nigeria: Ms. A. Ene-Ita, Office of the Director General/Chief Executive, Federal Environmental Protection Agency, The Presidency, Abuja, Nigeria. Date of receipt 7.9.2000

Philippines: Mr. M.S. Roño, Undersecretary for International Commitment & Local Government Affairs, Dept. of Environment and Natural Resources, Quezon City, 1100, Philippines. Date of receip 5.9.2000

Trinidad and Tobago: Dr David Mcintosh, Managing Director/Executive Director, Environmental Management Authority, Port of Spain, Trinidad and Tobago. Date of receipt 7.9.2000

[1] Bahrain will participate in project activities although, since it is not GEF-eligible, financial support will come from other sources.

Venezuela: Mr L. Nino, First Secretary, Embassy of Venezuela, Washington, D.C. N. Pino, Ambassador, International Economic Cooperation, Caracas, Venezuela. Date of receipt 5.6.2000

5. IMPLEMENTING AGENCY CONTACT:

Mr Ahmed Djoghlaf, Executive Co-ordinator, UNEP/GEF Co-ordination Office, UNEP, Nairobi, Tel: 254 2 624153; Fax: 254 2 520825; Email: ahmed.djoghlaf@unep.org

6. EXECUTING AGENCY CONTACT

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LIST OF ACRONYMS/ABBREVIATIONS

BRD	By-catch reduction device
CECAF	Fishery Committee for the Eastern Central Atlantic
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
IUCN	The World Conservation Union
NGO	Non-Governmental Organization
PDF	Project Preparation and Development Facility
RECOFI	Regional Commission for Fisheries (in the Gulfs sub-region)
ROPME	Regional Organization for the Protection of the Marine Environment (in the Gulfs sub-region)
SDRE	Extension, Education and Communications Service (of FAO)
SEAFDEC	Southeast Asian Fisheries Development Center
TED	Turtle exclusion device
UNEP	United Nations Environment Programme
WECAFC	Western Central Atlantic Fisheries Commission
WB	World Bank

SECTION 2 - BACKGROUND AND PROJECT CONTRIBUTION TO OVERALL SUB-PROGRAMME IMPLEMENTATION

2.1 Background

1. The GEF Operational Programme No. 9 “Integrated Land and Water Multiple Focal Area”, states that "the goal is to help groups of countries utilise the full range of technical, economic, financial, regulatory, and institutional measures needed to operationalize the sustainable development strategies for international waters (para 9.2)..." Further, this OP lists as an expected outcome "the reduction of stress to the international waters environment in selected parts of all five development regions across the globe through participating countries making changes in their sectorial policies, making critical investments, developing necessary programs and collaborating jointly in implementing... water resources protection measures (para 9.10)".

2. One source of stress on the marine environment which is of growing international concern is the impact from capture fisheries, hence the need to develop, promote and implement environmentally-sound technology and practices in the marine fisheries sector, so as to prevent loss of biodiversity and habitat degradation.

3. Available data suggest that, in addition to the obvious catches of fish for human needs, the by-catches in the world’s fisheries have a significant ecological impact and cause mortality amongst fin-fish (particularly the juveniles of commercial fish species), as well as amongst benthic invertebrates, marine mammals, turtles and birds. FAO estimated recently that world-wide, the by-catch discarded in the commercial fisheries amounts to around 20 million metric tons and accounts for economic losses that run into billions of dollars annually (in terms of the potential value which could be realized if, a few years later the discarded juveniles were to [1]be caught and marketed as adult fish).

4. Shrimp-trawling in tropical shallow-water regions is very common. The cod-ends of the trawls used need relatively small meshes in order to retain the all-important shrimp catch (even though many vessels are in fact targeting both shrimp and fish of commercial-size at the same time). These shallow waters are in many cases, the spawning grounds for adult fishes of high commercial value as well as the nursery grounds for their juveniles. One impact of shrimp-trawling on the environment is therefore that large amounts of juvenile fish are caught together with the targeted shrimps, and this can seriously affect other fisheries which target the adult fish of these species. A second impact is that presently many of these juvenile fish, as well as other low-valued by-catch comprising large quantities of dead organisms, are often discarded (dead) at sea. A third impact is that Shrimp-trawling also results in a physical impact on the bottom habitat, and in some areas this impact might have a detrimental effect on benthic biodiversity.

5. In some tropical shrimp-fishing grounds, turtles are relatively abundant and so may be captured incidentally and drown in the shrimp-trawls. Some countries have already taken action to mitigate the problem of turtle by-catch, and the use of the turtle-exclusion devices (TEDs) is for instance compulsory in tropical shrimp-fisheries in the USA as well as in other countries which wish to export shrimp to the USA but have problems with turtle by-catch. Australia has also introduced TEDs in some of its shrimp fisheries. In some cases the use of TEDs is reported to reduce the catch-rates both of shrimp and of the larger-sized fish in the by-catch – hence reduced earnings for the shrimp-trawler, although in some other cases the use of TEDs/BRDs has increased the catch rates of targeted shrimp and fish.

7. In the tropics where many developing countries wish to extract the maxiumum amount of fish and shrimp for food, the marine fisheries exploit the typically multi-species resources, and the shrimp-trawler fisheries generate more by-catch than any other type of fishery. Although several by-catch reduction devices (BRDs) have been developed and proved to be efficient, to date no concerted international effort, involving all key participants, has yet been made to resolve the overall problem of this impact by the shrimp-trawler fisheries on tropical marine ecosystems and their constituent species.

8. However in November 1998 during its Fifty-third Session, the General Assembly of the United Nations urged “States, relevant international organizations and regional and sub-regional fisheries management organizations and arrangements to take action, including through assistance to developing countries, to reduce by-catches, fish discards and post-harvest losses consistent with international law and relevant international instruments, including the Code of Conduct for Responsible Fisheries” (Resolution A/RES/53/33).

9. The reduction of by-catches and discards of unwanted catch is thus now a policy for many States, as well as for an increasing number of regional and sub-regional fisheries management organisations and arrangements. The reduction of discards and of environmental impact is also a priority activity under FAO's Regular Programme, and is addressed specifically in the rolling Medium–Term Plan (as a 6-year activity (2001-2005) entitled "Reduction of discards and environmental impact from fisheries" (with an annual budget of approximately US$ 500,000) which includes the evaluation of by-catches and discards resulting from various fisheries, plus assessment of the impact of trawling and other similar fishing methods on the sea-bottom, and on the environment in general.

10. Since present shrimp-trawling practices are considered unsustainable, there is growing pressure on the commercial fisheries sector to change current practices and reduce the impact of shrimp-trawling, particularly in such tropical shallow-water ecosystems.

11. With the problem of fish by-catch, particularly of juvenile food-fish, identified as a priority area for mitigation, research aimed at developing efficient and practical solutions has been started in several countries (including the USA, Australia, Mexico and Thailand), and is likely to continue in these countries, but because research and development requires substantial financial and human resources it will tend to be restricted to those countries with a strong economy. The intervention of GEF is therefore required to support efforts by a number of less fortunate developing countries in all four major regions of the world in order to resolve a common problem.

12. Two important policy issues involved are: a) food security, and b) biological impacts of trawling on the environment. Whilst the demand for food (from marine fisheries, etc) for the increasing human populations is likely to grow substantially in the immediate and foreseeable future, at the same time, international pressure to reduce the adverse environmental impacts of human exploitation on natural production is also increasing. These two pressures may be seen as conflicting, hence the need to achieve optimum production potential while reducing adverse environmental impacts.

13. This present main-phase project has been developed by FAO under a preparatory-phase activity funded from a PDF Block B grant supported by GEF/UNEP, through a process where government-appointed National Coordinators from 13 countries agreed with the executing agency (FAO) on a common approach to a series national baseline studies. These baseline studies were executed under the supervision of the respective National Coordinators and involved a wide consultative process with most of the stakeholders having an interest in shrimp exploitation (including fishermen, shrimp-trawler owners, fishery authorities, fish processors and traders, shrimp-fisheries experts/researchers), and to a certain extent, the local communities which somehow benefit from the wealth resulting from shrimp-exploitation.

14. Most countries involved in the preparatory phase established national committees and held national workshops attended by many industry representatives, whilst in some cases collaboration with environmental NGOs was arranged for the purpose of reviewing the national problems of by-catch in shrimp-trawls. In addition workshops were held by FAO in each of the four regions (Latin America and the Caribbean, Asia, Near East, and Africa) to discuss the findings presented in the national reports and to agree on national and regional priorities to be included in this main-phase project. Representatives from countries other than the 13 core countries plus relevant stakeholders from industry and society also attended these regional workshops. The proposed national and regional arrangements and modalities for implementation of the present main-phase project, including the selection of participating countries, resulted from these regional workshops.

15. The documents produced and discussions held during the preparatory phase clearly showed the extreme complexity of the by-catch problem, the nature of which varies much from country to country, with many different aspects being closely associated, for instance: biology, ecology, fishing technology, fish utilization and marketing, sociology, economy, management/ regulation/ legislation, communication/ outreach, conflicts between shrimp trawlers and artisanal fishermen. The present main-phase project does not pretend to deal with all aspects at the same time, but aims (within the limits of a reasonably manageable project) to contribute to improving the situation in a number of selected countries according their priorities.

One possible mechanism for this will be through co-operation agreements between relevant institutions in recipient countries and in resource countries. Another mechanism will be the contract of experts from "advanced countries" to provide in-country assistance in other countries requiring particular expertise. The role of FAO in these processes will be to arrange formal contracts or to facilitate the conclusion of co-operation agreements. In this context, directories of experts and institutions dealing with

various subjects under consideration will be set up and maintained by FAO for the duration of the main phase.

2.2 Context

The many similarities between the characteristics of the marine environment and the conduct of fisheries (particularly coastal shrimp-trawling) in the 4 main tropical regions of the world (Latin America and the Caribbean, Africa, the Near East, and Asia) means that considerable advantages can be expected from collaborative efforts in the study and wider exchange of knowledge and experience within the same region and even between regions.

In practice this involves collaboration firstly between the experts working in national institutions in adjacent countries which often share the very same marine environment and marine resources, and later wider collaboration between personnel in national institutions, arranged through existing regional institutions. The services of international institutions (such as FAO, UNEP, IUCN, etc) will be used to expand their existing arrangements to facilitate collaboration at the global level. The importance of this pattern of arrangements was emphasized by the 26 countries (and 3 regional fisheries bodies) which participated in the series of national, regional and inter-regional workshops conducted during the preparatory phase of the project.

2.3 GEF Programming Context

All 11 participating countries are eligible for GEF assistance under paragraph 9b of the Instrument for the Restructured GEF. A twelfth country (Bahrain) also plans to participate even though not eligible for assistance from GEF.

GEF's Operational Programme No. 9 "Integrated Land and Water Multiple Focal Area", states that "*the goal is to help groups of countries utilise the full range of technical, economic, financial, regulatory, and institutional measures needed to operationalize the sustainable development strategies for international waters* ... (para 9.2)" Further, this OP lists as an expected outcome "*the reduction of stress to the international waters environment in selected parts of all five development regions across the globe through participating countries making changes in their sectoral policies, making critical investments, developing necessary programs and collaborating jointly in implementing ... water resources protection measures* (para 9.10)".

This project is thus in conformity with the GEF Operational Strategy and Operational Programmes, in particular with the above-mentioned OP #9 - International Waters: Integrated Land and Water Multiple Focal Area, where there is a focus on an integrated management approach to the sustainable use of [land and] water resources on an area-wide basis. It will also have relevance to OP #2 - Biodiversity in coastal and marine ecosytems, and specifically to aspects of eco-system management including elements of: targeted research, information-sharing, training, institutional-strengthening, demonstrations, and outreach (or 'extension').

2.4 UNEP Programming Context

The proposed actions are consistent with the provisions of the Convention on Biological Diversity, and its Jakarta Mandate and other legal instruments relating to the sustainability of living marine resource, such as UNEP Regional Seas Programme Conventions and Protocols. The proposed actions are also consistent with UNEP's role in the conservation and maintenance of biological diversity.

2.5 Present and Emerging Environmental Problems

The GEF Operational Strategy includes amongst the major areas of concern relating to international waters: i) physical habitat degradation of coastal and near-shore marine areas, ... and ii) excessive and/or inappropriate exploitation of resources due to inadequate management and control measures. Whilst no specific Transboundary Diagnostic Analysis (TDA) was carried out during the preparatory-phase, during the series of inter-regional and regional Workshops held, six major tropical marine environmental zones were examined (West Africa/ Gulf of Guinea; East Africa/ W. Indian Ocean; Central America/ E. Pacific; Caribbean/ Gulf of Mexico; The Gulf and Arabian Sea; E. Indian Ocean/ Bay of Bengal/ S. China Sea/ Arafua Sea) and the following environmental problems of transboundary significance were identified:

- in each zone the fisheries are complex but basic data on the marine environment, as well as on the coastal habitats where the shrimp-trawling grounds occur, are frequently absent or incomplete, and specifically there is very little documentation regarding the impact that shrimp-trawling has upon the demersal/ benthic/ bottom-habitat, or the associated fauna and biodiversity.

- in most areas/ countries examined the catch-rates of shrimp are declining, thus indicating over-exploitation of the shrimp-stocks/ resources;
- in several countries considerable quantities of juvenile shrimp are harvested – a practice which is considered unsustainable;
- in most countries by-catch of juveniles from valuable food-fish are captured and discarded while shrimp-trawling – a practice which is considered unsustainable;
- there is a general tendency for shrimp-trawlers to increase their capture (or at least their retention-rate) of the by-catch – probably stimulated by their attempt to maintain their economic returns as the catch-rates for shrimp decline, hoewer considerable quantities of by-catch are still discarded, which could be utilised for food/ feed (if facilities and arrangements were not lacking)
- although the use of Turtle Exclusion Devices (TEDs) may be mandatory in many countries, the actual frequency of compliance can be low, and in a few countries incidental catches of turtles and even of sea-cows (dugongs) are still reported in the shrimp-trawls;
- there is a reported increase in the occurence of *Penaeus monodon* (an Indian Ocean species) in the waters of West Africa/ Gulf of Guinea.

In most tropical shallow-waters the shrimp-trawl fisheries are considered multi-species/ multi-targeted activities. Under the above-mentioned circumstances, shrimp-trawling employing relatively small-meshed gear catches a wide variety of organisms, comprising not only the valuable targeted shrimps of different species and length-classes, but also some fish of some commercial interest (although typically most of these are smaller immature individuals with only modest commercial value). Large quantites of by-catch, which is by definition, of lesser, or even negligible value to the fisherman. This by-catch may also include many other species representative of the benthic community, only some of which remain easily recognizable when retrieved from the cod-end of a shrimp-trawl.

There are three major objectives for improving the selectivity of shrimp-trawls:
- to reduce capture of immature/ juvenile fishes of commercially important species;
- to reduce the harvest of other unwanted by-catch, so as to reduce the costs involved in catching, handling, sorting, and disposal of this low-value component;
- to reduce the capture of unwanted by-catch of non-fish species, like turtles.

The actions to realize these three objectives have effects upon the economics of the operations and returns realized from shrimp-fishing. A major challenge in the project's implementation will be to minimize such impact and wherever possible compensate the losses by savings in the operational costs, and eventually replace existing trawl gears with more efficient ones.

SECTION 3 - NEEDS AND RESULTS

3.1 Needs

The principal need is to solve the environmental and economic problems resulting from the capture and then the discard of unwanted catch and by-catch (of juvenile food-fish in particular, but also of invertebrates, and even turtles in some areas) by the commercial shrimp-trawl fisheries in the participating countries.

There is also a need to gain a better understanding (at least initially in a small number of countries) of the overall impact of shrimp-trawling on bottom habitat.

The approach will be through the introduction of appropriate fishing technologies (by-catch reduction devices – BRDs) and practices, in combination, where necessary, with the introduction of legislation and a management framework, including control and enforcement strategies. It will also aim to avoid the capture of turtles (where such by-catch exists).

3.2 Results

The Logical Framework Matrix (Annex B) summarizes the 4 principal results expected from the main phase as:
- Adoption of by-catch reduction devices by national and regional shrimp-trawling fisheries;
- Improved management of shrimp-trawl fisheries;
- Increased co-operation among countries in research on, and management of their shrimp (and fish) resources;

- Better understanding of the interactions between shrimp-trawl fishing gear and the environment.

3.3 Assumptions to achieve results

It is assumed that all 12 participating Governments, plus the selected commercial fishermen operating shrimp-trawlers in these countries, as well as the collaborating Governments, and the several Regional fisheries management and/or research and development institutions, will be able to provide all of the basic inputs and services required to enable the scheduled workplans at national and regional levels to be carried out.

SECTION 4 - OUTPUTS, ACTIVITIES, WORKPLAN AND TIMETABLE, BUDGET, FOLLOW-UP

4.1 General

The overall objective of the project is to reduce discards of fish captured by shrimp-trawlers, primarily by introducing in a selected number of developing countries, technologies that reduce the catch of juvenile food-fish and other by-catch. The participating countries have themselves identified the capture of juvenile food-fish and discards as a non-sustainable practice and have therefore assigned priority to reducing the problem nationally. These countries will therefore contribute through research and management in the fields of marine biology and fishing-gear technology.

The project is designed to firstly carry out a demonstration activity in at least one developing country in each GEF development region. The objective of this strategy is that a consolidated effort undertaken these initial few countries will generate lessons that can be rapidly transferred to other shrimp-fishing countries in the same region. Active participation in the implementation of selected activities by another group of adjacent countries (not involved in all project activities) will facilitate this process.

The project will be implemented at three levels: **national**, in an initial small group of selected countries that have a problem with their present shrimp exploitation and have committed themselves to changing their fishery by introducing more environmentally-sound fishing technologies and practices; **regional**, where the successful results from project activities in the initial group of individual countries will be disseminated and tested in neighbouring countries, together with co-ordination of action between all the participating countries and the sub-regional institutions concerned; **global**, at which FAO collects, quality-controls, collates, analyzes and disseminates widely essential information that can be used in reducing environmental stress from shrimp trawling in all marine waters.

The arrangements for project implementation in the various individual participating countries will, to a large extent, depend on their capacity and tradition for stakeholder participation in such processes. Given however, that no changes in fishing practices can be effective without the full participation and commitment of the fishers themselves, this aspect must be taken into account in each country. The recommended mechanism, based on experience gained during the preparatory phase, is to have a National Steering Committee (with a membership including representatives of the fishery managers, researchers, shrimp-fishers, non-shrimp-fishers, NGOs, *etc.* as appropriate) and a National Coordinator, to be involved on important issues regarding project implementation. Depending on the existing facilities/infrastructure in every participant country, and the work plan for the activities to be carried out by the project, FAO will contract local or national institutions to undertake specific works, or will recruit directly experts and specialists as required. Also FAO will organize external training activities or study tours (if necessary), or provision of equipment/materials.

The 7 countries of the initial group are: Costa Rica, Indonesia, Iran, Mexico, Nigeria, Philippines, and Venezuela, having been selected following their indication during the preparatory-phase that they have a severe problem with by-catch of fish in their shrimp-fisheries and they wish to participate in a global effort to resolve it. They also have already some form of fishery management infrastructure in place, which makes them best suited to undertake the initial national components of the main phase. Their shrimp-fisheries are of significant magnitude in their respective regions, thus the positive impact on the environment resulting from the planned interventions will be greater than if undertaken in countries with smaller shrimp-fisheries. Although not formally a partner in the preparatory-phase, Mexico will also participate in the main-phase. It is, in Latin America and the Caribbean region, the country with the most important shrimp-fishery, and (besides the USA) is also the one with the most advanced experience in by-catch reduction devices (BRDs) in this region.

The other participating countries selected are: Cameroon, Colombia, Cuba and Trinidad and Tobago, (plus Bahrain), which will undertake joint activities together with one of the 7 initial partners. These 5 countries were very active participants in the preparatory-phase, and they also have important shrimp-fisheries, but the magnitude of their catches is generally smaller than in the 7 countries of the initial group.

A brief description of the shrimp fishery in each of the participating countries (including Mexico), reflecting the results from the baseline surveys carried out within the preparatory-phase of the project, is provided in Annex E.

A number of inter-governmental institutions are ready to collaborate with the project, since their sub-regional mandates cover various aspects of fisheries research, fisheries development, or fisheries management. Similarly, several other national governments (both developing and developed) with significant interest and experience in tropical shrimp-trawling fisheries are also ready to collaborate with the project. The first of these is Bahrain, ready to undertake basic studies and experimental fishing using BRDs on its own account.

A range of stakeholders representing different groups, such as fishers (shrimp-fishers, coastal-fishers and others), researchers (gear technologists, biologists, environmentalists), fishery managers, coastal-zone managers, fish traders, fish processors and various NGOs, all have an interest in the issues to be addressed by this main-phase project. Continuing the arrangements and the network of key-persons and contacts developed during the preparatory-phase, all such stakeholders will be involved in the design and execution of the various national components of the main-phase through their participation in National Steering Committees, or through their collaboration in the implementation by the leading national institutions of local subcontracts awarded by FAO, or any other mechanisms to be adopted for implementing the project activities

The introduction of new technologies will affect the commercial fishers, and since they are usually the people with the best knowledge of any by-catch problems, their co-operation in finding acceptable solutions will be given high priority from the outset. The project activities will include the testing of technologies already proven efficient in shrimp-fisheries elsewhere; and the adaptation of these to local conditions will often be a major challenge. Fishers have valuable experience of their local situation, and the introduction of new technologies will follow a process by which the choice of technology to be tested in a particular shrimp-fishery, will be decided in consultation with the industry, with the fishers playing a key role in the experimental fishing-trials, using commercial vessels. Following the successful outcome of such experimental fishing, several fishers would be given the opportunity to continue to use the new gear on a voluntary basis, the incentive being that the new gear is provided free of charge and, in some instances, the fishers might be given temporary access to fish areas that are usually closed to traditional shrimp-trawling.

Based on the results from this largely-voluntary experimental fishing, the managers of the fisheries, in consultation with the researchers and fishers, should decide on which management requirements, including a legal framework, might be necessary in order to institutionalize the more environmentally-friendly shrimp-fishing technologies recommended.

Generally, in most of the countries involved in this mainphase, their capacity in fishing-gear technology, in fishery management, and to a lesser extent in marine biology (including shrimp biology), is poor. However, some of these developing countries have gained skills in the development and use of by-catch reduction devices, particularly Mexico in the Latin America/ Caribbean region, while in the Asia region SEAFDEC has played, and still plays, an active role in the introduction of by-catch reduction devices in member countries.

Outside the tropical regions, some developed countries, particularly the USA, Australia, Norway and France, have developed skills to find practical solutions, including by-catch reduction technologies, in their shrimp fisheries. Mechanisms whereby the experience in these more-advanced resource-countries can be tapped to provide technical assistance, and the lessons learned can be shared with all the countries participating in the main-phase, will be an important part of the implementation of the regional and global components.

4.2 Project activities and outputs

In each of the participating countries the impact on the environment of present production systems will be assessed (by various means, combining analysis of catch/by-catch data and/or direct observation underwater of the impact of trawls on the sea bottom) and used as a basis for an evaluation

of the impact of new fishing practices, which will be introduced through the project. The major activities in the participating countries will be to develop and/or adapt by-catch reduction technologies which reduce the capture of juvenile fish, non-target fish and non-fish species. Successful developments will require training and extension as well as development of a legal framework and mechanisms for monitoring, control and enforcement of any new regulations that may be adopted.

The ultimate outcome of the project should be the adoption by several of the participating countries of fishing technologies (including BRDs and others) and practices that are environmentally friendly, so that their shrimp-trawling fisheries will be enhanced in terms of their environmental performance and reduction of biological impacts, and will be more sustainable in the future. Another direct outcome of the project should be a reduction in number of juvenile commercial species caught by shrimp-trawlers. Other outcomes expected are increased co-operation among countries at the regional and global levels regarding shrimp fisheries, and improvement in national capacities for sound management of the shrimp-trawler fisheries.

4.3 Components and expected results

The Workplan involves 4 main components: National Level Activities; Regional Level Activities; Global and Regional Co-ordination and Networking; Project Operation and Management.

National level activities will focus on the development of more-sustainable shrimp-trawling practices and the introduction of by-catch reduction technologies, aimed at a reduction of by-catch by 50% by the end of the project period. These will initially be concentrated in the following participating countries:

Costa Rica (Pacific, and Caribbean)
Indonesia (Asia/Arafura Sea)
Iran (Near East/Gulf)
Mexico (Pacific and Gulf of Mexico)
Nigeria (West Africa/Gulf of Guinea)
Philippines (Asia)
Venezuela (Caribbean)

Whilst a common approach will be used, the detailed activities at each national level will differ, because the situations with regard to: fishing fleet, trawl-gear, and fishing conditions are different in the various countries. The main types of activities will be:

- assessment of the impact of the present shrimp-trawling production systems on the environment (by various means, combining analysis of data on catch, on by-catch, and/or direct observations underwater of the impact of shrimp-trawls on the sea-bottom);
- collection of more precise data on the composition of the resources and by-catch affected in the various main shrimp-trawling grounds/seasons;
- assessment of present and potential economic value of by-catch and discards;
- evaluation (technical and economic) of possible options for the introduction of BRDs, in consultation with the industry;
- consideration of the introduction of alternative fishing methods, and of management measures (such as closed seasons and closure of fishing grounds for shrimp-trawling);
- development and/or adaptation of by-catch reduction technologies (reducing the capture of juvenile fish, non-target fish, non-fish species, increased survival of escapees and of discards);
- conduct of fishing experiments with BRDs on commercial trawlers, and evaluation of the results;
- conduct of a mid-term assessment of the benefit of BRDs through a voluntary trial-fishing period;
- introduction of successful BRDs developed, on a larger scale, through training and extension, extensive information campaigns, etc;
- development of the necessary legal and management frameworks, including harmonized MCS measures, in each participating country so as to ensure the use of such devices as standard practice.

Regional level activities to expand to other participating countries in each sub-region, the coverage of studies, assessments, experimental fishing activities, and commercial trials, as well as the wider full-scale adoption of more sustainable practices, through joint activities under the lead of the first group of participating countries. This second group includes:

Bahrain (Near East/Gulfs, but through independent funding, not from GEF/UNEP).
Cameroon (West Africa/Gulf of Guinea)
Colombia (Pacific)
Cuba (Caribbean)
Trinidad and Tobago (Caribbean)

At the same time activities will be undertaken to co-ordinate with, or complement, other related on-going sub-regional programs, in particular together with:

WECAFC (Caribbean)
CECAF (Africa, Gulf of Guinea);
RECOFI, and the ROPME/UNEP Project (Near East/Gulfs);
SEAFDEC (Southeast Asia, under which its member countries will be involved in the development and introduction of juvenile fish-excluders).

Global and Regional activities will be focused on co-ordination and networking, so as to enable the participating countries to be aware of, and have access to, all relevant available information concerning shrimp-fisheries world-wide, as well as facilitation of the transfer of more environmentally-sound trawling practices through suitable technical advisory services. It also includes the maintenance of contacts with experts in various institutions in all member countries, in regional and interregional bodies including for instance the Marine Stewardship Council. This will involve the production of various guidelines and information material on sustainable shrimp-fishing technologies, including:

- an electronic publication on shrimp-fishing methods;
- an inventory of by-catch reduction devices (BRDs);
- an inventory of legal and policy frameworks for sustainable shrimp-fisheries;
- a directory of experts and institutions experienced in shrimp fisheries;
- collation and distribution of regular annual reports (prepared by the participating countries and other collaborating institutions) about progress in their shrimp- fisheries (effort, catches, by-catch problems, technology, management, etc).

Project Operations and Management FAO will ensure proper execution and overall co-ordination of activities within the project. This will involve:
- the assignment of one Staff Member to act as Project Coordinator, assisted by an operations officer and the corresponding administrative and clerical support
- the establishment of an internal Project Task Force, to provide oversight and substantive inputs in various disciplines, including fishing technology, marine biology, fisheries policy, fisheries economics, fisheries legislation, and communications for outreach;
- the implementation of project activities at national level for which contracting mechanisms with leading local institutions will be adopted, following FAO rules and regulations;
- the ongoing monitoring and evaluation of project implementation;
- technical and administrative backstopping for the execution of activities at country, regional and global levels (giving support to each National Steering Committee, through to the respective National Coordinator);
- the organization of appropriate meetings at regional and global levels.
- attention to reporting obligations (financial, administrative, and technical).

The preliminary overall workprogramme is presented under 4.5 of this document and the budget tables for the individual participating countries, in Annexes F1 to F13.

The ultimate result (output) of the project will be the adoption by several of the participating countries, of fishing technologies and practices that are environmentally friendly, so that their shrimp-trawling fisheries will be enhanced in terms of their environmental performance and reduction of biological impacts, and be regarded as more sustainable in the future. A direct outcome of the project will be the reduction in number of juvenile fish caught by trawlers using BRDs compared to trawlers not using such devices. This can be verified when a successful BRD has been developed and introduced in a shrimp-fishery and a comparison made between a trawl equipped with BRD and one without. Another indicator of project success will be the number of trawlers using BRDs in each fishery at the end of the project period. An additional product expected is the improvement in national capacities for the sound management of the shrimp-trawler fisheries and increased co-operation required among countries at the regional and global levels. All of which would not be achievable without the framework provided by this project.

4.4 Risk and Sustainability

A change to more environmentally-sound shrimp-trawling might in the short-term, cause some economic losses in the shrimp-trawling industry, because the catch-efficiency for the target species may be slightly reduced, and there should be reduced quantities of by-catch. Such economic losses could lead to immediate social consequences in a few countries. However without the adoption of such more environmentally-sound practices, because of shrimp-trawling's apparent negative environmental impact and strong international pressure, it might become severely restricted and result in even greater market losses.

On the other hand, with adoption of the anticipated more environmentally-sound practices, the international acceptability of shrimp-trawling fisheries should improve, thus permitting the maintenance of the industry and thereby ensuring the sustainability of the shrimp/fish landings, which serve in many of the participating (developing) countries both as a local food-supply, and as an important source of income through exports.

Successful adoption of improved shrimp-trawling practices should produce two added benefits: an increase in the production (harvest) of food-fish as a result of the reduction in the mortality-rates for their juveniles, as well as associated gains in the on-board quality of the products (catches) and the on-board working conditions (for example from reductions in the time and labour involved in sorting the catches).

There is still a risk that the anticipated improved technology may not be accepted by the fishing industry, which might occur if the shrimp catch is substantially reduced, or if there is a major loss of income also from by-catch. Therefore the involvement of the industry in all stages of the project implementation is crucial and all stakeholders will be involved in, and kept fully abreast of developments.

4.5 General Workplan and Timetable:

Component/ Activity	Year 1				Year 2				Year 3				Year 4				Year 5			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
FAO																				
Global Information about Shrimp fisheries																				
Electronic information on shrimp fishing methods																				
Inventory of by-catch reduction devices (BRD's)																				
Contracting or subcontracting lead national institutions																				
Annual reporting on all countries shrimp fisheries																				
Inventory of legal and policy frameworks for sustainable shrimp fisheries																				
Guidelines and information material for implemantation of sustainable shrimp fishing technologies																				
Directories of related experts and institutions																				
Meetings, Workshops																				
Mexico																				
Preparation on-board sampling programme																				
Experimentation improved trawls/BRD's																				
Demonstration of prototype trawls/ practices																				
Widespread use in the fleets of prototype trawls/ practices																				
Inauguration meeting (hosting country), Regional workshops																				
Trinidad &Tobago																				
Develop awareness material & Consult with Fishing Industry																				
Data collection on landings and fishing grounds																				
Coordination of activities with Venezuela																				
Management plan for Trawl fishery																				
Meetings, Workshops																				

		Year 1				Year 2				Year 3				Year 4				Year 5			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Venezuela																				
	Develop consultative process with stakeholders																				
	Problem identification concerning By-catch																				
	Development/Adoption of by-catch reduction technologies																				
	Introduction of appropriate by-catch reduction technologies																				
	Meetings, Workshops																				
	Costa Rica																				
	Establishment of National Committee; Meetings of Nat. Committee																				
	Participation on trials in Mexico																				
	Transfer and adoption of technology; Demonstration activities in Costa Rica																				
	Analysis of results, Change of technology																				
	Meetings,Workshops																				
	Cuba																				
	Meetings National committee																				
	Estimation of by-catch composition																				
	Establishment of databases																				
	Analysis of the structure of demersal communities																				
	Improvement of the fishing regulations																				
	Exchange of results and transfer of technologies																				
	Meetings,Workshops																				
	Iran																				
	Fisheries/ oceanographic data collection																				
	Socio-economic surveys																				
	Biological studies of by-catch species; Collection of oceanographic data																				

	Construction and testing of BRD's																					
	Planning for future MCS arrangements																					
	Revision of fisheries legislation																					
	Meetings, Workshops																					
	Bahrain																					
	Administrative arrangements for project execution																					
	Monitor behaviour of BRDs in the selected modified shrimp-trawls, and of fish/shrimp reactions to these																					
	Gear modifications and fishing-trials																					
	. Development of institutional and legal frameworks for management of the shrimp fisheries/ environment																					
	. Awareness program for the shrimp-fisheries sector																					
	Training on BRD implementation																					
	Final assessment																					
	Meetings, Workshops																					
	Indonesia																					
	Problem identification concerning by-catch																					
	Stakeholders meetings																					
	Field surveys																					
	Development/ adaptation of by-catch reduction Technologies																					
	Field demonstration of new technologies																					
	Introduction of appropriate BRD technology to shrimp fishing-fleets																					
	Disemination, extention of results;																					
	Meetings,Workshops																					
	Phillipines																					
	Collection of data on By-catch and discards																					

	Development / Adoption/ testing of by-catch reduction technologies																					
	Formulation of a policy for the introduction of BRD's																					
	Awareness campaign/ Introduction of by-catch reduction technologies																					
	Meetings, Workshops																					
	SEAFDEC																					
	Development of by-catch reduction devices for shrimp trawls in Indonesia and Philippines																					
	Comparative fishing trials in both countries																					
	Analysis, evaluation and publication of results																					
	Training for officers in the use of by-catch reduction devices																					
	Production of Information and Trainings packages on BRD's																					
	Publication, dissemination of results																					
	Meetings, Workshops																					
	Nigeria																					
	Fisheries Statistic data collection																					
	Conduct observer sampling programme																					
	Socio economic surveys																					
	Selection of BRD's and programme design																					
	Evaluation of new BRD's																					
	Training session on the use of BRD's																					
	Planning of MCS arrangements																					
	Meeting, Workshops																					
	Cameroon																					
	Surveys of shrimp fishing grounds																					
	Selection of appropriate BRDs (with Nigeria and FAO)																					

	Training (in Nigeria) of Cameroonian personnel in the use of recommended BRDs																					
	3 On-board trials of BRDs on Nigerian vessels																					
	Meetings, Workshops																					
	COLOMBIA																					
	Data collection and design of the programme (computer and logistic)																					
	Recruitment, contracting or subcontracting personnel/services																					
	Fishing trips for research/survey																					
	Analysis of samples																					
	Processing of data collected																					
	Presentation of partial results																					
	Revision and adjustment of the technologies developed/adopted																					
	Validation of the systems																					
	Final report																					

4.6 Budget

(A detailed budget broken down by participants countries is presented in Annexes F1 to F13)

TOTAL COMPOSITION OF PROJECT BUDGET

Project No./Symbol: EP/GLO/201/GEF **(US$)** Date: 16.10.2001

Donor: GEF **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Implementing Organization: UNEP Executing Organization: FAO

Description	Baseline	Increment	Alternate	CO-FINANCING Donor GEF	Implement. Agency UNEP	Executing Agency FAO (in kind)	Countries Contribution (in kind) Governments	Countries Contribution (in kind) Priv. Sector	Total
	US$	US$	US$	US$	US$	US$	US$	US$	US$
A. Global Information Production						850,000.00			850,000.00
B. National level actions									
Costa Rica	200,000.00	300,000.00	500,000.00	300,000.00	0	0	150,000.00	50,000.00	500,000.00
Indonesia	300,000.00	400,000.00	700,000.00	400,000.00	0	0	100,000.00	200,000.00	700,000.00
Iran	300,000.00	500,000.00	800,000.00	500,000.00	0	0	150,000.00	150,000.00	800,000.00
Mexico	850,000.00	700,000.00	1,550,000.00	700,000.00	0	0	250,000.00	600,000.00	1,550,000.00
Nigeria	300,000.00	500,000.00	800,000.00	500,000.00	0	0	100,000.00	200,000.00	800,000.00
Philippines	200,000.00	400,000.00	600,000.00	400,000.00	0	0	100,000.00	100,000.00	600,000.00
Venezuela	550,000.00	400,000.00	950,000.00	400,000.00	0	0	200,000.00	350,000.00	950,000.00
Subtotal	**3,550,000.00**	**3,200,000.00**	**6,750,000.00**	**3,200,000.00**	**0**	**850,000.00**	**1,050,000.00**	**1,650,000.00**	**6,750,000.00**
C. Regional Activities									
Bahrain	500,000.00	0	500,000.00	0	0	0	20,000.00	30,000.00	50,000.00
Cameroon	50,000.00	50,000.00	100,000.00	50,000.00	0	0	25,000.00	25,000.00	100,000.00
Colombia	100,000.00	100,000.00	200,000.00	100,000.00	0	0	50,000.00	50,000.00	200,000.00
Cuba	50,000.00	150,000.00	200,000.00	150,000.00	0	0	50,000.00	-	200,000.00
Trinidad & Tobago	100,000.00	100,000.00	200,000.00	100,000.00	0	0	50,000.00	50,000.00	200,000.00
SEAFDEC	150,000.00	100,000.00	250,000.00	100,000.00	0	0	150,000.00	-	250,000.00
Subtotal	**950,000.00**	**500000**	**1,450,000.00**	**500,000.00**	**0**	**0**	**345,000.00**	**155,000.00**	**1,000,000.00**
D. Project Coordination Management	200,000.00	750000	950,000.00	750,000.00	100,000.00	100,000.00	-	-	950,000.00
Subtotal general	**4,700,000.00**	**4,450,000.00**	**9,150,000.00**	**4,450,000.00**	**100,000.00**	**950,000.00**	**1,395,000.00**	**1,805,000.00**	**8,700,000.00**
PDF-B	0	0	0	330,000.00	10,000.00	60,000.00	50,000.00	0	450,000.00
Total	**4,700,000.00**	**4,450,000.00**	**9,150,000.00**	**4,780,000.00**	**110,000.00**	**1,010,000.00**	**1,445,000.00**	**1,805,000.00**	**9,150,000.00**

4.7 Cash Advance Requirements:

An initial cash advance will be made upon signature of the project document by both parties and will cover expenditures expected to be incurred by the FAO during the first six months from the UNEP contribution (*i.e.* GEF Funds provided by UNEP on behalf of the GEF). Subsequent advances are to be made quarterly, subject to:

(i) Confirmation by the FAO, at least two weeks before the payment is due, that the expected rate of expenditure and actual cash position necessitate the payment, including a reasonable amount to cover "lead time" for the next remittance; and

(ii) The presentation of a satisfactory financial report showing expenditures incurred for the past quarter, under each project .

4.8 Follow-up:

Prioritized project designs considered necessary for further activity-implementation phases on a sub-regional or inter-regional/global scale may be submitted to the GEF, UNEP, and any other donors for their consideration.

SECTION 5 - INSTITUTIONAL FRAMEWORK

The main-phase of the project will continue to be executed by FAO (Executing Agency and manager of the funds provided to the project by UNEP on behalf of GEF, consistent with FAO financial reporting format), in direct liaison with the governments of the 12 participating countries, as well as in regular contact with the relevant administrations of the other collaborating countries and inter-governmental bodies.

In each participating country a series of specific planned activities will be undertaken through the contracts to be implemented between FAO and the leading national institutions under the coordination of the respective National Coordinator and under the overall supervision of the Project Coordinator in FAO Headquarters, who as FAO's Budget Holder assisted by an operations officer and administrative/clerical support, holds the financial (and technical responsibility) for the allocation and disbursement of the international resources provided from GEF, from UNEP or from FAO, which complement the inputs by each participating government.

The responsible Ministry in each participating government shall assign a National Coordinator to act as the focal point for all day-to-day interventions, inputs, and communications at the respective national level. Each National Coordinator will also be expected to take responsibility for the establishment and regular meetings of a National Steering Committee with the mandate to serve as a mechanism for the coordination of national actions by promoting the active participation of all interested institutions, for monitoring the activities to be undertaken through contracts between FAO and national institutions for advising on the orientation and all aspects of project implementation in the country, and for reviewing progress achieved. In order to ensure the necessary participation of all stakeholders, the membership of each National Steering Committee should usually include representatives of: fishery managers, researchers (in gear technology, marine biology, environment) as well as shrimp-fishers, non-shrimp fishers, shrimp/fish processors and traders, NGOs, *etc*. In fact during the preparatory phase of the project such National Coordinators have already been nominated by most participating governments and they have in most cases also already established National Steering Committees. These assignments and arrangements are expected to be confirmed for the implementation of this main-phase.

The additional collaborating governments and inter-governmental organizations will also each be expected to nominate a focal point Coordinator for contacts with FAO's Project Coordinator, and they may, if deemed appropriate, also establish their own Steering Committees.

FAO, as Executing Agency for the Project (with UNEP acting as the overall Implementing Agency) will ensure three administrative arrangements:

- Firstly, the international coordination and administration of all project activities, this being the prime task of an Project Coordinator (that will be assisted by an operations officer and administrative/clerical support services) who, as part of his/her functions as an Officer under FAO's Regular Programme of Work and Budget (PWB), will be assigned by the Chief, Fishery

Technology Service (FIIT) of the Fisheries Department of FAO. This Project Coordinator will work at FAO Headquarters under the overall authority of the Chief FIIT and with technical guidance from an internal Project Task Force (see below), with operational, secretarial and clerical support services provided by the Fisheries Department, and with central administrative and financial support services provided by the Administration and Finance Department (AFD). The Project Coordinator will be supported by a part-time Technical Officer (FIIT staff) and a part-time Project Operations Support Officer.

- Secondly, contracting the services of national institutions to undertake specific activities indicated in the work plan of the individual participant countries, or recruiting experts/specialists, providing equipment and materials, organizing the external training activities missions and meetings concerned.

- Thirdly, technical oversight and substantive support and/or inputs to the project through an internal Project Task Force, under the overall chaimanship and supervision of the Chief FIIT, and which will comprise FAO experts in the main disciplines concerned in project activities, for instance:
  - fishing gear technology (FIIT)
  - marine biology (FIRM)
  - fisheries policy (FIPP)
  - fisheries economics (FIPP, FIIU)
  - fisheries legislation (LEGN)
  - communications – outreach and extension (SDRE and FIIT)
  - investment and coordination of technical cooperation (TCII).

This Task Force, comprising individual experts nominated by the Chief of the unit concerned, will meet periodically in FAO HQ under the chairmanship of the Chief FIIT, to consider the overall project workplan as well as the specific activities scheduled as an input by FAO, their progress and any problems indicated by the Project Coordinator, and to decide on appropriate action to be undertaken by the Project Coordinator, and/or by the respective FAO units concerned. It will also monitor and evaluate the overall progress of project implementation. As Chairman of the Task Force, the Chief FIIT may coopt, on a short or long-term basis, representatives of other units, including those of the Fisheries Officers serving in the various Regional and Sub-regional Offices of FAO, and/or representatives of other Departments, to participate as required in the work of the Task Force. The Project Coordinator will not be a member of the Task Force, but will be expected to attend its meetings in order to present his/her proposals and views. The Lead Technical Unit (FIIT) will provide the secretarial assistance required in organizing, conducting and reporting on each meeting. Such summary reports shall, after approval by the Chairman, be made available to all FAO officers concerned, and through the Project Coordinator, to all National Coordinators, and to the appropriate focal points in other collaborating governments, in intergovernmental institutions, and to UNEP.

The technical advisory services provided by members of the Task Force at their normal duty-stations (in FAO Headquarters or respective FAO Regional /Sub-Regional Offices) are also considered part of the in-kind contribution to the project by FAO's ongoing Regular Programme of Work and Budget (PWB). However any field missions to participating or collaborating countries/institutions to be undertaken by any FAO Officers (other than the Project Coordinator) on behalf of the Project, away from their HQ or Regional/Sub-Regional Offices, will be treated as consultancy inputs to the Project, and will require the prior approval by the ADG-FI (or of other Departmental ADGs concerned) of: the Terms of Reference for the mission, the itinerary, costs of travel (DSA/tickets), as well as secondment (honorarium component), and incidentals including reporting. In consultation with the Chief FIIT, the Assistant Director-General, Fisheries Department (ADG-FI) will decide on a case by case basis whether all or any costs of such field missions by FAO Staff shall be charged to the FAO in-kind contribution to the project, or should be charged elsewhere.

An International Project Steering Committee will be established comprising Representatives of:

- the responsible Ministry in one of the participating countries from each region;
- the Implementing Agency (UNEP);
- the Executing Agency (FAO).

The other GEF implementing and executing agencies will (under expanded opportunities) be invited to participate as Observers, plus also, as and when necessary, any other inter-governmental institutions collaborating in the project.

This International Steering Committee will be charged with reviewing, advising upon, and approving any significant changes proposed to the original overall work programme and budgets of the project. It will be organized by FAO, with the logistic arrangements including the secretarial functions, facilitated by the Project Coordinator, and the financing of the travel and per-diem (where necessary) of the participants (but not of the Observers) charged to the project. It will meet upon the occasion of important inter-regional meetings (for instance at the Inaugural Meeting of all National Coordinators) but the Chairman is expected to also arrange inter-sessional consultations by correspondence and/or electronic communications.

Within each sub-region bi-lateral cooperation will be promoted by the National Coordinators concerned, supported by the Project Coordinator, not only through the exchange of information, but particularly through the joint design, conduct and evaluation of BRD demonstration activities.

Successful implementation of the project will depend on the active participation of stakeholders. To assure this, the proposal has specific elements for participation. Thus, the programs on public participation and education and training are of fundamental importance. Many institutions, government agencies, and civil society organizations took part in preparing this proposal, contributing their experience and hands-on knowledge to identify the component elements.

UNEP will be responsible for overall project supervision to ensure consistency with GEF and UNEP policies and procedures, and will provide guidance on linkages with related UNEP and GEF funded activities. UNEP also has a responsibility for regular liaison with FAO on substantive and administrative matters, and for participating in meetings and workshops as appropriate.

The UNEP/GEF Coordination Office will provide assistance and advice to FAO and UNEP/ DEIAEW on project management (*e.g.* revisions of workplan and budgets) and policy guidance in relation to GEF procedures, requirements and schedules.

FAO will be responsible for timely production of financial and progress reports to UNEP as mentioned in Section 6. The UNEP/GEF Coordination Office will be responsible for clearance and transmission of financial and progress reports to the Global Environment Facility.

UNEP will be responsibile for review and approval of all the substantive reports produced in accordance with the schedule of work.

All the proposed activities at the country level will be managed on a day-to-day basis by the respective National Coordinators in each participating country/institution, in consultation with the Project Coordinator in FAO.

All correspondence on ***substantive and technical matters*** concerning the project should be addressed to:

(1) In FAO

Mr. Jeremy Turner
Chief, Fishing Technology Service (FIIT)
FAO/UN
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00100, Rome, Italy
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With copies to:

Mr. W. Thiele
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and

Ms. B. Cooney
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Investment Centre (TCII)
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(2) <u>In UNEP:</u>

Mr. Mr. Ahmed Djoghlaf
Director, UNEP/DGEF
The Division of GEF Co-ordination
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All correspondence ***<u>administrative and financial matters</u>*** should be addressed to:

(1) <u>In FAO</u>

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and

Mr. D.L. Baugh
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00100, Rome, Italy
tel: 0039-06-5705-6538
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(2) In UNEP:

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UNON
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fax: + 254-2-623755

With copy to:

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tel: + 254-2-623595
fax: + 254-2 623126/624041

SECTION 6: MONITORING AND REPORTING

6.1 Monitoring and Evaluation

At country level each National Coordinator, having responsibility for the implementation of the national (and/or subsequent joint bilateral) activities, will be assisted in review-and-monitoring aspects by reporting to, and obtaining feed-back from, both the responsible Minister within the Government, and the National Steering Committee. Each National Coordinator shall provide to FAO relevant details in the form of regular progress reports, the periodicity and format to be agreed with the Project Coordinator.

Within FAO the internal Task Force will also have the responsibility for reviewing and monitoring the progress, not only of project activities undertaken through FAO's inputs, but also of the project in general, based on the regular flow of information and data presented to it by the Project Coordinator, as well as the half year Progress Reports to be prepared by the Project Coordinator for onforwarding to UNEP (and copied to the members and Observers on the International Steering Committee).

At the global level, monitoring and review of the project's activities and results, as well as any major changes proposed in the overall workplan, will be undertaken by the International Steering Committee, through inter-sessional exchanges, and also through its formal meetings, the first of which is scheduled at the time of the Inaugural Meeting for National Coordinators.

The evaluation of activities in each country will be made against milestones in terms of results, which will allow decisions to be taken regarding implementation of further activities. For instance, one important milestone will be the completion of experimental fishing using one or several by-catch reduction technologies. The execution and results of these experiments should be analyzed immediately afterwards by the National Steering Committee in consultation with the National Coordinator, the Project Coordinator, and FAO technical officers, so that the experience from testing in different countries can be compared, and that the good lessons learned can be communicated to all other parties involved. A second major milestone will be met when the BRD(s) is(are) introduced into the commercial shrimp-fisheries, although the evaluation of the successes or failures of this

introduction cannot be envisaged until the project has been running for at least three years, and in some countries this evaluation might even require additional time.

During the course of the project, UNEP and FAO may (if deemed necessary) organize an independent evaluation mission to diagnose possible problems, to and suggest the necessary corrective measures, and evaluate the efficiency of the project management at each level, including delivery of inputs and activities in terms of quality, quantity and timeliness. The Terms of Reference, composition, itinerary and funding for such a mission will be agreed by mutual discussion between FAO and UNEP.

Upon completion of the project, UNEP and the UNEP/GEF Coordination Office will undertake a desk evaluation to measure the degree to which the objectives have been achieved, and highlighting for GEF in particular, the lessons learned in the preparation of a project of global scope. This evaluation should also seek to reflect the views and feedback from all the governments and intergovernmental institutions involved in the achievement of the project goals. This final desk evaluation will be undertaken according to UNEP-approved Monitoring and Evaluation procedures.

A *post facto* in-depth evaluation will be conducted, under the supervision of the UNEP/GEF Monitoring and Evaluation Unit, two years after the project has been completed, to evaluate the environmental impacts and long-term effects of the project, and to make recommendations for future action, identify the conditions for successful replication if appropriate, and to draw generic lessons. This evaluation of the overall performance of the project will be undertaken within the framework of the Monitoring and Evaluation programme of the GEF Secretariat, by an external and independent consultant.

STAP Review. (Annex C) The Project Brief was reviewed by an Expert on the STAP Roster. The comments provided have been addressed and various aspects of the original workplan and the text of this Operational Project Document have also been altered to address the specific concerns raised.

6.2 Half year Operational Reports

Two reports per year and within 15 days of the end of each reporting period (31 July; 31 December), FAO (the Chief FIIT) shall submit to the UNEP/GEF Coordination Unit, a operational report on the progress in project execution, using the format required by GEF.

6.3 Terminal Report

Within 60 days of project completion, FAO (the Chief FIIT) shall submit to the Chief, Budget and Fund Management Unit, UNEP with copies to the UNEP/GEF Coordination Office, a Project Terminal Report, using the format required by GEF.

6.4 Substantive Reports

As per section 4 above, copies of all the substantive and technical reports produced by FAO (in collaboration with the participating countries/institutions in accordance with the schedule of work) will be submitted by FAO (the Chief FIIT) to the UNEP/GEF Coordination Office and to the Chief, Budget and Fund Management Unit, UNEP.

6.5 Financial Reports

6.5.1 Project Expenditure Accounts

(i) Details of expenditures will be reported by FAO (AFFC), every three months (as at 31 January, 30 April, 31 July, 31 October) on an activity-by-activity basis, in line with the project budget codes as set out in the project document. All expenditure accounts shall be dispatched to the Chief, Budget and Fund Management Unit, UNEP, within 15 days of the end of the quarter to which they refer, certified by a duly authorized official of FAO.

(ii) In addition, UNEP requires that the expenditure account should be reported as part of an independent audit of the External Auditors of FAO.

(iii) Within 60 days of the completion of the project, FAO (AFFC) shall supply UNEP with a final statement of account in the format as for the three-month statements, confirming that the financial records of this project will be an integral part of the financial records of FAO, which are subject to an independent audit by the External Auditors of the FAO, and agrees to furnish copies of these audit

reports to UNEP along with such other related information as may be requested by UNEP with respect to any questions arising from the audit report.

(iv) Any portion of cash advances remaining unspent or uncommitted by FAO on completion of the project will be reimbursed to UNEP within one month of the presentation of the final statement of accounts. In the event that there is any delay in such disbursement, FAO will be financially responsible for any adverse movement in the exchange rates.

6.5.2 Cash Advance Accounts

A statement of advances of cash provided by UNEP should be submitted in the required format.

SECTION 7: TERMS AND CONDITIONS

7.1 Non-expendable Equipment

FAO will maintain records of non-expendable equipment (items costing $1500 or more) purchased with UNEP funds, and will submit an inventory of all such equipment to UNEP, indicating description, cost, date of purchase, and present condition of each item attached to the quarterly reports. Upon completion of project activities, FAO will attach to the Terminal Report a final inventory of all non-expendable equipment purchased under this project. All such equipment shall remain the property of UNEP until its disposal is authorized by UNEP, in consultation with FAO. According to UNEP/GEF procedures, the executing agency (FAO) shall be responsible for any loss of or damage, ordinary wear and tear excepted, caused by FAO to equipment purchased with UNEP funds. Since the equipment to be purchased with UNEP funds will be used by the beneficiary countries of the project, through the LOAs to be implemented between FAO and the participating countries. The countries themselves will be the final responsible for any loss or damage, ordinary wear and tear excepted, caused by the countries to the equipment of the project. The proceeds from the sale of equipment duly authorized by UNEP upon completion of project activities shall be credited to the accounts of UNEP, or the appropriate Trust Fund or Counterpart Contribution.

7.2 Responsibility for Cost Overruns

Any cost overrun (expenditure in excess of the amount budged in each budget sub-line) shall be met by the organization responsible for authorizing the expenditure, unless written agreement has been received by letter or cable, in advance, from UNEP. In cases where UNEP has indicated its agreement to a cost overrun in budget sub-line, either to transfer funds from one sub-line to another, or to increase the total cost to UNEP, a revision to the project document amending the budget will be issued by UNEP.

7.3 Claims by Third Parties against UNEP

The participating countries of the project shall be responsible for dealing with any claims which may be brought by third parties against UNEP or FAO and its staff, in relation to work executed by FAO under this Agreement and UNEP shall not be liable to FAO in relation to those claims unless those claims were caused by the negligence or other conduct of UNEP or UNEP's staff. Nothing in this Agreement may be construed as a waiver of the immunities from suit, legal process, execution, of either UNEP or FAO.

7.4 Disputes-resolution Provision

Any controversy or claim arising out of, or in accordance with this Agreement or any breach thereof, shall, unless it is settled by direct negotiations, be settled in accordance with the UNCITRAL Arbitration Rules as at present in force.

The parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such controversy or claim.

7.5 Modification

This Agreement may be modified or otherwise amended by the written agreement of the Parties, signed by their duly authorized representatives, dated, and attached hereto.

7.6 Termination

Either party may terminate this Agreement with sixty days' advanced written notice to the other. In the event of such termination, each party shall provide the corresponding funding in

accordance with its obligations herein to cover any project costs up until the termination date, including, but not limited to, the costs of complying with third-party commitments made pursuant to the project that may run beyond the termination date and which cannot be revoked without incurring liability.

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Annex A

Incremental Cost Analysis

FOCUS OF THE PROJECT

The overall objective of the project is to reduce discards of fish captured by shrimp-trawlers, primarily by introducing technologies that reduce the catch of juvenile food-fish and other by-catch. the participating countries have themselves identified the capture of juvenile food-fish and discards as a non-sustainable practice and have therefore assigned priority to reducing the problem nationally. Thes countries will therefore contribute through research and management in the fields of marine biology and fishing technology.
In essence this project is a barrier-removal intervention focussing on two types of barrier to the adoption of more-sustainable and less environmentally damaging technologies in the tropical shrimp-trawling industry.

The first of these barriers relates to the availability of information on BRDs in the countries and shrimp-trawling industries located in tropical developing countries. The second relates to economic factors, including the capital costs of adopting BRDs and the absence of strong economic incentives to adopt such technologies even when the information is available and when capital resources for investment are also available.

ECONOMIC AND ENVIRONMENTAL BENEFITS

Immediate or short-term national environmental and/or economic benefits to the adoption of BRDs are difficult to identify. Indeed it could be argued that short-term economic disbenefits will result from the adoption of such devices within the trawl industry. BRDs result in a lowered shrimp catch and fish by-catch in countries where markets now exist for fish by-catch, and hence lowered income and profitability to individual trawl owners and the fishing sector as a whole. At the national level, this results in loss of foreign exchange earnings. Regrettably, it is not possible at present to quantify such losses at either the national or sector levels, nor at the level of the individual trawl operator. There is some evidence to suggest that reduction in by-catch will improve the quality of the product and working conditions but the economic benefits from such changes cannot be estimated at this time.

In contrast, medium-term economic benefits may result from the adoption of such by-catch reduction devices. Such benefits could result from the exclusion of juveniles of commercially important finfish species from the shrimp-trawl catches, resulting in improved recruitment to commercial fin fisheries and hence enhanced economic benefit at the national level. However such benefits will accrue to sectors of the fishing industry other than the shrimp trawlers, and quantifying such economic benefits will only be possible following the experimental fishing which forms a component of this project.

In the longer term it is possible that international markets for wild-caught shrimp derived from fisheries that operate without by-catch reduction devices will decline due to increasing international concern regarding the impacts of trawl fisheries on non-target species. Therefore markets may decline in the longer term, thus providing an incentive for the adoption of such techniques. Again such longer-term economic benefits are difficult to estimate at the present time.

One immediate environmental benefit will be a reduction in accidental mortality of endangered turtle species, whilst an overall reduction in by-catch should result in enhanced recruitment to populations of non-commercial species, thus protecting biological diversity in tropical soft-bottom communities or taxa.

BASELINE AND INCREMENTAL ACTIONS

The participating countries are committed to implementing the FAO Code of Conduct for Responsible Fisheries and have, through the project preparatory phase, indicated strong willingness to examine methods for reduction of unwanted by-catch, including the adoption of BRDs and improved management regimes for their tropical shrimp-trawler fisheries. Improvements in management, including the establishment of quotas, institution or extension of closed seasons and closure of specific fishing grounds, are likely to be undertaken in the absence of this intervention. This project will however greatly enhance the development and rate of adoption of such management regimes by facilitating the transfer and exchange of information between countries sharing individual trawl fisheries.

The FAO co-financing is presented in Table 2 as part of the project baseline, since such actions would continue to be undertaken by FAO in the absence of GEF financing. In reality however such co-financing is itself incremental since it results in supranational environmental benefits, including, *inter alia*, a more rapid transfer of information and knowledge than would occur in the absence of FAO. Actions such as those contained in component A of the project, which are concerned with information production and dissemination, could not occur through national action alone and would in fact result in little or no direct national benefit to a country supporting such activities. Nevertheless such actions are likely to contribute to more rapid adoption of sustainable techniques by overcoming the barriers to information access.

FAO-funded components involve, *inter alia*, facilitating the transfer of technology and the conduct of experimental fishing to provide direct information on the reduction of by-catch (environmental benefits) and on the magnitude of the reduction of the target species (economic costs). Such data are not currently available, so the economic arguments based on medium- and longer-term benefits cannot be quantified and presented to decision making bodies within the fisheries sector.

Access to such information and the consequent adoption of more-sustainable shrimp-trawling technologies may ultimately result in longer-term national environmental and economic benefits. In contrast the initial capital costs of adopting such technologies cannot be justified economically at the present time, since the economic benefits cannot be quantified, whereas the costs are immediate and apparent.

Annex B Logical Framework Matrix

Summary	Objectively Verifiable Indicators	Means of Verification (Monitoring focus)	Critical Assumptions and Risks
Overall Objectives			
Reduced by-catch taken by shrimp trawlers	Reports by countries of reduced discard levels and non-capture of turtles or other key marine living resource (eg juvenile finfish)	Collection of data on catch rates and catch composition before and after introduction of any by-catch reduction device or any change in fishing operations	Economic and social factors related to market opportunities for by-catch
Reduce capture of juvenile fish, particularly of species used for human consumption	Increased production of food fish in the fishing areas	Same as above, as well as an increase in landings of relevant fish species	Same as above
Increase knowledge on the impact of shrimp-trawling on marine habitat	Reports about quality and magnitude of distortion of bottom habitat caused by trawling	Changes in gears and fishing operations	Same as above
Outcomes			
Minimizing the pantropical problem of unwanted by-catch from shrimp trawling	Countries involved have assigned priority for research institutions and administration to solve the problem.	Evaluation of research and development programmes	Temporary loss of income from by-catch trade in some countries
Introduction of appropriate fishing technology and practice	Number of vessels that change their fishing practice and adopt new technologiesPreparation of guidelines and manuals for applying the new techniques	Monitoring of vessels Dissemination of guidelines and manuals for applying the new techniques	Lack of funds to change fishing practices that might lead to lower economic returns, even if only temporarily
Enactment of relevant legislation and development of an improved management framework	Adopted and published regulations and laws	Adoption of regulations by the fishing industry	That relevant laws and regulations will be complied with by the fishing industry
Enhance awareness of the problem of shrimp by-catch	Increased demand for materials and publications on shrimp fisheries and by-	Monitoring of number of documentation requests and replies; statistics on web-	Web site will be attractive and well maintained, with up-to-date information

	catch; number of hits on web site to be maintained by FAO	site visitors	on project activities and results
Increase dialogue, interaction and joint operations at the country and regional levels	Specific technical assistance provided by resource countries; number of joint activities implemented among participating countries	Monitoring and reporting of active participation and interactions among countries and resource countries	Interest of and contributions by resource countries and institutions would need to be forthcoming and materialized
Results			
Adoption of by-catch reduction devices by national and regional shrimp-trawling fisheries	Installation of devices in the shrimp-trawling gear	Reports of observers on use of by-catch reduction devices and on results of using them	In some countries the by-catch of marketable fish is an important source of income to coastal communities; reduction of by-catch rates could lower employment rates and reduce income. Efforts might be made to develop uses of by-catch now being dumped at sea
Improved management of shrimp-trawling fishery	Introduction of new management systems	Catch statistics by vessels and/or observer records	Shortage of qualified staff
Increased co-operation among countries in research on and management of the resources	Number of agreements between governments on fishery research (especially relevant to the problems addressed by the project)	Joint scientific publications; reports of relevant scientific meetings and conferences	Lack of funds and capacity for research
Better understanding of the interactions between fishing gear and environment	Number of new research programmes on environmental issues	Scientific reports and publications	Same as above
Components/Activities			
Inventory of by-catch reduction devices; legal and policy framework	Development and adoption of guidelines and information material for by-catch reduction devices	Adoption of legal framework; publications	None
Identification of problems of by-catch	Studies in 6 participating countries	Presentation of results;development of relevant research programmes	None
Mapping of distribution of catches of target species and by-catch; determination of catch composition in	Increased/improved data-collection programmes; increase in related research work; organization of workshops	Research and workshop reports	Lack of qualified staff

different fishing grounds			
Development and adoption of by-catch reduction technologies	Selection of the best technology for the region; joint experimental fishing with neighbouring countries	Reports of meetings and workshops; proposals for technical solutions	Developed technology might not be accepted by the industry because of substantially reduced shrimp catches and loss of income
Testing of by-catch reduction devices in industrial and artisanal fisheries	Number of vessels involved in the tests; number of relevant research programmes	Reports on experimental fishing cruises; number of fishers accepting the new technology	Same as above
Testing of alternative fishing gears for shrimp fishing	Number of research programmes and experimental fishing cruises	Reports on research and experimental fishing cruises;number of fishers and vessels involved	Lower efficiency of alternative gears;higher cost of fishing operations
Demonstration and training for fishers on by-catch reduction devices	Organisation of training courses	Number of fishers participating in the courses	None
Dissemination of the results to the fishing industry	Number of training programmes; continuous assessment of resources	Number of publications	Lack of funds

Annex C

STAP Roster Technical Review

Key issues

Introduction

The Project is faced with a serious contradiction (tacitly admittted in its text): that of pleasing environmentalists and political ecologists, on the one hand, and fishers, on the other. The former, at best, want the sea bed, and the marine environment in general, not to be disturbed so much and so often as to compromise the sustainability of present levels of biodiversity and of good health of all marine ecosystems. They consider that the "killing" of by-catch that is dumped back into the sea is a means of lowering biodiversity and degrading the marine environment.

The fishers do not want the opposite, but do also want to earn a living by shrimp fishing and cover their fishing-vessel costs, replacement etc.

The fishers sell by-catch, if there is a market for it, so they are not against taking it, but are, nevertheless, against taking by-catch and having to dump it back into the sea (an undesirable operating cost). By proposing to the shrimp-trawler fisheries to introduce by-catch reduction devices, mainly to help other fisheries, without evident reciprocation, GEF is probably placing a serious obstacle in the way of the Project's eventual success.

The honest but rather frequent reference to the probable loss of income (and additional investment) in the short to medium term to the shrimp-trawler fisheries, with only a rather vague promise of longer-term and, one hopes, sustainable income, is also likely to be an impediment to the Project's success at the level of the shrimp fishers.

Scientific and technical soundness of the project

By-catch

Environmentalists do not want, in principle, any by-catch, especially of endangered species. "Inspired" by the ecological movement of recent years, we tend to assume automatically that it is "wrong" or a "waste" to take fish/shellfish etc. from the sea only to dump it back, but the fishable stock is what it is as a result of all causes of death between the birth and death of any individual fish/shellfish. So it is the sum of the causes that counts and the problem becomes one of relating the loss due to fishing to the loss due to other, non-fishing, causes.

The Project proposal refers here and there to "unwanted" by-catch Who "unwants"? Fishermen at sea may want to keep and sell by-catch, if this is economically advantageous to them, or they may not want it, either in their trawls, in the first place, nor on deck to be dumped back into the sea. But it is quite possible that they want some of it (the sellable) part and not the rest, although they might not want to sort it on deck (for economic and/or operational reasons); unfortunately, by-catch does not come up ready sorted in the trawl net. Although the idea of not catching unwanted by-catch seems reasonable, the BRDs are not likely to discriminate between wanted and unwanted by-catch, but the Project is aimed at reducing both.

By-catches are incidental and therefore inefficiently caught; the effect on the by-catch species must be considerably less than that on the target species: the impact on the by-catch species may be less important than environmentalists like to think.

The sense of the term "unwanted" is strongly qualified by the viewer. The question is whether it is better (for the environment?) to return by-catch (however substantial) to the sea or better (ecologically

and economically?) to let the fishermen take by-catch and sell it (if the appropriate market is there or can be created).

Even if all by-catch could be avoided, the catch of the target species probably would not increase and if it did, overfishing (i.e. loss-making fishing for this species) would be reached much quicker, so that reducing shrimp-trawlers' by-catch may actually help no one—hence the question: Who "unwants"?

Another important point to bear in mind is that what is unwanted today may be wanted tomorrow, especially if useful products based on by-catch can be developed. The Project should not prejudge this matter.

From the figures suggested in the Project proposal, "wanted" by-catch is worth between $50 and, say, $500 a ton, and this is described as an economic loss (other than the operational costs of not taking exclusively target species—shrimp, here—or of having to take the trouble to dump by-catch into the sea)? FAO is cited here as saying, in effect, that worthless by-catch—because discarded—is worth billions of dollars. Who loses, and how, is not made clear.

The amount of by-catch per species, in the shrimp fishery, is comparatively small (because a considerable mix of other species is taken in the by-catch), so it is probable that by-catch itself is not a major factor in fish-stock abundance, for a particular species, unless this species is already subjected to heavy commercial fishing in the area of the shrimp fishery; this distinction is not made in the Project proposal and there are no, or at best only vague, references to the association of shrimp and finfish fisheries. More should be said on the relevant finfish fisheries, in the Project's context.

If the Project is part of a concerted international effort to resolve the by-catch problem, a number of questions (implicit or explicit in this Review) need to be answered first; the Project cannot do this, and it is doubtful that any organization, country or group of countries has yet provided satisfactory answers to most of these questions.

Parent/juvenile stock relationship

Much is made throughout the Project proposal of the advantages of reducing, in the by-catch of the shrimp fishery, the amount of juvenile finfish of species which, as adults, are commercially important to the fishing industry as a whole. This may be so, although I do not think that studies carried out by FAO and other concerned institutions have yet proven their case: ecology is far too complex to yield any easy answers. For example, some juvenile finfish feed on shrimp larvae, so their catch/by-catch benefits the shrimp fishery, in principle. Moreover, there is rarely (even never) a clear-cut relationship between the abundance of a parental fish stock and the abundance of the offspring it produces and which survives to join the fishable or the parental stock, because there are so many other factors determining survival (of finfish, for example) in the marine environment. Nor can the relationship be investigated easily in the absence of a broad sampling programme (i.e. a fishery).

The "reduced capture of juvenile fish" may not lead—at all or only slowly relative to Project lifetime—to "increased production of food fish", contrary what is claimed in Annex B.

Environmental impact

The Project is weak in so far as it does not make substantive arrangements for determining the impact of shrimp-trawler fisheries on the marine environment, especially the sea bed. The arrangements indicated in Annex B are very vague for so important a matter.

The Project proposal states "In each of the participating countries the impact on the environment of present production systems will be assessed...". This is a major undertaking, yet nothing is said (in the text, nor in Annexes B and F) of the national or other institutions that would undertake this work. The participating countries will develop or adapt by-catch reduction techniques "...which reduce the capture of juvenile fish...to an acceptable level." An acceptable level is not defined; nor is it stated who should decide this, nor by what criteria.

The possibility of closed fishing seasons and/or areas is put forward as a basis for relieving the shrimp stock to recover (from fishing/overfishing); it might be added that such seasons would also allow the sea bed to recover from intensive trawling.

There are numerous ecological problems to be solved for the usefulness of BRDs to be properly established. One relevant example is that turtles eat shrimp, so (from the fishers' standpoint) catching turtles (in by-catch) amounts to removing a competitor, but the present "ecological" climate would not accept this idea. Hence the contradictory grounds on which the Project proposal stands.

Identification of the global environmental benefits and/or drawbacks of the project

The benefits, pending favourable results of experimental fishing, are harder to identify than the drawbacks, which are covered in the section on *Scientific and technical soundness of the Project.*

How the project fits within the context of the goals of GEF, as well as its operational strategies, programme priorities, GEF Council guidance and the provisions of the relevant conventions

This is covered, even if only superficially, in the Project proposal. It is arguable that this particular Project should properly have been left to FAO, since it is basically the development, testing and application of by-catch reduction devices to shrimp-trawler fisheries and is comparatively weak on the environmental impact aspects of shrimp fishing without BRDs.

Regional context

The regional coverage of the Project proposal is quite satisfactory.

Replicability of the project (added-value for the the global environment beyond the project itself)

A great deal depends on the success of the development, testing and application of BRDs; based on favourable results elsewhere, this replicability seems assured, but the weaknesses of the present Project would have to be faced and removed, for replicability to be fully justified.

Sustainability of the project itself

Again, a great deal depends on the success of the development, testing and application of BRDs; based on favourable results elsewhere, this sustainability may be positive but is not guaranteed by the Project as it stands.

Secondary issues

Linkages to other focal areas

In at least three of the participating countries (Nigeria, Trinidad and Tobago, Venezuela), shrimp-fishing is carried out in areas of petroleum exploration and extraction (and sometimes natural leakage from the continental slope), as well as discharge at sea. The same may be true of others (e.g Bahrain, Iran, Indonesia). There are sometimes problems of tainting by petroleum components, so there is a potentially strong link between shrimp (and other) fishing and concern for marine pollution. However, the Project proposal does not attach any importance to such aspects of shrimp-trawler fisheries, in spite of the role of these environmental aspects in the economics of the fisheries. The relevant research programmes proposed might consider this relationship.

Linkages to other programmes and action plans at regional or subregional levels

These are reasonably well covered in the Project proposal, although, given the preceding comment, no reference is made to any UNEP Regional Seas Action Plans which may be of some help or provide useful information on the environmental aspects of shrimp-trawler fisheries.

Other beneficial or damaging environmental effects

Perhaps the dumping of substantial amounts of by-catch into a fairly limited area (e.g. Gulf of Venezuela), amounting to local "fertilization" of a shallow water body, would itself be a significant environmental factor, but whether beneficial (e.g. increasing local productivity) or damaging (e.g. induction of red tide) is not, I think, known.

Degree of involvement of stakeholders in the project

The stakeholders are nowhere clearly defined in the Project proposal and their involvement is nowhere precisely stated; in the case of fishers, their participation as stakeholders is apparent; but that of researchers, administrators, investors is vague or absent.

Capacity-building aspects

If the fishers participate willingly in the development and testing of BRDs and in the subsequent experimental fishing, the possibility of increasing their technical capacity and experience will be strong. But they will only do this if, at first, they can be convinced that real socio-economic advantages will flow from this Project, and then convinced by the positive results with the BRDs. The convincing, before the Project produces any results of its own, will come from the dissemination of information on experience elsewhere with such devices: the Project allows for this, but timely execution is essential to success. Much will then depend on the results from the Project itself.

If the participating countries can actually develop and undertake serious scientific and technical research programmes, their researchers will also increase their know-how and experience. The Project's responsibility here is limited, however.

Innovativeness of the project

The Project is straightforward and not particularly innovative. Section 4 of the Project Brief says that already billions of dollars have been invested in development of the technology of by-catch reduction and its testing, in the training of human resources, and in promotion of dialogue and consultations with the fishing industry. Even if not much of it has been in the participating countries in the Project, the experience gained, in so far as it is positive, must certainly be readily applicable in these participating countries. The cost:benefit ratio of the Project is therefore open to question.

Additional remarks

In this Project and its follow-up, a lot depends on the availability of good-quality, truthful and sufficient fishing data over the lifetime of the project and beyond, in all the participating countries. In this respect, fishing fleets, vessel captains and others concerned vary considerably, from outright failure to keep fishery statistics at all, to the maintenance of high-class statistics via well kept vessel logbooks made available for inspection by fishery administrators. Much depends on, for example, the confidentiality accorded such statistics, especially if national authorities use them for such purposes as determining taxation, fishing quotas/total allowable catches, governmental subventions etc., and if investors use them to make investment decisions. The situation in each participating country needs to be assessed with a view to improvement where necessary: the possible advantages of introducing BRDs could be "hidden" by false or biased statistics. Sad, but true.

The Project proposal suggests that the adoption of the new technology will enhance the participating countries' shrimp-trawler fisheries so that they will be regarded as more sustainable in the future. The underlined phrase is far too vague in this context and should be replaced with "..as being compatible with the sustainable development of national fisheries." Or something similar; being sustainable is often a matter of fashion, as well as cost, and here the reference must always be to the Commission on Sustainable Development's definition, for which simply "sustainable" or "sustainability" is never an acceptable substitute.

If the idea of the Project is to solve the by-catch problem by developing, testing and introducing BRDs, it is not clear what alternative fishing methods are needed; in any case, they too would need to be

developed, tested and introduced anew, which would be more costly and may not solve the underlying problems. The introduction of closed seasons/areas may reduce by-catch, but may also reduce shrimp catch. The basis for affirming that they would ensure the sustainable development of the shrimp or other fisheries must always be established before such an option is tried.

Project implementation

The implementation of the Project is outlined in Annex B; some observations referring to this Annex follow:

Who will verify the achievement of objectives? This is not a simple matter, and some indication of the entities, their capabilities and their resources should be indicated. For the third column "Means of Verification", in several places, who will do the considerable work is not specified, even generically; see for example entries at 4th and 5th outcomes.

For the first outcome, "Objectively Verifiable Indicators", no idea is given of what the priority assigned to "research institutions and administrations" is relative to; nor whether the participating countries can or actually will provide the human and financial resources for this quite enormous task.

For the fourth outcome, "Objectively Verifiable Indicators", regarding hits on the FAO web site, this will depend also on the links to other relevant sites—e.g. FAO itself, UNEP, relevant regional fishery bodies.

The third result (1st column) is too an ambitious an expected "result", considering that improving research at the national level itself is not a specific objective of the Project.

In the "Objectively Verifiable Indicator" for the third result, on the agreements between governments on fishery research, it is important to specify the institutions through which these agreements would be implemented; inter-institutional co-operation in some (probably all) regions is often hard to arrange and even harder to implement. Also, these agreements should be specifically related to "the problems addressed by the Project" and I suggest adding the last phrase in quotation marks to the present text.

Likewise, for the fourth result, research programmes on environmental issues are notoriously expensive, hard to develop and hard to carry out; the Project is not developing them nor paying for them: they might not become a useful "Objectively Verifiable Indicator".

Regarding the "Critical Assumptions and Risks", for the first outcome, "temporary loss of income" is nowhere defined and views on its "duration" may vary widely amongst stakeholders; also, greater effort might be put into making catch, retention, selling of by-catch better, thus making its capture more or less a parallel fishery.

Milestones may not be at all easy to fix; favourable results from experimental fishing may not be well reflected in subsequent commercial fishing. If results of the experimental fishing are mixed, commercial introduction may be greatly slowed. This would certainly compromise the Project objective to reduce by-catch by 50%.

While there is a commitment in the Project proposal to disseminate good results (interim and final), there is no such commitment regarding poor or mixed results, which might be a pity if the results expected—by the shrimp-trawler fisheries (better and sustainable shrimp catches), the environmentalists (reduced by-catch, increased finfish resources, no great environmental impact on the sea bed or on the shrimp resources), potential investors etc. (everything, especially rentability of investment)—were proved wrong, economically and environmentally.

Regarding Economic and Environmental Benefits, Annex A, first paragraph, benefits are hard to estimate before BRDs are tested, adopted and used for a considerable time, so this is a "risk-capital" project. However, experience elsewhere is important and sufficiently general to allow the use of BRDs to be recommended directly to the participating countries, perhaps saving unnecessary costs—unless the Project is actually a disguised subvention to some selected shrimp-trawler fisheries.

The totals for the columns "Baseline" and "Alternate" in Table 1 do not, by my calculator, seem correct.

Project future

For the "Critical Assumptions and Risks" (Annex B) I propose0 new text "That relevant laws and regulations will be complied with by the fishing industry", although this is open to considerable doubt.

For the second result (also Annex B), it is not at all sure that fishery management will be improved; fishery management is a complex and difficult task and goes well beyond the scope and objective of this Project.

Annex D

Available Reference Documents

The following Reference Documents are relevant to the project:

INTERNATIONAL AGREEMENTS AND CONFERENCES
- UN Convention on the Law of the Sea, 1982
- FAO Code of Conduct for Responsible Fisheries, 1995
- United Nations Conference on Environment and Development (UNCED) – Chapter 17 of Agenda 21, 1992
- Convention on Biological Diversity: paragraph 4 of decision II/10 of the Contracting Parties
- The 'Jakarta Mandate on Marine and Coastal Biological Diversity'
- Report of the FAO Technical Consultation on Reduction of Wastage in Fisheries (28 October-1 November 1996, Tokyo). 1997; FAO Fisheries Report 547

DOCUMENTS PRODUCED DURING THE PDF PHASE

- Report of the Workshop of National Co-ordinators of the UNEP/GEF/FAO Project on reducing the impact of tropical shrimp-trawling fisheries on living resources through the adoption of environmentally friendly techniques Rome, Italy, 17-19 March 1999; FAO Fisheries Report 605

- Thirteen national reports on the situation of the shrimp fisheries in thirteen selected countries. 2000 (in press)

-Report of the four GEF/UNEP/FAO regional workshops on reducing the impact of tropical shrimp trawling fisheries. 2000; FAO Fisheries Report 627

ANNEX E

OVERVIEW OF THE SHRIMP-TRAWLING FISHERY IN THE PARTICIPATING COUNTRIES

Bahrain:

335 operational shrimp trawlers of varying sizes, between 5 and 23 m in total length. The shrimp catch was 2 571 tonnes in 1997, which is 25.6% of the total catch of the country. During the period 1980-1997, the maximum shrimp landings were 3 565 tonnes in 1996, while the lowest catch of 752 tonnes was recorded during the Persian Gulf War in 1992. Although it has been known that a significant amount of fish by-catch is captured together with the shrimp, reliable data did not exist prior to an ongoing two-year survey aimed at monitoring such by-catch. Results from this survey have not yet been published. Bahrain has also conducted experiments with a by-catch reduction device during the 1999–2000 season. Indicative figures are a reduction of finfish by 50%, crabs by 10% and with no loss of shrimp catch.

Cameroon:

65 licensed shrimp trawlers mainly operated by "Time Charter" companies, a kind of joint venture with foreign ownership. The official landings of shrimp are only around 500 tonnes/year, but this figure is believed to be an underestimate, as some of the "Time Charter" companies are not declaring the real quantities caught. In addition to industrial trawlers, approximately 200 fishing canoes are exploiting small estuary shrimp (*Nematopalaemon hastatus)* with very-small-meshed conical nets (ngoto). Two-boat trawling is increasing in shallow waters, targeting mainly fish. Shrimp trawlers also catch large amounts of fish as by-catch. Some of the fish by-catch, including a certain amount of juveniles is landed at the local market, but, undoubtedly, a significant amount of low-valued fish and juveniles is also discarded at sea. Capture of juvenile food fish is a threat to sustainable exploitation of demersal fish resources, and trawling in shallow waters creates serious conflicts with artisanal fishers.

Colombia:

Shrimp fisheries on both sides of the country on the Pacific and the Caribbean coasts. On the Pacific coast there are 115 units, mainly small boats, 70% of them operating in coastal areas (where artisanal fishers also exploit shrimp and fish resources with other small-meshed fishing gear). In 1996, 4 139 tons of shrimp were caught on the Pacific side. At the same time the Pacific fishery is developing quickly; it is estimated that the shrimp resources are over-exploited. Recent progress in technology has lead to diversification of the fishing effort towards deeper shrimp species. Regarding by-catch, the estimate is 14 664 tons (of which, many juveniles). Normally this by-catch is kept for the local market and in many fishing companies is sold as a bonus for crew members. On the Caribbean coast the fleet consists of various sizes of vessels, but more than half are larger trawlers. In the Caribbean, the shrimp catch in 1996 was 916 tons and it is estimated that the shrimp resource is over-exploited. The fishery is decreasing seriously in terms of catch. The by-catch on the Caribbean side is about 9 868 tons. It is indicated

that 4 kg of by-catch is discarded for every kilogram of shrimp.

Costa Rica:

73 trawlers ("Florida type" with outriggers) that operate on the Pacific side of the country. The annual shrimp catch amounts to approximately 2 000 tonnes. The amount of by-catch is estimated at 3 000 t/year, of which around 2 400 t are discarded. There are about 7.5 kg of by-catch for 1 kg of shrimp taken. When fishing in coastal waters, the use of a turtle-excluder device (TED) is mandatory in waters shallower than 80 fathoms. A vessel-monitoring system (VMS) exists. High discard rates, particularly of juveniles, and overfishing of the resources in general, are reported.

Cuba:

Fleet 51 fishing vessels involved in shrimp trawling, mainly at night and with 14 support vessels, which ensure a daily transfer of shrimp and incidental catch to port. The annual catch of shrimp is 2000 tonnes in addition to 11 000 tonnes of fish in a combined trawl fishery. The average trawl catch in recent years has been 6 to 8 kg of fish for 1 kg of shrimp. There is no discard: approximately 22% of the non-shrimp catch are landed for human consumption, the rest is reduced to fishmeal or silage for animal consumption. The shrimp-fishing grounds are well demarcated and there are fishing closures during recruitment seasons, and other regulations exist for reducing fishing effort and for the protection of areas with a known high density of juveniles or large quantities of small-size fish.

Indonesia:

Trawler fleet (1996) of 431 vessels from 19 to 849 GT. Three types of trawl riggings are used: single trawl towed from the stern of the vessel; outrigger twin trawls (two trawls); and outrigger quad trawls (four trawls). According to Presidential Decree No085/1982 all units should be equipped with a by-catch efficiency device (BED), which is a modified form of a turtle-excluder device (TED). The law of 1982 restricts trawling for shrimp to the Arafura Sea (eastern Indonesia). The shrimp catch from that area was approximately 20 000 tonnes, in 1996, which is 10% of the total catch in that area. The remaining catch includes landed as well a discarded by-catches, mainly of fish. Generally, the shrimp/by-catch ratio is 1 to 8-15. The yield from shrimp has more or less levelled off over a long period of observation, but fluctuation is observed from year to year. The catches of demersal and pelagic fish are increasing slightly. The estimate for 1998 is around 200 000 tonnes of by-catch, of which 170 000 tonnes were discarded. Nearly 2/3 of the total landings consist of fish.

Iran:

39 industrial trawlers of 27-m length and 750-hp engines fishing with outriggers (two trawls), approximately 870 wooden vessels of 16-m average length and 100–220-hp engines (dhows) and approximately 1 500 fibreglass boats of 7 m mean length with 25–45-hp engines. The catch of shrimp is approximately 7 000 tonnes. The shrimp trawler catch consists of 10–17% shrimp, 10–25% small fish, 40–60% juvenile fish

(less than 30 cm in length) and 10–20% larger fish. Most of the small fish and juveniles are discarded, more so at the start of the season when shrimp catches are good. In Hormozgan province discarding is banned and a collecting scheme for such by-catch has been established. The shrimp-fishing season in each province is approximately six weeks, and opening and closing is based on the maturity and body length of shrimp and percentage (20%) of remaining stock.

Mexico

In 1994/95 the Mexican fishing fleet comprised around 1 200 active shrimpers on the Pacific coast and around 600 active shrimpers in the Gulf of Mexico. By 1996 there were 2 260 units registered (although only 1 847 were active), of which 1 475 on the Pacific coast and 785 in the Gulf of Mexico/Caribbean. These shrimp-fishing vessels range 21-27 m length, the most common being 23 m, with a capacity of more than 20 tons and an autonomy of 14-30 days. These vessels are however relatively old, with an average age of 17-19 years. In inshore waters smaller boats (5-15 m long) are used on both coasts, built in fibrelgass or wood. In 1996 the total Mexican shrimp production was around 79 000 t (72% from the Pacific, and 25% from the Gulf of Mexico). This represented 5% of the total national fish production, and an estimated value of US$ 300 000 million. In 1996 the industrial shrimp fishery produced around 39 000 t landed as follows: Sinaloa 25.5%; Sonora 23.6%; Tamaulipas 17.5%; Campeche 13.4%. The average yearly production (of headless shrimp) per vessel would be around 15.8 t on the Pacific coast, and 18.5 t in the Gulf of Mexico. In 1994 the use of TEDs was made mandatory in the Gulf of Mexico and Caribbean, and in 1996 on the Pacific coast also.

Nigeria:

264 licensed trawlers (1999) catching approximately 10 000 tonnes of shrimp per year. By-catch of fish is significant and a system of landing most of these catches has developed rapidly in the country. The shrimp trawlers freeze the valuable catch on board. The remaining fish by-catch is traded at sea through a system in which motorized canoes buy the fish and transport it to shore where it is processed and marketed. This latter practice now involves a significant number of people who make a living from this activity (for some people, this kind of trade now replaces their previous fishing activities); it is also a major source of income for the trawler crew, who are poorly paid (less than US$ 20 per month). The negative side of this practice is that shrimp trawlers now aim o catch as much fish as possible, often in shallow waters where not only fish but also juveniles are most abundant. As trawling for fish is often conducted in shallow waters where the artisanal fleet operates, conflicts, including damage to gear, are an increasing problem. The control of fishing vessel operations (MCS system) is poorly developed to combat this questionable fishing practice.

Philippines:

Fleet of 445 trawlers, 62% classified as small-commercial (i.e. 3.1 to 20 GT); 37% medium commercial (20.1 to 150 GT) and 1% large-commercial (150.1 GT and above). The annual catch of shrimp is approximately 32 000 tonnes. White shrimp (*Penaeus merguiensis),* tiger shrimp *(P. semisulcatus*) and endeavour shrimp *(Metapenaeus ensis)* are the most important species, together with the smaller *Acetes* species which, in weight, constitutes 34% of the total catch. Although the trawl is the most common fishing gear for shrimp, there is a tradition of catching shrimp with gillnets. Discard rates are unknown, but likely to be relatively small, as there is a market for most of the captured fish. It is anticipated that significant proportions of fish by-catch consist of juveniles of valuable food-fish species. The Philippines has developed a set of regulations, but enforcement of these is considered a problem.

Trinidad and Tobago:

Fleet of 126 vessels, of which 19 are industrial trawlers (in 1998) operating, according to existing regulation, offshore in deeper waters while smaller boats fish nearer the shore. The annual landings of shrimp (several species mixed) are around 1 000 tonnes. A significant quantity of finfish, squid and crabs are caught as by-catch (certain species of finfish may be targeted, depending on market demand, or during the wet season when shrimp abundance decreases). According to estimates, the small trawlers discard almost all the by-catch, while larger industrial or semi-industrial trawlers normally keep around 40 % of their by-catch on board. In order to conform with US requirements for shrimp-exporting nations, the large trawlers carry turtle-exclusion devices (TEDs) on board (The local fishery authorities give high priority to the development and introduction of a combined turtle and fish excluder). Existing regulations require a different size of mesh according to whether the trawler targets shrimp or fish. A major concern is overfishing and capture of juvenile (pre-spawning) shrimp. A conflict exists between trawling and other fishing methods (gillnets, pots, demersal long-lining, and handlines), because artisanal fishers blame the trawlers for the depletion of the demersal fish stocks.

Venezuela:

Fleet of 351 trawlers. In 1997, the landings of the shrimp trawlers amounted to 3 665 tonnes of shrimp and almost 20 000 tonnes of fish. The trawl fishery is a combined fishery for shrimp, molluscs and fish. The shrimp component represents between 2.5 and 6% of the general catch. Of the additional catch, 30–35% is normally landed, the remaining 60–65% (mainly fish, with an estimated 80% of juveniles from species of commercial interest) is discarded. In principle, turtle-excluder devices are used on board industrial trawlers (however, significant losses of fish and shrimp are reported). For administrative purposes, the fishing grounds are demarcated into zones with a portion of the fleets authorzsed to fish in each of them. Technological research has been carried out for a number of years to reduce the discards and assess the impact of the use of excluder devices fixed on the net. In addition, regular surveys are carried out to estimate the amount of by-catch produced by the vessels, its composition, size structure, and geographical distribution. Concern is expressed about overexploitation of shrimp resources, particularly in coastal areas, and the capture of juvenile fish.

Annex F1

Project Budget for Cameroon

Project No./Symbol: EP/GLO/201/GEF Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: Implementing Organization: UNEP Executing Organization: FAO

Oracle Code: Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	0	0	0	0	0	0
Consultants Nat	**5570**	**1200**	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	15,000.00
Contracts	**5650**	**2000**	0	0	0	0	0	0
Travel Int	**5900**	**1600**	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00	12,500.00
Travel Nat	**5900**	**1600**	0	0	0	0	0	0
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	8,000.00	2,000.00	0	0	0	10,000.00
Non-Expendable	**6100**	**4200**	3,000.00	2,000.00	0	0	0	5,000.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	7,500.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**18,000.00**	**11,000.00**	**7,000.00**	**7,000.00**	**7,000.00**	**50,000.00**

Annex F2

PROJECT BUDGET FOR COLOMBIA

Project No./Symbol: EP/GLO/201/GEF Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: Implementing Organization: UNEP Executing Organization: FAO

Oracle Code: Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	0	0	0	0	0	0
Consultants Nat	**5570**	**1200**	23,000.00	18,500.00	15,000.00	15,000.00	5,000.00	76,500.00
Contracts	**5650**	**2000**	0	0	0	6,000.00	0	6,000.00
Travel Int	**5900**	**1600**	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	7,500.00
Travel Nat	**5900**	**1600**	0	0	0	0	0	0
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	0	0	0	0	0	0
Non-Expendable	**6100**	**4200**	1,000.00	500.00	500.00	500.00	0	2,500.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	7,500.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**27,000.00**	**22,000.00**	**18,500.00**	**24,500.00**	**8,000.00**	**100,000.00**

Annex F3

Project Budget for Costa Rica

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	0	0	0	0	0	0
Consultants Nat	**5570**	**1200**	10,000.00	10,000.00	10,000.00	5,000.00	5,000.00	40,000.00
Contracts	**5650**	**2000**	50,000.00	40,000.00	30,000.00	20,000.00	15,000.00	155,000.00
Travel Int	**5900**	**1600**	15,000.00	10,000.00	10,000.00	4,000.00	4,000.00	43,000.00
Travel Nat	**5900**	**1600**	0	0	0	0	0	0
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	25,500.00	5,000.00	0	0	0	30,500.00
Non-Expendable	**6100**	**4200**	10,000.00	1,000.00	0	0	0	11,000.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	7,500.00	4,000.00	4,000.00	3,000.00	2,000.00	20,500.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**118,000.00**	**70,000.00**	**54,000.00**	**32,000.00**	**26,000.00**	**300,000.00**

Annex F4

Project Budget for Cuba

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	2,000.00	2,000.00	2,000.00	0	0	6,000.00
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	0	0	0	0	0	0
Consultants Nat	**5570**	**1200**	8,000.00	10,000.00	5,000.00	0	0	23,000.00
Contracts	**5650**	**2000**	0	0	0	0	0	0
Travel Int	**5900**	**1600**	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	10,000.00
Travel Nat	**5900**	**1600**	5,000.00	35,000.00	0	0	0	40,000.00
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	14,000.00	1,000.00	1,000.00	0	0	16,000.00
Non-Expendable	**6100**	**4200**	28,000.00	0	0	0	0	28,000.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	6,000.00	15,000.00	2,000.00	2,000.00	2,000.00	27,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0

Total Budget			**65,000.00**	**65,000.00**	**12,000.00**	**4,000.00**	**4,000.00**	**150,000.00**

Annex F5

Project Budget for Indonesia

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	4,000.00	0	5,000.00	0	0	9,000.00
Consultants Nat	**5570**	**1200**	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	25,000.00
Contracts	**5650**	**2000**	25,000.00	115,000.00	69,000.00	45,000.00	15,000.00	269,000.00
Travel Int	**5900**	**1600**	7,000.00	16,000.00	7,500.00	1,000.00	3,500.00	35,000.00
Travel Nat	**5900**	**1600**	7,500.00	27,000.00	16,500.00	5,000.00	0	56,000.00
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	0	0	0	0	0	0
Non-Expendable	**6100**	**4200**	0	0	0	0	0	0
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	0	3,000.00	3,000.00	0	0	6,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**48,500.00**	**166,000.00**	**106,000.00**	**56,000.00**	**23,500.00**	**400,000.00**

Annex F6

Project Budget for Iran

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	5,000.00	5,000.00	0	5,000.00	0	15,000.00
Consultants Nat	**5570**	**1200**	10,500.00	9,000.00	14,000.00	39,000.00	40,000.00	112,500.00
Contracts	**5650**	**2000**	0	0	0	0	0	0
Travel Int	**5900**	**1600**	7,500.00	5,500.00	3,000.00	6,000.00	7,000.00	29,000.00
Travel Nat	**5900**	**1600**	5,000.00	8,500.00	18,000.00	28,000.00	20,000.00	79,500.00
Training	**5920**	**3000**	0	7,000.00	3,000.00	3,000.00	0	13,000.00
Equipment								
Expendable	**6000**	**4100**	2,000.00	0	100,000.00	100,000.00	0	202,000.00
Non-Expendable	**6100**	**4200**	0	0	0	0	0	0
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	0	1,000.00	2,000.00	23,000.00	23,000.00	49,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**30,000.00**	**36,000.00**	**140,000.00**	**204,000.00**	**90,000.00**	**500,000.00**

Annex F7

Project Budget for Mexico

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	0	0	0	0	0	0
Consultants Nat	**5570**	**1200**	40,000.00	43,000.00	16,000.00	5,000.00	5,000.00	109,000.00
Contracts	**5650**	**2000**	15,000.00	15,000.00	0	0	0	30,000.00
Travel Int	**5900**	**1600**	11,000.00	11,000.00	11,000.00	11,000.00	12,000.00	56,000.00
Travel Nat	**5900**	**1600**	6,000.00	6,000.00	3,000.00	1,000.00	3,000.00	19,000.00
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	96,000.00	14,000.00	58,000.00	0	0	168,000.00
Non-Expendable	**6100**	**4200**	90,000.00	0	0	0	0	90,000.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	78,000.00	78,000.00	72,000.00	0	0	228,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**336,000.00**	**167,000.00**	**160,000.00**	**17,000.00**	**20,000.00**	**700,000.00**

Annex F8

Project Budget for Nigeria

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	5,000.00	5,000.00	0	5,000.00	0	15,000.00
Consultants Nat	**5570**	**1200**	10,000.00	10,000.00	14,000.00	40,000.00	40,000.00	114,000.00
Contracts	**5650**	**2000**	0	0	0	0	0	0
Travel Int	**5900**	**1600**	6,000.00	5,000.00	5,000.00	6,000.00	5,000.00	27,000.00
Travel Nat	**5900**	**1600**	5,000.00	8,000.00	15,000.00	15,000.00	15,000.00	58,000.00
Training	**5920**	**3000**	0	7,000.00	2,000.00	4,000.00	0	13,000.00
Equipment								
Expendable	**6000**	**4100**	3,000.00	0	100,000.00	100,000.00	0	203,000.00
Non-Expendable	**6100**	**4200**	8,000.00	5,000.00	0	0		13,000.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	23,000.00	10,000.00	4,000.00	10,000.00	10,000.00	57,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**60,000.00**	**50,000.00**	**140,000.00**	**180,000.00**	**70,000.00**	**500,000.00**

Annex F9

Project Budget for Philippines

Project No./Symbol: EP/GLO/201/GEF

Date:

Budget Holder:

Reduction of Environmental Impact from Tropical Shrimp Trawling...

Revision No.:

Implementing Organization: UNEP

Executing Organization: FAO

Oracle Code:

Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	0	0	0	0	0	0
Consultants Nat	**5570**	**1200**	6,000.00	6,000.00	6,000.00	6,000.00	0	24,000.00
Contracts	**5650**	**2000**	48,000.00	48,000.00	0	0	0	96,000.00
Travel Int	**5900**	**1600**	12,000.00	10,000.00	12,000.00	10,000.00	0	44,000.00
Travel Nat	**5900**	**1600**	50,000.00	50,000.00	50,000.00	50,000.00	0	200,000.00
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	0	8,000.00	6,000.00	0	0	14,000.00
Non-Expendable	**6100**	**4200**	14,000.00	0	0	0	0	14,000.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	4,000.00	0	0	4,000.00	0	8,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0
Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**134,000.00**	**122,000.00**	**74,000.00**	**70,000.00**	**0**	**400,000.00**

Annex F10

Project Budget for SEAFDEC

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	0	0	0	0	0	0
Consultants Nat	**5570**	**1200**	0	0	0	0	0	0
Contracts	**5650**	**2000**	3,500.00	60,500.00	0	0	0	64,000.00
Travel Int	**5900**	**1600**	0	8,500.00	0	0	0	8,500.00
Travel Nat	**5900**	**1600**	0	0	0	0	0	0
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	8,000.00	8,500.00	0	0	0	16,500.00
Non-Expendable	**6100**	**4200**	0	0	0	0	0	0
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	1,000.00	10,000.00	0	0	0	11,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0

Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**12,500.00**	**87,500.00**	**0**	**0**	**0**	**100,000.00**

Annex F11

Project Budget for Venezuela

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	6,500.00	6,500.00	6,500.00	0	0	19,500.00
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	0	0	0	0	0	0
Consultants Nat	**5570**	**1200**	18,500.00	35,000.00	36,500.00	25,000.00		115,000.00
Contracts	**5650**	**2000**	1,500.00	0	0	0	0	1,500.00
Travel Int	**5900**	**1600**	8,000.00	6,000.00	6,000.00	2,000.00	2,000.00	24,000.00
Travel Nat	**5900**	**1600**	35,500.00	30,000.00	15,000.00	5,000.00	5,000.00	90,500.00
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	28,000.00	27,000.00	25,000.00			80,000.00
Non-Expendable	**6100**	**4200**	56,000.00	0	0	0	0	56000
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	3,000.00	3,500.00	3,000.00	2,000.00	2,000.00	13,500.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0

Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**157,000.00**	**108,000.00**	**92,000.00**	**34,000.00**	**9,000.00**	**400,000.00**

Annex F12

Project Budget for Trinidad & Tobago

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	0	0	0	0	0	0
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	3,000.00	5,000.00	5,000.00	0	0	13,000.00
Consultants Nat	**5570**	**1200**	10,000.00	5,000.00	3,000.00	2,000.00	2,000.00	22,000.00
Contracts	**5650**	**2000**	0	0	0	0	0	0
Travel Int	**5900**	**1600**	3,000.00	13,000.00	10,000.00	10,000.00	4,000.00	40,000.00
Travel Nat	**5900**	**1600**	0	0	0	3,000.00	3,000.00	6,000.00
Training	**5920**	**3000**	0	0	0	0	0	0
Equipment								
Expendable	**6000**	**4100**	1,000.00	0	0	0	0	1,000.00
Non-Expendable	**6100**	**4200**	2,000.00	0	0	0	0	2,000.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	4,000.00	3,000.00	3,000.00	3,000.00	3,000.00	16,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0

Support Costs	**6150**		0	0	0	0	0	0
Total Budget			**23,000.00**	**26,000.00**	**21,000.00**	**18,000.00**	**12,000.00**	**100,000.00**

Annex F13

Project Budget for ALL Countries

Project No./Symbol: EP/GLO/201/GEF — Date:

Budget Holder: **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Revision No.: — Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	Accnt code Oracle	Budget Line (UNEP)	US$ Year 1	US$ Year 2	US$ Year 3	US$ Year 4	US$ Year 5	US$ Total
-Staff Costs								
Salaries								
Professionals	**5300**	**1100**	0	0	0	0	0	0
General Service	**5500**	**1300**	8,500.00	8,500.00	8,500.00	0	0	25,500.00
Overtime	**5660**		0	0	0	0	0	0
Consultants Int	**5570**	**1200**	17,000.00	15,000.00	10,000.00	10,000.00	0	52,000.00
Consultants Nat	**5570**	**1200**	144,000.00	154,500.00	127,500.00	145,000.00	105,000.00	676,000.00
Contracts	**5650**	**2000**	143,000.00	278,500.00	99,000.00	71,000.00	30,000.00	621,500.00
Travel Int	**5900**	**1600**	75,500.00	91,000.00	70,500.00	56,000.00	43,500.00	336,500.00
Travel Nat	**5900**	**1600**	114,000.00	164,500.00	117,500.00	107,000.00	46,000.00	549,000.00
Training	**5920**	**3000**	0	14,000.00	5,000.00	7,000.00	0	26,000.00
Equipment								
Expendable	**6000**	**4100**	185,500.00	65,500.00	290,000.00	200,000.00	0	741,000.00
Non-Expendable	**6100**	**4200**	212,000.00	8,500.00	500.00	500.00	0	221,500.00
Hospitality	**6110**	**5400**	0	0	0	0	0	0
Gen. Operating Exps	**6300**	**5000**	129,500.00	130,500.00	96,000.00	50,000.00	45,000.00	451,000.00
Gen. Overhead Exps	**6400**		0	0	0	0	0	0
Chargebacks	**6500**		0	0	0	0	0	0

Support Costs	**6130**		0	0	0	0	0	0
Total Budget			**1,029,000.00**	**930,500.00**	**824,500.00**	**646,500.00**	**269,500.00**	**3,700,000.00**

Annex G

PROJECT BUDGET INPUTS FROM GEF (CASH) TO FAO

Project No./Symbol: EP/GLO/201/GEF — Date:16.10.2001

Donor: GEF — **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Implementing Organization: UNEP — Executing Organization: FAO

Oracle Code: — Budget component

Description	**ORACLE Code**	**UNEP Code**	**FINANCING, GEF INPUTS IN CASH TO FAO**					
			Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
			US$	**US$**	**US$**	**US$**	**US$**	**US$**
Project Coordinator (P5)			na	na	na	na	Na	na
Project Operations Officer (P4) w/m			3.60	3.60	3.60	3.60	3.60	18.00
Fishing Technologist (P3/4) w/m			na	na	na	na	na	na
Other FI experts (P4/5) w/m			na	na	na	na	na	na
GS, Secretary, clark….			na	na	na	na	na	na
Consultants…. w/m			3.00	3.00	3.00	3.00	3.00	15.00
Project Coordinator (P5)	**5300**	**1101**	0	0	0	0	0	0
Project Operations Officer	**5300**	**1102**	36,000.00	36,000.00	36,000.00	36,000.00	36,000.00	180,000.00
Fishing Technologist (P3/4)	**5300**	**1103**	-	-	-	-	-	-
Other FI Experts (P4/5)	**5300**	**1104**	-	-	-	-	-	-
GS, Secretary, Clark…	**5500**	**1300**	-	-	-	-	-	-
Consultants	**5570**	**1200**	21,000.00	21,000.00	21,000.00	21,000.00	21,000.00	105,000.00
Contracts	**5650**	**2000**	-	-	-	-	-	-
Overtime	**5660**	**1320**	**-**	**-**	**-**	**-**	**-**	**-**
Travel HQ staff	**5900**	**1601**	8,455.00	8,000.00	8,000.00	8,000.00	8,000.00	40,455.00
Travel Consultants	**5900**	**1602**	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	50,000.00
Travel Evaluation Missions	**5900**	**5500**	-	20,000.00	pm	20,000.00	pm	40,000.00
Equipment – expandable	**6000**	**4100**	**-**	**-**	**-**	**-**	**-**	**-**
Equipment non- expandable	**6100**	**4200**	**-**	**-**	**-**	**-**	**-**	**-**
Hospitality	**6110**	**5400**	**-**	**-**	**-**	**-**	**-**	**-**
General Operating Expenditures (misc)	**6300**	**5000**	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	50,000.00
Gen Overhead Exp. (in support cost)	**6400**		**-**	**-**	**-**	**-**	**-**	**-**
Subtotal			**85,455.00**	**105,000.00**	**85,000.00**	**105,000.00**	**85,000.00**	**465,455.00**
Support cost	**6130**	**0**	56,909.00	56,909.00	56,909.00	56,909.00	56,909.00	284,545.00

Total			**142,364.00**	**161,909.00**	**141,909.00**	**161,909.00**	**141,909.00**	**750,000.00**

Annex H

FAO CO-FINANCING (in kind)

Project No./Symbol: EP/GLO/201/GEF

Donor: GEF

(US$)

Date: 16.10.2001

Reduction of Environmental Impact from Tropical Shrimp Trawling...

Implementing Organization: UNEP

Executing Agency: FAO

Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**		**US$ Total**
A. Global information							10,000.00
A.1 Publications of shrimp fishing methods	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00		100,000.00
A.2 Inventory of BRDs	40,000.00	40,000.00	40,000.00	40,000.00	40,000.00		200,000.00
A.3 Annual reporting	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00		150,000.00
A.4 Inventory of legal and policy issues	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00		150,000.00
A.5 Guidelines and information materials	40,000.00	40,000.00	40,000.00	40,000.00	40,000.00		200,000.00
A.6 Directories of experts and institutions	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00		50,000.00
Project Coordination & Management	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00		100,000.00
Total	190,000.00	190,000.00	190,000.00	190,000.00	190,000.00		950,000.00

Annex J

SUMMARY BUDGET FOR GEF CONTRIBUTION

Project No./Symbol: EP/GLO/201/GEF **(US$)** Dat 16.10.2001
e:

Donor: GEF **Reduction of Environmental Impact from Tropical Shrimp Trawling...**

Implementing Organization: UNEP Executing Agency: FAO

Component	Year 1	Year 2	Year 3	Year 4	Year 5		US$ Total
Countries							
Cameroon	18,000.00	11,000.00	7,000.00	7,000.00	7,000.00		50,000.00
Colombia	27,000.00	22,000.00	18,500.00	24,500.00	8,000.00		100,000.00
Costa Rica	118,000.00	70,000.00	54,000.00	32,000.00	26,000.00		300,000.00
Cuba	65,000.00	65,000.00	12,000.00	4,000.00	4,000.00		150,000.00
Indonesia	48,500.00	166,000.00	106,000.00	56,000.00	23,500.00		400,000.00
Iran	30,000.00	36,000.00	140,000.00	204,000.00	90,000.00		500,000.00
Mexico	336,000.00	167,000.00	160,000.00	17,000.00	20,000.00		700,000.00
Nigeria	60,000.00	50,000.00	140,000.00	180,000.00	70,000.00		500,000.00
Philippines	134,000.00	122,000.00	74,000.00	70,000.00	0		400,000.00
SEAFDEC	12,500.00	87,500.00	0	0	0		100,000.00
Venezuela	157,000.00	108,000.00	92,000.00	34,000.00	9,000.00		400,000.00
Trinidad & Tobago	23,000.00	26,000.00	21,000.00	18,000.00	12,000.00		100,000.00
SEAFDEC	12,500.00	87,500.00	-	-	-		100,000.00
Total countries	1,029,000.00	930,500.00	824,500.00	646,500.00	269,500.00		**3,700,000.00**
Project Coordination & Management (FAO)	142,364.00	161,909.00	141,909.00	161,909.00	141,909.00		750,000.00
Total	1,171,364.00	1,092,409.00	966,409.00	808,409.00	411,409.00		4,450,000.00

Annex K Budget in UNEP Format

Reduction of Environmental Impact from Tropical Shrimp Trawling

ORACLE CODES			Year 1	Year 2	Year 3	Year 4	Year 6	Total Budget
			US$	US$	US $	US $	US $	US $
	10 PROJECT PERSONNEL COMPONENT							
	1100	Project Personnel						
5300		1102 Project Operations Officer	36,000	36,000	36,000	36,000	36,000	180,000
		1199 Total	36,000	36,000	36,000	36,000	36,000	180,000
	1200	Consultants (Short term)						
5570		1201 Consultants	21,000	21,000	21,000	21,000	21,000	105,000
		1299 Total	21,000	21,000	21,000	21,000	21,000	105,000
	1300	Administrative Support						
		1301 Administrative Cost	56,909	56,909	56,909	56,909	56,909	284,545
		1399 Total	56,909	56,909	56,909	56,909	56,909	284,545
	1600	Official Travel						
5900		1601 Travel HQ staff	8,455	8,000	8,000	8,000	8,000	40,455
5900		1602 Travel consultants	10,000	10,000	10,000	10,000	10,000	50,000
		1699 Total	18,455	18,000	18,000	18,000	18,000	9,455
	1999	Component Total	132,364	131,909	131,909	131,909	131,909	660,000

	20 SUB CONTRACT COMPONENT							
5650	2200	Sub-contracts (supporting org.)						
		2201 Cameroon	18,000	11,000	7,000	7,000	7,000	50,000
		2202 Colombia	27,000	22,000	18,500	24,500	8,000	100,000
		2203 Costa Rica	118,000	70,000	54,000	32,000	26,000	300,000
		2204 Cuba	65,000	65,000	12,000	4,000	4,000	150,000
		2205 Indonesia	48,500	166,000	106,000	56,000	23,500	400,000
		2206 Iran	30,000	36,000	140,000	204,000	90,000	500,000
		2207 Mexico	336,000	167,000	160,000	17,000	20,000	700,000
		2208 Nigeria	60,000	50,000	140,000	180,000	70,000	500,000
		2209 Philippines	134,000	122,000	74,000	70,000	0	400,000
		2210 SEAFDEC	12,500	87,500	0	0	0	100,000
		2211 Venezuela	157,000	108,000	92,000	34,000	9,000	400,000
		2212 Trinidad & Tobago	23,000	26,000	21,000	18,000	12,000	100,000
		2299 Total	1,029,000	930,500	824,500	646,500	269,500	3,700,000
	2999	Component Total	1,029,000	930,500	824,500	646,500	269,500	3,700,000
	50 MISCELLANEOUS COMPONENT							
	5100	Operation and maintenance of equipment						
6300		5101 General operating expenditures	10,000	10,000	10,000	10,000	10,000	50,000
		5199 Total	10,000	10,000	10,000	10,000	10,000	50,000
5900		5501 Travel Evaluation Missions		20,000		20,000		40,000
6130		5499 Total	0	20,000	0	20,000	0	40,000
	5999	Component Total	10,000	30,000	10,000	30,000	10,000	90,000
	99 GRAND TOTAL		**1,171,364**	**1,092,409**	**966,409**	**808,409**	**411,409**	**4,450,000**