FAO/GLOBAL ENVIRONMENT FACILITY

PROJECT DOCUMENT

Countries:	Indonesia, Papua New Guinea, Philippines, Thailand and Viet Nam
project title:	Strategies for trawl fisheries bycatch management (**REBYC-II CTI**)
GEF project ID:	3619
FAO project ID:	611342
FAO project symbol:	GCP /RAS/269/GFF
GEF agency:	Food and Agriculture Organization of the United Nations (FAO)
Other executing partners:	Directorate General of Capture Fisheries, Ministry of Marine Affair and Fisheries, **Indonesia**; National Fisheries Authority, **Papua New Guinea**; Department of Agriculture, Bureau of Fisheries and Aquatic Resources, **Philippines**; Royal Thai Government, Department of Fisheries, **Thailand**; Ministry of Agriculture and Rural Development (MARD), Directorate of Fisheries, **Vietnam**; and Southeast Asian Fisheries Development Center (SEAFDEC)
GEF focal area:	International Waters (IW)
GEF strategic programme:	SP1 Marine Fisheries (Restoring and Sustaining Coastal and Marine Fish Stocks and Associated Biological Diversity)
Duration:	Four years
Estimated starting date:	January 2011
Estimated completion:	December 2014

Financing plan:

GEF allocation:	**USD**	**3 000 000**
Co-financing:		
Government of Indonesia	USD	627 000
Government of Papua New Guinea	USD	211 000
Government of the Philippines	USD	680 900
Government of Thailand	USD	218 000
Government of Viet Nam	USD	193 200
Private sector Indonesia	USD	175 000
Private sector Papua New Guinea	USD	40 000
Private sector Philippines	USD	685 100
Private sector Thailand	USD	470 000
Private sector Viet Nam	USD	680 000
Other Indonesia	USD	95 000
Other Papua New Guinea	USD	140 000
Other Viet Nam	USD	27 000
By-catch Guidelines (FAO project)	USD	160 000
FAO (in-kind)	USD	140 000
SEAFDEC	USD	800 000
CIM	USD	255 000
Sida	USD	2 100 000
WWF	USD	90 000
SPF	USD	75 000
IFFO	USD	47 000
RFLP (FAO programme)	USD	300 000
Subtotal co-financing	**USD**	**8 218 600**
Total project budget:	**USD**	**11 218 600**

OPERATIONAL FOCAL POINT ENDORSEMENT:

Name, Title, Institution	Date of endorsement:
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EXECUTIVE SUMMARY

This project – *Strategies for trawl fisheries bycatch management (REBYC-II CTI)* – will contribute to the more sustainable use of fisheries resources and healthier marine ecosystems in the Coral Triangle and Southeast Asia waters by reducing bycatch, discards and fishing impact by trawl fisheries. It will be executed by the Southeast Asian Fisheries Development Center (SEAFDEC), based in Bangkok, Thailand, and the governments in the participating countries Indonesia, Papua New Guinea, Philippines, Thailand and Viet Nam in partnership with the private sector and relevant national, regional and international organisations. The Food and Agriculture Organization of the United Nations (FAO) is the Global Environment Facility (GEF) agency for the project that will be funded jointly by GEF and the implementing and executing partners. The project is for four years with a starting date in 2011 and a total budget of USD 11,218,600.

The Coral Triangle region of Southeast Asia is one of the world's most biologically diverse, economically productive and potentially vulnerable marine zones. As a result of increasing populations and exploitation pressures, growing threats from pollution and major ecosystem change are a particular concern in the region. Also – as more widely in the global context – the untargeted capture of fish and non-fish species, commonly called bycatch and discards, is an increasing concern. Bycatch includes fish, turtles, marine mammals, and corals and other seabed fauna and flora. This part of the catch tends to be poorly monitored and not managed but could have an important impact on fishery resources, habitats and ecosystems. In some fisheries and regions, there is an increasing trend towards retention of the bycatch consisting of juveniles and small-sized fish for use as food for human consumption or for utilization as aquafeed. This is therefore a complex issue, requiring resource and biodiversity aspects to be tackled alongside human needs and involving a mix of policy, technical and community support measures.

Based on the principles of the FAO Code of Conduct for Responsible Fisheries (1995) and the Ecosystem Approach to Fisheries (EAF), the project will build on the successes of the 2002-2008 FAO/UNEP[1]/GEF global project "Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of Bycatch Reduction Technologies and Change of Management". It intends to focus on multispecies bottom trawling, where bycatch issues are amongst the most serious, with potentially significant effects on ecosystems and livelihoods. The project aims to address these challenges by promoting sustainable fishing practices and improved trawl management. The project will implement activities and produce tangible results in project areas in the participating countries at the same time as working at the national and regional levels to improve policy and strategic frameworks and create best practices. The project will also promote the implementation of the "International Guidelines on Bycatch Management and Reduction of Discards", currently under development by FAO, and its results will inform related global initiatives on responsible fishing. This will contribute to a more sustainable use of existing fishery resources, protection of marine habitats and ecosystems, and more secure livelihoods.

Accordingly, the Global Environment Objective of the project is to achieve *Responsible trawl fisheries that result in sustainable fisheries resources and healthy marine ecosystems in the Coral Triangle and Southeast Asian waters by reduced bycatch, discards and fishing impact on biodiversity and the environment.* The project Development Objective is *Effective public and private sector partnership for improved trawl and bycatch management and practices that support fishery dependent incomes and sustainable livelihoods.*

[1] United Nations Environment Programme (UNEP).

Project is structured around four interrelated components:

1. The *Policy, legal and institutional frameworks component* will work towards the establishment of national or area specific trawl fisheries bycatch management plans and building institutional capacity for their implementation. The need for adequate legislation and regulations to support the implementation of improved management measures will also be addressed. At the regional level, a bycatch policy/strategy will be developed and project countries will be encouraged to adopt the International Guidelines on Bycatch Management and Reduction of Discards.
2. The *Resource management and fishing operations component* will lead to the adoption of more selective fishing gear and practices, provide a basis for implementing zoning of fishing areas and developing spatial-temporal closure management measures, and generate better data on number of vessels and recommendations for fishing effort and capacity management. The management measures will be supported by the identification of incentive packages that promote more responsible fishing. The results from this component will inform the regional bycatch policy/strategy and the national and/or area specific trawl fisheries bycatch management plans.
3. The *Information management and communication component* will include bycatch data collection (at landing sites and onboard vessels), mapping of fishing grounds, establishment of socio-economic monitoring procedures, and means for communicating bycatch data and information (website and information, education and communication – IEC – material). Standardized methods for bycatch data collection will be promoted across project countries.
4. The *Awareness and knowledge component* will address the awareness of and knowledge on trawl fisheries bycatch management issues and how they relate to sustainability, and what measures that are available to make fishing more responsible. Private sector/fishers, policy makers, fisheries managers, officials, extension officers and NGOs will be offered training and workshops to enhance their knowledge on best management practices and responsible fisheries.

The project long-term outcomes and impact indicators are:

- Agreed regional bycatch policy/strategy – that is in line with the forthcoming International Guidelines on Bycatch Management and Reduction of Discards – is adopted by at least one relevant organization in the project region, and national or area specific trawl fisheries bycatch management plans are adopted covering at a third of all trawlers in the project countries.
- Measures that manage bycatch and reduce discards, and thereby improve fisheries resources, are implemented for 25% of all trawlers in the project countries. In these fisheries (covered by improved bycatch management measures), bycatch has been reduced by 20% compared to baseline data in year 1 of the project.
- Standardized data on at least 3 key bycatch and habitat indicators are available in all project countries and inform trawl fisheries and bycatch management planning and implementation at national and regional levels.
- Enhanced understanding of responsible fishing by private sector/fishers, fisheries managers and decision-makers are supporting participatory management arrangements in all project countries.
- Institutional arrangements and processes for public and private sector partnerships are in place and supporting trawl fisheries bycatch management in all project countries.
- The role of bycatch in trawl profitability is understood and measures for how to ensure long-term economic sustainability of trawl fisheries are identified and incorporated into trawl fisheries bycatch management plans in all project countries.
- Incentives for trawl operators to reduce bycatch are defined and implemented in all project countries and best practices communicated within relevant regional frameworks.

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GLOSSARY OF ACRONYMS

ACIAR	Australian Centre for International Agriculture Research
AFCF	ASEAN Fisheries Consultative Forum
APEC	Asia-Pacific Economic Cooperation
APFIC	Asia-Pacific Fisheries Commission
ASEAN	Association of the Southeast Asian Nations
ASPINTU	Asosiasi Pengusaha Non Tuna dan Non Udang Indonesia (Association of Non-Tuna and Non-Shrimp Business of Indonesia)
ASSP	ASEAN-SEAFDEC Strategic Partnership
ATSEA	Arafura and Timor Seas Action Programme
AWP/B	Annual Work Plan and Budget
BFAR	Bureau of Fisheries and Aquatic Resources (Philippines)
BOBLME	Sustainable management of the Bay of Bengal Large Marine Ecosystem (project)
BRD	Bycatch Reduction Device
BH	Budget Holder
CAS	Country Assessment Strategy
CBD	Convention on Biological Diversity
CIM	Centre for International Migration and Development
COBSEA	Coordinating Body for the Seas of East Asia
COFI	Committee on Fisheries (FAO)
CPUE	Catch Per Unit Effort
CSIRO	Commonwealth Scientific and Research Organization
CTI	Investment Centre Division (FAO)
CTNI	Coral Triangle Network Initiative
DECAFIREP	Department of Capture Fishery and Aquatic Resources Protection
DOF	Department of Fisheries (Thailand)
EAF	Ecosystem Approach to Fisheries
FARMC	Fisheries and Aquatic Resources Management Councils
FAO	Food and Agriculture Organization of the United Nations
FAO Code of Conduct	FAO Conduct of Conduct for Responsible Fisheries (1995)
FAO-RAP	Regional Office for Asia and the Pacific (FAO)
FCG	Fisheries Consultative Group (ASEAN-SEAFDEC)
FFA	South Pacific Forum Fisheries Agency
FIP	Fisheries and Aquaculture Policy and Economics Division (FAO)
FIR	Fisheries and Aquaculture Resources Use and Conservation Division (FAO)
FIRO	Fishing Operations and Technology Service (FAO)
GEF	Global Environment Facility
GT	Gross Tonnage
HNSI	Himpunan Nelayan Seluruh Indonesia (All Indonesian Fishermen Association)
HP	Horse Power
HPPI	Himpunan Pengusaha Penangkapan Udang Indonesia (Shrimp Employers Association of Indonesia)
ICM	Integrated Coastal Management
IEC	Information, education and communication
IFFO	International Fishmeal and Fish Oil Organisation
IUU	Illegal, Unreported and Unregulated (fishing)
IW	International Waters
JIMAR	Joint Institute for Marine and Atmospheric Research
JTED	Juvenile and Trash fish Excluding Device
LEGN	Development Law Service (FAO)

LoA	Letter of Agreement
LTU	Lead Technical Unit
M&E	Monitoring and Evaluation
MCS	Monitoring, Control and Surveillance
MDGs	Millennium Development Goals (UN)
MMAF	Ministry of Marine Affair and Fisheries
MPA	Marine Protected Areas
MTPDP	Medium-Term Philippine Development Plan
NACA	Network of Aquaculture Centres in Asia-Pacific
NFA	National Fisheries Authority (Papua New Guinea)
NGO	Non-Governmental Organisation
NMTPF	National Medium-Term Priority/Policy Framework
NOAA	National Oceanic and Atmospheric Administration (USA)
NPC	National project Coordinator
NTE	Not-to-exceed
NWG	National Working Groups
PA	Protected Area
PAS	Pacific Alliance for Sustainability Program
PBSP	Philippine Business for Social Progress
PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
PIF	project Identification Form
PIR	project Implementation Review
PRC	project Regional Coordinator
PRSP	Poverty Reduction Strategy Paper
PSC	project Steering Committee
PTA	project Technical Advisor
QPIR	Quarterly project Implementation Reports
REBYC	Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of Bycatch Reduction Technologies and Change of Management
REBYC-II CTI	Strategies for Trawl Fisheries Bycatch Management
RFLP	Regional Fisheries Livelihoods Programme for South and Southeast Asia
RFMO/As	Regional Fisheries Management Organizations and Arrangements
RFU	Regional Facilitation Unit
RPOA	Regional Plan of Action
SEAFDEC	Southeast Asian Fisheries Development Center
SFP	Sustainable Fisheries Partnership
Sida	Swedish International Development Cooperation Agency
SP	Strategic Programme
SPC	Secretariat of the Pacific Community
SPREP	Convention for the Protection of Natural Resources and Environment of the South Pacific Region
STAP	Scientific and Technical Advisory Panel (GEF)
SWOT	Strengths, weaknesses, opportunities and threats (analysis)
TED	Turtle Excluder Device
TNC	The Nature Conservancy
TOR	Terms of reference
UNCLOS	United Nations Convention on the Law of the Sea
UN	United Nations
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme

UNPAF	United Nations Development Partnership Frameworks
UNGA	United Nations General Assembly
USD	United States dollars
VPS	Vessel Positioning System
WCPFC	Western and Central Pacific Fisheries Commission
WSSD	World Summit on Sustainable Development (Johannesburg 2002)

1 BACKGROUND

1.1 General and sectoral context

The five participating countries in this project *Strategies for Trawl Fisheries Bycatch Management (REBYC-II CTI[2])* – Indonesia, Papua New Guinea, Philippines, Thailand and Viet Nam – are part of the Coral Triangle and Southeast Asia region. The Coral Triangle area is one of the most biologically diverse, economically productive and potentially vulnerable marine zones in the world. Increasing populations and exploitation pressures together with growing threats from pollution are a concern for the marine environment and resources of the Coral Triangle as well as of other parts of the Southeast Asia region. At the same time, an important part of the human population in the region is highly dependent on aquatic resources and other goods and services provided by marine ecosystems. The fisheries sector employs millions of people and provides local income as well as foreign exchange earnings. Fish plays a vital role in the region's food supplies, providing important proteins and other nutrients.[3] Degradation of the marine environment and depletion of fishery resources threaten biological sustainability and diversity as well as food security and livelihoods. This impact is likely to be disproportionately felt by the poor who, directly or indirectly, depend on these aquatic systems for income generation and are the least able to adapt to adverse changes in aquatic resources.

Due to unsustainable harvesting practices and overcapitalisation, and driven by the need for food and income, combined with strong international demand for fish and fishery products, many fishery resources of the Coral Triangle and Southeast Asia region are overexploited. Often resources are exploited under open access regimes – i.e. without effective limits on the amount of fishing that takes place – or fisheries are poorly managed due to barriers such as lack of appropriate governance systems and weak institutional structures, lack of technical knowledge and data, and insufficient capacities. Fishing also affects ecosystems, habitats and fishery resources beyond the targeted species although the extent of these impacts is often poorly known.

Shrimp or multi-species bottom trawling in the region covers a wide range of vessel sizes and gear specifications, from small-scale outrigger canoes, powered by 10-16 HP engines and operating multi-species 'baby-trawls', to industrial scale double rigged shrimp trawlers of up to 350 GT. In general, bottom trawling tends to be a relatively efficient and at the same time poorly selective fishing method with potential negative impact on bottom habitats due to its contact with the seabed and associated flora and fauna. In combination with the often weak management framework, these characteristics make bottom trawling a priority for interventions aiming at safeguarding the environment and promoting more sustainable fishing.

The untargeted capture of fish and non-fish species, commonly called bycatch, is becoming more of a concern globally. Bottom trawling for shrimp is generally renowned for catching large amounts of bycatch. Problems associated with this bycatch include the capture of juveniles of ecologically important and economically valuable species, incidentally caught turtles, marine mammals or other larger species as well as destruction of corals or sensitive seabed structures. The bycatch is generally poorly monitored and unmanaged and its impact on fishery resources, habitats and ecosystems is hence difficult to assess. Bycatch is also at times returned – dead or alive – to the sea as discards. However, there appears to be a

[2] The acronym of the project – REBYC-II CTI – refers to the title and abbreviation of the earlier *REBYC* project (see page 16)*: Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of Bycatch Reduction Technologies and Change of Management*, adding CTI for the *Coral Triangle Initiative*.

[3] FAO has estimated that some 520 million people in the world are directly or indirectly dependent on fisheries and aquaculture occupations for their livelihoods. 86 percent of all fishers and fish farmers in the world live in the Asia Pacific region. Fish provides, on average, about 21 percent of the animal proteins in Asia (FAO, 2009. The State of World Fisheries and Aquaculture 2008).

general trend in the Coral Triangle and Southeast Asia region towards retention of bycatch for use as food for human consumption or for utilization as feed for livestock and aquaculture. Many fisheries are highly multi-species and only a small part of the catch is classified as non-targeted, although this catch include low-value small-size fish often referred to as "trash fish". This portion of the catch consists of both juveniles and small-sized fish species. An increasing demand for bycatch and trash fish is driven by the development of aquaculture and its need for feed. In addition to the use as aquafeed, some bycatch as well as trash fish are also directed to local markets as food fish. In both cases, the bycatch and trash fish have an economic value for the skipper and crew as well as in the post-harvest market. This value does however not compensate for the reduced catches of larger more valuable fish that overfishing has entailed. It is noteworthy that these catches increasingly consist of trash fish. Reducing bycatch and discards, and making trawl fishing more sustainable and environmentally friendly, is hence a complex issue, requiring resource and biodiversity aspects to be tackled alongside human needs and involving a mix of institutional, policy, technical, and information and awareness raising measures.

Box 1: What is bycatch?

Bycatch is the catch of fish or other animals and plants that a fisher did not intend/want to catch, did not use, or which should not be have been caught in the first place. In some cases, these unwanted animals and plants are discarded from the fishing operation.

In this document, the term 'bycatch' includes all unwanted catch as well as low-value and trash fish that the fisher keeps and sells or consumes. The reason for including the latter category is that a large proportion of the low-value and trash fish consists of juveniles of ecologically important and economically valuable species. However, it is also recognized that this catch is often an important part of the fisher's income.

Corals and other fauna and flora "taken" by the trawl from the sea bottom are also considered bycatch and generally indicate that bottom habitats are impacted by the trawl operation.

Notwithstanding how bycatch is defined, the unreported elements of catch and bycatch can be significant for some capture methods and fisheries. If not taken into account, these elements may be aggravating factors to overfishing and pose a serious risk to the effective management of fisheries.

1.2 Regional institutional framework

Issues of fisheries management, resource conservation and livelihoods are increasingly entering national and regional policies and actions, and there is an increasing concern to identify practical solutions for the protection of vulnerable habitats and ecosystems as well as to align national poverty reduction strategies and development priority frameworks to sustainability criteria. The UN Millennium Development Goals (MDGs) and the Plan of Implementation adopted by the World Summit on Sustainable Development (WSSD) in Johannesburg 2002 are important commitments in this context. For those countries impacted by the 2005 tsunami, sustainability issues have taken an even stronger policy position, with much greater urgency in meeting community livelihood needs while ensuring that the resource base and its biodiversity quality are sound and will sustain ecosystem services and economic output for future generations. Moreover, throughout the region, rising awareness of potential climate change impact has also accentuated this concern.

The five countries participating in the REBYC-II CTI project have all ratified the *United Nations Convention on the Law of the Sea (UNCLOS)*. UNCLOS is the main binding global agreement dealing with conservation, utilization and management of living marine resources. The project countries have also ratified the *Convention on Biological Diversity (CBD)* and agreed to the Jakarta *Mandate on Marine and Coastal Biological Diversity* and its related work programme for conservation and sustainable use of marine and coastal systems (CBD Conference of Parties 1995). The Regional Seas Conventions and Action Plans are

considered to have a major role to play in the promotion of the Jakarta Mandate at the regional level. In the Seas of East Asia region, an *Action Plan for the Protection and Development of the Marine and Coastal Areas of the East Asian* region involves ten countries including four of the project's participating countries (Indonesia, Philippines, Thailand and Viet Nam). There is no regional convention directly linked to this Action Plan but instead the *Coordinating Body for the Seas of East Asia (COBSEA)* promotes compliance with existing environmental treaties.

Papua New Guinea is signatory to the *Convention for the Protection of Natural Resources and Environment of the South Pacific Region.* This Noumea (or *SPREP*) convention entered into force in 1990 and is the Pacific region component of UNEP's Regional Seas Programme.

With regard to fisheries policy from a global and regional perspective, increasing practical recognition is being given to *the FAO Conduct of Conduct for Responsible Fisheries* (1995 – FAO Code of Conduct) and related instruments, including the *International Plans of Action (IPOAs)* and related technical and international guidelines, in particular with regard to the Ecosystem Approach to Fisheries (EAF).

The *Southeast Asian Fisheries Development Center (SEAFDEC)* is an intergovernmental organization promoting sustainable fisheries development in the region (see Box 2)[4]. Based on the FAO Code of Conduct, SEAFDEC has developed a set of regionally adapted guidelines for responsible fisheries in Southeast Asia[5]. Also based on the FAO Code of Conduct and other existing international fisheries instruments, a *Regional Plan of Action (RPOA) for Responsible Fishing* was agreed for combating Illegal, Unreported and Unregulated (IUU) fishing. The coverage of the RPOA is the areas of the South China Sea, Sulu-Sulawesi (Celebes) Sea and the Arafura and Timor Seas. The ministerial meeting that signed the RPOA in 2007 was attended by eleven countries from the region. All REBYC-II CTI project countries are signatories to the RPOA and have hence agreed to work together on key areas of fisheries management.

The *Association of the Southeast Asian Nations (ASEAN)* is a geopolitical and economic organisation in which ten countries in Southeast Asia are members[6]. Since the mid-1990s, ASEAN and SEAFDEC have been developing cooperation in the area of fisheries and aquatic resources management and development. This collaboration was strengthened in 1998 with the establishment of the *ASEAN-SEAFDEC Fisheries Consultative Group (FCG)* and further formalised by the agreement on the *ASEAN-SEAFDEC Strategic Partnership (ASSP)* in 2007. The ASEAN member countries adopted the Regional Guidelines for Responsible Fisheries in Southeast Asia in 2005. Moreover, in 2008, ASEAN Ministers of Agriculture and Fisheries agreed on a framework for *ASEAN Fisheries Consultative Forum (AFCF).* This forum will strengthen ASEAN's functions with regard to regional fisheries management and will promote the sustainable utilisation of living aquatic resources and the development of fisheries and fishing operations. The current work plan of the AFCF contains several activities with direct relevance to the project. Under the leadership of Viet Nam, particular attention is given to best practices for rehabilitation and restoration of fisheries resources and habitats (e.g. spawning and nursing areas), including reduction of bycatch of endangered aquatic species.

[4] SEAFDEC's current Member Countries are Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam. It is noted that among the project countries Papua New Guinea is not a member of SEAFDEC but has participated in some SEAFDEC activities and can benefit from the synergies generated through information sharing and networking.

[5] The Regional Guidelines for Responsible Fisheries in Southeast Asia are available at www.seafdec.org.

[6] The ASEAN membership includes Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam.

The *Asia-Pacific Fisheries Commission (APFIC)* is the FAO Regional Fisheries Body covering fisheries, aquaculture and related aquatic resource issues in the Asia-Pacific region[7]. APFIC is actively promoting issues relating to the management of fishing capacity and eliminating IUU fishing, mainstreaming of co-management and certification and ecolabelling for sustainable fisheries as well as implementation of the EAF. APFIC has taken a special interest in the production and use of low value and trash fish through studies and the organization of a region-wide workshop in 2005.

Box 2: SEAFDEC

The Southeast Asian Fisheries Development Center or SEAFDEC is an autonomous intergovernmental organization established in 1967 to promote fisheries development in Southeast Asia. The organization currently has eleven member countries: Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam.

SEAFDEC has as its administrative arm a Secretariat based in Bangkok, Thailand, and four technical departments, i.e. the Training Department in Bangkok (Samut Prakarn), the Marine Fisheries Research Department in Singapore, the Aquaculture Department in the Philippines and the Marine Fisheries Resources Development and Management Department in Malaysia (see www.seafdec.org).

Many of the SEAFDEC member countries have bottom trawl fisheries and SEAFDEC have a track record of being been proactive in the development, testing and promotion of environmentally friendly fishing gear, including the use of trawl nets to reduce the capture of juveniles.

The five REBYC-II CTI project countries are also signatories to the *Asia-Pacific Economic Cooperation (APEC) Bali Plan of Action*, agreed in 2005 to ensure sustainable management of the marine environment and its resources and to strengthen Regional Fisheries Management Organisations and Arrangements (RFMO/As). The APEC Bali Plan of Action seeks to balance conservation and management of marine resources with regional economic growth. It is intended to guide the APEC ocean-related working groups in three key areas: ensuring the sustainable management of the marine environment; providing sustainable economic benefits from the oceans; and ensuring the sustainable development of coastal communities. All project countries are members of APEC and signatories to the Bali Plan of Action.

Other marine and fisheries related organisations in the project region include Partnerships in Environmental Management for the Seas of East Asia (*PEMSEA*), Secretariat of the Pacific Community (SPC), South Pacific Forum Fisheries Agency (FFA) and the Western and Central Pacific Fisheries Commission (WCPFC). Table 1 and Table 2 list selected instruments and organisational structures that exist in the project region relevant to the five project countries.

The global and regional policy, institutional and legal structures, arrangements and agreements described above provide a framework for regional cooperation within which action can be taken to improve trawl fisheries bycatch management at national and local levels. However, while structures exist that could host regional commitments and arrangements specifically focusing on improving trawl fisheries bycatch management, no such arrangements are yet in place. Moreover, in many cases, the legal and regulatory frameworks at the national level are not yet adapted to support the broader environment and fisheries management efforts required by policy, and regional and international commitments. The existing institutional structures and capacities tend to be insufficient for promoting enhanced management

[7] APFIC's current members are Australia, Bangladesh, Cambodia, China, France, India, Indonesia, Japan, Malaysia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Sri Lanka, Thailand, United Kingdom, United States of America and Viet Nam.

decision-making and implementation based on accurate data, practical knowledge and participatory processes.

There is a need for a two-way process where improved knowledge on management solutions gained at the local and national level can be brought up to be shared and to provide information for policy and decision-making at regional level. At the same time, sound policy frameworks and specific commitments for trawl fisheries bycatch management are needed at the regional levels to provide frameworks for national and local actions and implementation. The REBYC-II CTI project will work towards the establishment of a regional policy framework for trawl fisheries bycatch management, which is anchored in the international arena and linked to other regions, at the same time as achieving tangible results at the national and local levels.

Table 1: Selected international instruments adopted by the REBYC-II CTI project countries

Instrument	*Indonesia*	*Papua New Guinea*	*Philippines*	*Thailand*	*Viet Nam*
United Nations Convention on the Law of the Sea (UNCLOS)	1982	1982	1982	1982	1982
Convention on Biological Diversity (CBD)	1994	1993	1993	2004	1994
Jakarta Mandate on Marine and Coastal Biological Diversity (1995)	yes	yes	yes	yes	yes
Regional Seas Agreements/ Programmes	East Asia	South Pacific	East Asia	East Asia	East Asia
RPOA (2007)	yes	yes	yes	yes	yes
APEC Bali Plan of Action (2005)	yes	yes	yes	yes	yes

Table 2: Selected REBYC-II CTI project country memberships in regional organisations and associations

Organisation/association	*Indonesia*	*Papua New Guinea*	*Philippines*	*Thailand*	*Viet Nam*
APEC	yes	yes	yes	yes	yes
APFIC	yes	yes	yes	yes	yes
ASEAN	yes		yes	yes	yes
FFA		yes			
PEMSEA	yes		yes	yes	yes
SEAFDEC	yes		yes	yes	yes
SPC		yes			
WCPFC		yes	yes		

2 RATIONALE

2.1 Problems and issues to be addressed

Context and global significance

The five project countries include some of the main fish producers in the world. The marine fisheries sector is important in several ways. It provides employment and contributes to economic growth, and fish is an important source of animal proteins. On the other hand, aquaculture development has been encouraged as a result of dwindling wild resources. This development has further contributed to overfishing and ecosystem degradation because of growing need of low value fish to be used as aquafeed. In fact, a large share of the world's marine catches is used for reduction into fish meal and animal feed; in 2003, about 22 percent of the global reported catches were used for non-food purposes[8]. In the Asia-Pacific region, low-value or trash fish used for this purpose is caught either as bycatch when targeting more commercially valuable species, such as shrimp, or is considered a regular part of the catch contributing to incomes. There is a general lack of data on how much trash and low-value fish is caught in the Asia-Pacific region but a conservative estimate is that 25 percent of the total marine capture is destined for livestock and aquaculture feed and that this share is increasing[9].

Bottom trawling tends to generate large quantities of bycatch and/or low-value fish and trash fish. The trawl subsector in the REBYC-II CTI project countries is diverse and involves both small and large-scale trawlers and operations amount to an estimated total of some 57 000 vessels/boats. It constitutes an important part of the total marine fisheries economy in these countries with an estimated average share of total marine capture fisheries employment of 8 percent (268 000 fishers) and 18 percent of total reported marine catches (2 230 000 MT annually). A large amount of these catches is bycatch, including low-value and trash fish; preliminary figures indicate an average of about a third, with higher ratios in the large-scale subsector[10]. Detailed information on the composition, volume, value and utilisation of this part of the catch – as well as on the fishing impact on seabed habitats – is lacking but it is likely that the fisheries have a significant impact on targeted and non-targeted fishery resources and marine ecosystems. There is evidence through decreasing average size of landed fish and declining Catch Per Unit Effort (CPUE) that overfishing is a serious issue in several of the main trawl fishing grounds in the region. Many fisheries, especially small-scale, are open access with few and poorly enforced management regulations, in particular with regard to bycatch. Moreover, conflicts between fleet segments are common when zoning regulations are not enforced, e.g. larger trawlers encroaching on waters reserved for small-scale fishers.

The low-value and trash fish portion of the trawl catch in the project countries generally consists of juveniles of ecologically important and economically valuable finfish, small-sized fish species and fish that is damaged or low quality for other reasons. The utilisation of low-value and trash fish varies somewhat from one location to another and in addition to its use as aquaculture and animal feed (directly or after reduction to fish meal) it can also be sold as food fish in local markets. Some of the large-scale trawl fleets would not retain the low-value catch but discard it (e.g. large-scale shrimp trawlers in Arafura Sea, Indonesia, and in the Gulf of Papua, Papua New Guinea). In the small-scale sector, virtually all catch is utilised, with the exception of fish losses due to spoilage or inedible species.

[8] Laurenti, G. (comp.). 2007. 1961-2003 fish and fishery products: world apparent consumption statistics based on food balance sheets. FAO Fisheries Circular No 821. Rev. 8. Rome, FAO. 2007. 429p.

[9] Funge-Smith, S, Lindebo, E. & Staples, D. 2005. Asian fisheries today: the production and use of low value/trash fish from marine fisheries in the Asia-Pacific region. FAO Regional Office for Asia and the Pacific – RAP Publication - 2005/16

[10] See also APPENDIX 6.

Catches also consist of more valuable finfish species. These fish may be considered bycatch in the large-scale shrimp trawl fisheries but targeted catch in the smaller-scale multispecies trawl fisheries. Moreover, trawlers may catch turtles – especially if not equipped with turtle excluder devices (TEDs). Trawlers may also bring up coral or other seabed flora and fauna when trawling in areas with such seabed structures. The evidence of, for example, corals in the catch could be a sign that the trawl operation is damaging sensitive bottom habitats. If trawling on sandy or muddy bottoms, this is less likely to be the case.

Because of generally decreasing catches – in particular of more valuable species and larger specimens – as well as increasing fuel prices, weak market access and poor quality and post-harvest methods – many fishers find it difficult to maintain the profitability of their operations. Therefore, bycatch including low value and trash fish are becoming an increasingly important part of revenues. At the same time as there is a lack of awareness of the importance of managing the fishery resources and the need for responsible fishing, there are often also limited incentives for fishers to avoid bycatch. Knowledge on existing technological and management solutions to make fishing more sustainable is needed. There is also a need to explore potential market incentives for more sustainably caught fish and fishery products.

Experience from the 2002-2008 FAO/UNEP/GEF global project *Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of Bycatch Reduction Technologies and Change of Management* (REBYC) indicates that it is possible to markedly reduce bycatch and discards by working closely together with the private fishing sector. REBYC, implemented in twelve countries including Indonesia and the Philippines[11], had a focus on technology (gear development and capacity building in particular with regard to technical knowledge) but legislation and awareness raising were also addressed. The project "produced outstanding results by generating valuable information, increasing knowledge and awareness, building capacities and fostering cooperation concerning bycatch management and reduction of discards"[12]. The terminal evaluation of the project strongly recommended a second phase of REBYC taking "a more holistic approach combining the gear technology aspects more effectively with management (through implementation of legislation and other forms of regulation), economic and socio-economic considerations, and knowledge management for enhanced dissemination of results and greater awareness"[13].

The REBYC-II CTI project will take a holistic approach to trawl fisheries bycatch management and work directly with fishers and fishing industry and other stakeholders. project activities will be carried out in a selected number of main trawl areas in the five participating countries (see also map in APPENDIX 5 and additional information in APPENDIX 6).

- Indonesia: Arafura Sea (Maluku-Papua)
- Papua New Guinea: Gulf of Papua
- Philippines: Samar Sea for small-scale trawlers; whole country for large-scale subsector
- Thailand: Gulf of Thailand (focus on selected provinces)
- Viet Nam: Kien Giang province

Within the framework of a holistic approach based on the principles of the FAO Code of Conduct and EAF, the barriers to improved trawl fisheries bycatch management, described below, will be addressed. In each

[11] The twelve countries were Bahrain (with own funding), Cameroon, Colombia, Costa Rica, Cuba, Indonesia, Islamic Republic of Iran, Mexico, Nigeria, Philippines, Trinidad and Tobago, and Venezuela. SEAFDEC participated in the project and supported its member countries Indonesia and the Philippines on technical matters.

[12] Page iv, R. Hermes. 2009. Terminal Evaluation of the UNEP/GEF project Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of Bycatch Reduction Technologies and Change of Management, project Number UNEP GF/2731-02-4469 & GF/4030-02-04, FAO EP/GLO/201/GEF. UNEP Evaluation and Oversight Unit. June 2009.

[13] Page vi, R. Hermes. 2009 (see footnote 12).

of the selected areas, the most pertinent issues will be identified and public and private sector partnership established for finding appropriate solutions, with technical support from the project and its partners. In parallel, the project will work at the national and regional level and field experience in project sites will inform decision-making at national and regional levels and solutions found at the local level may be implemented and scaled up at national and regional levels. The experience of the project will also contribute to the global knowledge on trawl fisheries bycatch management and the implementation of the FAO Code of Conduct and EAF.

Threats, root causes and barriers analysis

The main threat to sustainable fishery resources and biodiversity that the trawl fisheries pose is the fact that a large part of the catch – i.e. the bycatch – is not managed and that overfishing and depletion of resources and destruction of habitats are likely consequences of this shortcoming. The root causes of these threats include the economic reality of the fishing sector and the poverty context of the project countries, including population pressure, need for food and income, drivers such as aquaculture development and global demand for fishery products, and lacking capacities, information and knowledge to improve fisheries management. While the project cannot easily change the macroeconomic context, it can address the barriers to better management and in this way support the trawling sector – and the people depending on and influenced by it – to better adjust to existing circumstances, mitigate impact on the environment and capitalise on potential market opportunities.

Because bycatch is generally an integral part of the overall catch in the region, bycatch management needs to be addressed in a broader trawl fisheries management framework. Using the definition provided in this project document (see Box 1), bycatch constitutes, on average, a third or more of total catches of the trawl fleets of the REBYC-II CTI project area, and it is urgent to ensure that this part of the catch is monitored and managed. While discards is a particular concern because of its wastefulness, the capture and utilization of juveniles is distressing because of the detrimental impact it could have on ecologically important and economically valuable fish species and hence on the viability of other fisheries and related livelihoods. The capture of turtles and potential damage to bottom habitats are other major biodiversity concerns.

These issues need to be addressed taking into account the poverty and food security context in the project area. Many livelihoods depend on the bycatch and low-value and trash fish. While the availability of resources and a healthy environment must be ensured for future generations, changes in trawl fisheries bycatch management need to take place in close collaboration with current resource users. Principles of equitable development will guide project interventions and the impact on and needs of different stakeholder groups, including men and women, must be considered. This holistic approach is consistent with the principles of the FAO Code of Conduct and EAF.

Within the context described above, four overarching barriers to improved trawl fisheries bycatch management in the project area have been identified:

- Lacking or deficient legal and institutional structures and policies for effective management of bycatch and trawl fisheries;
- Ineffective resource management leading to unsustainable fishing operations;
- Insufficient data and information on bycatch and the impact of trawl fisheries on the marine environment and habitats;
- Limited awareness of sustainability issues and lack of knowledge on measures available to improve trawl fisheries bycatch management.

Each of these barriers will be addressed by a project component. These are described further below (see section 3.3).

2.2 Project justification – incremental reasoning

Scenario without GEF Resources

A considerable interest in better fishing practices is evident in the Coral Triangle and Southeast Asia region, and there has been progress in improved monitoring and control of IUU fishing, and specific protection for some target species and habitats (e.g. by designation of Marine Protected Areas – MPAs) as well as addressing certain bycatch and discards issues. However, effective approaches to dealing with the totality of fishing impact (including both target species and bycatch, including low value trash fish) within a broader trawl management framework, covering gear development and application of management measures, harmonization of policies and legislation, participation and community action, and linking economic activity with environmental objectives, has been much more limited and support would be needed to change this situation in the future.

SEAFDEC's mandate is to promote sustainable fisheries development in the Southeast Asia region and there are mechanisms in place for collaboration with ASEAN on policies with regard to fisheries and aquatic resources management and development. SEAFDEC's assistance to its member countries is currently supported by cooperation agreements with Japan, the Swedish International Development Cooperation Agency (Sida) and WWF Coral Triangle Programme. With regard to technical matters, SEAFDEC has also been involved in the development of BRDs, in particular the juvenile and trash fish excluding devices (JTEDs). As part of as well as independently of the first phase global project (REBYC), trials and demonstrations of JTEDs have taken place in several of the Southeast Asian countries and SEAFDEC continues to promote responsible fishing in the region. However, there is not yet an overall regional and systematic approach to issues related to bycatch and while a broader approach to responsible fishing is developing, specific efforts with regard to trawl fisheries bycatch management have tended to focus only on technology and JTEDs.

Indonesia and the Philippines were the two countries among the five now participating in the current project that were also part of REBYC. In *Indonesia*, REBYC initiated the introduction of BRDs through demonstrations and trials in several locations. REBYC increased the awareness of the complex issue of bycatch and the government is now looking into different options for better management of trawl fisheries[14]. In 2004, local governments were given increased responsibilities for fisheries management in coastal waters. These developments call for capacity building and further support to trawl fisheries management. In the *Philippines*, the government is now implementing some of the recommendations from REBYC, including the adoption of a Fisheries Administrative Order prescribing the use of BRDs for commercial (large-scale) trawlers. While the government can ensure that the Order is adopted, additional technical support and resources are needed for its effective implementation as well as to extending the scope to broader trawl management issues and also including the municipal (small-scale) fisheries. These efforts should include capacity building at the local government level and of existing co-management arrangements (the Fisheries and Aquatic Resources Management Councils – FARMCs).

In *Papua New Guinea*, the prawn (shrimp) fishery in the Gulf of Papua is managed by the Gulf of Papua Prawn Fisheries Management Plan. While the Plan has as one of its objectives the "conservation of stocks

[14] It should be noted that trawling was officially banned in Indonesia in 1980 although the Presidential Decree has been difficult to enforce. A number of exceptions to the ban have been allowed including in the two areas where project activities will focus; Arafura Sea and Makassar Strait. It is recognized that in the longer-term, management issues related to the many 'trawl like' fisheries will also need to be addressed (and that the project results will contribute to finding appropriate management solutions). However, because of the need for the project to focus its efforts on a selected number of areas and fisheries and the uncertainty of existing data, trawlers and trawling in this project document only refer to the legally allowed vessels and operations.

of demersal fish caught as bycatch" and prescribes the use of BRD, including TEDs, these measures have not yet been fully implemented. Assistance was provided by the Joint Institute for Marine and Atmospheric Research (JIMAR)[15] for the introduction of TEDs a few years ago but insufficient technical knowledge, and the need for further follow-up in closer collaboration with the fishing industry, has been reason behind the delay in uptake after the project was completed. Other issues directly related to bycatch include the relationship between the prawn fishing industry and the local communities/resource owners; participatory mechanisms are required to establish viable solutions.

In Viet Nam and Thailand, national policies support the reduction of the number of fishing vessels in inshore waters, which will reduce bycatch and low value and trash fish catches (assuming a reduction in capacity and effort). The Government of *Thailand* has recently adopted a Master Plan for Marine Fisheries Management that includes, among other things, measures for reducing capacity (number of vessels) and introduction of more selective gear for trawl fisheries (e.g. mesh size regulations). One of the targets is to ensure that 80 percent of all landings consist of economically important species; this indicates a need to reduce the quantity of low value and trash fish. The Plan spans ten years and an Action Plan for its implementation is under development. In *Viet Nam*, a National Plan of Action for managing fishing capacity is currently being proposed. Bycatch management and overcapacity in inshore waters are core issues to be addressed. However, the concerns related to bycatch and the catch of juveniles have only recently been recognised and knowledge and technical support would be required to effectively address these issues. This includes aspects of potential market-based incentives – domestic and international – and how such mechanisms could be used to support management of the sector.

In the baseline scenario, there is an increasing awareness of the threats to fishery sustainability and seabed habitats that are caused by trawl fisheries and unmanaged bycatch. However, without GEF involvement, it will take longer to address these threats because of limited access to technical assistance and capacity building support for identifying and implementing appropriate management solutions to these complex issues. There is also a need to create awareness and improve the knowledge on responsible fishing practices and regional collaboration would strengthen such efforts. In the baseline scenario, the governments of the five REBYC-II CTI project countries – as well as of other countries in the region – will pursue activities in support, directly or indirectly, of trawl fisheries bycatch management. Still, coordination of efforts at both national and regional levels will be minimal and synergy effects hence lost. Without effective collaborative approaches, including public and private sector partnerships, to managing the fisheries resources and developing sound management strategies, practices and technologies, the negative impacts of current fishing practices are likely to continue and accelerate. This would result in significant and potentially irreparable damage to globally important aquatic habitats and ecosystems and consequent losses not just to ecosystem support functions, but to food and livelihood security and economic output.

Scenario with GEF resources

The GEF alternative scenario allows for a project that provides high-quality technical assistance and capacity building, and effective collaboration among countries, partners and stakeholders – creating national and regional synergies – in a cost effective manner. By addressing the barriers identified above (see section 2.1) and ensuring local-national-regional-international linkages as well as public and private sector partnerships, the REBYC-II CTI project will create significant incremental benefits above the 'non-project' option with respect to long-term solutions for sustainable resource utilization and environmental goods and services.

[15] JIMAR is a cooperative enterprise involving the National Oceanic and Atmospheric Administration (NOAA) and the University of Hawaii.

In *project component 1*, national and regional tools in the form of regional and national trawl bycatch management strategies, policies and supporting legal and institutional structures will be developed, building a platform for addressing trawl fisheries bycatch management now and in the future. This platform will be built on existing institutional structures that have been strengthened, in particular with regard to stakeholder participation, thanks to the additional GEF funding available.

The policy, institutional and legal development will benefit from the local experiences gained under *project component 2* where appropriate technologies and management measures will be identified, developed and tested in close collaboration with fishers and stakeholders. At the national and local level, the GEF funding and the technical assistance it brings will allow for enhanced field trials with respect to technology development, pilot surveys of fishing impact on habitats and identification of appropriate management measures.

The GEF funding will also support to the setting up of standardized data collection and monitoring systems in *project component 3*, allowing for analyses of project impact on bycatch reduction and its eco-biological and socioeconomic impact. By standardizing the methods for data collection and analysis, comparisons between countries and at a regional basis are facilitated. Through the regional – and also global – project linkages, GEF funding will support dissemination of project results, for the benefit of partners and countries not directly involved in the project, in an effective way.

GEF funding will also be instrumental in *project component 4* for offering training and organizing workshops for capacity building and awareness raising. The work of this component will be critical also for other components by ensuring that stakeholders and project partners have sufficient knowledge and capacity to actively participate in strategic planning, decision-making and other key activities.

2.3 Stakeholders and target beneficiaries

The major stakeholders relevant to the REBYC-II CTI project objectives can be classified into three groups: regional, national and local stakeholders. During project preparation, many of these stakeholders have been involved through participation in national and regional meetings and workshops, the preparation of national reports and consultations by telephone and email. Through local-national-regional-international linkages and public and private sector partnerships, facilitated by the project, organisations, governments and fishers and resource users in other parts of the world may also benefit from the knowledge generated by the project.

Regional stakeholders include institutions and associations as described above (see section 1.2) as well as NGOs, other projects and development agencies active in the region. These stakeholders will benefit from improved knowledge on trawl fisheries bycatch management issues and solutions in the region and from being able to develop informed strategies and policies based on relevant data and information. Broader regional policies with regard to responsible fisheries, EAF and environmental management may also benefit from the project. Some regional organisations and programmes will directly participate in project implementation; in particular SEAFDEC together with its current partners (Japan, Sida and WWF Coral Triangle Programme) will play a prominent role in regional technical support and facilitation. The project will also work with other organisations and projects – see section 2.6 and Table 4. The development of a regional bycatch strategy under *project component 1* and the supporting capacity building outputs expected under *project component 4* will require the direct involvement of relevant regional stakeholders (policy and decision-makers).

National stakeholders include national and state government agencies, civil society organizations, NGOs, private foundations, private sector organizations, and academic institutions (see also Table 4). These stakeholders will be the main executing partners and take implementation responsibility for various project activities, including the development of bycatch management plans and national legal and institutional

structures (*project component 1*), gear and management measure development (*project component 2*) and information and communication (*project component 3*). They will also benefit directly from capacity building and technical support (*project component 4*).

Local stakeholders comprise local government agencies, commercial fishers and fishing communities, other aquatic resource users, local environmental and social/cultural NGOs, and other local citizens. They will in particular be involved in the gear and management measure development (*project components 2*) at the local level but will also be consulted on all other issues of relevance and take part in the knowledge enhancement and awareness raising of *project component 4*.

The *target beneficiaries* of the project are the fishers, fish workers and communities that are dependent on fisheries and aquatic resources for their livelihoods and food security. The *direct beneficiaries* will be the fishers in the selected project sites that are part of the fleets directly participating in project activities but benefits will also reach many others *indirectly* through improved trawl fisheries and ecosystem management.

The project will be guided by principles of equitable development and will pay attention to gender. Bycatch issues and project interventions may impact on men and women in different ways and this has to be understood and taken into consideration. Special efforts will be devoted to the involvement of women and youth at the institutional level in organizational development efforts and capacity building.

2.4 Project consistency with national priorities and plans

The REBYC-II CTI project addresses concerns related to the marine environment with focus on specific aspects of fisheries management – trawl fisheries bycatch management – in accordance with the FAO Code of Conduct and EAF. After the completion of first REBYC project, several participating countries expressed interest in a second-phase project and Indonesia and the Philippines were among those formally requesting support for improving bycatch management and for the current FAO/GEF project.

Three of the five project countries are part of the CTI and committed to the CTI Regional Plan of Action (CTI RPOA). The project is consistent with the overall spirit of the CTI RPOA, which addresses issues that are also relevant to the larger Asia-Pacific region. The project is of particular relevance to the CTI RPOA Goal No 2: “Ecosystem Approach to Management of Fisheries (EAFM) and Other Marine Resources Fully Applied”.

The national government agencies and institutions that are relevant to the project include both the ministries responsible for the environment and the relevant fisheries authorities, which in all project countries fall under another line ministry (agriculture) or are autonomous from the environment authorities. While GEF Focal Points are within the ministries of environment, on technical matters and for project preparation, the relevant fisheries authorities have been involved. Representatives of the fisheries authorities, designated by their respective governments, have participated directly in regional project preparation workshops and meetings, and have been responsible for data collection and stakeholder consultations at the national level. The ministries of environment have been kept informed – through the GEF Focal Points – by the national fisheries project teams on progress with regard to the project development. The GEF Focal Points were invited to the national stakeholder consultation workshops held in each country.

In accordance with these institutional responsibilities, the national priorities and plans that are relevant to the project include both those dealing with protection of the environment, and those on sustainable fisheries and natural resource management. Although priorities and plans directly referring to trawl fisheries bycatch management are limited, a number of relevant broader policies exist. As discussed above (see section 1.2), the project countries have confirmed their commitment to biodiversity conservation and sustainable aquatic resource utilisation – including fisheries management – through the ratification of

relevant international conventions and agreements. There are also regional initiatives addressing these issues, including the RPOA, the APEC Bali Plan of Action and APFIC initiatives – covering all project countries – and within SEAFDEC and ASEAN for their members. The FAO Code of Conduct is the accepted global policy document for the region, and the integrated and participatory approaches as defined by EAF are increasingly being embraced as the way forward for natural resource and fisheries management.

In addition to the plans and policies mentioned in section 2.2 above, this project is consistent with the priorities for the fisheries sector as spelled out in the National Medium-Term Priority Frameworks (NMTPFs) at the national level.[16]

The *Indonesia* NMTPF for 2010-2014 is aligned with the Government of Indonesia's National Mid-Term Development Plan for the same period. Development of the marine and fisheries sector will be guided by overall principles of "pro-growth, pro-poor, pro-job and pro-environment sustainability". To achieve sustainable fisheries business and industry development, there is a critical need to support institutional capacity, including human resource development promoting the environmental quality of fishery and other marine resources. There is also a need to focus on improving practical science and technology-based research and innovation. Knowledge management, sharing and utilization of results of such applied-research on marine science and fisheries technologies should be strongly advocated. Priority programs are needed to implement policy and strategies for sustainable fishery resource management and development by considering climate change's mitigation and adaptation implications. Maintaining resource sustainability in line with the CTI goals is of utmost importance.

In line with other planned and potential FAO assistance to *Papua New Guinea* under the draft NMTPF 2010-2014, the REBYC-II CTI project will contribute to the Sustainable Livelihoods and Population outcome of the United Nations Country Programme 2008-2012 "A partnership for Nation-building". This outcome promotes rational and balanced utilization of Papua New Guinea's natural resources, through improved environmental management while promoting environmentally-friendly employment and income-generation opportunities for poverty reduction and improved living standards. Mitigation and adaptation to climate change is also addressed under this outcome. The proposed NMTPF programme includes, *inter alia*, focus on strengthened policy, legal, regulatory and strategic frameworks for sustainable agriculture, forestry and fisheries development – including capacity building – and sustainable natural resource management.

The NMTPF of the *Philippines* was crafted in consideration of the country's strategic needs and priorities defined in the Medium-Term Philippine Development Plan (MTPDP) 2004-2010. Three goals of the MTPDP are considered particularly important in the context of the NMTPF and FAO assistance, of which two are of direct relevance to the REBYC-II CTI project: (i) sustainable and more productive utilization of natural resources to promote investments and entrepreneurships; and (ii) focus and strengthen the protection of vulnerable and ecologically fragile areas, especially watersheds, coral reefs, and areas where bio-diversity is highly threatened. Reversing the loss of environment and natural resources is always in the forefront of development decision-making in the Philippines and aligned to the Philippine Agenda 21. Accordingly, one of the priority outcomes of the NMTPF 2010-2011 is "Sustainable environment and productive utilization of

[16] The NMTPFs are national plans developed in collaboration with FAO that analyse needs and define priorities for technical cooperation programmes in agriculture, including fisheries and other natural resources based sectors. Their scope is related to FAOs' role to assist developing countries and countries in transition to modernize and improve agriculture, forestry and fisheries practices and ensure good nutrition for all. The NMTPFs are based on overall country and sector priorities and are closely linked to other documents relevant for UN programming such as the United Nations Development Assistance or Partnership Frameworks (UNDAFs or UNPAFs), United Nations Country Programmes and One UN plans.

natural resources" and includes emphasis on fishery resource management through capacity building of small-scale fishers and local governments.

In *Thailand*, the 10th National Economic and Social Development Plan 2007-2011 (10th Plan) defines a vision for the country to become a "Green and Happiness Society" which consists of four development missions, i.e. (i) improving the quality of life and strengthening communities to be self-sufficient, (ii) strengthening the economy towards balanced and sustainable development, (iii) maintaining and restoring biodiversity, and conserving natural resources for environmental quality, and (iv) developing a public administrative system based on a good governance approach. Accordingly and with relevance to the REBYC-II CTI project, the NMTPF for *Thailand* includes a priority outcome for the sustainable management of natural resources and the environment. In order to achieve sustainable management of natural resources and promote environmental services, FAO – Thailand cooperation will focus on, *inter alia,* promotion of participatory approaches in natural resource management and sustainable technologies.

In *Viet Nam*, the NMTPF has remained a draft but the One UN document, the "One Plan (Common Action Plan) 2006 – 2010 between the Government of the Socialist Republic of Viet Nam and the United Nations Organizations in Viet Nam" describes overall priorities relevant to the REBYC-II CTI project. Viet Nam has taken important steps toward establishing the legal and policy framework for environmentally sustainable development. Three examples are: (i) the Strategic Orientation for Sustainable Development (Viet Nam Agenda 21); (ii) the Party Resolution on Environmental Protection in the Period of Intensive Modernisation and Industrialisation; and (iii) the revised Law on Environmental Protection. One of the Plan's agreed outcomes is to ensure that Viet Nam has "adequate policies and capacities for environmental protection and the rational management of natural resources and cultural heritage for poverty reduction, economic growth, and improving the quality of life". This includes expected results with regard to promotion of sustainable use of natural resources and protected area management, and strengthened capacity in fisheries information gathering. Support to the implementation of environmental laws, strategies and global conventions, and improved environmental governance are required to achieve this.

2.5 Project consistency with GEF strategies

The REBYC-II CTI project is specifically aligned with the two long-term objectives of the GEF International Waters (IW) Program (*To foster international, multi-state cooperation on priority transboundary water concerns*, and *To catalyze transboundary action addressing water concerns*), and refers in particular to the Strategic Program 1 (SP1): *Restoring and Sustaining Coastal and Marine Fish Stocks* by promoting regional (and international) cooperation on aquatic resources priority issues. The project will be implemented according the principles of the FAO Code of Conduct and EAF and it will contribute to the IW-SP1 programme outcome indicators as follows:

- ***National inter-ministry committees***
  Because of its combined environment and fisheries focus, the project has been developed through coordination between the ministries of environment and the fisheries authorities in the participating countries. During project implementation, emphasis will be given to coordination, stakeholder collaboration and partnerships. The institutional arrangements, which will be strengthened or put in place (depending on the situation in the different project countries and sites) for implementing the trawl bycatch management plans, will be based on principles of participation and cooperation, and will encompass representatives of different ministries and local government agencies, as required (see *project component 1*).
- ***Ministerially-agreed action programmes and local Integrated Coastal Management (ICM) plans adopted***
  The project will facilitate the elaboration and implementation of national and/or area specific trawl bycatch management plans (see *project component 1*). These will be comprehensive undertakings, based on holistic analyses and integrating all relevant aspects of trawl fisheries bycatch management.

The plans will contain a mix of management measures and incentive packages that will be identified, developed and/or tested under *project component 2.*

- ***Regional, national and local policy, legal and institutional reform adopted; project evaluations show implementation effectiveness***
  At the regional level, the project will work towards an agreed regional bycatch policy/strategy that will be adopted by at least one relevant regional organisation. At the national level, there is a need to review and analyse existing policy, legal and institutional frameworks to ensure there are adequate and enabling structures in place for trawl fisheries bycatch management (see *project component 1*). *project component 3* and project management will ensure tracking of progress through the establishment of relevant monitoring and evaluation (M&E) systems (see also chapter 6).
- ***Fish stock and habitat assessments***
  The establishment of methods for bycatch data collection and surveys of trawl impact on bottom habitats are two aspects of the information and management component of the project (see *project component 3*). By using standardized methods for data collection and collaborating across project countries and in the region, and communicating results, the data collection facilitated by the project will feed into other related assessments (although comprehensive fish stock and habitat assessments are beyond the scope of the project). The area specific trawl fisheries bycatch management plans will include a framework for monitoring the progress in their implementation including indicators such as for reduction of impacts on seabed and reduction in bycatch (volume) as a result of modified gear and improved management and its likely impact on incomes (bycatch value). The capacity building and awareness raising of *project component 4* will help promoting a holistic approach to fisheries assessments and enhance the knowledge on why bycatch data are important and how this information fits in the larger picture of fisheries and ecosystem management.
- ***Per capita incomes at demo sites***
  In the project region, bycatch has in most cases a value; to skippers and crew, to traders and fish meal producers, and to consumers and the aquaculture sector. This value needs to be understood and the monitoring systems of *project component 3* will pay particular attention to this aspect. For many of the trawl fleets that will participate in and/or benefit from the project, profitability is an issue – particularly in view of rising fuel prices and diminishing catches due to overfishing. Gear modifications can in some instances improve profitability by reducing fuel costs and catch sorting work, and by improving catch quality. In the longer-term, a more responsible utilisation of fishery resources is a prerequisite for the financial sustainability of the fisheries. Consideration of these aspects will be an integral part of the trawl fisheries bycatch management plans.
- ***Incorporation in Country Assessment Strategy (CAS), UN Frameworks, Poverty Reductions Strategy Papers (PRSPs), One UN***
  Considerable effort will be spent on communicating project results and through the project's local-national-regional-international linkages, dissemination of experiences, lessons learnt and best practices for inclusion in relevant planning and policy documents and strategies will be ensured (see *project component 3*).

In line with the IW-SP1, the project is also aligned to the WSSD Johannesburg Plan of Implementation and will contribute to the sustainable fisheries targets and promote the conservation and management of oceans (paragraphs 31 and 32). The Plan of Implementation refers to the FAO Code of Conduct and the application of ecosystem approaches, and the need to maintain or restore fish stocks and to eliminate destructive fishing practices. The project will contribute to the implementation of these principles and achieving these targets.

The project is part of the GEF Coral Triangle Initiative programme framework and directly support priorities defined within this framework, i.e.:

- ***Strengthening the enabling legal, policy and planning environment for improved water, coastal and marine resources management in the participating countries***

The project will analyze existing policy, legal and institutional frameworks and recommend changes as required to ensure that improved trawl fisheries bycatch management is supported. project results will include a regional bycatch policy/strategy, national or area specific bycatch management plans, and institutional arrangements for public and private sector collaboration on management (see *project component 1*).

- ***Improving the capacity of key government agencies and other participating stakeholders in civil society, academia, the private sector and at the community level***
  The project will raise the awareness and enhance the knowledge of key stakeholder groups on sustainability issues and measures available for improving trawl fisheries bycatch management (see *project component 4*). In this way, capacities for effective trawl fisheries bycatch management will be strengthened. Moreover, the support to better information and information systems will enhance the capacity to make informed management decisions (see *project component 3*).
- ***Monitoring and knowledge management***
  The project will establish a system allowing for monitoring for monitoring of likely effects of bycatch reduction and trawl management measures on incomes. This will be an important aspect of impact monitoring, both during the project's life span and beyond (see *project components 3*).

In addition, the project will also contribute to the GEF Biodiversity Strategic Objective 2: Mainstreaming Biodiversity in Production Landscapes / Seascapes by improving the availability of information and data on how trawl fisheries impact on fishery resources and marine habitats, and by mitigating their potentially harmful impact through improved trawl fisheries bycatch management. This is likely to have positive effects on biodiversity as the project will strengthen the capacity of the public and private sectors in the Coral Triangle and Southeast Asia region to manage fishing activities. The project will hence contribute to biodiversity mainstreaming through its contribution to sustainable natural resources management in the region.

All project countries are eligible for GEF funding. The project has been endorsed by the GEF Focal Points, attached to the ministries of environment, on behalf of the project governments.

2.6 Past and related work – coordination with related initiatives

The REBYC-II CTI project has been conceived in a broader context of addressing trawl and bycatch management at the global level. Following the UN General Assembly (UNGA) Sustainable Fisheries Resolutions 64/72 and 61/105, the FAO Fisheries and Aquaculture Department was requested by the FAO Committee on Fisheries (COFI) at its 28th session in 2009 to develop International Guidelines on Bycatch Management and Reduction of Discards. This work is now in progress and the draft text[17] include, *inter alia*, advice to states and RFMO/As on a number of topics including governance and institutional frameworks; bycatch management plans; data collection, reporting and assessment; monitoring, control and surveillance (MCS); research and development on bycatch mitigation and discard reduction technologies; and awareness, communication and capacity building. The next steps will be to support implementation of the guidelines and there are several FAO initiatives for new projects of which the REBYC-II CTI project is one. FAO as the coordinator of these different initiatives will ensure that collaboration and experience sharing take place and the project results inform relevant policies and strategies. The REBYC-II CTI project will build on the successes of the first REBYC project[18], in particular in Indonesia and the Philippines that participated in this first phase.

[17] drawn from the report of the Expert Consultation to develop draft text of International Guidelines for Bycatch Management and Reduction of Discards - FAO Fisheries and Aquaculture Report No. 934

[18] See section 2.1 above (Context and global significance).

The project will liaise and collaborate closely with other FAO programs in the Coral Triangle and Southeast Asia region including the *Regional fisheries livelihoods programme for South and South-East Asia (RFLP)*, covering Cambodia, Indonesia, Philippines, Sri Lanka, Timor Leste and Viet Nam. RFLP targets small-scale fishing communities and their supporting institutions to improve livelihoods and fisheries resource management. While the two projects are not planning to work in the same locations in the countries that they share, there is considerable scope for collaboration with regard to national and regional level. Areas of common interest include, *inter alia*, enhanced fisheries information; amended national policies and legislation; and improved registration of fishing vessels. There will also be collaboration with the FOA/GEF project *Sustainable management of the Bay of Bengal Large Marine Ecosystem* (BOBLME), in particular with regard to harmonization of policies, strategies and principles for sustainable fisheries and marine resources utilization at national and regional levels. BOBLME covers eight countries sharing the Bay of Bengal and Indonesia and Thailand are among the participating countries.

The Secretariat of APFIC (see page 13), which is one of FAO's regional fisheries bodies, will ensure collaboration between the project and the work of the Commission. The project will also be linked to other FAO initiatives and normative work on the practical application of FAO Code of Conduct and EAF. The principles to be followed are contained in the FAO Code of Conduct and the related IPOAs and technical and international guidelines. In addition to technical guidelines on EAF, the Guidelines to reduce sea turtle mortality in fishing operations are of particular interest to the project.

Within the GEF CTI framework programme, collaboration and coordination of activities are foreseen with the parallel initiatives by the Asian Development Bank (ADB), United Nations Development Programme (UNDP) and the World Bank. More specifically, the project have agreed to coordinate its work on reviewing the policy, legal and institutional frameworks with the two ADB projects - Coastal and marine resources management in the Coral Triangle of the Pacific - under the Pacific Alliance for Sustainability Program (PAS) and Coastal and marine resources management in the CT of Southeast Asia, which has a focus on the Sulu-Sulawesi ecoregion of Indonesia, Malaysia and Philippines. The project will also explore opportunities for collaboration with the ADB project on *Regional Cooperation on Knowledge Management, Policy, and Institutional Support to the CTI*, which is linked to the UNDP led Portfolio Learning in International Waters with a Focus on Oceans, Coasts, and Islands and Regional Asia/Pacific and Coral Triangle Learning Processes3—under GEF's International Waters Learning Exchange and Resource Network (IW:LEARN). In addition, the project will work closely with the CTI Regional Secretariat and other CTI development partners who are supporting implementation of the CTI Regional Plan of Action and National Plans of Action. In particular, attention will be given to coordination and collaboration on activities proposed under CTI RPOA Goal 2 on ecosystem approaches to fisheries management.

Collaboration and coordination will also be sought with the two UNDP CTI projects *Sulu-Celebes Sea sustainable fisheries management project* and *Arafura and Timor Seas Action Programme (ATSEA).* The project will maintain close contacts with the World Bank and their developing initiatives in the region. FAO and the project will take active part in the CTI partner coordination mechanisms currently hosted by USAID[19]. At the country level, the project is in contact with the national CTI contact points.[20]

SEAFDEC will be an executing partner in the project and play a key role in its implementation. SEAFDEC and the project will be supported by the Centre for international Migration and Development (CIM) with regard to overall project management and regional coordination that will provide funding for a fulltime project Regional Coordinator[21].

[19] See http://www.uscti.org/uscti/default.aspx.

[20] At the time of finalising this project document, the permanent CTI Secretariat was not yet in place and technical coordination takes place at the national level.

[21] See also the chapter 4 on IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS below.

SEAFDEC will ensure that project results are benefiting also those countries in the region that are not directly participating in the project. Through the ASSP (see page 12), effective links to the ASEAN policy dialogue will be established. This will also form a basis for linkages with other regional initiatives (see section 1.2). Within this framework, the project will also collaborate with SEAFDEC's current partners, including SEAFDEC WWF Coral Triangle Programme bycatch management collaboration, the SEAFDEC Japanese Trust Fund project on responsible fishing and Sida's support to a vessel record and inventory, capacity reduction and MCS.

The REBYC-II CTI project will collaborate with WWF Coral Triangle Programme and its Coral Triangle Network Initiative (CTNI) and WWF Indonesia in the Arafura Sea (Sorong) as well as on regional coordination and experience sharing. The WWF Programme is being carried out through five sub-strategies related to tuna, bycatch, live reef fish, climate change and policy. Implemented through the CTNI, the activities of the Bycatch Program currently focus on tuna and shrimp fisheries as well as gill netting. WWF and SEAFDEC are developing a Working Agreement outlining joint activities under the CTNI Bycatch Program to be implemented through a hosting arrangement at SEAFDEC Training Department. This arrangement has identified a variety of specific activities related to trawl bycatch (data collection and observer program training at selected sites, development of joint communications and bycatch Best Practices guidelines etc.) which are largely aligned with the REBYC II activities and outputs. CTNI's direct engagement with businesses and seafood companies operating out of the Coral Triangle region (e.g. Nissui) as well as policy platforms such as the CTI Regional Plan of Action (which will focus on sea turtles as its species goal) provides further opportunity for direct collaboration aimed at optimizing the approaches of the REBYC II and CTNI program in terms of outcomes and outputs on bycatch.

SEAFDEC had a long-standing working relationship with its member country Japan that has funded several SEAFDEC programmes. As a follow-up to earlier collaboration on responsible fishing, the *SEAFDEC Japanese Trust Fund II project* will begin in 2011 for a period of four years. This project will contribute to the REBYC-II CTI project in several areas including (i) improvement of information gathering/dissemination/sharing; (ii) promotion of vessel registration and development of guidelines for a licensing; (iii) development and promotion of more responsible and selective (trawl) fishing gear; (iv) SEAFDEC led fish resource surveys; (v) promotion of rights-based fisheries and co-management institutional building and participatory mechanisms for fisheries management.

The *SEAFDEC-Sida project* works closely with ASEAN through the established SEAFDEC-ASEAN collaboration mechanisms. The REBYC-II CTI project will benefit from this connection to the regional policy level. The SEAFDEC-Sida project also supports work on fishing capacity management and MCS. Region-wide and sub-regional meetings on institutional cooperation, fishing vessel registration and inventory, and MCS have been held and a regional expert consultation on managing fishing capacity is scheduled for September 2010. This work will be continued in a second phase of the current project, planned to start in 2011. The REBYC II-CTI project will work closely with SEAFDEC-Sida and align the work on vessel registration with the existing initiatives. There is also an important link with the international work undertaken by FAO on developing a Global Record on fishing vessels[22] that the project will support.

The project will collaborate with the Sustainable Fisheries Partnership (SFP) and the International Fishmeal and Fish Oil Organisation (IFFO). In addition to other initiatives related to promoting sustainable seafood supplies, SFP works with the seafood industry on two initiatives with particular relevance to the REBYC II-CTI project: sustainable fish supplies from the Arafura Sea (Indonesia) fisheries and trash fish utilisation in Thailand and Vietnam. In the Arafura Sea, SFP works with the industry to create awareness of the interests

[22] See the FAO website for more information: http://www.fao.org/fishery/global-record/en.

of buyers and assist the industry in preparing work plans that set out specific management goals, promoting sustainable seafood supplies that can then be discussed with governments. With regard to trash fish, SFP is engaging with fish meal producers and IFFO to improve the information on what species from where are used for fish meal production, and how important fish meal production is in different areas. The REBYC-II CTI project will work towards establishing public and private sector partnerships for the development of trawl fisheries bycatch management plans for specific fisheries and areas. Partnering with SFP and IFFO would help ensuring that the postharvest seafood industry is involved and that management solutions that make sense from a market point of view are implemented. For the postharvest and fish meal sector, this cooperation would constitute an opportunity to engage in fisheries management planning and implementation with a view to promote more responsible fishing and sustainable future supplies. IFFO are working with SFP and others to develop a structured programme that would assist fishmeal factories to work toward achieving their recently launched standard for responsible supply, which includes requiring the factory to source their raw material from well managed fisheries or identifiable fish processing by-products.

Within this same context, the project will also draw on lessons learnt from the FAO project on *Reducing the dependence on the utilization of trash/low value fish as feed for aquaculture of marine finfish in the Asian region* (TCP/RAS/3203) that has been implemented in China, Indonesia, Thailand and Viet Nam together with the Network of Aquaculture Centres in Asia-Pacific (NACA) during 2008-2010 (expected completion date February 2011). Further collaboration with NACA and similar initiatives will also be explored.

Between 2003 and 2007, the Australian Centre for International Agricultural Research (ACIAR) carried out a project to document the financial, biological and economic characteristics of the Gulf of Papua prawn fishery in order to (i) determine the optimal level of effort and catch to maximize sustainable fishery returns and (ii) promote efficiency, thus improving the well-being of the people of PNG through the proper management of its natural resources, (iii) quantify and assess various management regimes for the control of the fishery, and (iv) build research capacity for continued economic research and management of fisheries in PNG.[23] Since the project concluded, a pipeline is now under construction to traverse the traditional Gulf of Papua prawn trawl fishing grounds. Such activities are likely to impact the fishery and those dependent on it as a source of livelihood. The project will therefore seek to engage the National Fisheries Authority, ACIAR (as a regional partner), the energy sector and associated ministries for the purpose of a follow up project during and post construction of the pipeline to evaluate impacts of the pipeline on the fishery.

In addition to the initiatives mentioned here, the project will collaborate closely with the programmes activities of relevant regional institutions as described in section 1.2 above. Additional national level partners are listed in Table 4. While some collaboration will be take place on a more informal basis through mutual exchange of information and coordination of activities, other partners will provide contribute to project results through co-financing. The main partners providing co-financing at a regional level[24] are listed in

Table 3.

[23] Economic performance and management of the Gulf of Papua prawn fishery - project ID: ASEM/2002/050

[24] National level contributors are included in Table 4 and in the co-financing budget at country level.

Table 3: Main regional co-financing partners

Co-financing partner	***Focus of contribution: project component/output (see project Results Framework in*** APPENDIX 1***)***
SEAFDEC	Overall technical and administrative support; regional outputs under all components
CIM	Project management and regional coordination
WWF Coral Triangle Programme/WWF Indonesia	Regional bycatch policy (1.1); component 2 (in particular incentive packages 2.4); component 3 (in particular data collection 3.1); component 4.
SEAFDEC-Sida project	Regional bycatch policy (1.1); vessel inventory/registration (2.3).
SFP	Bycatch management plans (1.2); institutional arrangements for collaborative resource management (1.4); incentive packages (2.4).
IFFO	Bycatch management plans (1.2); Incentive packages (2.4)
RFLP *(Regional fisheries livelihoods programme for South and South-East Asia)*	Regulatory frameworks relevant for trawl fisheries bycatch management (1.3); Institutional arrangements for collaborative resource management (1.4), Inventory of trawl vessels (2.3); Data collection (3.1); Regional and national policy and decision-makers sensitized with regard responsible trawl fishery management through information and workshops 4.2).

3 PROJECT FRAMEWORK

3.1 Overall strategic approach

The project will implement the FAO Code of Conduct for Responsible Fisheries (the Code) and the Ecosystem Approach to Fisheries (EAF), and develop a framework for effective management of bycatch and reduction of discards. The framework will provide technical guidance through practical examples in reducing bycatch and destructive impacts of fishing on bottom habitats and in maintaining the long-term sustainability of fish resources and relevant ecosystems, and the socio-economic prosperity and livelihood of the coastal communities that depend on fisheries.

The project will operate at various levels. Field activities will be carried out at the local level for the development and implementation of more selective gears and effective management measures. Policy, legal and institutional frameworks will be tailored to country-specific characteristics at the national level. Strategies for the long-term cooperation towards bycatch management and responsible fisheries will be developed at the regional level. The project will also serve as a bridge and promote linkages with global initiatives and work on bycatch management in other regions. The dissemination of information and sharing of data and project outcomes will have a high priority. Finally, the project will contribute to the increasing awareness on the importance of bycatch management and to the development of management capacity.

The field activities will take place in selected geographic areas and fisheries in the five project countries (see also Section 2.1 above and APPENDIX 6). The following issues will be addressed to differing extents as appropriate:

- Reduce the capture of bycatch species through technical and management measures.
- Minimise the catch of juveniles of commercially important species.
- Minimise discards where such take place.
- Avoid capture of turtles, marine mammals, and other vulnerable species.
- Control of fishing practice that has destructive impact on bottom habitats.

These issues will be dealt with to the extent specific to different project countries, and key issues will be identified for each selected area, following a systematic and comprehensive assessment. These priorities will be further refined in Year 1 with regard to what bycatch issues and species the project will focus on in each area and fishery. The project will build on the valuable experience gained from the first phase REBYC project, and regional cooperation is an important part of the implementation strategy. Close collaboration with fishers and other stakeholders, including both public and private sectors, will be a key approach for ensuring the success of the project. Principles of equitable development will guide project implementation.

The project consists of four major components. They are inter-related and each has its own focus as described above (see Section 2.1). The main activities and expected outputs and outcomes of the components are discussed below. The project participants in each country and partners at the regional level are listed in Table 4. Risks and assumptions of the project are presented in Section 3.8.

3.2 Project impact/objectives

The Global Environment Objective of the project is to achieve:

> ***Responsible trawl fisheries that result in sustainable fisheries resources and healthy marine ecosystems in the Coral Triangle and Southeast Asian waters by reduced bycatch, discards and fishing impact on biodiversity and the environment***

The project Development Objective is:

> ***Effective public and private sector partnership for improved trawl and bycatch management and practices that support fishery dependent incomes and sustainable livelihoods***

3.3 Project components and outputs

The project has four components:

1. Policy, legal and institutional frameworks component
2. Resource management and fishing operations component
3. Information management and communication component
4. Awareness and knowledge component

The components are interlinked and activities and outputs of one component may also support the activities and outcomes of other component.

Component 1: Policy, legal and institutional frameworks

The first component will work towards the establishment of national or area specific trawl fisheries bycatch management plans and building institutional capacity for their implementation. The need for adequate legislation and regulations to support the implementation of improved management measures will also be addressed. At the regional level, a bycatch policy/strategy will be developed that is consistent with the FAO Code of Conduct for Responsible Fisheries and the ecosystem approach to fisheries.

The intermediate outcome of this component will be that *Regional bycatch priorities agreed and bycatch management plans for trawl fisheries in project areas are established and supported by appropriate legislation and institutional arrangements for public and private sector collaboration.*

This will achieved through the accomplishment of the following outputs:

> 1.1 The forthcoming International Guidelines on Bycatch Management and Reduction of Discards adopted by all five project countries and regional bycatch priorities agreed by project partners and presented in published policy/strategy document.
>
> 1.2 At least 3 national or area specific trawl fisheries bycatch management plans in the project areas agreed by stakeholders and adopted by relevant authorities.
>
> 1.3 Legal and regulatory frameworks relevant for trawl fisheries bycatch management reviewed and recommendations for adjustments developed with and agreed in principle by the competent national authorities.
>
> 1.4 Institutional arrangements (Management Councils) for collaborative trawl fisheries bycatch management established and functioning in accordance with agreed bycatch management plans (output 1.2).

At present, there is no *regional bycatch policy or strategy* (output 1.1) in the project region. However, as discussed in sections 1.2 and 2.4 above, there is an increasing understanding for the need to address unsustainable fishing practices and safeguard the marine environment in the region and several organisations are working towards this end. Moreover, both SEAFDEC and WWF Coral Triangle Programme have activities in the region addressing specific bycatch issues and will be key partners in the project activities. The project will build on existing initiatives and facilitate the establishment of a regional bycatch policy/strategy through consultations, workshops and expert support. The project will also promote the adoption of the forthcoming International Guidelines on Bycatch Management and Reduction of Discards. This work will be started in year 1 of the project by convening a regional workshop to agree on specific priorities and a work plan for drafting the policy/strategy. Consultations will take place with fishers and

other stakeholders, and expert inputs sought as required during years 2 and 3. Field experiences and data (see components 2 and 3) generated by the project will provide the technical and scientific basis for the policy/strategy. The draft policy/strategy will only become effective once it is adopted. Hence, ownership of the process and final product will be sought from the beginning from relevant regional organisations and participating governments. This will ensure that the policy/strategy will be implemented after project completion.

At the national and local levels, *trawl fisheries bycatch management plans* (output 1.2) will be established and implemented. At the moment, elements of relevant management frameworks exist in some countries and areas but there has not been a comprehensive approach, or stated management intentions have not been implemented. The trawl fisheries bycatch management plans can take different forms and a valid plan is understood to be an agreed framework for implementing trawl fisheries management and bycatch reduction measures, including for reduced impact on bottom habitats. This could be, for example, a fishery specific management plan that includes provisions for bycatch, a national regulation or decree on bycatch management applicable more widely, or a local government regulation/management rule that applies to fisheries in a specific region. The appropriate framework will depend on the country and case specific circumstances and can also be a combination of different provisions as long as the overall result provides the necessary policy, legal and institutional provisions for trawl fisheries bycatch management implementation.

The development and implementation of trawl fisheries bycatch management plans will be a collaborative undertaking. The specific management needs for each of the selected project sites and fisheries – and/or at the national level – will be identified in year 1 in collaboration with relevant stakeholders. Based on these, priorities will be set and plans developed, mainly during year 2 for subsequent adoption and implementation. These plans will include precisions with regard to management measures and incentive packages (see component 2) and institutional arrangements (see output 1.4).

In order to allow for the implementation of the trawl fisheries bycatch management plans, they need to be supported by enabling *legal and regulatory frameworks* (output 1.3). In the project countries, some relevant regulations exist but they are not sufficient or effectively implemented. The project will undertake a detailed review of existing legal provisions in years 1 and 2 and draft recommendations in years 3 and 4 for how these may need to be amended. Recognising that legal and regulatory framework revisions can be lengthy processes, pragmatic approaches to bycatch management – based on existing legislation – may need to pursued, at least in the interim. Close coordination between the trawl fisheries bycatch management plan development and the legal and regulatory framework revision tasks will be required to ensure that actual needs are met and practical and realistic solutions found.

The trawl fisheries bycatch management plans are also likely to require new or revised *institutional arrangements* (output 1.4) in the form of Management Councils. These councils need to be built on participatory and co-management principles. They should allow for effective coordination and cooperation between different sector ministries and government agencies (both at central and local levels) and include public and private sector partnerships, involving fishers, the post-harvest sector, seafood companies and consumer representatives, NGOs and other stakeholders. In some countries, decentralisation of (coastal and inshore) resource management responsibilities has taken place or is in process. In some cases, local co-management arrangements are already in place on which the bycatch management institutional arrangements can be built. One particular aspect that needs to be built into these broad-based arrangements is conflict resolution mechanisms. In year 1, stakeholder analysis and institutional assessments will be carried out to verify the current situation and define the needs for institutional development to be put in place in years 2 and 3. Also in year 1, at the start of project implementation, consultative groups will be set up for project management and stakeholder participation purposes. If found appropriate, these groups can form the basis for the subsequent more permanent Management Councils (see also section 4.2 on Implementation arrangements). In this context, the work to be carried out under

component 4 will be an important element: to allow for effective stakeholder participation – in project implementation and beyond – awareness and knowledge enhancement is likely to be required.

Component 2: Resource management and fishing operations component

The second component will lead to the adoption of more selective fishing gear and practices, provide a basis for implementing zoning of fishing areas and developing spatial-temporal closure management measures, and generate better data on number of vessels and recommendations for fishing effort and capacity management. The management measures will be supported by the identification of incentive packages that promote more responsible fishing. The results from this component will inform the regional bycatch policy/strategy and the national and/or area specific trawl fisheries bycatch management plans.

The intermediate outcomes of the component have been defined as *Management measures, including environmentally friendly fishing gears and practices that reduce bycatch, discards and the impact on biodiversity and the environment, are identified, developed/adapted and implemented in project areas* and *Incentives for trawl operators to reduce bycatch are defined and implemented in the project areas.*

The component outputs are:

2.1 More selective trawl gear and/or alternative fishing gear used by at least half of the trawlers in project areas.

2.2 Selection criteria and recommendations for demarcating fishing zones and areas for spatial-temporal closures are identified in at least 2 project areas/countries.[25]

2.3 Inventory of selected trawl fleets in project areas drawn up and recommendations for fishing effort and capacity management strategy communicated to competent national authorities.

2.4 SWOT and feasibility analysis of possible incentive packages carried out for all trawl fisheries in project areas.

Gear modifications (output 2.1) can significantly contribute to reducing bycatch but fishermen often resist their use because they are afraid that there will be loss of target species/sizes. Sometimes the handling of modified gear causes excessive problems. There are already different BRDs in use and under development in many places around the world and also in the region, including TEDs and JTEDs, but the use is not widespread or systematic in the project countries. There is a need to develop and test smarter and more practical solutions. Moreover, different gear, i.e. other than bottom trawls, can be introduced and promoted. Passive gear is often more selective as well as less damaging to sea beds but may have other problems that have to be solved. In the selected areas and fisheries, the project will work together with fishers to test existing and novel BRDs, and look for other potential gear solutions. The project will then develop and adopt the most promising ones to local conditions, and train fishers in how to use them. As a first step, in year 1, potential gear modifications will be identified and a plan for sea trials drawn up. These trials will be carried out onboard private vessels in cooperation with their owners, skippers and crew. It is expected that BRDs, modified and/or alternative gear will subsequently be introduced on the participating vessels and more broadly in the selected fisheries by year 3. Experience sharing will be important, and workshops, cross-visits between project sites as well as expert support will be integral parts of the work under this component. Results and findings will be documented and data collected in accordance with standards and systems developed under component 3 (see below). The results will also inform the trawl fisheries bycatch management plans and the regional bycatch policy/strategy.

In addition to the technology based solutions described above and in line with a holistic management approach, the project will also look into other management measures that can reduce bycatch. These

[25] See also output 3.1.

include *spatial-temporal closures* (output 2.2) and *fishing effort and fleet capacity reductions* (output 2.3). Zoning is already applied in some areas in the project countries (e.g. inshore waters are often reserved for small-scale fisheries) and MPAs and fisheries refugias exist in some places. Based on priorities identified in year 1, investigations and mapping of the seabed characteristics and fishing effort will be carried out in in selected areas in years 2 and 3 (seen also component 3). Assessments of possible conflicts between different resource users will also be included in these surveys. Combined with lessons learnt from already existing zoning and closures, the results of these surveys will form the basis for recommendations for spatial-temporal closures and related management arrangements for equitable benefits of existing resources.

With regard to fishing effort and capacity reduction, the project will assist in assessing the current size of selected fleets in the project areas. Existing systems for fleet monitoring and vessel registration will be reviewed in year 1 and by the end of the project, trawlers in the project areas will be included in an inventory. The project will also develop recommendations for fishing effort and fleet capacity reduction for the selected fleetsand collaborate with other initiatives working on these issues in the region. The identification of alternative livelihoods may be the most efficient strategy/approach for reducing fishing effort.

As with the gear and technology based solutions, the work on closures and fleet capacity will be carried out in close collaboration with fishers and other stakeholders. Collaboration will also be required with relevant government authorities responsible for MCS (or VPS) and enforcement. The institutional arrangements to be in place for collaborative management are described under component 1 and will constitute an important mechanism for including gear and other management measures.

The project will also include the development of *incentive packages* (output 2.4) as an important tool for bycatch reduction. There are two main streams of economic incentives that will be explored by the project: reduction of fishing costs (e.g. redesign of fishing gear and operational procedures leading to lower fuel consumption and less labour for sorting catch) and market-based incentives (e.g. price premiums for environmentally friendly and high quality products and access to niche markets). The project will investigate the potential incentive packages that could be appropriate and feasible in different locations and situations in year 1, assess strengths, weaknesses, opportunities and threats (SWOT analysis) of different alternatives and subsequently develop implementation strategies for the selected approaches. This subcomponent will involve consultations and collaboration with the seafood industry and users of bycatch, in particular the aquaculture and fish meal industry. Understanding the nature of the markets supplied by the fishing activities is a key consideration for successful (by)catch management.

Component 3: Information management and communication component

The third component will include bycatch data collection[26] (e.g. at landing sites and onboard vessels, and mapping of fishing ground characteristics), establishment of socio-economic monitoring procedures, and means for communicating bycatch data and information (website and information, education and communication – IEC – material). Standardized methods for bycatch data collection will be promoted across project countries.

The intermediate outcomes of this component are *Improved data on bycatch and potential fishing ground impact information are available from project areas and inform national/specific area trawl fisheries bycatch management plans* and *The role of bycatch in trawl profitability is understood and measures identified for how to ensure long-term economic sustainability of trawl fisheries in the project areas.*

[26] this will be part of collection of data on total catches of which bycatch is a component

The following are the expected outputs of the component:

3.1 Data and data collection methods for bycatch, discards and seabed impact in project areas available and published in relevant national and regional information systems[27].

3.2 System set up for monitoring of bycatch reduction (volume) as a result of modified gear and improved management and its likely impact on incomes (bycatch value).

3.3 Project website set up in Year 1 and developed into a regional information sharing mechanism for information on trawl fisheries bycatch management by end of project.

3.4 Project IEC material available.

Data on bycatch (species composition, volumes, values and utilisation) are generally lacking and the project will assist in *collecting data and developing standardised methods for bycatch data collection* (output 3.1). This information is needed for project activities (see also component 2, output 2.2 above) as well as for improving the overall understanding of the importance of bycatch and its impact. Reliable data will be fundamental for developing national and area/fishery specific trawl fisheries bycatch management plans. At the regional level, comprehensive regional analyses of bycatch issues will form the basis for the regional bycatch policy/strategy (see component 1). In order to allow for cross-country and regional comparisons and data compilations, data collection methods need to be standardised and data disseminated. Hence, in year 1, terms of reference for the data collection of the project will be agreed on among the project countries in consultation with concerned regional and global organisations and expertise (SEAFDEC, FAO). Data will collected from sample trawlers, including those participating in other project activities (gear trials – see component 2) in year 2 and 3. This will allow for key data to become available and to develop the data collection methods. In addition to sharing information among concerned parties in the region, emphasis will also be given to publishing data to ensure wider dissemination.

In close coordination with the data collection activities, *monitoring systems* (output 3.2) and procedures will be established. This is needed for tracking of project progress during its implementation, for providing information for policies and management plans, and for longer-term use by the countries. At present, there are no monitoring systems and a first priority in year 1 will be to identify key indicators and establish baselines. It is foreseen that the actual reduction of bycatch (in volume) on trawlers and in fisheries where bycatch reduction devices (BRDs), selective gear and management measures are introduced will be one type of indicator. Another type of indicator will focus on the economic aspects of bycatch reduction (value of catch and income). Other indicators, such as impact indicators on fish species, turtles or seabed habitats, may be added. To be relevant and pragmatic, these indicators may need to vary according to country and location and further consultations will be needed. The project work plan gives considerable attention to this matter and resources are planned in the form of workshops and expert support, in particular in year 1. Through this process, project partners will also improve their understanding and capabilities to implement the project M&E plan and a basis for continued monitoring of bycatch issues beyond the duration of the project will be established.

As already mentioned above, sharing and dissemination of information – among project countries and partners as well as regionally and globally – is an important aspect of the project and its impact. Tools are also needed to support the awareness raising and knowledge enhancement activities of component 4. Accordingly, a *project website* (output 3.3) will be established in year 1 and *relevant information, education and communication (IEC)* (output 3.4) materials produced. The setting up of a website that can be used by both project participants and accessed by external parties will be a priority in year 1. This site will then be progressively expanded during the project duration to become a regional mechanism for information sharing. With regard to IEC, some material exists from the earlier project REBYC and with SEAFDEC. The

[27] See also output 2.2.

project will build on this to create relevant products for different audiences. During the first years of the project, priority will be given to internal needs (to support component 4) but at the end of the project, IEC material will be available for wider distribution.

Component 4: Awareness and knowledge component

The fourth component will address the awareness of and knowledge on trawl fisheries bycatch management issues and how they relate to sustainability, and what measures that are available to make fishing more responsible. Private sector/fishers, policy makers, fisheries managers, officials, extension officers and NGOs will be offered training and workshops to enhance their knowledge on best management practices and responsible fisheries.

The intermediate outcome is that *Private sector/fishers, fisheries managers, local governments and other stakeholders have better knowledge on bycatch issues and participate in developing and implementing national/specific area bycatch management plans.*

The component outputs are:

4.1 Fishers and other relevant stakeholders (fisheries managers, local government officials, etc) in project areas have improved their knowledge on bycatch, sustainability issues and collaborative management through training, project information and/or participation in project activities.

4.2 Regional and national policy and decision-makers have been sensitized with regard to responsible trawl fisheries management through project information and workshops.

4.3 Private sector/fisher 'champions', technical officers and extension workers (government and NGOs) have improved their knowledge on BRDs and other management measures through training (250 persons trained).

Capacity building with regard to awareness of and knowledge on bycatch issues and how they can be addressed to achieve more responsible fishing is needed for different stakeholder groups and at different levels. *Fishers and other local and national stakeholders* (output 4.1) need to have an understanding of the issues at stake and what potential solutions to identified problems that exist to effectively participate in collaborative management arrangements and make informed decisions (see component 1). Likewise, *regional and national policy and decision makers* (output 4.2) need to understand what bycatch is and how it relates to responsible fisheries to be able to support relevant policies and actions. The project will offer training, workshops and information to all fishers and other relevant stakeholders in the project areas as well as to key national and regional policy and decision-makers. Moreover, a number of *'champions' (fishers and other privates sector representatives, government and NGO technical officers and extension workers)* (output 4.3) will receive training to be able to actively support project activities. Based on training needs assessments carried out in year 1, these capacity building activities will take place throughout project implementation but with extra efforts scheduled early on in years 1 and 2, particularly for policy and decision-makers to ensure support for the project.

Table 4: Suggested project implementation partners

Project country/regional	*Geographic areas/ fisheries*	*Partners*
Indonesia	Arafura Sea (Malaku-Papua)	Ministry of Marine Affairs and Fisheries (Directorate General of Capture Fisheries) and provincial fisheries authorities, Local Government units, Bogor Agricultural University and Research Center for Capture Fisheries, the Indonesian navy, WWF Coral Triangle Programme (Sorong Shrimp project), fisheries associations (HNSI, ASPINTU, HPPI), trawl fishers and boat owners.
Papua New Guinea	Gulf of Papua	National Fisheries Authority (Fisheries Management Unit), Provincial Governments, resource owners (local communities), TNC, prawn fishers and fishing companies.
Philippines	Whole country (commercial trawlers). Samar Sea (municipal trawlers)	Bureau of Fisheries and Aquatic Resources (Capture Fisheries Division) and regional fisheries offices, Local Government Units, Samar State University, University of the Philippines, Don Mariano Marcos Memorial State University, Philippine National Police/Maritime, Municipal Fisheries and Aquatic Resources Management Councils, trawl fishers and boat owners.
Thailand	Selected sites in the Gulf of Thailand (otterboard trawlers)	Department of Fisheries (Marine Fisheries Research and Development Bureau, Administrative and Management, Fishery Technology Information Development and Transfer Bureau) and fisheries provincial offices, Fisheries associations (including fishmeal producers associations) and fish marketing organisations, fishers and boat owners.
Viet Nam	Kien Giang province	Ministry of Agriculture and Rural Development (National Department of Capture Fishery and Aquatic Resources Protection) and provincial fisheries authorities, Research Institute for Marine Fisheries, district level Division of Agriculture and Rural Development, trawl fishers and boat owners.
Regional[28]	All five project countries and the wider Southeast Asia and Pacific region.	SEAFDEC and partners (WWF Coral Triangle Programme, Sida), SFP, CIM, RFLP, IFFO.

[28] **See also** Table 3 for regional partners.

3.4 Expected project outcomes

The project long-term outcomes and impact indicators are:

- Agreed regional bycatch policy/strategy – that is in line with the forthcoming International Guidelines on Bycatch Management and Reduction of Discards – is adopted by at least one relevant organization in the project region and national or area specific trawl fisheries bycatch management plans are adopted covering at least a third of all trawlers in the project countries.
- Measures to manage bycatch and reduce discards, and thereby improve fisheries resources, are implemented for 25% of trawl fisheries in all project areas.
- In the fisheries, covered by improved bycatch management measures, bycatch has been reduced by 20% compared to baseline data to be gathered in year 1.
- Incentives for trawl operators to reduce bycatch are defined and implemented in the project areas and best practices communicated within relevant regional frameworks.
- Institutional arrangements and processes for public and private sector partnerships are in place and supporting trawl fisheries bycatch management in all project areas
- Standardized data on at least 3 key bycatch (species/sizes) and habitat indicators are available from all project areas and inform trawl fisheries and bycatch management planning and implementation at national and regional levels.
- The role of bycatch in trawl profitability is understood and measures for how to ensure long-term economic sustainability of trawl fisheries are identified and incorporated into trawl fisheries bycatch management plans in all project countries.
- Enhanced understanding of responsible fishing by private sector/fishers, fisheries managers and decision-makers are supporting participatory management arrangements in all project countries

3.5 Alternative strategies and methodologies considered – cost-effectiveness analysis

The project strategy of taking a broad trawl fisheries management approach, working closely with fishers and other stakeholders through public and private sector partnerships, and focusing on field interventions in selected project sites and fisheries was selected after considering the following alternatives:

- *Relying solely on gear modifications and technological solutions*
  The first phase REBYC had a relatively strong focus on technology and the development of selective gear. While the project generated significant results, the experience showed that more was needed to successfully address the complex issues related to bycatch reduction. Gear modifications are important but they are not always the most appropriate tool or they may need to be combined with other management measures. This is particularly the case in multi-species trawl fisheries of the type found in Southeast Asia and the Pacific region where overall management is weak and bycatch is largely utilised and considered part of the total catch. Gear modification solutions also need to be supported by appropriate legal and incentive frameworks to become effective. Moreover, the socioeconomic drivers behind bycatch and livelihoods and poverty context need to be understood and considered. While initially this holistic approach may be more costly and require more efforts, it is cost-effective in the longer-term because of the sustainability of the results.

- *Developing more selective gear and identifying other management measures through a research based approach, and supporting their implementation mainly through conventional centralised management approaches ('command and control').*
  Ecosystem-friendly fishing gear can be developed through controlled experiments and management measures selected on a scientific basis. A research based approach can be extremely

useful and provide fundamental data but experience from REBYC shows that management solutions need to be tested under real circumstances and adapted to prevailing conditions. These conditions can vary between different fisheries or even between different vessels. The project will hence build on existing information and experiences (from research and other field activities) and ensure that the identified solutions are tested and adapted to local practices and conditions, that fishers know how and why to use new or modified gear, and that management measures are accepted by concerned stakeholders. To ensure compliance with regulations and uptake of recommendations for changes in fishing practices to promote more responsible fisheries, both positive and negative incentives are needed. The project will hence combine general support to and recognition of the need for command and control approaches, but focus its efforts on developing positive incentive packages and promoting participation and collaborative management approaches. This will also be a more cost-effective approach since implementation and training in the use of the new gear and of the application of new management measures take place in parallel with the development of the techniques and approaches. The close involvement of stakeholders from the beginning will increase the acceptance of the proposed measures and hence reduce the costs for surveillance and control activities.

- *Focusing on implementing a limited number of gear modifications and/or management measures broadly in all project countries*
  If only one or a limited number of management measures – for example a particular type of BRD – were selected for implementation in all trawl fisheries in the project countries, certain economies of scale could apply and more data on the efficiency and effects of the selected management measure could be collected. However, there would be a lack of flexibility with regard to taking local and fleet specific circumstances into consideration. It would also be difficult to have a close and participatory working relationship with fishers and stakeholders because of their large numbers, or resources beyond the means of the project would be required. The project design is hence instead based on identifying solutions in a selected number of areas and fisheries in close collaboration with the fishers in these locations, and sharing results and lessons learnt widely. In this way, suitable solutions are implemented at the local level and a broad-based set of experiences becomes available in a cost-effective way. The information management and communication component of the project will ensure that the data and results generated are available for parallel and future initiatives. Moreover, the work on policies, strategies and institutional structures will provide the mechanisms for scaling up the approach and implementing results more widely in the project countries and region, also after project completion.

The project will build as far as possible on existing investments, institutions and learning processes, seeking to add value and positive impact specifically through promoting stronger awareness, skills in addressing technical and management issues, and demonstrated improvements in outcome. It will link with a range of in-kind inputs from private sector and commercial vessel operators and public sector (bilateral-agencies/ development partners) improving their quality of impact, and is designed to connect with other areas of major policy implementation and development investment. Cost effectiveness has also been considered in the project execution arrangement ensuring that the project will be co-executed with main co-financing initiatives under the coordination of SEAFDEC. The regional project coordinator will be co-financed 50% by Centrum für internationale Migration und Entwicklung (CIM) and SEAFDEC which constitute an important saving in GEF funds for the management of this project. As such, the cost-effectiveness of the project is expected to be high; direct and indirect economic values of resources protected and biodiversity sustained or enhanced are expect to exceed GEF investment.

3.6 Sustainability

Sustainability considerations have been an integral part during project design and formulation and will be mainstreamed across all components during implementation. One key contributor to sustainability is that

the project has been developed in close collaboration with partners and stakeholders in the project countries and region. This has allowed for identifying and selecting project interventions that relate to local and national interests of highest priority. National project teams were created to support the project formulation process and key government officials – who will subsequently assume responsibilities for project implementation – fishers and other direct stakeholders have been consulted and actively taken part in the identification of priorities and approaches from the beginning of project design. National, and in some cases local, workshops as well as consultations with smaller groups of stakeholders have been carried out in all project countries[29]. At the regional level, two project development workshops were held[30], organised jointly by FAO and SEAFDEC, and inviting project country representatives and regional partners.

Environmental sustainability

Project impact on fishery resources and habitats will be sustained through the continued and scaled up use of the gear modifications and management measures introduced by the project. As the promotion of more responsible fishing practices and improved management – supporting aquatic resource dependent livelihoods – is the main thrust of the project, the design and implementation strategy of the project is largely built around mechanisms ensuring environmental sustainability, including:

- Improvements in trawl fisheries bycatch management introduced by the project in the field are supported by appropriate policy, legal and institutional structures at local, national and regional levels. Close linkages between field experiences and the work on national and regional frameworks and strategies will ensure that there are no disconnects between the local reality and the political scene. This will support viable and long-term solutions with support at all levels (component 1).
- Development and introduction of gear modifications and management measures take place in close collaboration with fishers and other concerned stakeholders to ensure that the solutions are appropriate and accepted. The project will also provide training to ensure that fishers understand the use of the new and/or modified gear and management measures, and are comfortable enough with their use and application. The identification and implementation of positive (economic) incentives for applying and accepting the introduced fishing practice and management solutions will form an integral part of the project as a direct support of sustainability (component 2).
- Data collection is carried out incorporating a long-term outlook from the beginning and giving emphasis to developing standardized data collection methods and dissemination and sharing strategies. The project is conceived and implemented in accordance with the Code and an EAF context and results will be disseminated with this perspective and with a view to promote improved trawl fisheries bycatch management measures and responsible fishing practices, not only in the project areas and countries but more widely in the region, as well as globally (component 3).
- The awareness of and knowledge on the need for more selective fishing practices and improved management are enhanced through specific activities targeting different stakeholder groups. IEC material and events (training, workshops) will be designed and implemented for a wide range of audiences (component 4).

Institutional sustainability

In addition to the aspects already mentioned above, institutional sustainability will be ensured through activities directed at institutional development and capacity building in project components 1 and 4. It will also be supported by the participatory and systematic approaches used in components 2 and 3. Key considerations include:

[29] The reports of the five national workshops will be available at the project website in Year 1.

[30] A project Inception workshop in November 2009 and a project Logframe and Planning workshop in May 2010.

- Institutional arrangements for trawl fisheries bycatch management and implementation of the national and area specific management plans build on existing structures where such exist. New structures and organizational development will be based on stakeholder analyses and institutional assessments and take an inclusive and participatory approach.
- Capacity building with regard to awareness and knowledge support the institutional arrangements for trawl fisheries bycatch management plan implementation. It will also contribute to a broader acceptance of the need for improved management and responsible fishing practices, locally, nationally and at the regional level, providing a basis for continued action and sustainability of project results after its completion.
- Through public and private sector partnerships with existing local, national and regional organizations, government agencies, NGOs and other structures, projects results are absorbed and utilized broadly. Existing institutional structures will be strengthened through these new linkages and knowledge, and a broad base for continued action is created.

Social sustainability

Social sustainability will be achieved through the participatory project implementation strategy that applies to all four project components. More particularly, the following aspects are noted:

- Fishers and other concerned stakeholders participate actively in project implementation. Collaborative management arrangements for the implementation of trawl fisheries bycatch management is a fundamental strategy in this respect. Stakeholder participation and consultations have also been a key component of project design.
- The possibility of conflicts between different resource users and fleet segments is recognized, investigated, monitored and addressed, as required, in the institutional arrangements for trawl fisheries bycatch management plan implementation.
- Information and capacity is offered to fishers and other concerned stakeholders with regard to awareness of and knowledge on bycatch issues, available solutions and why there is a need for more responsible fishing practices and improved management.
- Principles of equitable development and gender equality guide project implementation and decision-making.

Financial sustainability

The economic and financial sustainability refers to two main aspects: the sustainability of fishing operations and related livelihoods, and the sustainability of institutional arrangements – often supported by governments – needed to implement improved management practices and responsible fishing practices.

- The long-term economic and financial sustainability in relation to fishing operations is closely linked to the overall project objectives and to environmental sustainability. Ineffective management practices contribute to risk and uncertainty and changing these is crucial for long-term sustainability. Already now, many fishers in the project countries and region report difficulties in maintaining profitability because of decreasing catches (in volume and/or value) and/or increasing operational costs. Better management of fishery resources and related ecosystems is hence a requirement for the existence of sound and profitable fisheries in the future.
- In the short and medium-term, there is a risk that fishing incomes will decrease when the capture of (economically valuable) bycatch is reduced. Fishers may hence need a certain level of support to cope with these changes and the development of incentive packages included in project design will play a crucial role in this respect. A win-win situation could be created if bycatch is reduced at the same time as the value of the retained catch is increased or fishing costs are reduced. It is recognized that this may be a challenge in some situations and, for market-based incentives, partnerships and collaboration with seafood and marketing organizations will be required. There are also consumer and food security aspects to take into consideration. These matters and

concerns will be considered in the development of the trawl fisheries bycatch management plans and in the regional bycatch policy/strategy. Moreover, the project design and budget include provisions for short-term financial compensation to fishers in some of the project areas to facilitate the transition period to more sustainable fishing practices and management.

- With regard to the financial sustainability of institutional arrangements and the funding of these – in particular after project completion – a key project approach will be to build on existing structures and develop these rather than creating new ones. Moreover, political commitment tends to be closely related to budgetary support and the participatory approach taken from the beginning of project design and the fact that the project addresses local, national and regional priorities, will help ensuring continued government funding of required activities and structures. In the longer-term and in line with decentralization and devolution of responsibilities, it could also be foreseen that some of the resource management functions would possibly be user financed through public and private sector partnerships and support from market-based incentives. While it may be beyond the scope of the project to implement such arrangement *per se*, the philosophy behind them is in line with the overall project approach and planning for the future along these lines will be promoted.

3.7 Replicability

The project will support replicability by: (i) supporting institutional development and capacity building for collaborative implementation of trawl fisheries bycatch management plans and hence generating experiences that can be used elsewhere in the countries and region, and for management of other fisheries (components 1 and 4); (ii) developing and implementing incentive packages and approaches for public and private sector partnerships that can be replicated and further developed in other situations in similar contexts (components 1 and 2); (iii) implementing field activities in the selected project areas and fisheries in the five participating countries representing relatively modest investments but including a variety of possible management measures and accordingly with a high potential for replication throughout the countries and region (component 2); and (iv) developing and implementing methods for bycatch data collection, again with a high potential for replication throughout the region, also in fisheries other than bottom trawling (component 3).

3.8 Risks and assumptions

Assumptions

The project design builds on a number of key assumptions. These have been identified by component but some are more general and applicable across project components. The key assumptions include:

- Component 1:
  - There is political support for establishing a regional bycatch policy/strategy.
  - All key stakeholders (fishers and other private sector actors, fisheries managers, local governments, etc) buy in to the need for trawl fisheries bycatch management. They also possess sufficient capacity to develop and subsequently implement trawl fisheries bycatch management plans.
- Component 2:
  - Fishers and other private sector actors are willing to participate in the project activities and appreciate the long-term benefits of more responsible fishing over short-term impacts.
  - MCS and enforcement structures are in place to support the implementation of the selected management measures.
  - Technological and market-based solutions that create economic incentives for applying responsible fishing are available and feasible to implement in project areas.
- Component 3:
  - Fishers and other private sector actors are willing to share information and IUU fishing does

not influence the completeness or distort data.
    - Enforcement mechanisms are in place and effective for data related regulations (log book etc).
- Component 4:
    - Increased awareness and improved knowledge can be turned into positive action leading to reduced bycatch and fishing impact.
    - Fishers and other private sector actors are willing and have the time and capacity to work with the project.

Risks and mitigation measures

Related to these assumptions, there are a number of risks. These exist at local, national and regional levels and are related to the complexity of issues addressed by the project, the associated political risks, and potentially uneven commitments and performance of participating countries and partners. Hence, risks may vary from one location or country to another. It is felt, however, that most potential risks can be identified and addressed early before beginning to affect implementation. The risks identified during project preparation have been divided into (i) political and administrative capacity risks; (ii) risks related to private sector participation; (iii) technological risks. These are described in Table 5 below and the average perceived risk is estimated to be 'medium'.

As in other parts of the worlds, the Coral Triangle and South East Asia region is exposed to the threats posed by climate change. Climate change is projected to impact broadly across ecosystems, societies and economies, increasing pressure on all livelihoods and food supplies and poor communities depending on fisheries production and aquatic systems are often particularly vulnerable to such threats. The project recognizes the importance of the risks related to climate change and will take this in consideration as an integral part of implementation although no specific climate change mitigation/adaptation measures are planned.

Table 5: Risks, ratings and mitigation measures

Risks	*Rating*	*Risk mitigation measures*
Change in key policy and decision makers or other events beyond the control of the project lead to changes in policies and/or support for bycatch management and the project.	L-M	Project priorities are in line with overall local, national and regional concerns and are hence strongly anchored in existing policies. Through stakeholder participation, local, national and regional ownership has been established already at the project design stage and this broad-based support will be promoted also during implementation.
There is insufficient capacity to support management changes proposed by the project, e.g. with regard to institutional and administrative support, and MCS and enforcement.	M	The scope of the project has been agreed with relevant authorities and during implementation local, national and regional stakeholders will decide on what management measures should be adopted and hence what is feasible within existing capacities. Moreover, by focusing on a selected number of issues in a limited number of locations, it should be possible to achieve results without putting undue pressure on supporting systems. Capacity building will be available from the project as required. The local level experiences will support national and regional policies and strategies and may be scaled up within the framework of renewed assessments of capacity.
Fishers and other private sector actors are reluctant to collaborate with the project.	M	By applying a participatory approach and providing capacity building for stakeholders to effectively take part in the project, it will address issues that are of concern to stakeholders ensuring that fishers and other private sector actors will be interested in its activities. Stakeholders have been involved and showed interest in participation during the preparation of the project. The development of incentive packages will also be fundamental in soliciting support and interest in project activities by fishers. The project will engage with seafood industry to ensure that the market is well understood and that proposed solutions are economically

		sensible.
Disagreements or conflicts among resource users, different government agencies/ departments – or central-local levels – or other stakeholder groups with regard to project priorities and implementation mechanisms.	L	A wide range of stakeholders have been consulted and participated in project design and different viewpoints have hence already been identified. As part of project implementation, institutional arrangements will be set up for collaborative implementation of trawl fisheries bycatch management plans. These arrangements will include provisions for conflict resolution. Project implementation will be guided by principles of equitable development and gender equality.
Technical solutions (gear modifications and management measures) are not available that provide the desired environmental and sustainable fishing effects and at the same time are acceptable to fishers and other stakeholders in the context of current livelihoods, food security and poverty.	M	Through FAO, information is available on the variety of BRDs, gear modifications and management measures that exist around the world. By working closely together with fishers and other stakeholders, those measures that are most suitable in the particular local situations can be selected, developed and/or adopted as required. The project recognises the potential (short-term) implications on incomes of reducing bycatch and that immediate livelihood needs and improved management requirements must be reconciled. The project does not aim at eliminating bycatch but to make it part of an effective fisheries management plan.
Market-based incentives are difficult to identify and implement because of a lack of demand and niche markets for existing products,	M	The project will work closely together with fishers, seafood companies and marketing organisations to identify suitable market-based incentives. Such drivers of more environmentally friendly production are becoming more common and it is expected that, with the collaboration of partners, they can be developed for trawl fisheries management as a complement to other management implementation approaches.

H = High (greater than 60 percent probability that the outcome/result will not be achieved).
M = Medium (30 to 60 percent probability that the outcome/result will not be achieved).
L = Low (probability of less than 30 percent that the outcome/result will not be achieved).

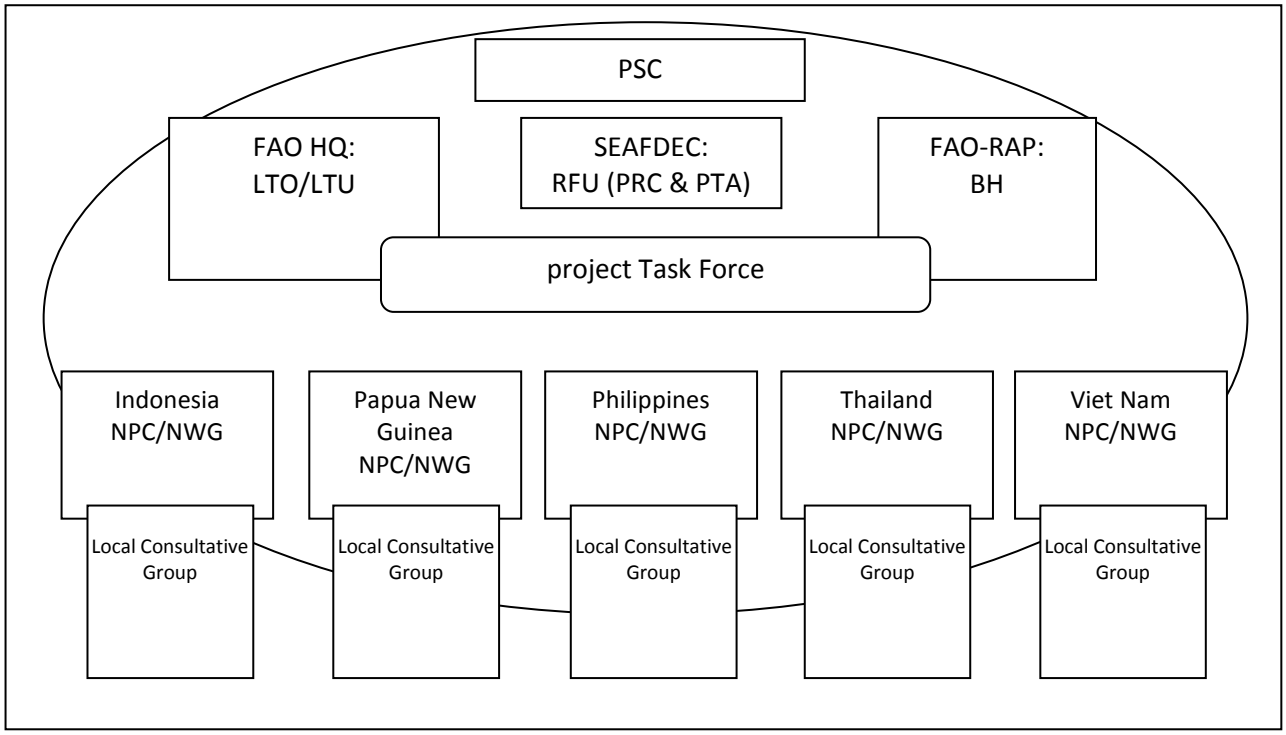
4 IMPLEMENTATION AND MANAGEMENT ARRANGEMENTS

4.1 Institutional arrangements

In addition to GEF and FAO, the main institutions involved in the project were listed together with project partners in Table 4 above (see section 3.3) and include, at the national government level, relevant fisheries authorities – at central and provincial levels – local governments and co-management arrangements (when available), and the national maritime police or navy. The project will also partner with relevant universities and research institutes, NGOs, and fisher and stakeholder associations and organizations. At the regional level, SEAFDEC will play an important role as Regional project facilitator and collaboration with other relevant regional and international organizations, institutions and initiatives will be established, e.g. with other FAO projects and the projects included under the GEF CTI framework program (see also section 1.2 above). FAO will ensure international contacts, linkages and collaboration as appropriate and required.

The ministries in charge of the environment are the GEF Operational Focal Points and responsible for the coordination of all GEF activities in their respective countries. Coordination and collaboration between the fisheries authorities – responsible for direct project implementation – and the GEF Focal Points will be ensured through the project implementation arrangements. These arrangements will also ensure participation by all other relevant stakeholders, transparent and equitable decision-making, and efficient and effective implementation of project activities. Box 3 illustrates these implementation arrangements. The main functions are further described below.

Box 3: Project implementation arrangements



4.2 Implementation arrangements

GEF Agency

As the **GEF Agency,** FAO will be responsible for oversight of the GEF resources as well as the project as a whole to ensure that GEF policies and criteria are adhered to and that the project meets its objectives and achieves expected outcomes and outputs as established in this project Document, work plans and budget in an efficient and effective manner. FAO will report on the project progress to the GEF Secretariat and financial reporting will be to the GEF Trustee. FAO will administer the GEF resources in accordance with FAO's rules and procedures and ensure the timely delivery of project inputs and outputs, in close consultation with SEAFDEC and the national fisheries authorities who are the technical executing partners of the project (see below). FAO will closely monitor the project and provide technical support (through FAO's Fisheries and Aquaculture Department) and carry out supervision missions, as required.

The Fishing Operations and Technology Service (FIRO)/ Fisheries and Aquaculture Resources Use and Conservation Division (FIR) of the Fisheries and Aquaculture Department in FAO headquarters will be the **FAO Lead Technical Unit (LTU)** for the project and provide technical backstopping. The LTU will follow-up closely on implementation progress and ensure delivery of technical outputs and outcomes, and undertake regular backstopping missions. It will review and provide clearance to (i) the Terms of Reference (TOR) of consultancies, letters of agreement and contracts; (ii) the selection of the consultants and firms to be hired with GEF funding; (iii) all technical reports; (iv) project progress reports monitoring outputs as established in the Project Results Framework, implementation reviews and financial reports and (v) chair the Project Task Force (see below). The LTU will prepare the annual Project Implementation Review (PIR) to be cleared by the FAO GEF Coordination Unit in the Investment Centre Division (TCI) and submitted to GEF.

The **FAO GEF Coordination Unit in TCI** will review and approve project progress reports, implementation reviews and financial reports and budget revisions. The FAO GEF Coordination Unit will review and clear the annual PIR and undertake supervision missions if considered necessary. The PIRs will be included in the FAO GEF Annual Monitoring Review submitted to GEF by the FAO GEF Coordination Unit. The FAO GEF Coordination Unit will also participate in the mid-term review and the final evaluation and the development of corrective actions in the project implementation strategy in the case needed to mitigate eventual risks affecting the timely and effective implementation of the project. . All budget reviews and project progress reports are submitted to the GEF Coordination Unit for review, clearance and uploading on the FPMIS. The GEF Coordination Unit will also be responsible for reviewing and clearing budget revisions prior to submitting them to the Finance Division for final approval and for collaborating with the Finance Division in the six-monthly call for funds.

The **FAO Finance Division** will clear budget revisions, provide annual Financial Reports to the GEF Trustee and, in collaboration with the FAO GEF Coordination Unit, call for project funds on a six-monthly basis from the GEF Trustee.

The **FAO Regional Office for Asia and the Pacific (FAO-RAP) in Thailand**, who will be designated as the **Budget Holder (BH)** of the project's GEF resources, will be responsible for timely operational, administrative and financial management of the project. In this capacity, the FAO-RAP will authorize the disbursement of the project's GEF resources and will designate a project Operational and Administrative Officer. The BH will establish a multi-disciplinary Project Task Force to support the project including representatives of the Marine and Inland Fisheries Service (FIRF)/FIR, the Fisheries and Aquaculture Policy and Economics Division (FIP), the FAO Development Law Service (LEGN) and the Fishing Operations and

Technology Service (FIRO - chair). The BH will work in close consultation with execution partners – SEAFDEC and national fisheries authorities – the FAO LTO (see below) and the LTU for the management of the GEF and other resources channelled through FAO. The BH will prepare Quarterly Project Implementation Reports to be copied to the LTU and the GEF Coordination Unit and uploaded in FPMIS. The BH will submit to the GEF Coordination unit and the LTU six-monthly financial reports on the use of the GEF resources (due 31 July and 31 January) *that* shows the amount budgeted for the year, amount expended since the beginning of the year, including un-liquidated obligations (commitments) including details of project expenditures on an output-by-output basis, reported in line with project budget lines as set out in the project budget included in the Project Document. Financial reporting and operations, procurement of goods and contracting of services for project activities financed by these resources will be implemented in accordance with FAO rules and procedures. Final approval of procurement, letters of agreement, and financial transactions rests with the BH who will adhere to internal FAO clearance procedures.

A **FAO Lead Technical Officer (LTO)** will be appointed in the LTU to supervise and provide technical guidance to the project. The LTO will be supported by the Project Task Force. SEAFDEC will report directly to the FAO LTO. The FAO LTO will review all reports and obtain clearance as required from the LTU, Project Task Force and/or FAO technical divisions. Following approval, the reports will be submitted by the LTO to the FAO GEF Coordination Unit as necessary. The LTO will also, with the support of the Project Operational and Administrative officer in FAO-RAP: (i) revise and clear annual work plans and budgets; (ii) review procurement and subcontracting material and documentation of processes and obtain internal approvals; (iii) conduct project supervision missions; (iv) prepare financial and monitoring reports (see section 6.2 below); (v) represent FAO in the Project Steering Committee; and (vi) provide technical oversight to activities carried out by the executing partners.

Technical executing partners

SEAFDEC and the national fisheries authorities will be the **project technical executing partners** directly responsible for technical implementation of project activities, day-to-day monitoring and financial management (in accordance with FAO rules and procedures) of the GEF resources provided to them under the project. FAO will enter into individual Letters of Agreement (LoAs) with SEAFDEC and national fisheries authorities which, as service providers (Technical Executing Partners), will execute activities under the responsibility of each one of them. Funds received under LoAs may be used inter alia for limited procurement of goods and for subcontracted services needed to execute the activities in conformity with FAO rules.

SEAFDEC will assume the role as Regional Project Facilitator and provide, in collaboration with the FAO LTO, the LTU and FAO-RAP, administrative and technical support to the national fisheries authorities with regard to project implementation. SEAFDEC will also implement regional project activities – including support to the development of the regional bycatch policy/strategy, training activities and promotion of standardized methods and approaches (e.g. for data collection) across the region. Such support will be provided in a manner consistent with the FAO Code of Conduct for Responsible Fisheries. SEAFDEC will facilitate national-regional-international linkages, including contacts with, inter alia, ASEAN. The institutional arrangements for project implementation provide for the use of existing structures within SEAFDEC allowing for capitalizing on existing partnerships. Nevertheless, a dedicated **Project Regional Facilitation Unit (RFU)** will be established. Regular SEAFDEC staff will assume specific responsibilities under project implementation and SEAFDEC will appoint and finance a Project Technical Advisor (PTA) who will be responsible for the technical project activities within the RFU as well as project outreach and communication aspects. The SEAFDEC/RFU will be strengthened by an internationally recruited project Regional Coordinator (PRC) co-funded 50% by the project's GEF funds and 50% by CIM and one part time (10 hours per week) regional administrative assistant co-funded by the project's GEF resources (6 person months) and SEAFDEC (6 person months). The project will also be supported by external specialists (project partners and project short-term consultants) that will strengthen SEAFDEC's technical and administrative

capacity on all subject matters related to the project. SEAFDEC's current partners will collaborate with the project and contribute to its outputs and outcomes, as appropriate and within the existing SEAFDEC institutional arrangements.

SEAFDEC will compile information from the national technical executing partners in the project countries and submit to FAO project annual work plans and budgets and six-monthly progress reports for the GEF project and all documentation needed for the preparation of other reports required.

The Project Regional Coordinator (PRC) will lead the RFU and will be responsible for the overall planning and coordination of the implementation of all project activities supported by the PTA and RFU, the FAO LTO and the LTU. The PRC will work closely with the Regional Administrative Assistant in SEAFDEC, the FAO LTO and the Project Operational and Administrative officer in FAO-RAP. The proposed TOR for the post is included in annex 4 of the FAO project document.

At the national level **the fisheries authority will be the National Technical Execution Partner and a National Project Coordinator (NPC)** will be appointed in and financed by each project country. The NPC will be the main contact point for the project in each country and assume overall responsibility of all project activities (see TOR in annex 4 of the FAO project document). The NPC will lead the team of government technical staff and project consultants that will implement project activities at the national level. More specifically, he/she will be supported by **National Technical Officers financed by the project's GEF resources and** assigned to the project full or part time according to needs and the particular country situation.

The national fisheries authority will sign a LoA with FAO allowing, inter alia, for limited procurement of goods and for subcontracted services needed to execute the activities under the project subcomponent in their country financed by GEF resources in conformity with FAO rules. Supported by the NPC, the national executing partner will (i) provide to SEAFDEC inputs for the annual work plan and budget for the project and timely six-monthly progress information on the country's subcomponent; (ii) prepare statements of expenditures, disbursement requests, and procurement and contract documentation for goods and services purchased in accordance with the LoA with FAO; (iii) prepare TOR for consultancies and contracts to be performed under the LoA; (iv) review technical products delivered by consultants and contract holders and seek the clearance from the Project Coordinator in SEAFDEC and FAO on TORs and final products; (v) participate in meetings of the PSC; and (vi) contribute to the organization of midterm review and the final evaluation.

Coordination, consultation and participation

The Project Steering Committee (PSC) will provide policy guidance and be responsible for approving the annual project work plans. It will include competent officers designated by the participating governments and stakeholder representatives. In addition, representatives of FAO, SEAFDEC and partners will be ex officio members. The PRC will act as secretary. The PSC will also approve TORs for reviews and evaluations, and consider and provide comments on external evaluations and audits. The PSC will normally meet once a year, although exceptional meetings (e.g. during the first year of start-up, if required) could be called. The chairperson of the PSC will change annually (with no country repeating) and the country of the current chairperson will normally be the host country for the annual PSC meeting.

Analogous to the PSC, at the national level**, National Working Groups (NWG)** will be established to support the NPC and guide project implementation. In addition to the national fisheries authorities, the NWG membership will include representatives of other national partners and the local Consultative Groups.

At the local level, i.e. in the selected project areas where field interventions will be carried out, expected project results include the establishment of Management Councils as the institutional mechanism for

collaborative implementation of the trawl fisheries bycatch management plans. To become effective permanent management arrangements, the establishment of these Management Councils are likely to require time and effort – taking the need for proper procedures based on transparency and equitable rights (including gender equality) into account – and they are not expected to be formalized and fully functional until the end of the project. Thus, in the meantime, the project will work through **Consultative Groups** that will be established already at the start of project implementation. These groups will be a key instrument for stakeholder participation in project implementation and will, with the support of the project, form the basis for the subsequent establishment of permanent and officially recognized Management Councils.

The Consultative Groups will allow for different local stakeholder groups (fishers, the post-harvest sector, seafood companies and consumer representatives, local communities, NGOs, etc) to effectively participate in discussions and decision-making regarding project implementation. The Consultative Groups will meet at least bi-monthly (more often if required) and report to the NPC. The groups will also be represented on the NWG and participate in M&E of project progress towards outputs and outcomes.

5 FINANCIAL PLANNING MANAGEMENT AND REPORTING

5.1 Financial planning

The total cost of the project will be USD 11,218,600, to be financed through a USD 3,000,000 GEF grant and USD 8,218,600 in co-financing from: (i) FAO (USD 300,000); (ii) the government of Indonesia (USD 894,000), the government of Papua New Guinea (USD 396,500), the government of the Philippines (USD 1,349,200), the government of Thailand (USD 685,000) and the government of Viet Nam (USD 897,600); (iii) SEAFDEC (USD 800,000); (iv) Sida (USD 2,000,000) (v) CIM (USD 255,000); (vi) WWF Coral Triangle Program (USD 90,000); (vii) RFLP (USD 300,000); (ix) Sustainable Fisheries Partnership (USD 75,000); and (x) IFFO (USD 47,000).

The table 6 below shows the project costs by countries and by components and the table 7 below shows the sources of co-financing.

Table 6: Project cost by component (excluding co-financing)

Component and country	*Total*	
	%	*(USD)*
Component 1: Policy, legal and institutional frameworks		
Indonesia	*2.7%*	*79,500*
Papua New Guinea	*1.5%*	*45,500*
Philippines	*2.7%*	*80,800*
Thailand	*2.4%*	*71,000*
Viet Nam	*2.1%*	*61,900*
Regional	*3.4%*	*103,000*
Subtotal	***14.7%***	***441,700***
Component 2: Resource management and fishing operations		
Indonesia	*4.4%*	*130,500*
Papua New Guinea	*2.0%*	*59,500*
Philippines	*8.3%*	*249,800*
Thailand	*4.5%*	*134,000*
Viet Nam	*7.8%*	*235,300*
Regional	*4.8%*	*143,500*
Subtotal	***31.8%***	***952,600***
Component 3: Information management and communication		
Indonesia	*2.5%*	*74,500*
Papua New Guinea	*2.0%*	*58,500*
Philippines	*3.0%*	*88,800*
Thailand	*2.4%*	*71,500*
Viet Nam	*1.8%*	*53,800*
Regional	*4.5%*	*133,500*
Subtotal	***16.0%***	***480,600***
Component 4: Awareness and knowledge		

Indonesia	*4.7%*	*140,000*
Papua New Guinea	*2.6%*	*76,500*
Philippines	*5.1%*	*152,900*
Thailand	*4.6%*	*137,000*
Viet Nam	*3.8%*	*113,000*
Regional	*6.9%*	*206,000*
Subtotal	***27.5%***	***825,400***
Project management and M&E:		
Project management	*9.0%*	*270,000*
Subtotal		***270,000***
TOTAL PROJECT COST	*100*	***3,000,000***

Table 7: Sources of confirmed co-financing

Source of co-financing	Classification	Type	USD	%
Indonesia	Nat'l Gov't	In-kind	341,000	4%
Indonesia	Nat'l Gov't	Cash	286,000	3%
Papua New Guinea	Nat'l Gov't	In-kind	51,000	1%
Papua New Guinea	Nat'l Gov't	Cash	160,000	2%
Philippines	Nat'l Gov't	In-kind	557,000	7%
Philippines	Nat'l Gov't	Cash	123,900	2%
Thailand	Nat'l Gov't	In-kind	218,000	3%
Thailand	Nat'l Gov't	Cash	0	0%
Vietnam	Nat'l Gov't	In-kind	176,000	2%
Vietnam	Nat'l Gov't	Cash	17,200	0%
Private sector at national level		In-kind	2,059,100	25%
Other at national level		In-kind & cash	262,400	3%
SEAFDEC	Intergov. Agency	In-kind	800,000	10%
CIM*	Bilat. Agency	Cash	255,000	3%
WWF	NGO	In-kind	90,000	1%
Sida	Bilat. Agency	Cash	2,100,000	26%
SFP	NGO	In-kind	75,000	1%
IFFO	NGO	In-kind	47,000	1%
RFLP (FAO Programme)**	GEF Agency	In-kind	300,000	4%
FAO	GEF Agency	In-kind	140,000	2%
FAO***	GEF Agency	Cash	160,000	2%
Total co-financing			8,218,600	100%

* Official co-financing letter not yet received.
** GCP/RAS/237/SPA *(Regional fisheries livelihoods programme for South and South-East Asia)*
***Development of the International Guidelines for Bycatch Management and Reduction of Discards, C05G10101

5.2 GEF inputs

The GEF contribution to the project will be used to support activities that produce global environmental benefits and cannot be adequately funded by local stakeholders at present. The GEF resources will be used to fund technical assistance, capacity building and activities promoting regional collaboration and

coordination that could not be undertaken without this financial contribution. These activities take place both at the local level, directly involving fishers and direct stakeholders, and at the regional level implicating policy and decision-makers.

5.3 Government inputs

The governments of the five project countries have confirmed co-financing of USD 1,930,100 (whereof USD 587,100 in cash) representing 23.5 % of the total co-financing of the project. The contributions mainly refer to in-kind co-financing from the central fisheries authorities but also include inputs from provincial and local governments and state universities and research institutes. An important part of the government contributions consist of staff time, at central, provincial and local levels. Other items covered include project management costs, some material and equipment for field trials, meetings and surveys.

5.4 Other co-financing inputs

SEAFDEC will contribute some USD 800,000 for funding of the RFU and some regional activities, including workshops and meetings. Other co-financing partners include CIM, SIDA, WWF Coral Triangle Programme, SFP, IFFO and RFLP.

5.5 Financial management of and reporting on GEF resources

Financial records

FAO shall maintain a separate account in USD for the project GEF resources showing all income and expenditures. Expenditures incurred in a currency other than USD shall be converted into USD at the United Nations operational rate of exchange on the date of the transaction. FAO shall administer the GEF resources in accordance with its regulations, rules and directives

Financial reports

FAO-RAP as the BH, supported by a designated Operational and Administrative Officer, shall prepare six-monthly statement of expenditures and final accounts for the project GEF resources, showing amount budgeted for the year, amount expended since the beginning of the year, and separately, the unliquidated obligations as follows:

1. Details of project expenditures on a component-by-component basis, reported in line with project budget codes as set out in the project document, as at 30 June and 31 December each year.
2. Final accounts on completion of the project on a component-by-component cumulative basis, reported in line with project budget codes as set out in the project document.
3. A final statement of account in line with FAO Oracle project budget codes, reflecting actual final expenditures under the GEF component of the project, when all obligations have been liquidated.

The BH will submit the financial reports for review and monitoring by the LTU, and the FAO GEF Coordination Unit. Financial reports for submission to the donor (GEF) will be prepared in accordance with the provisions in the GEF Financial Procedures Agreement and submitted by the FAO Finance Division.

Budget revisions

Semi-annual budget revisions will be prepared by the BH in consultation with the LTO and LTU in accordance with FAO standard guidelines and procedures.

Responsibility for cost overruns

The BH is authorized to enter into commitments or incur expenditures up to a maximum of 20 percent over and above the annual amount foreseen in the GEF component of the project budget under any budget sub-line provided the total cost of the annual budget is not exceeded.

Any cost overrun (expenditure in excess of the budgeted amount) on a specific budget sub-line over and above the 20 percent flexibility should be discussed with the FAO GEF Coordination Unit with a view to ascertaining whether it will involve a major change in project scope or design. If it is deemed to be a minor change, the budget holder shall prepare a budget revision in accordance with FAO standard procedures. If it involves a major change in the project's objectives or scope, a budget revision and justification should be prepared by the BH for discussion with the GEF Secretariat.

Savings in one budget sub-line may not be applied to overruns of 20 percent in other sub-lines even if the total cost remains unchanged, unless this is specifically authorized by the FAO GEF Coordination Unit upon presentation of the request. In such a case, a revision to the project document amending the budget will be prepared by the BH.

Under no circumstances can expenditures exceed the approved total project budget for the GEF resources or be approved beyond the completion (NTE) date of the project. Any over-expenditure is the responsibility of the BH.

Audit

Project GEF resources shall be subject to the internal and external auditing procedures provided for in FAO financial regulations, rules and directives and in keeping with the Financial Procedures Agreement between the GEF Trustee and FAO.

The audit regime at FAO consists of an external audit provided by the Auditor-General (or persons exercising an equivalent function) of a member nation appointed by the governing bodies of the Organization and reporting directly to them, and an internal audit function headed by the Inspector-General who reports directly to the Director-General. This function operates as an integral part of the Organization under policies established by senior management, and furthermore has a reporting line to the governing bodies. Both functions are required under the Basic Texts of FAO which establish a framework for the TOR of each. Internal audits of imprest accounts, records, bank reconciliation and asset verification take place at FAO field and liaison offices on a cyclical basis.

6 OVERSIGHT, MONITORING, MANAGEMENT INFORMATION AND REPORTING

6.1 Role of monitoring and evaluation (M&E)

M&E of progress in achieving project results and objectives will be done based on the targets and indicators established in the Project Results Framework. Good M&E systems and procedures are fundamental for providing information for management decisions and for fulfilling oversight functions. M&E activities will follow FAO standard procedures and GEF guidelines. The project management M&E system will include indicators and be developed in such a way that it is also useful to the project countries and region after project completion for tracking further progress on bycatch reduction and improved trawl management. Moreover, it will facilitate learning and generation of knowledge that can support further actions in the participating countries and the wider region.

The project M&E plan has been budgeted at USD 133 950 GEF funds (please see table 8 below). Support to the M&E system will also be provided by co-funded inputs (person time).

6.2 Indicators

Considering that the main focus of the project is the introduction of improved trawl fisheries bycatch management – for the benefit of the environment and those who depend on the marine aquatic resources for their livelihoods – through capacity building and the development and implementation of tools and methods, the project indicators include both process and institutional indicators, and on-the-ground impact indicators.

The process and institutional indicators capture the tools developed (regional bycatch policy/strategy; trawl fisheries bycatch management plans; availability of gear, management measures and incentive packages; data, data collection methods and bycatch reduction monitoring tools; information, education and communication (IEC) material and systems) and levels of created capacities (policy, legal and institutional frameworks supporting improved trawl bycatch management are available; Management Councils are established for implementation of trawl fisheries bycatch management plans; fishers and other stakeholders have increased their understanding of bycatch issues and have capacity to participate in collaborative management; key project implementers / stakeholders have improved their knowledge on bycatch reduction devices (BRDs) and other management measures; national and regional policy and decision-makers are sensitized with regard to responsible fisheries and the role and impact of bycatch).

On-the-ground impact indicators include the actual reduction of bycatch (in volume) on trawlers and in fisheries where BRDs, selective gear and management measures are introduced; and the impact on bycatch reduction on catch values and incomes. Other impact indicators – related to bio-ecological and/or socioeconomic outcomes – may be added according to identified needs and the outcomes of stakeholder consultations in relation to the development of the monitoring framework of each area specific trawl fisheries management plan at the beginning of project implementation.

6.3 Review and evaluation

A **mid-term review** will be undertaken after two years of project implementation. The review will determine progress being made towards achievement of objectives, outcomes, and outputs, and will identify corrective actions if necessary. It will, inter alia:

- review the effectiveness, efficiency and timeliness of project implementation;
- investigate whether principles of equitable development and gender equality have been adhered to;
- analyze effectiveness of implementation and partnership arrangements;
- identify issues requiring decisions and remedial actions;
- identify lessons learned about project design, implementation and management;

- highlight technical achievements and lessons learned; and
- propose any mid-course corrections and/or adjustments to the implementation strategy as necessary.

An **independent final evaluation** will take place three months prior to the terminal review meeting of the project partners and will focus on the same issues as the mid-term review. In addition, the final evaluation will review project impact, analyze sustainability of results and whether the project has achieved its environmental objectives and benchmarks. The evaluation will furthermore provide recommendations for follow-up actions.

Some critical issues to be assessed and investigated in the mid-term review and subsequently followed up in the terminal evaluation include: (i) the level of agreement on regional bycatch policy/strategy and interest of relevant regional organizations to adopt such a policy/strategy; (ii) the progress with regard to establishing trawl fisheries bycatch management plans and possible barriers/bottlenecks; (iii) the coherence between recommended gear modifications, management measures and incentive packages (identified and developed through field interventions) on the one hand, and the (draft) trawl fisheries bycatch management plans and the regional bycatch policy/strategy on the other; (iv) particular threats and opportunities with regard to the implementation of recommended gear modifications/management measures and incentive packages; (v) the progress on data collection and feasibility of making data collection procedures permanent; (vi) the regional relevance and comparability of identified indicators for monitoring of bycatch reduction (volume) and its impact on incomes (value); (vii) the relevance of existing communication material and channels, and strategies for dissemination of results and best practices; and (viii) capacities available created for stakeholders to effectively participate in management planning and implementation.

The TORs for the mid-term review and final evaluation will be prepared in close consultation between RFU (SEAFDEC), FAO-RAP, the FAO LTO/LTU, the FAO Evaluation Office, and the GEF Coordination Unit. The TORs will be discussed with the project partners and approved by the PSC, and fall under the ultimate responsibility of the FAO Evaluation Office (OED), in accordance with FAO evaluation procedures and taking into consideration guidance from the GEF Evaluation Office.

6.4 Monitoring responsibilities and information sources

Monitoring of project progress and outcomes will be the responsibility of the PRC and the NPCs. Project supervision and oversight is the responsibility of the Project Steering Committee and the FAO LTO/LTU. The FAO GEF Coordination Unit (TCI) will monitor project progress and will review and clear project progress reports and the annual Project Implementation Review (PIR) report, support the identification of eventual corrective actions if needed and participate in the midterm review and the final evaluation. Specific monitoring tasks will be defined in the Annual Work Plan (AWP). Fishers and other stakeholders will also be involved in the M&E process through the local Consultative Groups.

Monitoring information sources will be evidence of outputs (reports, website, lists of participants in training activities, manuals, availability of modified gear, meeting minutes, etc.). To assess and confirm the congruence of outcomes with project objectives, physical inspection and/or surveying of activity sites and participants will be carried out. This latter task will be undertaken by NPCs, the RFU, and the FAO LTO during supervision missions.

At the start of project implementation in year 1, key impact indicators will be identified for each project site in accordance with activities prioritized in each area specific bycatch management plan for monitoring of bycatch reduction (volume) and its impact on ecosystems and incomes (value) – and relevant baseline data will be collected. Some of the context related and background data have already been compiled during the

project preparation and design phase. This information will form the basis for the development of impact indicators and baselines. It will be responsibility of the NPCs to establish baselines at the national level, with the support of the RFU to ensure regional consistency and comparability.

6.5 Reporting Schedule

Specific reports that will be prepared in relation to M&E include: (i) Project Inception Report; (ii) Project Progress Reports; (iii) Quarterly Project Implementation Reports; (iv) Project Implementation Reviews; (v) Technical Reports; (vi) Co-financing Reports; and (vi) Terminal Report.

Project Inception Report

After approval of the project, an inception workshop will be held. Immediately after the workshop, the SEAFDEC Project Coordinator will prepare a project inception report in consultation with the FAO LTO and NPCs. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year Annual Work Plan and Budget (AWP/B), divided into monthly timeframes detailing the activities and progress indicators that would guide implementation during the first year of the project. The draft report will be circulated to FAO Project Task Force and the PSC for review and comments before its finalization.

Project Progress Reports (PPRs)

The PRC will submit to the FAO LTO and the FAO-RAP in Thailand six-monthly Project Progress Reports (PPRs) which are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework. The FAO LTO will review the progress reports and circulate them to the Project Task Force members and the LTU for approval before submitting them to the FAO GEF Coordination Unit for clearance.

Quarterly Project Implementation Reports (QPIR)

FAO-RAP, as the Budget Holder of the project, will prepare Quarterly Project Implementation Reports (QPIRs) to be copied to the LTU and the GEF Unit and uploaded in FPMIS

Project Implementation Review (PIR)

The FAO LTO, with inputs from the PRC and RFU, will prepare an annual Project Implementation Review (PIR) with the IW TT annexed. The PIR will be submitted to the FAO GEF Coordination Unit for review and approval. The FAO GEF Coordination Unit will submit the final report to the GEF Secretariat and Evaluation Office as part of the Annual Monitoring Review report of the FAO-GEF portfolio.

Technical Reports

Technical reports will be prepared to document and share project outcomes and lessons learned. The drafts of any technical reports must be submitted by the SEAFDEC/RFU or national executing partners to the FAO-RAP in Thailand who will share it with the LTU and the FAO GEF Coordination Unit for review and clearance, prior to finalization and publication. Copies of the technical reports will be distributed to the PSC and other project partners as appropriate. These will also be posted on the project website and FAO FPMIS.

Co-financing Reports

The PRC in SEAFDEC/RFU will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by other development partners. The RFU will compile information from the national executing partners and transmit it to FAO LTO and the BH. The report is to be considered as part of the annual PPR.

Terminal Report

Within two months of the project completion date, the PRC with support from the PTA and RFU will prepare a draft Terminal Report, including a list of outputs detailing the activities taken under the project, lessons learned and any recommendations to improve the efficiency of similar activities in the future. This report will specifically include the findings of the final evaluation as described above.

Table 8 below provides a summary of the main M&E reports, responsible parties, timeframe and budgeted costs.

Table 8: Summary of M&E, reporting requirements and budgeted costs

Type of M&E activity	Responsible Parties	Time-frame	Budgeted cost
Inception Workshop	PRC/RFU, FAO LTO/LTU, FAO GEF Coordination Unit (TCI), FAO-RAP (BH)	Within two months of project start up	USD 10 000
Project Inception Report	PRC/RFU, FAO LTO/LTU, FAO GEF Coordination Unit (TCI)	Immediately after workshop	-
Field based impact monitoring	PRC/RFU, national Executing partners/NPCs, local beneficiary communities	Continually	USD 31 150 (7% of time of PRC and NPCs)
Project Progress Reports - PPRs	PRC/RFU, national Executing partners/NPCs, (preparation) and LTU, GEF Coordination Unit (clearance)	Six-monthly	USD 13 350 (3% of the time of PRC and NPCs)
Quarterly Project Implementation Report	FAO-RAP	Quarterly	Fee paid
Project Implementation Review - PIR with IW TT annexed	FAO LTO/LTU with inputs from NPCs and RUF, GEF Coordination Unit	Annual	Fee paid
Co-financing Reports	PRC/RFU, national Executing partners/NPC, LTU	Co-financing is reported in the annual PIR, and in mid-term review and final evaluation	USD 4 450 (1% of the time of the PRC and NPCs)
Steering Committee Meetings	PRC/RFU, national Executing partners/NPCs (turns among countries), FAO	Once a year	USD 45 000 for government staff travel plus co-financing from hosting government
Technical Reports	PRC/RFU, national Executing partners/NPCs, FAO LTO/LTU, FAO Project Task Force members	as appropriate	-
Supervisory visits to project and field sites	FAO LTU and other units, as necessary	Yearly or as required	Fee paid

Type of M&E activity	Responsible Parties	Time-frame	Budgeted cost
Mid-term review	FAO Evaluation Office, PRC/RFU, national Executing partners/NPCs, FAO LTO/LTU, Project Task Force and PSC in consultation with the project teams and other partners, GEF Coordination Unit	At mid-point of project implementation	USD 10 000
Final evaluation	FAO Evaluation Office (OED) in consultation with the project team, other partners and the GEF Coordination Unit	At the end of project implementation	USD 20 000
Terminal Report	PRC/RFU, national Executing partners/NPCs, FAO LTO/LTU, Project Task Force members, GEF Coordination Unit, FAO Reports Unit in TCSR	At least one month before end of project	-

6.6 Communication and visibility

The results of the project and the lessons learned from the work in the selected project areas in the five countries and the region promise to be very diverse and rich. With support from the project management functions, the project information management and communication activities under component 3 will be crucial for maximising the utilisation of results (see section 3.3 above). Particular attention will be paid under this component to capture and document experiences and results, to analyse and synthesise them and to disseminate them. A dedicated project website and IEC material will be key instruments for the dissemination of lessons learned. Working with SEAFDEC and promoting the regional uptake of lesson learned through the regional bycatch policy/strategy. FAO will also promote dissemination of project results globally.

APPENDIX 1: Results framework

Impact	Baseline (2010)	Outcomes and outcome indicators
Global Environment Objective (GEO): Responsible trawl fisheries that result in sustainable fisheries resources and healthy marine ecosystems in the Coral Triangle and Southeast Asian waters by reduced bycatch, discards and fishing impact on biodiversity and the environment	No regional policy or strategy for trawl fisheries bycatch management but overall regional commitment to sustainable fisheries. Ineffective trawl fisheries management, in particular with regard to bycatch. Where management and regulatory frameworks exist that are specific to trawl fisheries and bycatch (Gulf of Papua Trawl Fisheries Management Plan/Papua New Guinea; draft Fisheries Administrative Order on JTEDs/Philippines; Master Plan for Marine Fisheries/Thailand), provisions are general, focus on turtles and/or not implemented. Limited data on bycatch composition and volumes and the potential impact of trawl fishing on bottom habitats. Inadequate knowledge and awareness of responsible trawl fishing and the measures available for improving management and supporting sustainability.	Agreed regional bycatch policy/strategy is adopted by at least one relevant organization in the project region[31] and national or area specific trawl fisheries bycatch management plans[32] are adopted covering at least a third of all trawlers in the project countries[33]. Measures that manage bycatch and reduce discards, and thereby improve fisheries resources, are implemented for 25% of all trawlers in the project countries. In these fisheries (covered by improved bycatch management measures), bycatch has been reduced by 20% compared to baseline data in year 1 of the project[34]. Standardized data on at least 3 key bycatch and habitat indicators are available in all project countries and inform trawl fisheries and bycatch management planning and implementation at national and regional levels. Enhanced understanding of responsible fishing by private sector/fishers, fisheries managers and decision-makers are supporting participatory management arrangements in all project countries.
Project Development Objective (PDO): Effective public and private sector partnership for improved trawl and bycatch management and practices that support fishery dependent incomes and sustainable livelihoods	Management responsibilities for coastal resources are increasingly being decentralized to local governments and collaborative management arrangements are generally being encouraged in project countries. However, capacities for and systematic approaches to management planning and implementation are lacking. Little or no data and information available on bycatch and its importance for incomes and livelihoods.	Institutional arrangements and processes for public and private sector partnerships are in place and supporting trawl fisheries bycatch management in all project countries. The role of bycatch in trawl profitability is understood and measures for how to ensure long-term economic sustainability of trawl fisheries are identified and incorporated into trawl fisheries bycatch management plans in all project countries. Incentives for trawl operators to reduce bycatch are defined and implemented in all project countries and best practices communicated within relevant

[31] The project region implies the project countries as well as neighboring countries in the Coral Triangle and Southeast Asia region.

[32] A "trawl fisheries bycatch management plan" is understood to be an agreed framework for implementing trawl fisheries management and bycatch reduction measures, including for reduced impact on bottom habitats. This could be, for example, a fishery specific management plan that includes provisions for bycatch and discards, a national regulation or decree on bycatch and discards management applicable more widely, or a local government regulation/management rule that applies to fisheries in a specific region. The appropriate framework will depend on the country and case specific circumstances and can also be a combination of different provisions as long as the overall result provides the necessary policy, legal and institutional provisions for trawl fisheries bycatch management implementation.

[33] The project countries are Indonesia, Papua New Guinea, Philippines, Thailand and Vietnam.

[34] Baseline data will also include clear definition of what type of bycatch the reduction refers to.

		regional frameworks.

Intermediate outcomes	Intermediate outcome indicators	Assumptions	Use of intermediate outcome monitoring
Component 1: *Policy, legal and institutional frameworks*			
Regional bycatch priorities agreed and bycatch management plans for trawl fisheries in project areas[35] are established and supported by appropriate legislation and institutional arrangements for public and private sector collaboration.	Project partners (countries and SEAFDEC) have agreed on regional bycatch priorities that are in line with the principles of the forthcoming International Guidelines on Bycatch Management and Reduction of Discards (FAO)[36] and these have been formally presented to the SEAFDEC membership and other relevant regional organizations. At least half of all selected trawl fisheries in project areas are covered by comprehensive trawl fisheries bycatch management plans. Institutional arrangements and processes for public and private sector collaboration on management are in place and the trawl fisheries bycatch management plans have been formally approved by representatives from central and local governments and the private sector/fishers.	Political support for regional bycatch policy/strategy. Buy-in from all concerned stakeholders (private sector/fishers, fisheries managers, local governments, etc) to the need for trawl fisheries bycatch management. Capacity available to develop and subsequently implement trawl fisheries bycatch management plans.	Year 1 and 2: Assess the level of agreement among countries on regional bycatch policy/strategy contents and priorities, and provide more opportunities for experience sharing/learning/discussions if required. Assess the need for changes in policy, legal and institutional frameworks to support trawl fisheries bycatch management plans and include activities accordingly in years 3-4. Year 3: Draft regional bycatch policy/strategy and draft bycatch management plans for trawl fisheries in project areas should be available. Midterm review: Assess level of agreement on regional bycatch policy/strategy and interest of relevant regional organizations to adopt. Review progress on establishing trawl fisheries bycatch management plans and suggest solutions/actions for possible barriers/bottlenecks.
Component 2: *Resource management and fishing operations*			
Management measures, including environmentally friendly fishing gears and practices that reduce bycatch, discards and the impact on biodiversity and the environment, are identified, developed/adapted and implemented in project areas. Incentives for trawl operators to reduce bycatch are defined and implemented in	At least one gear modification (e.g. mesh size and/or BRD application, or alternative gear) is developed, tested and agreed appropriate with private sector/fishers, and at least one additional management measure (for example, closed areas/seasons or general effort restrictions) identified and included in the trawl fisheries bycatch management plans. Testing and analysis of these gear modifications/management measures show that they can reduce bycatch by at least 20% (for defined bycatch components and compared with baseline data in Year 1 of the project).	Private sector/fishers are willing to participate and appreciate the long-term benefits of more responsible fishing over short-term impacts. Monitoring, control and surveillance (MCS) and enforcement structures are in place supporting implementation of management measures.	Year 1: Assess the progress on identifying possible management measure solutions and ensure that plans for testing and developing more selective gear in collaboration with private sector/fishers in years 2 and 3 are in place. Year 2: Evaluate the possibilities of fishing costs and market-based incentives for more responsible fishing and make plans for incentive package implementation in years 3 and 4 accordingly. Year 3: Assess progress towards having recommended management measures and incentive packages finalized and ensure their inclusion in trawl fisheries bycatch management

[35] The project areas include selected geographic regions and trawl fisheries in each project country. See description in section 2.1 and Appendix 6.

[36] On the request by the 28th Session of the FAO Committee on Fisheries (COFI), and supported by United Nations General Assembly (UNGA) Sustainable Fisheries Resolutions 64/72 and 61/105, FAO is leading the development of forthcoming International Guidelines on Bycatch Management and Reduction of Discards (an FAO held Technical Consultation is planned for Decemer 2010).

the project areas.	Trawl private sector/fishers in project areas are benefiting from at least one type of positive incentive in relation to changes in trawl fisheries bycatch management (e.g. reduced – fuel or labour – costs, and/or market based incentives such as price premiums or niche markets).	Technological and market solutions that create economic incentives for applying responsible fishing are available and feasible to implement in project areas.	plans. Midterm review: Assess coherence between draft trawl fisheries bycatch management plans and recommended gear modifications/management measures and incentive packages. Evaluate threats and opportunities for their implementation and propose supporting activities as required. Make recommendations for how project results can be reflected in regional bycatch policy/strategy.

Intermediate outcomes	**Intermediate outcome indicators**	**Assumptions**	**Use of intermediate outcome monitoring**
Component 3: ***Information management and communication***			
Improved data on bycatch and potential fishing ground impact information – collected through standardized methods across all project countries – are available from project areas and inform national/specific area trawl fisheries bycatch management plans. The role of bycatch in trawl profitability is understood and measures identified for how to ensure long-term economic sustainability of trawl fisheries in the project areas.	Basic bycatch and discards data (e.g. total catch composition by main species/species groups, share of low-value and trash fish in total catch, incidence of turtle or similar catches, discards, etc) are available for at least half of all trawl fisheries in project areas. Maps of trawl fishing grounds indicating seabed types and critical bottom habitats available for at least two trawl fisheries in the project areas. Data are available on bycatch values (and its relative share in total revenues) and utilization for all trawl fisheries in project areas. At least 3 indicators, critical for trawl fisheries bycatch management, are identified and processes established for collecting the related data on a regular basis. Project communication material is available and distributed in the project region.	Private sector/fishers are willing to share information and IUU fishing does not influence the completeness or distort data. Enforcement mechanisms are in place and effective for data related regulations (log book etc).	Year 1: Assess progress on identifying key data needs and indicators and related data sources and collection methods. Adjust work plans for years 2-4 accordingly as required. Year 2 and 3: Assess progress on data collection, verify suitability and cost-effectiveness of methods and choice of indicators and, if needed, adjust the scope and processes for future data collection. Midterm review: Review progress on data collection and the feasibility to make processes permanent. Compare data and indictors across countries and evaluate their regional relevance. Assess the relevance of existing communication material and channels. Make recommendations for how to turn project results into best practice for project countries and region (to be reflected in regional bycatch policy/strategy).

Component 4: *Awareness and knowledge*			
Private sector/fishers, fisheries managers, local governments and other stakeholders have better knowledge on bycatch issues and participate in developing and implementing national/specific area bycatch management plans.	Trawl fisheries bycatch management plans have been developed in consultation with key stakeholders. Higher degree of compliance by fishers to existing regulations and less registered violations.	Increased awareness and improved knowledge can be turned into positive action leading to reduced bycatch and fishing impact. Private sector/fishers are willing and have the time and capacity to work with the project.	Year 1: Assess needs for awareness raising, training and capacity building. Design activities accordingly to be implemented in years 2-4. Year 2 and 3: Assess progress of awareness and capacity building activities and compare results with expectations. Adjust future activities accordingly as required. Midterm review: Review impact of capacity building activities and assess if capacities created are likely to be sufficient for stakeholders to participate in management planning and implementation. Propose corrective actions as required.

Arrangements for Results Monitoring

	Target Values					Data Collection and Reporting	
	Baseline	Year 1	Year 2	Year 3	Year 4 End of Project	Data Collection Instruments, Frequency and Reports	Responsibility for Data Collection
Component 1: *Policy, legal and institutional frameworks*							
Outputs and targets:							
1.1 The forthcoming International Guidelines on Bycatch Management and Reduction of Discards adopted by all five project countries and regional bycatch priorities agreed by project partners and presented in published policy/strategy document.	No regional bycatch policy/strategy.	Regional workshop agreeing on intention and work plan.	Draft priorities available.	Draft regional policy/strategy available.		Project website and project reports	Project staff and national counterpart in collaboration with FAO, SEAFDEC and other partners well as relevant stakeholder representatives.
1.2 At least 3 national or area specific trawl fisheries bycatch management plans in the project areas agreed by stakeholders and adopted by relevant authorities.	Elements of relevant management frameworks exist but no comprehensive approach.	Management needs assessment for each fishery/area.	At least 2 draft trawl fisheries bycatch management plans.	50% of draft plans adopted.		Plan documents and meeting minutes	
1.3 Legal and regulatory frameworks relevant for trawl fisheries bycatch management reviewed and recommendations for adjustments developed with and agreed in principle by the competent national authorities.	Some relevant regulations exist but not always sufficient and/or implemented.	Policy, legal and institutional framework reviews completed in 2 project countries.	Policy, legal and institutional framework reviews completed in all project countries.	Recommendations agreed in all project countries.		Project report and meeting (with government) minutes	
1.4 Institutional arrangements (Management Councils) for collaborative trawl fisheries bycatch management established and functioning in accordance with agreed bycatch management plans (output 1.2).	Co-management arrangements regrouping different stakeholders exist in some project areas but inadequate capacities.	Temporary consultative groups for project management and stakeholder participation set up. Stakeholder analyses and institutional	TORs, membership rules and other institutional definitions drafted for all fisheries/areas.	Institutional arrangement set up and functioning for 50% of fisheries/areas.		Project report and meeting (of collaborative management group) minutes	

		assessments completed for all fisheries/areas.					
	Baseline		**Target Values**			**Data Collection and Reporting**	
			Year 4 End of Project			**Data Collection Instruments, Frequency and Reports**	**Responsibility for Data Collection**
Component 1: ***Policy, legal and institutional frameworks - CONTINUED***							
Intermediate outcomes:							
Regional bycatch priorities agreed and bycatch management plans for trawl fisheries in project areas are established and supported by appropriate legislation and institutional arrangements for public and private sector collaboration.	*See below*		Project partners (countries and SEAFDEC) have agreed on regional bycatch priorities and these have been formally presented to the SEAFDEC membership and other relevant regional organizations. All selected trawl fisheries in project areas are covered by comprehensive trawl fisheries bycatch management plans. Institutional arrangements and processes for public and private sector collaboration on management are in place and the trawl fisheries bycatch management plans have been formally approved by representatives from central and local governments and the private sector/fishers.				
Outcome:							
Agreed regional bycatch policy/strategy and national or area specific trawl fisheries bycatch management plans that are in line with the forthcoming International Guidelines on Bycatch Management and Reduction of Discards are adopted and supported by institutional arrangements and processes for public and private sector partnerships.	No regional policy or strategy for trawl fisheries bycatch management but overall regional commitment to sustainable fisheries. Management responsibilities for coastal resources are increasingly being decentralized to local governments and collaborative management arrangements are generally being encouraged in project countries. However, capacities for and systematic approaches to management planning and implementation are lacking.		Regional policy and strategy are adopted by at least one relevant regional organization. National and area specific plans cover at least a third of all trawlers in the project countries and have been agreed by representatives for public and private sector stakeholders.				

	Baseline	Target Values				Data Collection and Reporting	
		Year 1	Year 2	Year 3	Year 4 End of Project	Data Collection Instruments, Frequency and Reports	Responsibility for Data Collection
Component 2: ***Resource management and fishing operations***							
Outputs and targets:							
2.1 More selective trawl gear and/or alternative fishing practices used by at least half of the trawlers in project areas.	Some gear regulations exist but poorly implemented and not comprehensive.	Potential gear modifications identified and trial/development work plan drawn up.	Trials have led to selection of suitable gear modifications onboard test vessels.	Modified gear introduced to all trawlers in the selected project areas through demonstrations and training.		Project report. Onboard observations.	Project staff and national counterpart in collaboration with FAO, SEAFDEC and other partners well as relevant stakeholder representatives.
2.2 Selection criteria and recommendations for demarcating fishing zones and areas for spatial-temporal closures are identified in at least 2 project areas/countries.[37]	Inshore waters are often reserved for small-scale fisheries but limited use of other spatial-temporal closures.	Priorities and methods for seabed, fishing effort and sensitive areas/habitats mapping identified.	Maps of seabed, fishing effort and sensitive areas/habitats available for at least 2 of the project areas/countries.	Recommendations for spatial-temporal closures agreed by project partners and presented to competent authorities for at least 2 project areas/countries.		Maps (GIS/on project website). project reports.	
2.3 Inventory of selected trawl fleets in project areas drawn up and recommendations for fishing effort and capacity management strategy communicated to competent national authorities.	Number of larger vessels often known but small-scale sector is poorly monitored.	Existing vessel registry systems reviewed and criteria for registration of project areas trawlers defined.	50% of all trawlers of selected fleets in project areas included in inventory. Draft recommendations for capacity management agreed with private	75% of all trawlers of selected fleets in project areas included in inventory. Draft recommendations for capacity management agreed with private sector/fishers and		Vessel inventory. Project reports. Meeting minutes.	

[37] See also output 3.1.

			sector/fishers and other stakeholders in half of the project fisheries/areas.	other stakeholders in all project fisheries/areas.			
2.4 SWOT and feasibility analysis of possible incentive packages carried out for all trawl fisheries in project areas.	No or limited information on potential positive incentives.	Potential types of incentive packages identified through desk study of other fisheries/regions.	SWOT analysis and feasibility analyses completed for all project fisheries/areas.			Project reports.	

	Baseline	Target Values	Data Collection and Reporting	
		Year 4 End of Project	Data Collection Instruments, Frequency and Reports	Responsibility for Data Collection
Component 2: ***Resource management and fishing operations - CONTINUED***				
Intermediate outcomes:				
Management measures, including environmentally friendly fishing gears and practices that reduce bycatch, discards and the impact on biodiversity and the environment, are identified, developed/adapted and implemented in project areas.	*See below*	At least one gear modification (e.g. mesh size and/or BRD application, or alternative gear) is developed, tested and agreed appropriate with private sector/fishers, and at least one additional management measure (for example, closed areas/seasons or general effort restrictions) identified and included in the trawl fisheries bycatch management plans. Testing and analysis of these gear modifications/management measures show that they can reduce bycatch by at least 20% (for defined bycatch components and compared with baseline data in Year 1 of the project).		
Incentives for trawl operators to reduce bycatch are defined and implemented in the project areas.	*See below*	Trawl private sector/fishers in project areas are benefiting from at least one type of positive incentive in relation to changes in trawl fisheries bycatch management (e.g. reduced – fuel or labour – costs, and/or market based incentives such as price premiums or niche markets).		
Outcome:				
Measures that manage bycatch and reduce discards, and thereby improve fisheries resources and ensure long-term economic sustainability of trawl fisheries, are implemented in combination with incentives in all project countries,. In these fisheries (covered by improved bycatch management measures), bycatch has been	Ineffective trawl fisheries management, in particular with regard to bycatch. Where management frameworks exist that are specific to trawl fisheries and bycatch (Gulf of Papua Trawl Fisheries Management Plan/Papua New Guinea; draft Fisheries Administrative Order on JTEDs/Philippines; Master Plan for Marine Fisheries/Thailand), provisions	Improved management measures are implemented for at least 25% of all trawlers in the project countries. Bycatch of selected fleets reduced by 20% compared to baseline data in year 1 of the project[38].		

[38] Baseline data will also include clear definition of what type of bycatch the reduction refers to.

reduced.	are general, focus on turtles and/or not implemented.			

	Baseline	Target Values				Data Collection and Reporting	
		Year 1	Year 2	Year 3	Year 4 End of Project	Data Collection Instruments, Frequency and Reports	Responsibility for Data Collection
Component 3: ***Information management and communication***							
Outputs and targets:							
3.1 Data and data collection methods for bycatch, discards and seabed impact in project areas available and published in relevant national and regional information systems[39].	Limited data available.	TOR for data collection drawn up and standardized methods for all project countries (observer programs, logbook systems, landing site surveys, mapping of fishing grounds) agreed with project partners/ stakeholders.	Data collected from sample trawlers.	Number of trawlers in sample doubled, data collected and analyzed. Standardized data collection methods agreed by project countries.		Published report. At the end of project: Project website.	Project staff and national counterpart in collaboration with FAO, SEAFDEC and other partners well as relevant stakeholder representatives.
3.2 System set up for monitoring of bycatch reduction (volume) as a result of modified gear and improved management and its likely impact on incomes (bycatch value).	No monitoring system.	Key indicators identified and baseline data collected from sample trawlers/fishers.	Design of monitoring system and data collection processes.	Report on likely impacts based on sample trawler information and including recommendations for continued monitoring.		Project report.	
3.3 Project website set up in Year 1 and developed into a regional information sharing mechanism for information on trawl fisheries bycatch management by end of	No website or mechanism for regional bycatch data.	Website functional.				Website. User survey.	

[39] See also output 2.2.

project.							
3.4 Project IEC material available.	Some relevant IEC material available from SEAFDEC and from REBYC I.	Initial IEC material produced and distributed.		IEC material based on lessons learnt and project results produced and distributed in the project region.		IEC material.	

	Baseline	Target Values	Data Collection and Reporting	
		Year 4 End of Project	Data Collection Instruments, Frequency and Reports	Responsibility for Data Collection
Component 3: ***Information management and communication – CONTINUED***				
Intermediate outcomes:				
Improved data on bycatch and potential fishing ground impact information – collected through standardized methods across all project countries – are available from project areas and inform national/specific area trawl fisheries bycatch management plans.	*See below*	Basic bycatch and discards data (e.g. total catch composition by main species/species groups, share of low-value and trash fish in total catch, incidence of turtle or similar catches, discards, etc) are available for at least half of all trawl fisheries in project areas and methods developed for their collection. Trawl fishing grounds data indicating seabed types and critical bottom habitats available for at least 2 of the project areas/countries. Data are available on bycatch values (and its relative share in total revenues) and utilization for all trawl fisheries in project areas. At least 3 indicators, critical for trawl fisheries bycatch management, are identified and processes established for collecting the related data on a regular basis.		
The role of bycatch in trawl profitability is understood and measures identified for how to ensure long-term economic sustainability of trawl fisheries in the project areas.	*See below*			
Outcome:				
Standardized data for key indicators, including on economic performance, are available in all project countries and inform trawl fisheries and bycatch management planning and implementation at national and regional levels.	Limited data on bycatch composition and volumes and the potential impact of trawl fishing on bottom habitats. Little or no data and information available on bycatch and its importance for incomes and	Data available for at least 3 indicators and lessons learnt reflected in regional bycatch policy/strategy.		

	livelihoods.			

	Baseline	Target Values				Data Collection and Reporting	
		Year 1	Year 2	Year 3	Year 4 End of Project	Data Collection Instruments, Frequency and Reports	Responsibility for Data Collection
Component 4: *Awareness and knowledge*							
Outputs and targets:							
4.1 Fishers and other relevant stakeholders (fisheries managers, local government officials, etc) in project areas have improved their knowledge on bycatch, sustainability issues and collaborative management through training, project information and/or participation in project activities.	Limited knowledge and hence inadequate fisheries management capacities.	Training needs assessment completed.	20 persons trained in each project country.	Additional 20 persons trained in each project country (total 40). An additional 30 persons will have benefited from study tours and participation in project activities.		Project reports. Verification in the field.	Project staff and national counterpart in collaboration with FAO, SEAFDEC and other partners well as relevant stakeholder representatives.
4.2 Regional and national policy and decision-makers have been sensitized with regard to responsible trawl fisheries management through project information and workshops.	While responsible fishing practices generally are on the political agenda, the specific issues with regard to trawl fisheries bycatch management are less well known.	20 participants from the project region have been sensitized about trawl fisheries bycatch management and the project.				Workshop reports.	
4.3 Private sector/fisher 'champions', technical officers and extension workers (government and NGOs) have improved their knowledge on BRDs and other management measures through training (250 persons trained).	Insufficient technical knowledge on available management solutions.	Training needs assessment completed.	20 persons trained in each project country.	Additional 20 persons trained in each project country (total 40).		Project reports.	

	Baseline	Target Values	Data Collection and Reporting	
		Year 4 End of Project	Data Collection Instruments, Frequency and Reports	Responsibility for Data Collection
Component 4: *Awareness and knowledge – CONTINUED*				
Intermediate outcomes:				
Private sector/fishers, fisheries managers, local governments and other stakeholders have better knowledge on bycatch issues and participate in developing and implementing national/specific area bycatch management plans.	*See below*	Trawl fisheries bycatch management plans have been developed in consultation with key stakeholders. Higher degree of compliance by fishers to existing regulations and less registered violations.		
Outcome:				
Enhanced knowledge and understanding of responsible fishing by private sector/fishers, fisheries managers and decision-makers are supporting participatory management arrangements in all project countries.	Inadequate knowledge and awareness of responsible trawl fishing management and the measures available for improving management and supporting sustainability	Enhanced capacity and improved awareness in all project countries.		

APPENDIX 2: Detailed budget GEF financing

Oracle code	Description code detail	Unit	Unit cost	Quan-tity	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	TOTAL GEF Funding	Year 1	Year 2	Year 3	Year 4	GEF Total
	SALARIES PROFESSIONALS														
5300	International finance officer	pm	12,000	1					12,000	12,000	3,000	3,000	3,000	3,000	12,000
5300	International Procurement and HR Advisor	pm	12,000	0.5					6,000	6,000	2,000	2,000	1,000	1,000	6,000
5300	Operational and administrative officer	pm	5,000	30.4					152,000	152,000	42,000	40,000	40,000	30,000	152,000
	Total Salaries professionals								170,000	170,000	47,000	45,000	44,000	34,000	170,000
	SALARIES GENERAL SERVICE														
5500	Regional admin Assistant[40]	pm	500	12					6,000	6,000	1,500	1,500	1,500	1,500	6,000
5500	National temporary assistance	pm	300	100	8,200	8,200	7,200	6,400		30,000	9,000	7,250	7,500	6,250	30,000
5500	Regional temporary assistance	pm		16	2,000	2,000	2,000	2,000		8,000	2,000	2,000	2,000	2,000	8,000
	Total Salaries general service				10,200	10,200	9,200	8,400	6,000	44,000	12,500	10,750	11,000	9,750	44,000
	CONSULTANTS INTERNATIONAL														
5570	Project Regional Coordinator[41]	pm	12,000	24	66,000	66,000	66,000	66,000	24,000	288,000	72,000	72,000	72,000	72,000	288,000
5570	Policy, legal, institutional frameworks	pm	12,000	1	12,000					12,000	6,000		6,000		12,000
5570	Resource management and fishing operations	pm	12,000	1		12,000				12,000	0	6,000	0	6,000	12,000

[40] The Regional Administrative Assistant will provide 10 hours per week of assistance to the project and will be co-funded by the project's GEF resources (6 person months as included in this budget) and SEAFDEC (6 person months).

[41] The Project Regional Coordinator will be co-funded 50% by the project's GEF funds as included in this budget and 50% by CIM

5570	Information management and communication	pm	12,000	2			24,000			24,000	6,000	6,000	6,000	6,000	24,000
5570	Awareness and knowledge	pm	12,000	1				12,000		12,000	6,000	0	6,000		12,000
5570	Midterm review and final evaluation	pm	5,000	6	5,000	10,000	10,000	5,000		30,000		10,000	0	20,000	30,000
	Total consultants international				83,000	88,000	100,000	83,000	24,000	378,000	90,000	99,000	90,000	99,000	378,000
	CONSULTANTS NATIONAL														
5570	5 National technical officers	pm	1,257	187	59,200	58,600	58,600	58,600		235,000	58,800	58,800	58,600	58,800	235,000
5570	Policy, legal, institutional frameworks	pm	2,000	28	56,000					56,000	14,000	14,000	14,000	14,000	56,000
5570	Resource management and fishing operations	pm	2,000	28		56,000				56,000	14,000	14,000	14,000	14,000	56,000
5570	Information management and communication	pm	2,000	26			52,000			52,000	14,000	12,000	14,000	12,000	52,000
5570	Awareness and knowledge	pm	2,000	26				52,000		52,000	14,000	12,000	14,000	12,000	52,000
	Total consultants nationals				115,200	114,600	110,600	110,600	-	451,000	114,800	110,800	114,600	110,800	451,000
	CONTRACTS														
5650	Policy, legal, institutional frameworks	Cont.	15,000	4	60,000					60,000	60,000	0	0	0	60,000
5650	Resource management and fishing operations	Cont.	14,800	15		207,000	15,000			222,000	82,500	72,000	52,500	15,000	222,000
5650	Information management and communication	Cont.	15,000	4			60,000			60,000	60,000	0	0	0	60,000
5650	Awareness and knowledge	Cont.	15,000	7				105,000		105,000	0	52,500	52,500	0	105,000
	Total contracts				60,000	207,000	75,000	105,000	-	447,000	202,500	124,500	105,000	15,000	447,000
	TRAVEL														
5900	International travel staff/consultants	Trip	5,000	23	20,000	25,000	20,000	40,000	10,000	115,000	35,000	25,000	15,000	40,000	115,000
5900	International travel government staff	Trip	5,000	9	10,000	15,000	10,000	10,000	-	45,000	20,000	5,000	5,000	15,000	45,000
5900	Regional travel staff/consultants	Trip	2,000	38	26,000	16,000	18,000	16,000	-	76,000	20,000	12,000	18,000	22,000	76,000
5900	Regional non-project staff	Trip	2,000	36	24,000	16,000	16,000	16,000	-	72,000	20,000	12,000	18,000	22,000	72,000

5900	National travel	Lump sum		-	21,000	23,000	22,500	22,500	4,000	93,200	19,700	25,500	24,500	23,500	93,000
	Total travel				101,200	95,000	86,500	104,500	14,000	401,200	112,700	85,500	76,500	126,500	401,200
	WORKSHOPS														
5920	Regional workshops	Event	10,000	4	10,000	10,000	10,000	10,000		40,000	10,000	10,000	10,000	10,000	40,000
5920	National workshops/stakeholder consultations	Event	8,166.67	24	49,000	49,000	49,000	49,000	-	196,000	36,000	0	89,000	71,000	196,000
	Total workshops				59,000	59,000	59,000	59,000	-	236,000	46,000	10,000	99,000	81,000	236,000
	TRAINING														
5920	Short national training courses	Event	4,033.90	59	13,500	35,500	29,000	160,000	-	238,000	13,500	84,500	129,000	11,000	238,000
5920	Regional training courses	Event	15,000	3	-	15,000	15,000	15,000	-	45,000	15,000	15,000	15,000	0	45,000
5920	National study tours/field trips	Event	1,000	42	1,000	7,000	2,000	32,000	-	42,000	4,000	3,000	33,000	2,000	42,000
5920	Regional study tours/field trips	Event	12,500	3	-	12,500	-	25,000	-	37,500	0	12,500	25,000	0	37,500
	Total training				14,500	70,000	46,000	232,000	-	362,500	32,500	115,000	202,000	13,000	362,500
	EXPENDABLE EQUIPMENT														
6000	Miscellaneous office supplies	Lump sum			3,800	3,800	3,800	3,900	20,000	35,300	10,500	10,000	10,000	5,300	35,300
6000	Miscellaneous field supplies	Lump sum			-	110,000	4,000	4,000	4,000	122,000	35,500	30,500	30,500	25,500	122,000
	Total expendable equipment				3,800	113,800	7,800	7,900	34,000	157,300	45,500	40,500	40,500	30,800	157,300
	NON-EXPENDABLE EQUIPMENT														
6100	Computers and accessories	Units	1,000	30		14,000	2,000	2,000	12,000	30,000	19,000	7,000	3,000	1,000	30,000

6100	Other	Lump sum					15,000	15,000	30,000	25,000	5,000	0	0	30,000
	Total non-expendable equipment			-	14,000	2,000	17,000	27,000	60,000	44,000	12,000	3,000	1,000	60,000
	GENERAL OPERATING EXPENSES													
6300	Brochures, leaflets, videos and other communication material	Lump sum		-	-	-	33,000	-	33,000	8,000	8,000	8,000	9,000	33,000
6300	PR material	Lump sum		-	-	-	23,000	-	23,000	6,000	6,000	6,000	5,000	23,000
6300	Website	Lump sum		-	-	-	8,000	-	8,000	2,000	2,000	2,000	2,000	8,000
6300	Vessel rental and other compensation to fishers	Lump sum		-	204,000	-	-	-	204,000	61,000	51,000	46,000	46,000	204,000
6300	Miscellaneous operating expenses	Lump sum		5,000	5,000	5,000	5,000	5,000	25,000	10,000	5,000	5,000	5,000	25,000
	Total General operations expenses			5,000	209,000	5,000	69,000	5,000	293,000	87,000	72,000	67,000	67,000	293,000
TOTAL				**451,900**	**980,600**	**501,100**	**796,400**	**270,000**	**3,000,000**	**834,500**	**725,050**	**852,600**	**587,850**	**3,000,000**

APPENDIX 3: Preliminary work plan

Preliminary work plan																		
Output No	**Outputs/Sub-components**	**Key activities**	**PY1**				**PY2**				**PY3**				**PY4**			
			Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Inception workshop (with all partners)																		
Preparation of detailed work plan and budget, review of indicators, development of monitoring tools (combined with 3.2) and training in progress tracking (for NPCs)																		
Recruitment/designation of project staff, establishment of PSC and NWGs, and establishment of partnership coordination arrangements.																		
Component 1 – Policy, legal and institutional frameworks																		
1.1	Agreement on regional bycatch priorities	Initial regional workshop																
		Consultations and draft priorities																
		Finalisation of policy/strategy and regional workshop																
1.2	Development of trawl fisheries bycatch management plans	Management needs assessments																
		Consultations and drafting of plans																
		Adoption of plans and implementation support																
1.3	Review of legal and regulatory frameworks	Reviews of existing frameworks																
		Consultations and drafting of recommendations																
		National workshops																
1.4	Establishment local and national institutional frameworks	Establishment of Consultative groups																
		Review of institutional requirements and drafting of TOR, membership rules etc for local Management Councils																
		Training and sensitisation																
		Establishment of Management Councils																
Component 2 – Resource management and fishing operations																		
2.1.	Development and testing of selective gear	Assessment of existing gear and consultations on possible modifications																
		Sea trials, testing and training (including regional ToT for gear demonstrations)																
		National and regional workshops and study tours (combined with 2.2 & 2.4)																
		Selection of gear and introduction																

2.2.	Demarcation of fishing areas and closures	Identification of priorities and methods for surveys and mapping																	
		Surveys and mapping																	
		National and regional workshops and study tours (combined with 2.1 & 2.4)																	
		Preparation of final recommendations and implementation																	

Preliminary work plan – cont.

Output No	Outputs/Sub-components	Key activities	PY1				PY2				PY3				PY4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2.3.	Inventory of fishing vessels	Review of existing systems, guidelines and related initiatives																
		Inventory of vessels in project areas																
		Drafting of recommendations on capacity management																
2.4.	Feasibility analysis of incentive packages	Desk study of potential incentives																
		Consultations and SWOT analysis																
		Regional workshop (combined with 2.1 & 2.2) and drafting of recommendations																
		Introduction of incentive packages to Consultative Groups/Management Councils for inclusion in bycatch management plans																
Component 3 Information management and communication																		
3.1.	Data collected and methods developed	Review of existing data collection systems and preparation of TOR																
		Data collection from sample trawlers.																
		National and regional workshops to evaluate results																
		National and regional training in data collection methods (including ToT)																
		Data collection from wider selection of trawlers																
		Documentation of methods and preparation of recommendations																
3.2.	Setting up of M&E system	Identification of key indicators																
		Design of monitoring system (combined with Project Management M&E system)																
		Data collection (in conjunction with 3.1)																
		Preparation of report on likely trawl impacts																

3.3.	Setting up of project website	Setting up of project website																
		Maintenance of website																
3.4	Preparation of project IEC material	Preparation and distribution of initial material																
		Continuous production of relevant IEC																

Provisional work plan – cont.

Output No	Outputs/Sub-components	Key activities	PY1				PY2				PY3				PY4			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Component 4 – Awareness and knowledge																		
4.1.	Training and information for fishers and stakeholders	Assessment of training needs																
		Training and study tours fishers and other stakeholders (national and regional)																
4.2.	Sensitization of policy and decision-makers	Regional workshops for policy and decision-makers																
		Preparation of recommendations																
4.3.	Training of private sector/fisher champions	Assessment of training needs																
		Training and workshops																

APPENDIX 4: Terms of reference for key positions

Terms of Reference 1

Title: **Project Regional Coordinator** (PRC)
Duty Station: SEAFDEC, Bangkok – Thailand – with travel as required

Duties and Responsibilities:
Under the oversight of the Secretary-General of SEAFDEC and the Project Steering Committee (PSC), the overall direction and supervision of the LTO and Project Task Force, reporting to the FAO Budget holder (administrative matters) and FAO LTU (technical matters) and receiving technical advice from the FAO Lead Technical Unit (LTU) and the Project Technical Advisor (PTA), the PRC will be responsible for all operational aspects and overall implementation of the project. Specifically, he/she will:

- Provide oversight and ensure that all operational aspects and overall implementation of the project are in accordance with FAO and GEFs rules and procedures at the regional level, and that technical activities implemented within the project are consistent with the Code of Conduct for Responsible Fisheries and an ecosystem approach to fisheries and related instruments.
- Manage the project monitoring system and tracking output and outcome indicators as established in the Project's Results framework.
- Prepare and follow up on Annual project work plans and budgets (based on inputs from the country executing partners).
- Prepare and submit project progress reports based on reporting from country executing partners, ensuring technical quality and submit the compiled overall project progress and other reports to the FAO LTO in accordance with GEF and FAO reporting requirements (see section 6.5) and provide any project related information required by FAO and/or GEF;
- Support project Operational and Administrative Officer at FAO-RAP (the Budget Holder – BH) with preparation of six-monthly statements of expenditures, disbursement requests, and procurement and contract documentation for goods and services purchased in accordance with the SEAFDEC-FAO LoA and for other components of the project, as required.
- In collaboration with the PTA, review TOR for consultancies and contracts to be performed under the SEAFDEC-FAO LoA and under the LoAs with country executing partners for submission to FAO for clearance. Review and provide comments on technical products delivered by consultants and contract holders contracted by the GEF project.
- Be responsible for partner coordination – including among SEAFDEC departments – and liaison with donors and other projects, programmes and organizations. Coordinate institutional arrangements and meeting/workshop activities needed to exchange lessons learned, harmonize approaches and execute the project at the regional level.
- Provide on-the-job capacity building and mentoring to SEAFDEC staff on project management and administration, as required.
- Conduct periodic coordination missions to the participating countries.
- Represent the project in relevant coordination meetings and conferences.
- Organize the PSC meetings and act as Secretary of the meetings.
- In consultation with the FAO Office of Evaluation, LTO, and the FAO GEF Coordination Unit, support the organization of mid-term review and the final evaluation, contribute to the development of an eventual agreed adjustment plan for project execution and supervise its implementation.
- In close collaboration with Regional Facilitation Unit (RFU) and project staff, consultants and partners, implement the programme of the project.
- Perform other related duties as required.

Terms of Reference 2

Title: **P**roject Technical Advisor (PTA)
Duty Station: SEAFDEC, Bangkok – Thailand *[Training Department]* – with travel as required

Duties and Responsibilities:

Under the oversight of the Secretary-General of SEAFDEC and the Project Steering Committee (PSC), the overall direction and supervision of the Project Regional Coordinator (PRC) and LTO, the technical support and guidance of the FAO Lead Technical Unit (LTU) and the FAO Project Task Force, and in close collaboration with Project Regional Facilitation Unit (RFU) staff, consultants and partners, the PTA will be responsible for the technical implementation of the project. Specifically, he/she will:

- Ensure that technical activities implemented within the project are consistent with the Code of Conduct for Responsible Fisheries and an ecosystem approach to fisheries and related instruments.
- Support the PRC with preparation of Annual project work plans, budgets and project progress reports. Liaise with SEAFDEC departments, country executing partners and other project partners to ensure that inputs to these reports are timely and accurate.
- Assist the PRC in reviewing and clearing TOR for consultancies and contracts to be performed under the SEAFDEC-FAO LoA and under the LoAs with country executing partners. Review and provide comments on technical products delivered by consultants and contract holders contracted by the GEF project.
- In collaboration with the relevant SEAFDEC departments and staff, conduct technical support missions to the participating countries, organize and carry out training events and workshops according to work plan requirements.
- In collaboration with the PRC, prepare a communication strategy at project start-up and be responsible for its implementation.
- Set-up and maintain a project website with a complete up-to-date coverage of all aspects of the work and related matters, and facilitate the feeding of material to other FAO web pages and to those of partners, as required.
- Design, prepare and produce media products as required for different audiences and messages.
- Represent the project in relevant technical meetings and conferences.
- Perform other related duties as required.

Terms of Reference 3

Title: National Project Coordinators (NPCs) – five posts
Duty Station: In each participating country (location to be decided) – with travel as required

Duties and Responsibilities:
Under the oversight of the national FAO Representative and the Project Steering Committee (PSC), the overall direction and supervision of the Project Regional Coordinator (PRC) and LTO, the technical support and guidance of the Project Technical Advisor (PTA), FAO Lead Technical Unit (LTU) and the National Working Groups (NWGs), and in close collaboration with project national and Regional Facilitation Unit (RFU) staff, consultants and partners (including the Project Consultative Groups), the NPCs will be responsible for the technical and operational implementation of the project at the national and local level. Specifically, the incumbents will:

- Prepare national work plans and budgets and submit these to the PRC for clearance and incorporation into overall project Annual and budgets. Be responsible for the implementation of national work plans.
- Ensure that monitoring mechanisms are in place at the national and local level allowing for tracking progress according to targets established in national work plans as well as to output and outcome indicators in the Project's Results framework. Provide progress reports to the PRC for compilation into overall Project Progress reports.
- Support national activities in the country, supervise national project staff and consultants and prepare contractual arrangements.
- Liaise with relevant national organizations and partners and support communication, coordination and collaboration.
- Organize the NWG meetings and act as Secretary of the meetings.
- Participate in project regional workshops and meetings, and represent the project in relevant national events and conferences.
- Perform other related duties as required.

APPENDIX 5: Map of project areas

APPENDIX 6: Project areas and key information

Table 9: Basic statistics on number of vessels, employment and catches of trawl fisheries in the project countries

Country	Number of vessels			No of fishers and people employed on board			Catches						
								Retained			Discards	% low value & discards	TOTAL marine capture 2008 (from FAO)
	Large-scale (LSF)	Small-scale (SSF)	Total	Total marine capture fisheries sector	Trawl fisheries	% trawl fisheries of total marine	Total trawl fisheries	Shrimp	Other valuable	Juveniles & low value (retained trash fish)			
Indonesia	800	19,600	20,400	1,842,000	53,800	3%	256,875						4,960,276
Papua New Guinea	24	-	24	1,500	400	27%	120	12	11	58	39	81%	223,848
Philippines	400	7,000	7,400	783,000	18,800	2%	115,000	3,450	115,001	43,700	-	38%	2,564,615
Thailand			5,500	141,000	93,000	66%	1,243,654	37,310	684,010	522,335		42%	2,457,184
Vietnam	6,500	17,600	24,100	607,000	102,000	17%	614,000	92,100	337,700	184,200		25%	2,087,500
TOTAL			***57,424***	***3,374,500***	***268,000***	***8%***	***2,229,649***			***750,293***	***39***	***34%***	***12,293,423***

Trawl catches: 18% of total marine catch in the five Project countries

Table 10: Information on fleets in the selected project areas

COUNTRY	Fisheries (fleets) / geographic areas to be included in the project	No vessels in selected areas / fleets	Number of vessels to be included in project activities			Remarks
			TOTAL	For data collection	For sea trials	
Indonesia	Arafura Sea (Maluku-Papua)	500	52	42	10	
Papua New Guinea	Gulf of Papua	15	13			Not all 15 vessels are active.
Philippines	Commercial trawlers: whole country	400				Municipal fisheries = SSF; Commercial fisheries = LSF.
	Municipal trawlers: Samar Sea	400	400	400	15	
Thailand	Otter board (OBT) in selected sites in the Gulf of Thailand	OBT: 2,600	132	132	12	Gear modfications/vessel positioning system only OBT in Chumpon province. Other management measures whole area, with experiments (closed areas/seasons) in Trad province.
		PT: 1,100	132	132	12	
Vietnam	Kien Giang Province	2,000	320	300	20	Focus on shrimp trawlers.
TOTAL all countries		***7,015***	***1,049***			***Selected fleets / total trawlers: 12%*** ***Selected vessels / selected fleets: 15%***