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Regional Inception Workshop for the
SEAFDEC/UNEP/GEF Project:
*"Establishment and Operation of a Regional System of Fisheries Refugia
in the South China Sea and Gulf of Thailand"*

Bangkok, Thailand, 1st – 3rd November 2016

Purpose, Goals and Objectives of the Fisheries *Refugia* Project

1. INTRODUCTION

The South China Sea is a global centre of shallow water marine biological diversity that supports significant fisheries that are important to the food security and export income of Southeast Asian countries. These fisheries are characterised by high levels of fishing effort from the small-scale sector. Accordingly, all inshore waters of the South China Sea basin are subject to intense fishing pressure. This situation of high small-scale fishing pressure and declining fisheries resources has contributed to the adoption of unsustainable fishing methods to maintain catch and increase incomes in the short-term. These include the use of destructive fishing gear and practices, such as the operation of demersal trawls and push nets in seagrass areas, and the detonation of explosives and release of fish poisons in coral reef areas. Small-scale inshore fishing pressure has therefore been identified as a significant cause of the degradation and loss of coastal habitats in the South China Sea.

Although action aimed at reducing the rate of loss of coastal habitats has been implemented by countries bordering the South China Sea, the decadal rate of loss of such habitats remains high, e.g., seagrass beds (30 percent), mangroves (16 percent), and coral reefs (16 percent). This continued decline in the total area of habitats critical to the life cycles of most aquatic species, combined with the high levels of coastal community dependence on fish, has raised serious concerns for the long-term sustainability of small-scale fisheries in the region. With fish production being intrinsically linked to the quality and area of habitats and the heightened dependence of coastal communities on fish, a need exists to improve the integration of fish habitat considerations and fisheries management in the region. This project entitled “Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand” has been developed to meet this need via implementation of the fisheries component of the Strategic Action Programme for the South China Sea. The project is executed regionally by the Southeast Asian Fisheries Development Center in partnership with the government agencies responsible for fisheries in the 6 participating countries.

2. PROJECT GOAL AND OBJECTIVE

The longer-term goals of this project are to contribute to:

- improved integration of habitat and biodiversity conservation considerations in the management of fisheries in the South China Sea and Gulf of Thailand;
- improved national management of the threats to fish stock and critical habitat linkages within fisheries *refugia*; and,
- enhanced uptake of good practice in integrating fisheries management and biodiversity conservation in the design and implementation of regional and national fisheries management systems.

The medium-term objectives align with those of the fisheries component of the Strategic Action Programme for South China Sea which are to:

- build the resilience of Southeast Asian fisheries to the effects of high and increasing levels of fishing effort;
- improve the understanding among stakeholders, including fisherfolk, scientists, policy-makers, and fisheries managers, of ecosystem and fishery linkages as a basis for integrated fisheries and ecosystem/habitat management; and
- build the capacity of fisheries departments/ministries to engage in meaningful dialogue with the environment sector regarding the improvement of fisheries and management of interactions between fisheries and critical marine habitats.

This specific project objective is *‘to operate and expand the network of fisheries refugia in the South China Sea and Gulf of Thailand for the improved management of fisheries and*

critical marine habitats linkages in order to achieve the medium and longer-term goals of the fisheries component of the Strategic Action Programme for the South China Sea, including:

- by 2020, to have established a regional system of a minimum of fourteen *refugia* for the management of priority transboundary, fish stocks and endangered species; and
- by 2020, to have prepared and implemented fisheries management systems in the identified priority *refugia* based on and consistent with, the ASEAN SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia.

3. PROJECT COMPONENTS AND EXPECTED RESULTS

Component 1. Identification and management of fisheries and critical habitat linkages at priority fisheries *refugia* in the South China Sea and Gulf of Thailand

This component will result in the establishment of operational management at 14 priority fisheries *refugia*, with community-based *refugia* management plans being key outputs of this component. Significantly, the implementation of these management plans will result in the amelioration of key threats at 14 fisheries *refugia* sites via the application of agreed management measures including inter alia: the exclusion of fishing methods; restricting gears; prohibiting gears; control of vessel size/engine capacity; seasonal closures and restrictions; and limiting access and the application of rights-based (and human rights-based) approaches in small-scale fisheries. Where necessary, management measures will also include the implementation of interventions to provide habitat protection, to ensure for example that areas important for egg deposition are not disturbed and/or to safeguard habitats that provide protection for juveniles from predators, such as mangroves and seagrass.

Supporting activities include consultative processes to facilitate agreement among stakeholders on the boundaries of fisheries *refugia*, identification of key threats to *refugia* sites, recording of fishing community views regarding appropriate fisheries and habitat management measures, and establishment and operation of enforcement programmes at 14 priority fish *refugia* sites. Component 1 activities will also be linked to nascent processes of SEAFDEC which focus on the management of fishing capacity and energy efficiency, vessel licensing and registration, food security and alternative livelihood generation, the promotion of rights-based and human-rights based approaches to fisheries management, and sustainable supply chain issues. Such institutional-level linkages will enable the alignment of these regional initiatives at the 14 priority sites of this project where appropriate. Importantly, this component aligns with the GEF theory of change framework via **implementing strategies**, i.e., application of fisheries *refugia* to significantly reduce stress on fish stocks and coastal habitats. Specifically, component 1 will result in **269,500 ha of fish *refugia* habitat will be conserved/effectively managed** as well as a **50% reduction in fishing pressure** within sites at times critical to the life-cycles of fished species of transboundary significance.

Outcome	End of Project Target	Indicator
Outcome 1. Reduced stress on fish stocks and coastal habitats via improved national management of key anthropogenic threats to fisheries and critical habitat linkages in the South China Sea and Gulf of Thailand	Effective management of key threats to 14 fisheries <i>refugia</i> sites [269,500 ha], including ~50 percent reduction in fishing pressure within sites at times critical to the life-cycles of fished species of transboundary significance	Status of formal designation, management plan adoption, and community engagement in implementation of agreed management measures, including enforcement, for priority sites

Outcome 1.1 Fisheries and critical habitat linkages at 14 priority sites in the South China Sea and Gulf of Thailand safeguarded via the delineation of fisheries *refugia* boundaries and the setting of priorities for *refugia* management

Locations of priority fisheries *refugia* sites in the South China Sea have been identified through past national-level initiatives, although a need exists to work with stakeholders locally, including academe and researchers, to delineate boundaries. In support of this, fisheries and coastal habitat and data collection programmes will be developed and operated at the 14 priority sites, which will include: national reviews of existing information and data; identification of needs for management interventions; consultation workshops to secure community and fisherfolk support in information and data collection; and the design and conduct of site-based surveys to produce fisheries and habitat profile reports for fisheries *refugia* sites.

This information base to be elaborated during the first year of the project will inform consultative processes aimed at facilitating agreement among stakeholders on the boundaries of fisheries *refugia*, key threats to *refugia*, and priority management interventions for the 14 sites in the South China Sea. This will involve the conduct of consultations (including at-sea) to: draft maps of fisheries *refugia* for priority species at 14 sites; elicit fisherfolk input to boundary delineation; conduct assessment of environmental and social impacts of *refugia* designation at 14 locations; and secure formal government designation of sites as fisheries *refugia* at 14 priority locations. Importantly, this implementation of fisheries *refugia* as a marine spatial planning tool represents a globally significant initiative of the small-scale fisheries sector to guide its sustainable use of fisheries resources, fish habitats and associated biodiversity in a shared marine basin subject to high and increasing levels of fishing pressure and degradation of fisheries habitats. Related outputs will include fisheries *refugia* profile reports, including GIS maps and site characterisations, published for 14 priority sites. Related targets, activities and outputs are summarized below:

Target	Activities	Output
Agreement among stakeholders on the boundaries of fisheries <i>refugia</i> , key threats to <i>refugia</i> , and priority management interventions for 14 sites in the South China Sea and Gulf of Thailand	<ul style="list-style-type: none"> • Development of fisheries and coastal habitat information and data collection programmes for 14 priority fisheries <i>refugia</i> sites • Facilitating agreement among stakeholders on the boundaries of fisheries <i>refugia</i> at 14 priority fisheries <i>refugia</i> sites 	14 fisheries <i>refugia</i> profile reports, including GIS maps and site characterisations, published for priority sites

Outcome 1.2 Amelioration of key threats to fish stock and critical habitat linkages via the adoption and implementation of community-based *refugia* management plans at 14 sites

Regional guidelines on the use of fisheries *refugia* in capture fisheries management in Southeast Asia have been published as part of the inter-governmentally endorsed ASEAN-SEAFDEC Regional Guidelines for Responsible Fisheries, and a need exists to apply this at the local level. This project will support consultative processes aimed at identifying key threats to fisheries *refugia* sites and related priority management measures. This information will be used to develop management plans for the 14 priority sites which will outline the agreed management measures to address key threats to fish stock and critical habitat linkages. To enable the implementation of these plans following their adoption by local authorities, regulatory reforms will be enacted, and community agreements negotiated, to address threats associated with: the twin problems of over-capacity and over-exploitation;

the use of destructive and/or unsustainable fishing gear and practices; pollution from fish processing facilities and small fishing vessels; habitat destruction and pollution due to fish and shrimp farming; and illegal fishing. Importantly this component will support the mainstreaming of management plan implementation into the operations of provincial agencies to provide local authority and regulatory power for the control of the number and types of fishing vessels operating within *refugia* sites, as well as the types of gears and practices employed by small-scale fisherfolk.

Such powers will enable the enforcement of rules regulating, for example, the illegal encroachment of larger-scale fishing operations into provincial/municipal waters, as well as the use of explosives and poisons in the harvest of fish. The regulation of push netting, inshore trawl fishing, and the use of other unselective fishing gears and practices will also be a priority management intervention for implementation under this component, particularly where these gears and practices are used in areas of sensitive habitats such as seagrass, as well as in areas where growth and recruitment overfishing exists. Local capabilities for monitoring, control and surveillance to ensure compliance with agreed management rules will also be strengthened via complementary activities associated with the establishment of networks of management volunteers (see Outcome 1.3) and the development and implementation of observer and enforcement programmes (see Outcome 1.4). Related targets, activities and outputs are summarized below:

Target	Activities	Output
Community-based <i>refugia</i> management plans developed, adopted, and under implementation at 14 fisheries <i>refugia</i> sites	<ul style="list-style-type: none"> • Consultations to identify key threats to fisheries <i>refugia</i> sites and identify management measures • Management plans for 14 sites developed through community-based consultations and adopted by local authorities • Enactment of requirement regulatory reforms, including regulations/rules, required for <i>refugia</i> management • Mainstreaming of management plan implementation into the operations of provincial/municipal authorities • Implementation of agreed priority management measures to ameliorate key threats at 14 fisheries <i>refugia</i> sites 	14 published management plans and 24 annual implementation reports

Outcome 1.3 Catalysed community action for fisheries *refugia* management at 14 sites

Efforts to strengthen monitoring, control, and surveillance capabilities in all countries are ongoing, although a need exists to refine scope of work to support *refugia* management. In support of this, site-level management boards will be established at each of the 14 priority *refugia* sites to enhance communication among stakeholders involved in fisheries management and biodiversity conservation, including provincial government officials, fisheries officers, staff of environment agencies, community representatives, NGOs and enforcement agencies. Fisheries *refugia* management boards will be served by management teams comprising staff of relevant provincial fisheries and environment agencies. Additionally, operational *refugia* management will be supported via the establishment of networks of community-based fisheries and habitat management volunteers. Related targets, activities and outputs are summarized below:

Target	Activities	Output
Networks of management boards and community-based fisheries and habitat management volunteers for <i>refugia</i> management established at 14 fisheries <i>refugia</i> sites	<ul style="list-style-type: none"> • Establish management teams and site-based volunteer networks at 14 sites • Conduct practical capacity building activities for mgmt volunteers at 14 sites • Coordinate monthly training and awareness activities at 14 sites 	Quarterly reports [224] of network meetings and activities [including list of participants and results of work]

Outcome 1.4 Empowered fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing, for enforcement of agreed management rules at 14 priority *refugia* sites in the South China Sea and Gulf of Thailand

Capacity building programmes at the community level typically focus on seafood quality and fishing fleet capacity issues with little emphasis on links between fisheries and environment. Activities of component 1 will increase the capacity of target community members, particularly artisanal fishermen and women, to participate in *refugia* management via the development and operation of community capacity building programmes at 14 fisheries *refugia* sites. These will include participatory activities to monitor fish habitats within *refugia*, collect lost and abandoned fishing gear, and develop responsible fishing practices at the community level. Supporting activities include: the benchmarking of stakeholder capacity for participation in management; and the development of agreed objectives, syllabus, training materials and schedule for capacity building activities.

Importantly, this component will strengthen the monitoring, control and surveillance capacities of the lead provincial governments that are required to successfully implement management plans at the 14 *refugia* sites. The identification and implementation of enforcement measures will be guided by the ASEAN-SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia and the FAO Small-Scale Fisheries Guidelines, and will involve the application of emerging remote sensing technologies, including the use of aerial drones. Required reforms to the enabling environment for effective monitoring, control and surveillance will be achieved via interlinked activities of component 2 (Output 2.3) which will result in endorsed policies, executive orders, and local by-laws and ordinances for *refugia* management and related enforcement activities. Related targets, activities and outputs are summarized below:

Target	Activities	Output
Enforcement programmes at 14 fisheries <i>refugia</i> sites, including participatory activities for strengthened monitoring, control and surveillance	<ul style="list-style-type: none"> • Benchmarking of stakeholder capacity for participation in management • Development of agreed objectives, syllabus, training materials and schedule for capacity building activities • Develop and implement collaborative observer and enforcement programmes for management plan implementation at 14 sites 	14 operational enforcement programmes at priority <i>refugia</i> sites

Outcome 1.5 Strengthened civil society and community organisation participation in fisheries *refugia* management

Low level mobilization of civil society, community organization and the private sector in site-based fisheries and habitat management has been identified as a key barrier. This will be addressed via project activities to develop an operational partnership with the GEF Small Grants Programme to strengthen civil society and community organisation participation in the management of fisheries *refugia* at 14 sites. Supporting activities include: provision of technical assistance to local GEF Small Grant Programme proponents in design and execution of projects; and the documentation and regional and national level sharing of examples of best practice in community-based management. The related target, activities and outputs are summarized below:

Target	Activities	Output
Operational partnership with the GEF Small Grants Programme to strengthen civil society and community organisation participation in the management of fisheries <i>refugia</i> at 14 sites	<ul style="list-style-type: none"> • Support local GEF Small Grant Programme proponents in design and execution of projects • Document and share examples of best practice at regional and national levels in the 6 countries 	4 annual partnership reports

Component 2. Improving the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries *refugia* management in the South China Sea and Gulf of Thailand

Component 2 focuses on strengthening the enabling environment for the formal designation and operational management of *refugia*. Preparatory activities include legal reviews to identify, *inter alia*: legal terminology for describing *refugia*; formal procedures for demarcating boundaries of spatial management areas such as *refugia*, including requirements for assessing the socio-economic impacts of management measures and stakeholder consultation; and provisions for decentralising *refugia* management to the community level via development of co-management and rights-based approaches. These national reviews are intended to enable the drafting of required policy and legislative amendments for adoption by competent authorities.

This component will also build the national and site-level science and information base via activities to develop and update of national fisheries databases for use in preparing annual syntheses of new and additional information and data relating to the status of stocks of priority fish, crustacean and mollusc species for dissemination at national and regional levels. Important elements of these synthesis reports include assessments of biomass trends, recruitment and fish size derived from abundance surveys, as well as volume and value of landings by fishing area and fishing gear used. Building on foundational fish early life history science capacity, developed through the SCS project, this component will establish and populate national databases of fish egg and larvae distribution and abundance. Additionally, component 2 will develop combined national Geographical Information Systems (GIS) on fisheries and marine biodiversity featuring information on locations and management status of coastal habitats, fisheries *refugia*, MPAs, and critical habitats for threatened and endangered species. It is envisaged that these national GIS databases will be used in the preparation of annual syntheses of new and additional data relating to the science and management of fish life-cycle and critical habitat linkages. This component aligns with the GEF theory of change framework through **strengthening institutional capacity** via reform of policy, regulatory and planning frameworks aimed at

enabling improved integration of fisheries and environmental management. Additionally, the component will lead to considerable stress reduction. Specifically, the demonstrations of best practice fishing methods and practices aimed at addressing key threats to fish stock and critical habitat linkages, and the adoption of supporting laws, will result in a **20% increase in vessels applying improved gear/techniques** to safeguard fish stock and critical habitat linkages.

Outcome	End of Project Target	Indicator
Outcome 2. Increased institutional capacity in the 6 participating countries for the designation and operational management of fisheries <i>refugia</i> via the transformation of enabling environments and the generation of knowledge for planning	National and regional policy, legal and planning frameworks for demarcating boundaries and managing fisheries <i>refugia</i> , resulting in, <i>inter alia</i> , a 20 percent increase in small-scale fishing vessels using fishing gear and practices designed to safeguard fish stock and critical habitat linkages at priority sites	Status of enabling environment reform, including extent of behavioural change among small-scale fisherfolk at priority sites Extent of use of available environmental state and socio-cultural information in policy and planning frameworks

Outcome 2.1 Strengthened enabling environments for the effective management of the effects of fishing on fisheries and critical habitat linkages in the South China Sea and Gulf of Thailand

The environmental impacts of fishing and aquaculture are reflected in national and regional fisheries policies although minimal attention is given to effects of fishing on critical fish habitats. Component 2 will enhance policy guidance for improved management of the effects of fishing on critical habitats in the 6 participating countries. The project will: identify and document key threats from fishing and the environment to fish stock and critical habitat linkages at 14 priority sites; formulate recommendations on policy and legal reforms to support promotion of responsible fishing at 14 priority sites; facilitate consultations with fisheries industry and competent authorities on policy reforms for responsible fishing gear and practices; and guide national policy reform to promote the fisheries sector's sustainable use of fish habitats and biodiversity. Related target, activities and outputs are summarized below:

Target	Activities	Output(s)
Measures for the fisheries sector's sustainable use of fish habitats and biodiversity, and based on site-level models of ecosystem carrying capacity, incorporated in the fisheries policies of participating countries	<ul style="list-style-type: none"> Identify and document key threats from fishing and the environment to fish stock and critical habitat linkages at 14 priority sites in the 6 participating countries Formulate recommendations on policy and legal reforms to support promotion of responsible fishing at 14 priority sites in the 6 participating countries Facilitate consultations with fisheries industry and competent authorities on policy reforms for responsible fishing gear and practices in the participating countries National policy reform to promote fisheries sector's sustainable use of 	<p>6 published national reviews and recommendations for reforms of national, provincial and municipal regulations/ordinances for responsible fishing practices at priority <i>refugia</i></p> <p>6 endorsed revised policies</p>

	fish habitats and biodiversity	
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Outcome 2.2 Cross-sectorial agreement on national guidelines for the use of fisheries *refugia* for integrated fisheries and habitat management

As all the participating countries have endorsed the ASEAN-SEAFDEC Regional Guidelines on the Use of Fisheries *Refugia* for Sustainable Capture Fisheries Management in Southeast Asia via the inter-governmental SEAFDEC Council process, Component 2 will support that strengthening of the policy enabling environment for fisheries *refugia* establishment and management via the drafting and approval of national guidelines for local dissemination. This will involve reviews of policy and legal aspects of *refugia* in the 6 participating countries and consultative processes to elicit stakeholder input to guideline development and endorsement. This initiative will also ensure where possible that national guidelines are congruent with key recommendations of the FAO Small-Scale Fisheries Guidelines. The related target, activities and outputs are summarized below:

Target	Activities	Output
National guidelines on the use of fisheries <i>refugia</i> in integrating fisheries and habitat developed and endorsed by heads of national government departments responsible for fisheries and environment in the participating countries	<ul style="list-style-type: none"> • Reviews of policy and legal aspects of <i>refugia</i> (terminology, procedures, recommended reforms) in the 6 participating countries • National expert consultations to formulate agreed recommendations for policy and legal reforms in the 6 participating countries • Draft national guidelines on procedures for formal designation and mgmt of fisheries <i>refugia</i> in 6 participating countries • National and local consultative process to elicit stakeholder input to the draft guidelines • Amend and finalise national guidelines for approval by National Fisheries <i>Refugia</i> Committees in 6 countries 	6 published national guidelines on establishing and operating fisheries <i>refugia</i>

Outcome 2.3 Endorsed policy, legal, and planning frameworks, both at national and regional levels, for the establishment and management of fisheries *refugia*, including the reduced use of destructive fishing gear and practices in areas of critical habitats

There currently exists an absence of clear and effective policies, laws, and plans relating to the demarcation of boundaries, formal designation, and operational management of fisheries *refugia* in each of the participating countries. Activities of this component will support the reform of national and regional policy, legal and planning frameworks for demarcating boundaries and managing fisheries *refugia*. This will involve: the drafting and adoption of required policy and legal reforms to support *refugia* establishment and management in the 6 participating countries; development of National Action Plans for fisheries *refugia*; as well as the development of a Regional Action Plan for the management of fisheries *refugia* in the coastal areas of the South China Sea. The related target, activities and outputs are summarized below:

Target	Activities	Output(s)
National policy, legal and planning frameworks for	<ul style="list-style-type: none"> • Draft required policy and legal reforms to support <i>refugia</i> establishment and management in the 6 participating 	<ul style="list-style-type: none"> • 6 national reports on policy, legal and institutional aspects

<p>demarcating boundaries and managing <i>refugia</i> assessed and required reforms endorsed in the participating countries and reflected in an updated regional action plan</p>	<p>countries</p> <ul style="list-style-type: none"> • Convene national and local stakeholder consultations to review draft text for adoption in the 6 participating countries • Facilitate approval and formal adoption of reforms by relevant authorities at national and provincial levels for 14 priority sites in the 6 participating countries • Develop a Regional Action Plan for the management of fisheries <i>refugia</i> in coastal areas of the South China Sea marine basin 	<p>of <i>refugia</i> establishment and management published</p> <ul style="list-style-type: none"> • Endorsed policy and executive orders, provincial/local ordinances and by-laws • 6 endorsed National Action Plan for the management of priority fisheries <i>refugia</i> and associated biodiversity • 1 endorsed Regional Action Plan for fisheries <i>refugia</i>
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Outcome 2.4 Enhanced access to information relating to status and trends in fish stocks and their habitats in waters of the SCS

National reviews of fish stocks and habitats of regional, global and transboundary significance in the South China Sea were prepared for Cambodia, Indonesia, the Philippines, Thailand and Viet Nam during 2004-2006 as an activity of the SCS project. Component 2 will work to enhance access to information relating to status and trends in fish stocks and their habitats in waters of the SCS marine basin via the compilation new and additional information and data relating to biomass trends, recruitment, fish size, fish habitat area and quality, and volume and value of landings by fishing area and fishing gear use. Annual synthesis reports will be prepared and the national reports on fish stocks and habitats will be updated and made available online. The related target, activities and outputs are summarized below:

Target	Activities	Output
<p>Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats published in each country and disseminated at national and regional levels</p>	<ul style="list-style-type: none"> • Compile information and data derived from abundance surveys in South China Sea waters of 6 countries for longer-term management • Compile information and data derived from surveys on size-frequency of priority species in South China Sea waters of 6 countries • Compile information and data on landings of priority species (volume/value, fishing areas and gears) in South China Sea waters of the 6 countries • Produce annual syntheses reports of new and additional information for national and regional review • Revise national reports on fish stocks and habitats in the South China Sea for each 6 participating countries 	<ul style="list-style-type: none"> • 96 quarterly and 24 annual reports on fish stocks and habitats published online

Outcome 2.5 Improved national and regional-level management and sharing of information and data on fish early life history in the waters of the South China Sea

A constraining factor in the identification of fish stock and critical habitat linkages is the scarcity of information relating to the early-life history of the majority of significant transboundary species in the South China Sea. A further constraint is that access to data generated from fish early life history research is constrained both nationally and regionally by lack of central repositories or databases. This project will improve national and regional-level management and sharing of information and data on fish early life history in the waters of the SCS via the development and maintenance of online national and regional fish egg and larvae databases for improved planning and management of a regional system of fisheries *refugia*. The related target, activities and outputs are summarized below:

Target	Activities	Output
Establishment and population of 6 online national databases, and 1 regional database, of fish egg and larvae distribution and abundance in national waters and the SCS basin	<ul style="list-style-type: none"> • Prepare 6 national and 1 regional inventory of fish egg and larvae samples collected from SCS waters of the 6 participating countries (both analysed and unanalysed) • Develop and maintain 6 national databases and 1 regional database of fish egg and larval fish distribution and abundance • Convene annual one-day workshops in the 6 participating countries to monitor the implementation of national programmes for the processing/analysis of fish egg and larvae samples • Prepare annual status reports on fish early life history research for each participating country for regional review 	<ul style="list-style-type: none"> • 6 databases online and populated with datasets

Outcome 2.6 Enhanced access to information relating to the locations and status of coastal habitats and management areas in the South China Sea and Gulf of Thailand

Information relating to fisheries and their habitats is contained a number of national databases, as well as databases on the SCS project website, although there is need for improved access to information regarding the locations and status of coastal and marine management areas, such as MPAs, coastal habitat areas, and critical habitats for threatened and endangered species. Component 2 will enhance access to this type of information via the routine compilation and update of information and data in 6 national and 1 regional Google Earth based GIS. The related target, activities and outputs are summarized below:

Target	Activities	Output
National and regional online Geographical Information Systems on fisheries and marine biodiversity featuring information on locations and management status of coastal habitats,	<ul style="list-style-type: none"> • Compile and update information and data in 6 * National and 1 * regional Google Earth based GIS on: distribution of habitats; known spawning areas; locations of <i>refugia</i>; MPAs; fisheries management areas; critical habitats for endangered species 	<ul style="list-style-type: none"> • 6 national and 1 regional Geographical Information System online and populated with site-based information

fisheries <i>refugia</i> , MPAs, and critical habitats for threatened and endangered species	<ul style="list-style-type: none"> • Prepare annual synthesis of new and additional information included in databases 	
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Outcome 2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries *refugia* sites in the South China Sea

Fisheries information collection in the East Asian region largely focuses on volumes of catch with little attention to species and size selectivity of gear, size frequency and maturity, and the role of habitats in production. Accordingly the ability to assess the role of critical habitats in fish life-cycles and the sustainability of fisheries is constrained. Component 2 will meet this gap via the compilation of secondary information and primary information generated through project activities into site characterisations focusing on quality and expanse of habitats, trends in annual production and value of harvests, the number and type of fishing vessels and gear used in the area and village/community level socio-economic information. This will be complemented with the site level survey programmes to be operated through component 1 which include the routine collection of information and data on: the number and types of fishing vessels operating in the *refugia* area; the species and size selectivity of the principal fishing gear used; gonadosomatic index and size frequency of priority species utilising the area; the role of fisheries *refugia* in the production (and economic value) of priority fish, crustacean, and molluscs; and usage of *refugia* by threatened and endangered marine species. The related target, activities and outputs are summarized below:

Target	Activities	Output
Fisheries and habitat data collection programmes operational to characterise 14 priority <i>refugia</i> sites in the South China Sea and Gulf of Thailand	<ul style="list-style-type: none"> • Production of detailed site characterizations for the 14 priority fisheries <i>refugia</i> sites for incorporation into national and regional datasets 	<ul style="list-style-type: none"> • Characterisations for 14 <i>refugia</i> sites accessible online

Outcome 2.8 Improved basin-wide understanding of linkages between ocean circulation patterns, nutrient/chlorophyll concentrations, and sources and sinks of fish larvae in the South China Sea

Collaborative research activities of the SCS Project and SEAFDEC during 2006-2008, have resulted in a preliminary information base on key spawning (sources) and nursery areas (sinks) of economically important species in the South China Sea. These research activities involved analysis of information collected during cruises of the SEAFDEC Research Vessel M.V. SEAFDEC in the following areas: the Gulf of Thailand and the East Coast of Peninsular Malaysia; the West Coast of Sabah, Sarawak, and Brunei Darussalam; the West Coast of Luzon, Philippines; and in Vietnamese Waters. Drawing on these data, the distribution and abundance of the larvae of important demersal and pelagic fish species in the South China Sea was mapped¹. Component 2 will build on this foundational work via the development of a modelling system, linking known sources and sinks of fish larvae to ocean circulation patterns and nutrient/chlorophyll concentrations in the South China Sea to improve regional understanding of fish early life history and links to critical habitats. The related target, activities and outputs are summarized below:

¹ See Annex 5 of the Eighth RWG-F Meeting Report (UNEP, 2007b) entitled "Distribution and Abundance of Fish Larvae in the Gulf of Thailand and South China Sea"

Target	Activities	Output
Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites in the South China Sea and Gulf of Thailand	<ul style="list-style-type: none"> • Development and application of a modelling system linking oceanographic, biochemical, and fish early life history information to improve regional understanding of fish early life history and links to critical habitats • Publication of report on application of modelling system in identifying priority locations for replication and scaling-up of fisheries <i>refugia</i> best practices 	<ul style="list-style-type: none"> • 1 modelling system online

Outcome 2.9 Regionally and locally appropriate best practices generated to address the effects of trawl and motorised push net fishing on seagrass habitat, and the capture of juveniles, pre-recruits and fish in spawning condition

There are few regionally or locally appropriate examples of practical solutions to key threats to fisheries *refugia* in the East Asian region. The fisheries component of the South China Sea SAP identified the need for the demonstration of targeted actions to support and guide National Fisheries Departments in the establishment of coastal fisheries management systems at priority fisheries *refugia*. Building on experiences with the habitat demonstration site approach developed by the SCS project, Component 2 will identify and trial approaches to reduce the effects of trawl and push net fishing on seagrass habitat, and will also test the use of fishing gear and practices that reduce the capture of juveniles, pre-recruits and fish in spawning condition. The related target, activities and outputs are summarized below:

Target	Activities	Output
Best practice fishing methods and practices to address key threats to fish stock and critical habitat linkages demonstrated at priority <i>refugia</i>	<ul style="list-style-type: none"> • Demonstrations of best practice fishing methods and practices to address key threats to fish stock and critical habitat linkages demonstrated at priority fisheries <i>refugia</i> 	<ul style="list-style-type: none"> • 4 published reports of the results of demonstrations

Component 3. Information Management and Dissemination in support of national and regional-level implementation of the fisheries *refugia* concept in the South China Sea and Gulf of Thailand

Two fundamental assumptions regarding the potential success of the fisheries *refugia* concept in improving fisheries and habitat management in Southeast Asia are that: (1) cross-sectorial co-ordination of activities between the fisheries and environment sectors in the participating countries will be successful; (2) that small-scale fishing communities will support project activities and proposed interventions. Accordingly, Component 3 focuses on strengthening information management and dissemination aimed at enhancing the national uptake of best practices in integrating fisheries management and biodiversity conservation, and in improving community acceptance of area based approaches to fisheries and coastal environmental management. Supporting activities involve the development of national knowledge management systems on the use of fisheries *refugia* in capture fisheries management, and the establishment of a Regional Education and Awareness Centre within SEAFDEC which will operate as a facility for the production and sharing of information and education materials on fisheries and critical habitat linkages. Importantly, Component 3 will support the development of indicators to monitor the effectiveness of coastal fisheries

management systems established for priority fisheries *refugia*. A regional programme for the compilation of standardised fisheries statistics for use in identifying and managing fisheries *refugia* will also be developed to support monitoring and evaluation. Significantly, this component aligns with the GEF theory of change framework through **knowledge and information** activities aimed at improving information sharing and access, awareness raising, skills building, and monitoring and evaluation.

Outcome	End of Project Target	Indicator
Outcome 3. Strengthened knowledge management and information sharing and access for enhanced uptake of good practice in integrating fisheries management and biodiversity conservation in the design and implementation of fisheries and environmental management systems, including Marine Spatial Planning	National and regional systems for knowledge management and sharing, including the development of indicator sets and standardized statistics to guide the replication, scaling-up and mainstreaming of good practices in the use of fisheries <i>refugia</i> as a spatial planning tool	Extent of demonstrable use of examples of good practice in guiding the replication, scaling-up and mainstreaming of good practices

Outcome 3.1 Enhanced uptake of best practices in integrating fisheries management and biodiversity conservation, in the design and implementation of fisheries management systems

Lessons learned in coastal habitat management from the SCS project's network of 23 demonstration sites have been documented, although there are few regionally relevant examples of best practice in integrated fisheries and biodiversity management. Component 3 will fill this gap via the routine capture and codification of best practices in the establishment and operation of fisheries *refugia* sites. National and regional online catalogues will also be developed to serve as repositories of best practice examples, while communication products on best practices will be routinely prepared for dissemination and syndication, both nationally and regionally. The related target, activities and outputs are summarized below:

Target	Activities	Output(s)
Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally and regionally	<ul style="list-style-type: none"> • Quarterly capture and documentation of best practices in the establishment and operation of fisheries <i>refugia</i> in the 6 participating countries • Online catalogue of best practices approaches and measures developed and updated each 6 months • 6 monthly development of communications on best practices for dissemination and syndication, both nationally and regionally 	<ul style="list-style-type: none"> • 6 online national and 1 regional catalogue of best practice approaches and measures • 24 communications on best practices published and syndicated

Outcome 3.2 Improved community acceptance of area based approaches to fisheries and coastal environmental management

Many fishing families, fisheries managers, and local government officials in the region equate area-based approaches to fisheries management (zoning) as the equivalent of no-take MPAs. The latter are often viewed as unacceptable at the community level because they are rarely designated in locations of importance to the life-cycle of fished species and

neither improve fish stocks nor the community's income. The net result of such MPA establishment is largely viewed as a loss of fishing areas for small-scale fishers and non-compliance with fisheries management measures in the 'protected' areas as a result of minimal buy-in from communities (Paterson *et al.*, 2013). Additionally, community-level awareness programmes in support of fisheries and coastal management initiatives in the Southeast Asian region have rarely addressed area-based approaches to natural resource and environmental management. In this connection, activities of Component 3 are aimed at improving community acceptance of area based approaches to marine management in the 6 participating countries. This will involve the benchmarking and tracking of community acceptance of the fisheries *refugia* approach as a marine spatial planning tool, the production of locally appropriate awareness and outreach materials, and the design and implementation of targeted outreach programmes at priority communities. The related target, activities and outputs are summarized below:

Target	Activities	Output(s)
Public awareness and outreach programme to promote local social, economic and environmental benefits of fisheries <i>refugia</i> implemented at 14 priority locations in the South China Sea and Gulf of Thailand	<ul style="list-style-type: none"> • Quarterly capture and documentation of best practices in the establishment and operation of fisheries <i>refugia</i> in the 6 participating countries • Online catalogue of best practices approaches and measures developed and updated each 6 months • 6 monthly development of communications on best practices for dissemination and syndication, both nationally and regionally 	<ul style="list-style-type: none"> • 24 awareness materials published online • Annual reports of outreach programmes at 14 priority locations, including tracking of extent of community acceptance [56 reports]

Outcome 3.3 Knowledge generated and experiences from establishing and operating fisheries *refugia*, captured and shared nationally, regionally, and globally

There currently exists no mechanism for the capture, management and sharing of knowledge and experiences in the use of area based tools for fisheries management in the South China Sea region. Project activities will capture and share (at national, regional and global levels) the knowledge generated and experience gained from the establishment and operation of a regional system of fisheries *refugia*. National and regional web portals will be established and operated for knowledge management. Additionally, the project will prepare and publish six (6) GEF International Waters Experiences Notes on the application of the *refugia* approach at the national level (one each per participating country). The related target, activities and outputs are summarized below:

Target	Activities	Output(s)
National knowledge management systems on the use of fisheries <i>refugia</i> in capture fisheries management established and operational	<ul style="list-style-type: none"> • Establish and operate 6 national and 1 regional web portals for knowledge management on fisheries <i>refugia</i> • Prepare and publish 6 GEF International Waters Experience Note on application of <i>refugia</i> approach at the national level 	<ul style="list-style-type: none"> • 6 online national web portals on fisheries <i>refugia</i> • 6 published GEF IW experience notes (one per country and one regional) on application of fisheries <i>refugia</i> in the South China Sea and Gulf of Thailand

Outcome 3.4 Information and Education Campaigns for small-scale fisherfolk on the links between fisheries, habitats and biodiversity coordinated regionally through a Regional Education and Awareness Centre

As noted above, a key constraint in the future development of the regional system of fisheries *refugia* is a shortage of information regarding fish life-cycles and critical habitat linkages in Southeast Asia. SEAFDEC has been working to fill this information gap by including larval and juvenile fish surveys as part of its regular fisheries research cruises; however, the region has faced difficulties in the processing of samples due to limited expertise in national fisheries departments. Additionally, there is a need for capacity enhancement among middle to senior level fisheries and environment managers, both at the central government and provincial levels, and fisherfolk and fishing communities on fish stock and environment links. The SCS project worked to meet this need via a regional capacity building programme which addressed fish early life history science and the use of spatial tools in fisheries management. Currently however, regional and national level access to information and training materials on integrated fisheries and habitat management is limited to that produced through the SCS project and which is currently accessible via the SCS website². Component 3 activities build on this via the establishment of a Regional Education and Awareness Centre for the production and sharing of information and education materials on fisheries and critical habitats. The related target, activities and outputs are summarized below:

Target	Activities	Output
Regional Education and Awareness Centre on fisheries and critical habitats established and operating as a facility for the production and sharing of information and education materials for <i>refugia</i> management	<ul style="list-style-type: none"> • Establish a Regional Education and Awareness Centre on fisheries and critical habitats • Production and regional-level sharing of information and education materials for <i>refugia</i> management 	<ul style="list-style-type: none"> • Information and education materials accessible at SEAFDEC and online

Outcome 3.5 Standardised methods for collection and analysis of information and data, for use in assessing the impacts of *refugia* and in the design appropriate indicators for the longer-term operation of the regional system of fisheries *refugia*

There has been significant work undertaken by SEAFDEC over recent decades to standardise the reporting of Southeast Asia's regional fisheries statistics. To date however, there has been little consideration given to information and data relating to fish stock and habitat links. As a result, national and regional fisheries statistics provide little insight into the role of habitats in fisheries production. Component 3 links to nascent processes of SEAFDEC to standardize methods for the collection and analysis of information and data for use in assessing impacts of *refugia* and the design of appropriate indicators for the longer-term operation of the regional system of fisheries *refugia*. This will be supported by a regional consultative process to facilitate agreement on stress reduction and environmental state targets and indicators for managed *refugia*. This Component 3 initiative will be underpinned by the Component 1 activity directed at the development and operation of fisheries and coastal habitat information and data collection programmes at the 14 priority fisheries *refugia* sites to establish the baseline of resource and socio-economic information for longer-term monitoring and evaluation. These information and data collection programmes will be initiated at project inception and include activities to *inter alia*: review existing information and data on fisheries and coastal habitats at 14 sites; national

² See <http://www.unepscs.org/Training/Workshops/Materials.html> for a compilation of these resources

consultation workshops to secure community and fisherfolk support in information and data collection; the design and conduct of site-based surveys to produce fisheries and habitat profile reports for 14 sites; and the conduct of quarterly fisheries and habitat surveys. Component 3 will act to refine data collection procedures and secure regional commitment to the longer-term operation of fisheries and habitat surveys conducted as part of the regular research cruises of M.V. SEAFDEC 2 and national research institutes. The related target, activities and outputs for Outcome 3.5 are summarized below:

Target	Activities	Output
Regional agreement on standardised information and data collection procedures in support of longer-term operation of a regional system of fisheries <i>refugia</i> , including design of stress reduction and environmental state indicators for managed <i>refugia</i>	<ul style="list-style-type: none"> • Develop standardised information and data collection procedures in support of longer-term operation of a regional system of fisheries <i>refugia</i> • Regional consultation to agree on stress reduction and environmental state indicators for managed <i>refugia</i> 	<ul style="list-style-type: none"> • 1 endorsed regional report published online

Component 4 National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand³

At the national-level, Component 4 will strengthen cross-sectorial coordination for integrated fisheries and environmental management and will harness the national scientific and technical expertise and knowledge required to inform the policy, legal and institutional reforms for fisheries *refugia* management in the participating countries. Local community action and strengthened 'community to cabinet' linkages will be facilitated via establishment and operation of site-based management boards for fisheries *refugia* at the 14 priority locations in the South China Sea. Regionally, Component 4 will foster regional cooperation in: the establishment and operation of a regional system of fisheries *refugia*; and in the integration of scientific knowledge and research outputs with management and policy making. This component also includes project coordination and management activities aimed at: ensuring the timely and cost effective implementation of regional and national-level activities; and satisfying the reporting requirements of UNEP and the GEF. Component 4 activities will achieve the following results:

Outcome	End of Project Target	Indicator
Outcome 4. Cost-effective and efficient coordination of national and regional level cooperation for integrated fisheries and environmental management	Effective multi-lateral and intergovernmental communication and joint decision-making, including the use of a consensual knowledge-base in planning ecologically and cost-	Extent and continuity of stakeholder participation in meetings of project management bodies, including the scope and uptake of joint management and planning decisions

³ A key consideration in the design of project component 4 activities was the establishment of a project management structure that provides a clear separation between discussions of scientific and technical matters from discussion dealing with policy and principles at both the national and regional levels. This separation is aimed at facilitating clarity in discussions and decision-making at both scientific/technical and decision-making levels, specifically to ensure that scientific and technical considerations do not become obfuscated by political discussions. This key design principle aims to enable scientific and technical issues to be discussed and analyzed in a strictly operational context by scientists and managers from the participating countries, leading to recommendations being made to the policy level decision-making bodies (both nationally and regionally) that are solely based on the best available, scientific and technical, data and information.

	effective management actions	
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Outcome 4.1 Strengthened cross-sectorial coordination in the establishment and operation of fisheries *refugia* in the participating countries

Limited cross-sectorial engagement in the planning of coordinated actions to manage threats to fish stocks and critical habitat linkages has been identified as a key barrier in each of the participating countries. National activities of Component 4 will establish and operate National Fisheries *Refugia* Committees (NFRCs) to strengthen cross-sectorial coordination in the establishment and management of fisheries *refugia*. The NFRC's will assume overarching responsibility for the execution of national level activities of the project and will, *inter alia*: receive, review, and approve reports from the management boards of *refugia* sites; consider advice from the National Scientific and Technical Committees in decision-making; meet on a quarterly basis to guide the timely execution of project activities; provide direction and strategic guidance to the National Lead Agencies and *refugia* management boards; assess and advise on stakeholder involvement in fisheries and environmental management; and approve annual progress reports for transmission to the SEAFDEC PCU and UNEP. The related target, activities and outputs are summarized below:

Target	Activities	Output
National Fisheries <i>Refugia</i> Committees established in 6 countries, functional and advising national decision-makers and regional <i>fora</i>	<ul style="list-style-type: none"> • Develop and agree ToR, membership & operational rules for National Fisheries <i>Refugia</i> Committee's (or equivalent) for 6 participating countries • Establish and convene quarterly meetings of the National Fisheries <i>Refugia</i> Committee (NFRC) (or equivalent) for 6 participating countries • NFRC review and endorsement of quarterly work plans and progress and financial reports, including tracking of continuity of participation of stakeholders, in each of the 6 participating countries • National NFRC inputs to mid-term review and terminal evaluation of national and regional aspects of project in each 6 participating countries 	<ul style="list-style-type: none"> • 6 NFRC Terms of Reference and 48 biannual meeting reports (joint management decisions and participant lists)

Outcome 4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries *refugia* management in the participating countries

The participating countries lack formal mechanisms for the sharing of scientific and technical knowledge between government agencies and other stakeholders involved in fish stock and coastal environmental management. Component 4 will establish and operate National Scientific and Technical Committees (NSTCs) in the participating countries to harness national scientific and technical expertise and knowledge to inform reforms for fisheries *refugia* management. The NSTCs will assume overarching responsibility for the review and co-ordination of national scientific and technical activities of the project and will, *inter alia*: provide the NFRC with recommendations on proposed national and site-based activities,

work plans, and budgets; provide the NFRC with technical guidance and suggestions to improve project activities where necessary, including the reform of policy, legislation and institutional arrangements; facilitate co-operation with relevant national and provincial organisations and projects to enhance the information and science base for *refugia* management; compile and evaluate national level sources of information and data for sharing at the regional level through the Regional Scientific and Technical Committee; and ensure that planned national level activities are consistent with the national results framework for the project, and that the subsequent monitoring and reporting of project results is undertaken in a standardized and consistent manner. The related target, activities and outputs are summarized below:

Target	Activities	Output
National Scientific and Technical Committees (NSTC) established in 6 countries, functional and advising site-level management boards, the NFRC and the Regional Scientific and Technical Committee	<ul style="list-style-type: none"> • Develop and agree Terms of Reference, membership & operational rules for National Scientific and Technical Committees for 6 participating countries • Establish and convene 6 monthly meetings of the National Scientific and Technical Committee (or equivalent) in each of the six participating countries • Provision of technical and scientific inputs to planning of activities in components 1, 2 and 3 led by National Lead Agencies in each of 6 participating countries 	<ul style="list-style-type: none"> • 6 NSTC Terms of Reference and 96 quarterly meeting reports (scientific and technical advice and participants lists)

Outcome 4.3 Community-led planning of fisheries *refugia* management at priority locations in the South China Sea and Gulf of Thailand

Stakeholder participation in the planning of local actions to manage threats to fish stocks and critical habitats is limited in riparian communities of the South China Sea basin. Component 4 will catalyze local community action via the establishment and operation of site-based management boards for the 14 priority fisheries *refugia* sites. Initial activities will involve the review of governance arrangements at each site to identify required Terms of Reference and membership of site-based management boards, including the creation of linkages with other local planning bodies. The development of these institutional arrangements will be guided by ASEAN-SEAFDEC Guidelines for Responsible Fisheries in Southeast Asia and the recently adopted FAO Small-Scale Fisheries Guidelines. The site-based management boards will *inter alia*: plan and guide the timely execution of site-based activities; review and take action where necessary to ensure appropriate levels of government, NGO, community, and private sector engagement in site-level activities; ensure compatibility between the recommendations for action at the fisheries *refugia* site with other local level activities for fisheries and coastal habitat management; prepare and endorse quarterly progress reports for transmission to the meetings of the NFRC; facilitate the approval and implementation, by the competent local authority, of management plans and courses of action developed during project execution; and identify best practices for replication and scaling-up as well as the mainstreaming of the fisheries *refugia* approaches at the local level. The related target, activities and outputs are summarized below:

Target	Activities	Output
Local community action catalysed via	<ul style="list-style-type: none"> • Review governance arrangements at each site to identify required Terms of 	<ul style="list-style-type: none"> • 14 Management Board Terms of

establishment and operation of site-based management boards for fisheries <i>refugia</i> at 14 locations in the South China Sea and Gulf of Thailand	Reference and membership of site-based management boards, including links to other local planning bodies <ul style="list-style-type: none"> • Establish and convene quarterly meetings of site-based management boards at the 14 sites • Preparation of quarterly work plans and progress and financial reports on activities at each of the 14 sites 	Reference and 224 quarterly meeting reports (joint management decisions and participant lists)
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Outcome 4.4 Regional cooperation in the integration of scientific knowledge and research outputs with management and policy making

The regional level sharing of science and technical knowledge relating to fisheries *refugia* is constrained by the lack of an appropriate regional forum. Component 4 will establish and operate a Regional Scientific and Technical Committee (RSTC) which will function as a bridge between the scientific community and decision-makers involved in the establishment and operation of a regional system of fisheries *refugia*. In addition to providing a forum for scientific and technical issues to be discussed and analyzed without being obfuscated by political influences, the operation of the RSTC will also enable the harnessing of expertise from the variety of disciplines required for the identification, delineation and management of *refugia*, which include, *inter alia*, fisheries science, oceanography, and coastal and marine ecology. Specifically, the RSTC will be responsible for overseeing the scientific and technical elements of the project; ensuring effective implementation of activities undertaken during project execution; and providing sound scientific and technical advice to the Project Steering Committee.

The RSTC will also be responsible for ensuring that scientific and technical aspects of the fisheries *refugia* project meet International standards. Specifically, it will review the substantive activities of the project to: (a) identify and manage fisheries and critical habitat linkages at priority fisheries *refugia* in the South China Sea and Gulf of Thailand; (b) improve the management of critical habitats for fish stocks of transboundary significance via national and regional actions to strengthen the enabling environment and knowledge-base for fisheries *refugia* management; (d) enhance information management and dissemination in support of national and regional-level implementation of the fisheries *refugia* concept; and (e) strengthen national and regional cooperation and coordination in the operation of a regional system of fisheries *refugia*. Furthermore, as the over-riding scientific and technical body for the project, the RSTC shall provide sound scientific and technical advice to the Project Steering Committee regarding matters requiring decision and shall provide direction and strategic guidance to the national level activities of the fisheries *refugia* initiative as required.

Target	Activities	Output
Regional Scientific and Technical Committee (RSTC) established and functioning as a bridge between the scientific community and decision-makers for operation of a regional system of fisheries <i>refugia</i>	<ul style="list-style-type: none"> • Develop and agree Terms of Reference, membership & operational rules for the RSTC • Convene meetings of the RSTC 	<ul style="list-style-type: none"> • RSTC Terms of Reference and 4 annual meeting reports (documenting scientific and technical advice and participant lists)

Outcome 4.5 Regional cooperation in the establishment and operation of a regional system of fisheries *refugia*

A Project Steering Committee will be established and operated through Component 4 to oversee and act as a principal decision making body for the project. The PSC's role will be to provide managerial and governance advice to the project, and to guide the Project Coordination Unit (PCU) of the Southeast Asian Fisheries Development Centre (SEAFDEC) in the implementation and monitoring of the overall regional project. The PSC will also provide a regional forum for reviewing and resolving national concerns, reviewing and approving annual work plans and budgets, and provide a regional forum for stakeholder participation. One of the first activities during full project implementation will be to reconfirm and/or reconstitute the membership of the PSC, agree on meeting procedures, and finalise Terms of Reference for the PSC. The related target, activities and outputs are summarized below:

Target	Activities	Output
Project Steering Committee established and functioning to oversee and act as a principal decision making body for the project	<ul style="list-style-type: none"> • Develop and agree Terms of Reference, membership & operational rules for the PSC • Convene meetings of the PSC 	<ul style="list-style-type: none"> • PSC Terms of Reference and 4 annual meeting reports (documenting joint decisions and participant lists)

Outcome 4.6 Effective coordination of regional and national-level activities and reporting requirements of UNEP and GEF satisfied

A regional Project Co-ordination Unit (PCU) will be established through Component 4. The PCU will be housed within SEAFDEC and will be led by a Project Director with support from SEAFDEC'S policy, technical and financial units. The PCU will be responsible for: overall leadership, management and technical oversight of the fisheries *refugia* project; regional project governance, monitoring and reporting; policy/technical advice and advocacy; regional and national coordination, including the establishment of partnerships and networking; and external communications. The PCU will also: promote the role of the regional system of fisheries *refugia* in harmonizing fisheries and environmental management in regional forums and media; establish and maintain a regional collaborative network of experts to guide the scientific, policy, and legal arrangements for the management of *refugia* in national waters; and provide Secretariat support to the RSTC and PSC. The related target, activities and outputs are summarized below:

Target	Activities	Output
Functioning regional Project Coordinating Unit (PCU) supporting the coordination of regional and national level activities associated with the establishment and operation of regional system of fisheries <i>refugia</i> and meeting reporting requirements of UNEP and the GEF	<ul style="list-style-type: none"> • Establishment and operation of the regional Project Coordinating Unit • Appointment and retention of the Project Director 	<ul style="list-style-type: none"> • Terms of Reference and contracts for project coordination unit staff