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SEAFDEC/UNEP/GEF Project:
*“Establishment and Operation of a Regional System of Fisheries Refugia
in the South China Sea and Gulf of Thailand”*

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**Developing a Results-Based Management System
for the Fisheries Refugia Project**

1. INTRODUCTION TO RESULTS-BASED MANAGEMENT

1.1 WHAT ARE RESULTS-BASED MANAGEMENT FRAMEWORKS?

As defined by OECD/DAC, a results based management framework is “a management strategy focusing on performance and achievement of **outputs, outcomes, and impacts**”. The key terminology used by the OECD with respect to results based management is summarised in Information Box 1. The GEF and its implementing agencies now encourage projects to focus on efforts that contribute to the achievement of changes on the higher end of the results-chain hierarchy, i.e., activities focused on goals and achieving results.

Information Box 1: Hierarchy Levels from OECD DAC Glossary of Key Terms in Evaluation and Results-Based Management

Results: Changes in a state or condition which derive from a cause-and- effect relationship. There are three types of such changes which can be set in motion by a development intervention – its output, outcome and impact.

Goal: The higher-order objective to which a development intervention is intended to contribute.

Impact: Positive and negative long-term effects on identifiable population groups produced by a development intervention. These effects can be economic, socio-cultural, institutional, environmental, technological or of other types.

Outcome: The intended or achieved short-term and medium-term effects of an intervention’s outputs, usually requiring the collective effort of partners. Outcomes represent changes in development conditions which occur between the completion of outputs and the achievement of impact.

Outputs: The products and services which result from the completion of activities within a development intervention.

Critical tasks in a Results-Based Management Framework are monitoring and evaluation. Monitoring and evaluation are distinct tasks which should complement one another. Monitoring gives information on where a project is at any given time (over time) relative to respective targets and outcomes, and is largely a descriptive task. On the other hand, evaluation gives evidence of why targets and outcomes have or have not been achieved. The GEF’s Monitoring and Evaluation Policy defines **monitoring** as:

“a continuous or periodic function that uses systematic collection of data, qualitative and quantitative, for the purpose of keeping activities on track. It is first and foremost a management instrument.”

Evaluation on the other hand:

“aims at determining the relevance, impact, effectiveness, efficiency, and sustainability of the interventions and contributions of the involved partners”

Monitoring therefore tracks progress toward a set of benchmarks and measure progress towards outcomes, while evaluation validates results and makes overall judgements about what and to what extent intended and unintended results are achieved (e.g., global environmental benefits, cost effectiveness). Table 2 highlights the different but complementary roles that monitoring and evaluation play within a Results-Based Management Framework.

Table 2 Complementary Roles of Monitoring and Evaluation

Monitoring	Evaluation
<ul style="list-style-type: none"> • Links activities and their resources to outputs and outcomes • Translates objectives into performance indicators and sets targets • Routinely collects data on indicators, compares actual results with targets 	<ul style="list-style-type: none"> • Analyses why intended results were or were not achieved • Assess specific causal contributions of activities to results • Examines the implementation process • Explores unintended results

<ul style="list-style-type: none"> • Reports progress to management and alerts them to problems 	<ul style="list-style-type: none"> • Provides lessons, highlights significant accomplishment or program potential, and offers recommendations for improvement
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1.2 GEF MINIMUM STANDARDS FOR RESULTS-BASED MANAGEMENT FRAMEWORKS

The GEF requires all projects to design and implement Results-Based Management (RBM) frameworks, and its monitoring and evaluation policy states that all GEF projects must “adopt monitoring systems, including relevant performance indicators that are SMART” (specific, measurable, achievable, realistic, timely) (see Information Box 2). Figure 1 provides a generalised Results-Based Management framework, and the links and feedback loops RBM sets in place between the three major phases of a simplified project cycle for a GEF project.

INFORMATION BOX 1: SMART INDICATORS

Specific. The system captures the essence of the desired result by clearly and directly relating to the achievement of an objective and only that objective.

Measurable. The monitoring system and indicators are unambiguously specified so that all parties agree on what they cover and there are practical ways to measure them.

Achievable and Attributable. The system identifies what changes are anticipated as a result of the intervention and whether the results are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.

Relevant and Realistic. The system establishes levels of performance that are likely to be achieved in a practical manner and that reflect the expectations of stakeholders.

Time-Bound, Timely, Trackable, and Targeted. The system allows progress to be tracked in a cost-effective manner at the desired frequency for a set period, with clear identification of the particular stakeholder group(s) to be affected by the project or program.

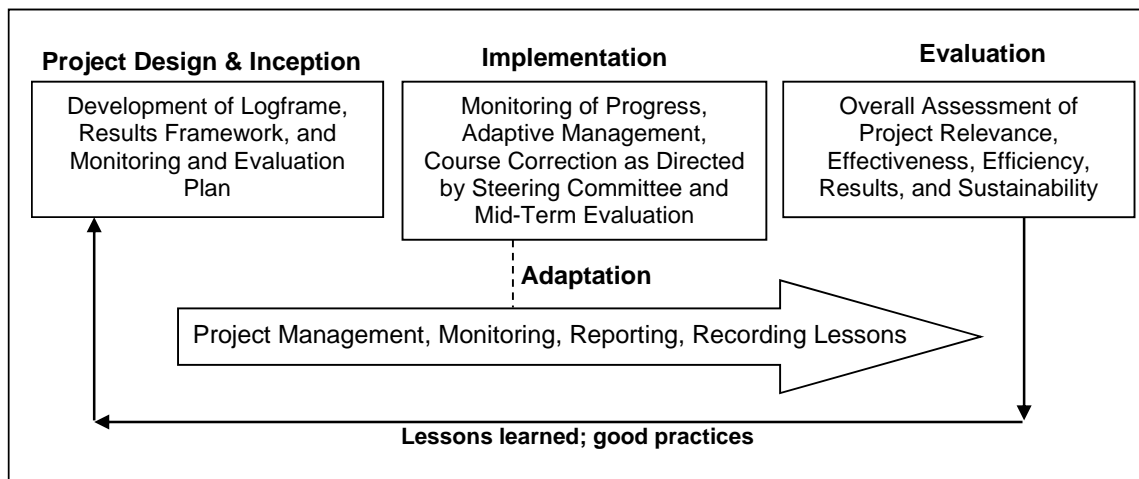


Figure 1 Management and learning aspects of a Results-Based Management Framework as applied to simplified GEF project cycle

Effort is made during the project design phase and inception period to ensure that the project objectives and intended results are clearly defined, specific, and measurable. This is aimed at providing a suitable platform to monitor and evaluate the project effectively. At the project design and inception stage, baseline data is also required for all of the key indicators for the anticipated results of the project.

The full project implementation stage requires application of project monitoring as a basis for decision-making. At this stage the baselines for the project are expected to be fully established and that data is

routinely collected and analysed to fully support adaptive management by the Project Steering Committees and national stakeholders. Information Boxes 2 and 3 summarise the minimum requirements of the GEF with respect to the design and application of monitoring and evaluation. Information Box 4 summarises the criteria used to evaluate GEF project interventions.

Information Box 2

Minimum Requirement 1: Project Design of M&E

All projects will include a concrete and fully budgeted monitoring and evaluation plan by the time of work program entry for full-sized projects and CEO approval for medium-sized projects. This monitoring and evaluation plan will contain as a minimum:

- SMART indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management;
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, indicators identified at the corporate level;
- baseline for the project, with a description of the problem to be addressed, with indicator data, or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation;
- identification of reviews and evaluations that will be undertaken, such as mid-term reviews or evaluations of activities; and
- organisational set-up and budgets for monitoring and evaluation.

Information Box 3

Minimum Requirement 2: Application of Project M&E

Project monitoring and supervision will include implementation of the M&E plan, comprising:

- SMART indicators for implementation are actively used, or if not, a reasonable explanation is provided;
- SMART indicators for results are actively used, or if not, a reasonable explanation is provided;
- the baseline for the project is fully established and data compiled to review progress, and evaluations are undertaken as planned; and
- the organisational set-up for M&E is operational and budgets are spent as planned.

Information Box 4

Current Criteria for Evaluating GEF Project Interventions

Relevance. The extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.

Effectiveness. The extent to which an objective has been achieved or how likely it is to be achieved.

Efficiency. The extent to which results have been delivered with the least costly resources possible; also called cost effectiveness or efficacy.

Results. The positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short- to medium-term outcomes, and longer term impact including global environmental benefits, replication effects, and other local effects.

Sustainability. The likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

2. REGIONAL PROJECT RESULTS FRAMEWORK

2.1 The Regional Logical Framework Matrix for the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project

Table 1 Results framework for project component 1

Component	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in the South China Sea and Gulf of Thailand	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	<i>Status of formal designation, management plan adoption, and community engagement in implementation of agreed management measures, including enforcement, for priority sites</i>	<i>Rate of coastal habitat loss from SCS basin is high (e.g., 30% per decade for seagrass) Fishing identified as a key threat to coastal habitats</i>	<i>Effective management of key threats to 14 fisheries refugia 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</i>	<i>Adopted management plans Regular reports of meetings of national and regional project management bodies Reports of independent mid-term and terminal project evaluations</i>	<i>Adequate local cooperation to compile and analyze information to establish baselines and standardized procedures to measure and monitor the effectiveness of agreed stress reduction measures</i>
	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 <i>refugia</i> boundaries and the setting of priorities for <i>refugia</i> management	Status of boundary delineation and agreement on proposed management interventions	<i>Refugia</i> site locations identified regionally although need to work with stakeholders, locally including academe and researchers, to delineate boundaries	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	14 fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for 14 priority sites	Adequate local cooperation to agree boundaries and compile and analyse information to identify threats and agree management actions
	1.2 Amelioration of key threats to fish stock and critical habitat linkages via the adoption and implementation of community-based <i>refugia</i> management plans at 14 sites	Status of adoption and implementation of the management plans Total area of fisheries <i>refugia</i> (ha) under management	Guide to planning of <i>refugia</i> management developed and published in inter-governmentally endorsed regional guidelines and a need exists to apply this at the local level	Community-based <i>refugia</i> management plans that are consistent with the FAO and ASEAN-SEAFDEC Guidelines for Responsible Fisheries developed, adopted, and under implementation at 14 fisheries <i>refugia</i> sites	14 published management plans and annual implementation reports	Sufficient local buy-in from local officials to ensure management plan implementation
	1.3 Catalysed	Status and	Efforts to strengthen	Networks of	224 quarterly reports	Fisherfolk and

	community action for fisheries <i>refugia</i> management at 14 sites	effectiveness of the management board and volunteer networks	monitoring, control, and surveillance capabilities in all countries are ongoing, although need exists to refine scope of work to support <i>refugia</i> management	management boards and community-based fisheries and habitat management volunteers for <i>refugia</i> management established at 14 fisheries <i>refugia</i> sites	of network meetings and activities [including list of participants and results of work]	resource users willing to participate in management on a voluntary basis
	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 <i>refugia</i> sites in the South China Sea and Gulf of Thailand	Increase in the proportion of target community members [minimum of 30 percent women] participating in <i>refugia</i> management, including enforcement, at the site level	Capacity building programmes at the community level focus on seafood quality and capacity issues with little emphasis on links between fisheries and environment	Enforcement programmes at 14 fisheries <i>refugia</i> sites, including participatory activities for monitoring, control and surveillance	14 operational enforcement programmes at priority sites	Training materials are sufficiently well designed to engage target audience
	1.5 Strengthened civil society and community organisation participation in fisheries <i>refugia</i> management	Number of GEF Small Grants Programme projects commissioned and implemented in support of <i>refugia</i> management objectives	Low level mobilization of civil society, community organization and the private sector in site-based fisheries and habitat management	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	4 annual reports of <i>Refugia</i> -SGP partnership	There will be sufficient number of civil society and community based organizations in priority sites to act as GEF SGP project proponents

Table 2 Results framework for project component 2

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
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 <i>refugia</i> management in the South China Sea and Gulf of Thailand	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	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	Weak enabling environments and limited knowledge within national fisheries and environment departments and ministries with respect to the implementation of measures aimed at managing threats to fish stock and critical habitat linkages	National and regional policy, legal and planning frameworks for demarcating boundaries and managing fisheries <i>refugia</i> , resulting in, inter alia, 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	Endorsed policies and plans Regular reports of meetings of national and regional project management bodies Reports of independent mid-term and terminal project evaluations	Willingness of fisheries and environment sectors to agree on guidelines promoting cross-sectorial cooperation and make joint commitments to the reform of national policy, legal and regulatory frameworks governing the management of fisheries <i>refugia</i>
	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	Status of policy revision and endorsement	Environmental impacts of fishing and aquaculture reflected in national and regional fisheries policies although minimal attention to effects of fishing on critical fish habitats	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	6 endorsed revised policies	Willingness of the fisheries sector to engage on issues relating to environmental performance
	2.2 Cross-sectorial agreement on national guidelines for the use of fisheries <i>refugia</i> for integrated fisheries and habitat management	Status of endorsement of national guidelines	ASEAN-SEAFDEC regional guidelines endorsed	National guidelines on the use of fisheries <i>refugia</i> in integrating fisheries and habitat management developed and endorsed by heads of national government departments	6 published national guidelines on establishing and operating fisheries <i>refugia</i>	Willingness of the fisheries and environment sectors to agree on guidelines promoting cross-sectorial cooperation

				responsible for fisheries and environment in the participating countries		
	2.3 Endorsed policy, legal, and planning frameworks, both and national and regional levels, for the establishment and management of fisheries <i>refugia</i> , including the reduced use of destructive fishing gear and practices in areas of critical habitats	Status of endorsement of national fisheries <i>refugia</i> policies, enactment of supporting laws, and plan implementation	Absence of clear and effective policies, laws, and plans relating to the demarcation of boundaries, formal designation, and operational management of fisheries <i>refugia</i>	National policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i> assessed and required reforms endorsed in the participating countries and reflected in an updated regional action plan	6 national reports on policy, legal and institutional aspects of <i>refugia</i> establishment and management published Endorsed policy and executive orders, provincial/local ordinances and by-laws 6 endorsed National Action Plans for the management of priority fisheries <i>refugia</i> and associated biodiversity 1 endorsed Regional Action Plan for fisheries <i>refugia</i>	National and provincial government commitment to reform Commitments of national governments to cooperate and jointly plan actions relating to management of fish stock and critical habitat linkages for fish stocks of transboundary significance
	2.4 Enhanced access to information relating to status and trends in fish stocks and their habitats in waters of the SCS	Volume of new and additional information compiled on: biomass trends; recruitment; fish size; fish habitat area and quality; and volume and value of landings by fishing area and fishing gear use	Review of fisheries and their habitats on the SCS coast prepared for Cambodia, Indonesia, the Philippines, Thailand and Viet Nam during 2004-2006	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	96 quarterly and 6 annual reports on fish stocks and habitats published online	Adequate coordination with provincial and municipal fisheries officers to access required information
	2.5 Improved	Status of national	Access to data	Establishment and	6 databases online	Willingness of

	national and regional-level management and sharing of information and data on fish early life history in the waters of the SCS	and regional databases and the number of datasets contained therein	generated from fish early life history research constrained both nationally and regionally by a lack of central repository	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	and populated with datasets	individual scientists and data holders to share information for inclusion in a national repository
	2.6 Enhanced access to information relating to the locations and status of coastal habitats and management areas in the SCS and GoT	Status of the national and regional GIS and the number of sites presented and characterised	Information relating to fisheries and their habitats contained a number of national databases and the SCS project website although need for improved access to information regarding management areas	National and regional online Geographical Information Systems on fisheries and marine biodiversity featuring information on locations and management status of coastal habitats, fisheries <i>refugia</i> , MPAs, and critical habitats for threatened and endangered species	6 national and 1 regional Geographical Information System online and populated with site-based information	Internet connectivity in provincial and local offices of departments of fisheries and environment adequate to support online updating of database
	2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites in the South China Sea and GoT.	Completeness of site characterisations for 14 priority <i>refugia</i>	Information collection largely focuses on volumes with little attention to species & size selectivity of gear, size frequency and maturity, role of habitats in production	Fisheries and habitat data collection programmes operational to characterise 14 priority <i>refugia</i> sites in the South China Sea and Gulf of Thailand	Characterisations for 14 <i>refugia</i> sites accessible online	Consistent use of standardised data collection methods and procedures
	2.8 Improved basin-wide understanding of linkages between ocean circulation patterns, nutrient/chlorophyll concentrations, and sources and sinks of fish larvae in the	Status of modelling system and extent of its use in decision-making and planning	Absence of information regarding links between circulation patterns, biochemistry and fish early life history in the	Modelling system linking oceanographic, biochemical, and fish early life history information developed applied to improve regional understanding of fish	1 regional modelling system online	Available information is sufficient to model linkages

	South China Sea		South China Sea and Gulf of Thailand	early life history and links to critical habitats		
	2.9 Regionally and locally appropriate best practices generated to address the effects of trawl and motorised push net ¹ fishing on seagrass habitat, and the capture of juveniles, pre-recruits and fish in spawning condition	Status of demonstration activities Number of best practice fishing methods and practices demonstrated	Few regionally or locally appropriate examples of practical solutions to key threats to fisheries <i>refugia</i>	Best practice fishing methods and practices to address key threats to fish stock and critical habitat linkages demonstrated at priority <i>refugia</i>	4 published reports of the results of demonstrations	Willingness of fisherfolk to engage in activities focused on development of more responsible fishing gear and methods

¹ Push netting is not found in Indonesia

Table 3 Results framework for project component 3

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Information Management and Dissemination in support of national and regional-level implementation of the fisheries <i>refugia</i> concept in the South China Sea and Gulf of Thailand	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	<i>Extent of demonstrable use of examples of good practice in guiding the replication, scaling-up and mainstreaming of good practices</i>	<i>Low-level ability of stakeholders to engage in meaningful dialogue regarding how broader multiple use planning can best contribute to improving the state of fisheries and biodiversity conservation</i>	<i>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 refugia as a spatial planning tool</i>	<i>Routine communications on progress and lessons learned prepared and shared Annual results reports published and disseminated National and regional web portals for knowledge management and information exchange accessible online</i>	<i>If insufficient good practices are documented and shared regionally, awareness building initiatives will be based on a limited number of local examples and may not be effective in engaging community members and resource users in the wider region</i>
	3.1 Enhanced uptake of best practices in integrating fisheries management and biodiversity conservation, in the design and implementation of fisheries management systems	Number of best practice approaches and measures tested and codified Number, scope and reach of communications to share best practices Demonstrable use of best practices in policy and planning	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	Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally and regionally	6 online national and 1 regional catalogue of best practice approaches and measures 24 communications on best practices published and syndicated	Sufficient number of best practices will be generated at priority <i>refugia</i> sites
	3.2 Improved community acceptance of area based approaches to fisheries and coastal environmental	Extent of community acceptance of the use of fisheries <i>refugia</i> in coastal fisheries management	Awareness programmes at the community level rarely address area based management approaches	Public awareness and outreach programme to promote local social, economic and environmental benefits of fisheries	24 awareness materials published online 56 annual reports of outreach programmes	Awareness and outreach materials are sufficiently well designed to engage community members and resource users

	management			<i>refugia</i> implemented at 14 priority locations in the South China Sea and Gulf of Thailand	at 14 priority locations, including tracking of extent of community acceptance	
	3.3 Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> , captured and shared nationally, regionally, and globally	Status of national web portals Status of publication of GEF IW experience notes	No existing 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	National knowledge management systems on the use of fisheries <i>refugia</i> in capture fisheries management established and operational	6 online national web portals on fisheries <i>refugia</i> 7 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	Internet connectivity at provincial and community-level offices of government agencies and other stakeholders adequate to support web-based information sharing
	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	Status of the Regional Education and Awareness Centre at SEAFDEC Volume of information and education material compiled, produced and made accessible	Access to information and training materials on integrated fisheries and habitat management limited to that produced through SCS project and accessible via SCS website	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	Information and education materials accessible at SEAFDEC and online	Adequate commitment of regional executing agency to sustain longer-term operation of the facility as core function of its Training Department
	3.5 Standardised methods for collection and analysis of information and data, for use in assessing the impacts of <i>refugia</i> and in the design appropriate indicators for the longer-term operation of the regional system of fisheries <i>refugia</i>	Status of regional agreements Extent of demonstrated use of the agreed procedures in operation of site-level information and data collection programmes	Efforts to standardise reporting of regional fisheries statistics underway although little consideration given to issues relating to fish stock and habitat links	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>	1 regionally endorsed report published online	Harnessing sufficient scientific and technical expertise to guide development of regionally and locally appropriate procedures

Table 4 Results framework for project component 4

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
4. National and regional cooperation and coordination for integrated fish stock and critical habitat management in the South China Sea and Gulf of Thailand	Cost-effective and efficient <i>coordination of national and regional level cooperation for integrated fisheries and environmental management</i>	<i>Extent and continuity of stakeholder participation in meetings of project management bodies, including the scope and uptake of joint management and planning decisions</i>	<i>Lack of national and regional-level mechanisms to facilitate integration of fisheries management and biodiversity conservation</i>	<i>Effective multi-lateral and intergovernmental communication and joint decision-making, including the use of a consensual knowledge-base in planning ecologically and cost-effective management actions</i>	<i>Regular reports of meetings of national and regional project management bodies</i> <i>Reports of independent mid-term and terminal project evaluations</i>	<i>Consultative processes will elicit adequate stakeholder input and commitment of support from national networks to enable integrated management</i>
	4.1 Strengthened cross-sectorial coordination in the establishment and operation of fisheries <i>refugia</i> in the participating countries	Extent and continuity of national government agency participation in National Fisheries <i>Refugia</i> Committee meetings	Limited cross-sectorial engagement in the planning of coordinated actions to manage threats to fish stocks and critical habitat linkages	National Fisheries <i>Refugia</i> Committees (NFRC) established in 6 countries, functional and advising national decision-makers and regional <i>fora</i>	6 NFRC Terms of Reference and 48 biannual meeting reports (joint management decisions and participant lists)	Willingness of fisheries and environment sectors to engage in joint planning and decision-making via NFRC
	4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries <i>refugia</i> management in the participating countries	Status of the NTSC's and the uptake of the scientific and technical advice they provide	Lack of a formal mechanism for the sharing of science and technical knowledge between government agencies and other stakeholders involved in fish stock and coastal environmental management in all countries	National Technical and Scientific Committees (NTSC) established in 6 countries, functional and advising site-level management boards, the NFRC and the Regional Scientific and Technical Committee	6 NTSC Terms of Reference and 96 quarterly meeting reports (scientific and technical advice and participants lists)	Securing adequate and consistent inputs of expertise to work of NTSC may be compromised if incentives for national specialists to participate in work of the NTSC are inadequate
	4.3 Community-led planning of fisheries	Continuity of participation of	Minimal stakeholder participation in	Local community action catalysed via	14 Management Board Terms of	Existing tensions between local

	<i>refugia</i> management at priority locations in the South China Sea and Gulf of Thailand	community stakeholders in the planning, monitoring and evaluation of fisheries <i>refugia</i> management	planning of local actions to manage threats to fish stocks and critical habitats linkages	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 224 quarterly meeting reports (joint management decisions and participant lists)	fisherfolk and government agencies may limit community leader participation in management planning
	4.4 Regional cooperation in the integration of scientific knowledge and research outputs with management and policy making	Status of the RSTC and the uptake of the scientific and technical advice it provides Continuity of participation of members in annual meetings	Lack of a formal mechanism for the sharing of science and technical knowledge relating to fisheries <i>refugia</i>	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> [biannual meetings]	1 RSTC Terms of Reference and 4 annual meeting reports (documenting scientific and technical advice and participant lists)	Harnessing sufficient scientific and technical expertise across disciplines including, <i>inter alia</i> , fisheries science, oceanography, coastal and marine ecology
	4.5 Regional cooperation in the establishment and operation of a regional system of fisheries <i>refugia</i>	Status of the PSC Continuity of participation of members in annual meetings	UNEP and GEF requirement for establishment of regional decision making and planning body for the project	Project Steering Committee established and functioning to oversee and act as a principal decision making body for the project	1 PSC Terms of Reference and 8 annual meeting reports (documenting joint decisions and participant lists)	Senior officials of national fisheries administrations acknowledge importance assigned to operation of such a body by UNEP & GEF
	4.6 Effective coordination of regional and national-level activities and reporting requirements of UNEP and GEF satisfied	Program coordination unit recruited and staff retained	Executing agency has managed components of larger FAO/GEF projects but is yet to act as executing agency for GEF project of this magnitude	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	Terms of Reference and contracts for project coordination unit staff	Regional executing agency ability to recruit and retain appropriately qualified staff for project coordination unit

				requirements of UNEP and the GEF		
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3 NATIONAL PROJECT RESULTS FRAMEWORKS

3.1 Cambodia's Logical Framework Matrix for the SEAFDEC/UNEP/GEF Fisheries Refugia Project

Table 1(a) Logical framework matrix for component 1 of Cambodia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in Cambodia	1.1 Procedures for the delineation of fisheries <i>refugia</i> boundaries and the setting of priorities for <i>refugia</i> management developed, documented and shared nationally	Status of boundary delineation and agreement on proposed management interventions	<i>Refugia</i> site location identified although need to work with stakeholders, including academe and researchers, to delineate boundaries	Agreement among stakeholders on the boundaries of fisheries <i>refugia</i> , key threats to <i>refugia</i> sites, and priority management interventions	Fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for priority sites	Adequate local cooperation to agree boundaries and compile and analysis information to identify threats and agree management actions
	1.2 Community-based <i>refugia</i> management plans that are consistent with the FAO and ASEAN-SEAFDEC Guidelines for Responsible Fisheries developed and implemented as a demonstration of integrated fisheries and habitat management in Cambodia	Status of adoption and implementation of the management plans	Guide to planning of <i>refugia</i> management developed and published in inter-governmentally endorsed regional guidelines and a need exists to apply this at the local level	Community-based <i>refugia</i> management plan developed, adopted, and under implementation at the priority fisheries <i>refugia</i> site	Published management plans and annual implementation reports	Sufficient local buy-in from local officials to ensure management plan implementation
	1.3 Community action for fisheries <i>refugia</i> management catalysed at 3 sites	Status and effectiveness of the management board and volunteer networks	Fisheries enforcement officers are active although need exists to refine scope of work to support <i>refugia</i> management	Networks of implementation teams/ management boards and community-based fisheries and habitat management volunteers for <i>refugia</i> management established at priority <i>refugia</i> sites	Quarterly reports of network meetings and activities [including list of participants and results of work]	Fisherfolk and resource users willing to participate in management on a voluntary basis

	1.4 Fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing, empowered to enforce agreed management rules at priority <i>refugia</i>	Increase in capacity to participate in <i>refugia</i> management among target community members	Capacity building programmes at the community level focus on seafood quality and capacity issues with little emphasis on links between fisheries and environment	Community capacity programmes at priority fisheries <i>refugia</i> sites, including participatory activities to monitor fish habitats within <i>refugia</i> , collect lost and abandoned fishing gear, and develop responsible fishing practices at the community level	Training materials published online and reports of training and awareness activities	Training materials are sufficiently well designed to engage target audience
	1.5 Strengthened community participation in fisheries <i>refugia</i> management	Number of GEF Small Grants Programme projects commissioned and implemented in support of <i>refugia</i> management objectives	Low level mobilization of civil society, community organization and the private sector in site-based fisheries and habitat management	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 3 sites	Annual report of <i>Refugia</i> -SGP partnership	There will be sufficient number of civil society and community based organizations in priority sites to act as GEF SGP project proponents

Table 1(b) Logical framework matrix for component 2 of Cambodia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in Cambodia	2.1 Enhanced policy guidance for improved management of the effects of fishing on critical habitats	Status of policy revision and endorsement	Environmental impacts of fishing and aquaculture reflected in national fisheries sector plan although minimal attention to effects of fishing on critical fish habitats	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 Cambodia's national fisheries policy	Published national review and recommendations for reforms of national, provincial and municipal regulations/ordinances for responsible fishing practices at priority <i>refugia</i> Endorsed revised policy	Willingness of the fisheries sector to engage on issues relating to environmental performance
	2.2 Nationally endorsed guidelines on the	Status of endorsement of	ASEAN-SEAFDEC regional guidelines	National guidelines on the use of fisheries <i>refugia</i> in	Published national guidelines on	Willingness of the fisheries and

	establishment and management of fisheries <i>refugia</i>	national guidelines	endorsed	integrating fisheries and habitat developed and endorsed by heads of national government departments responsible for fisheries and the environment	establishing and operating fisheries <i>refugia</i>	environment sectors to agree on guidelines promoting cross-sectoral cooperation
	2.3 Nationally endorsed policy, legal, and planning frameworks for the establishment and management of fisheries <i>refugia</i> , including the reduced use of destructive fishing gear and practices in areas of critical habitats	Status of endorsement of national fisheries <i>refugia</i> policy, enactment of supporting laws, and plan implementation	Absence of policy, laws, and plans relating to the demarcation of boundaries, formal designation, and operational management of fisheries <i>refugia</i>	National policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i> assessed and required reforms endorsed, including requirements for assessing socio-economic impacts of management measures and stakeholder consultation	National report on policy, legal and institutional aspects of <i>refugia</i> establishment and management published Endorsed policy and executive orders, provincial/local ordinances and by-laws Endorsed National Action Plan for the management of priority fisheries <i>refugia</i> and associated biodiversity	National and provincial government commitment to reform
	2.4 Enhanced access to information relating to status and trends in fish stocks and their habitats in Cambodian waters of the SCS	Volume of new and additional information compiled on: biomass trends; recruitment; fish size; fish habitat area and quality; and volume and value of landings by fishing area and fishing gear use	Review of fisheries and their habitats on the SCS coast of Cambodia prepared during 2004-2006	Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats published and disseminated at national and regional levels	Quarterly and annual reports on fish stocks and habitats published online	Adequate coordination with provincial and municipal fisheries officers to access required information
	2.5 Improved national-level management and sharing of information and data on fish early life	Status of the database and the number of datasets	Access to data generated from fish early life history research is	Establishment and population of an online national database of fish egg and larvae distribution	Database online and populated with datasets	Willingness of individual scientists and data holders to share information

history in Cambodian waters of the SCS	contained therein	constrained by a lack of central repository	and abundance in SCS waters of Cambodia		for inclusion in a national repository
2.6 Enhanced access to information relating to the locations and status of coastal habitats and management areas in Cambodian waters of the SCS	Status of the national GIS and the number of sites presented and characterised	Information relating to fisheries and their habitats contained a number of national databases and	National online Geographical Information System on fisheries and marine biodiversity featuring information on locations and management status of coastal habitats, fisheries <i>refugia</i> , MPAs, and critical habitats for threatened and endangered species	Geographical Information System online and populated with site-based information	Internet connectivity in provincial and local offices of departments of fisheries and environment adequate to support online updating of database
2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites	Completeness of site characterisations for priority <i>refugia</i>	Information collection largely focuses on volumes with little attention to species & size selectivity of gear, size frequency and maturity, role of habitats in pdcn	Fisheries and habitat data collection programmes operational to characterise priority <i>refugia</i> sites	Characterisations for <i>refugia</i> sites accessible online	Consistent use of standardised data collection methods and procedures

Table 1(c) Logical framework matrix for component 3 of Cambodia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Cambodia	3.1 Enhanced national uptake of best practices in integrating fisheries management and biodiversity conservation in the design and implementation of fisheries management systems	Number of best practice approaches and measures tested and codified Number, scope and reach of communications to share best practices Demonstrable use of best practices in policy and planning	Lessons learned in coastal habitat management from SCS project network of 23 demonstration sites documented although few examples relating to integrated fisheries and biodiversity management	Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally	Online catalogue of national best practice approaches and measures Communications on best practices published and syndicated	Sufficient number of best practices will be generated at priority <i>refugia</i> sites
	3.2 Improved community acceptance of area based approaches to marine management	Extent of community acceptance of the use of fisheries <i>refugia</i> in coastal fisheries management	Awareness programmes at the community level rarely address area based management	Public awareness and outreach programme to promote local social, economic and environmental	Awareness materials published online Annual reports of outreach programmes	Awareness and outreach materials are sufficiently well designed to engage community members

			approaches	benefits of fisheries <i>refugia</i> implemented at priority locations in Cambodia	at priority locations, including tracking of extent of community acceptance	and resource users
	3.3 Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally	Status of national web portal Status of publication of GEF IW experience note	No existing mechanism for the capture, management and sharing of knowledge and experiences in the use of area based tools for fisheries management in Cambodia	National knowledge management system on the use of fisheries <i>refugia</i> in capture fisheries management established and operational	Online national web portal on fisheries <i>refugia</i> Published GEF IW experience note on application of fisheries <i>refugia</i> in Cambodia	Internet connectivity at provincial and community-level offices of government agencies and other stakeholders adequate to support web-based information sharing

Table 1(d) Logical framework matrix for component 4 of Cambodia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
4. National coordination for integrated fish stock and critical habitat management in Cambodia	4.1 Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Cambodia	Extent and continuity of national government agency participation in National Marine Fisheries Management Area Committee	Limited cross-sectoral engagement in the planning of coordinated actions to manage threats to fish stocks and critical habitat linkages	National Marine Fisheries Management Area Committee functional and advising national decision-makers and regional fora	NFMAC Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Willingness of fisheries and environment sectors to engage in joint planning and decision-making via NFMAC
	4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries <i>refugia</i> management in Cambodia	Status of the STWG and the uptake of its scientific and technical advice	Lack of a formal mechanism for the sharing of science and technical knowledge between government agencies and other stakeholders involved in fish stock and coastal environmental management	National Scientific and Technical Working Group (STWG) established, functional and advising site-level management boards, the NFMAC and the Regional Scientific and Technical Committee	STWG Terms of Reference and quarterly meeting reports (scientific and technical advice and participants lists)	Securing adequate and consistent inputs of expertise to work of STWG may be compromised if incentives for national specialists to participate in work of the STWG are inadequate
	4.3 Community-led planning of fisheries <i>refugia</i> management at priority locations in Cambodia	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of	Minimal stakeholder participation in planning of local actions to manage threats to fish stocks and critical habitats	Local community action catalysed via establishment and operation of site-based implementation teams and	Implementation Team/ Management Board Terms of Reference and quarterly meeting reports (joint management

		fisheries <i>refugia</i> management	linkages	management boards for fisheries <i>refugia</i>	decisions and participant lists)	management planning
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3.2 Indonesia's Logical Framework Matrix for the SEAFDEC/UNEP/GEF Fisheries Refugia Project

Table 1(a) Logical framework matrix for component 1 of Indonesia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in Indonesia	1.1 Procedures for the delineation of fisheries <i>refugia</i> boundaries and the setting of priorities for <i>refugia</i> management developed, documented and shared nationally	Status of boundary delineation and agreement on proposed management interventions	<i>Refugia</i> site location identified although need to work with stakeholders, including academe and researchers, to delineate boundaries	Agreement among stakeholders on the boundaries of fisheries <i>refugia</i> , key threats to <i>refugia</i> sites, and priority management interventions	Fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for 3 priority sites	Adequate local cooperation to agree boundaries and compile and analysis information to identify threats and agree management actions
	1.2 Community-based <i>refugia</i> management plans that are consistent with the FAO and ASEAN-SEAFDEC Guidelines for Responsible Fisheries developed and implemented as a demonstration of integrated fisheries and habitat management in Indonesia	Status of adoption and implementation of the management plans	Guide to planning of <i>refugia</i> management developed and published in inter-governmentally endorsed regional guidelines and a need exists to apply this at the local level	Community-based <i>refugia</i> management plans developed, adopted, and under implementation at 3 fisheries <i>refugia</i> sites	Published management plans and annual implementation reports	Sufficient local buy-in from local officials to ensure management plan implementation
	1.3 Community action for fisheries <i>refugia</i> management catalysed at 3 sites	Status and effectiveness of the management board and volunteer networks	Fisheries enforcement active although need exists to refine scope of work to support <i>refugia</i> management	Networks of management boards and community-based fisheries and habitat management volunteers for <i>refugia</i> management established at 3 fisheries <i>refugia</i> sites	Quarterly reports of network meetings and activities [including list of participants and results of work]	Fisherfolk and resource users willing to participate in management on a voluntary basis
	1.4 Fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing,	Increase in capacity to participate in <i>refugia</i> management	Capacity building programmes at the community level focus on seafood quality and capacity issues	Community capacity programmes at 3 fisheries <i>refugia</i> sites, including participatory activities to monitor fish habitats within	Training materials published online and reports of training and awareness	Training materials are sufficiently well designed to engage target audience

	empowered to enforce agreed management rules at priority <i>refugia</i>	among target community members	with little emphasis on links between fisheries and environment	<i>refugia</i> , collect lost and abandoned fishing gear, and develop responsible fishing practices at the community level	activities	
	1.5 Strengthened community participation in fisheries <i>refugia</i> management	Number of GEF Small Grants Programme projects commissioned and implemented in support of <i>refugia</i> management objectives	Low level mobilization of civil society, community organization and the private sector in site-based fisheries and habitat management	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 3 sites	Annual report of Refugia-SGP partnership	There will be sufficient number of civil society and community based organizations in priority sites to act as GEF SGP project proponents

Table 1(b) Logical framework matrix for component 2 of Indonesia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in Indonesia	2.1 Enhanced policy guidance for improved management of the effects of fishing on critical habitats	Status of policy revision and endorsement	Environmental impacts of fishing and aquaculture reflected in national fisheries sector plan although minimal attention to effects of fishing on critical fish habitats	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 Indonesia's national fisheries policy	Published national review and recommendations for reforms of national, provincial and municipal regulations/ordinances for responsible fishing practices at priority <i>refugia</i> Endorsed revised policy	Willingness of the fisheries sector to engage on issues relating to environmental performance
	2.2 Nationally endorsed guidelines on the establishment and management of fisheries <i>refugia</i>	Status of endorsement of national guidelines	ASEAN-SEAFDEC regional guidelines endorsed	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 the	Published national guidelines on establishing and operating fisheries <i>refugia</i>	Willingness of the fisheries and environment sectors to agree on guidelines promoting cross-sectoral cooperation

				environment		
2.3 Nationally endorsed policy, legal, and planning frameworks for the establishment and management of fisheries <i>refugia</i> , including the reduced use of destructive fishing gear and practices in areas of critical habitats	Status of endorsement of national fisheries <i>refugia</i> policy, enactment of supporting laws, and plan implementation	Absence of policy, laws, and plans relating to the demarcation of boundaries, formal designation, and operational management of fisheries <i>refugia</i>	National policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i> assessed and required reforms endorsed, including requirements for assessing socio-economic impacts of management measures and stakeholder consultation	National report on policy, legal and institutional aspects of <i>refugia</i> establishment and management published Endorsed policy and executive orders, provincial/local ordinances and by-laws Endorsed National Action Plan for the management of priority fisheries <i>refugia</i> and associated biodiversity	National and provincial government commitment to reform	
2.4 Enhanced access to information relating to status and trends in fish stocks and their habitats in Indonesian waters of the SCS	Volume of new and additional information compiled on: biomass trends; recruitment; fish size; fish habitat area and quality; and volume and value of landings by fishing area and fishing gear use	Review of fisheries and their habitats on the SCS coast of Indonesia prepared during 2004-2006	Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats published and disseminated at national and regional levels	Quarterly and annual reports on fish stocks and habitats published online	Adequate coordination with provincial and municipal fisheries officers to access required information	
2.5 Improved national-level management and sharing of information and data on fish early life history in Indonesian waters of the SCS	Status of the database and the number of datasets contained therein	Access to data generated from fish early life history research is constrained by a lack of central repository	Establishment and population of an online national database of fish egg and larvae distribution and abundance in SCS waters of Indonesia	Database online and populated with datasets	Willingness of individual scientists and data holders to share information for inclusion in a national repository	
2.6 Enhanced access to information relating to the locations and status of coastal habitats and	Status of the national GIS and the number of sites presented	Information relating to fisheries and their habitats contained a number of national	National online Geographical Information System on fisheries and marine biodiversity	Geographical Information System online and populated with site-based	Internet connectivity in provincial and local offices of departments of	

	management areas in Indonesian waters of the SCS	and characterised	databases and	featuring information on locations and management status of coastal habitats, fisheries <i>refugia</i> , MPAs, and critical habitats for threatened and endangered species	information	fisheries and environment adequate to support online updating of database
	2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites	Completeness of site characterisations for 3 priority <i>refugia</i>	Information collection largely focuses on volumes with little attention to species & size selectivity of gear, size frequency and maturity, role of habitats in pdcn	Fisheries and habitat data collection programmes operational to characterise 3 priority <i>refugia</i> sites	Characterisations for 3 <i>refugia</i> sites accessible online	Consistent use of standardised data collection methods and procedures

Table 1(c) Logical framework matrix for component 3 of Indonesia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Indonesia	3.1 Enhanced national uptake of best practices in integrating fisheries management and biodiversity conservation in the design and implementation of fisheries management systems	Number of best practice approaches and measures tested and codified Number, scope and reach of communications to share best practices Demonstrable use of best practices in policy and planning	Lessons learned in coastal habitat management from SCS project network of 23 demonstration sites documented although few examples relating to integrated fisheries and biodiversity management	Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally	Online catalogue of national best practice approaches and measures Communications on best practices published and syndicated	Sufficient number of best practices will be generated at priority <i>refugia</i> sites
	3.2 Improved community acceptance of area based approaches to marine management	Extent of community acceptance of the use of fisheries <i>refugia</i> in coastal fisheries management	Awareness programmes at the community level rarely address area based management approaches	Public awareness and outreach programme to promote local social, economic and environmental benefits of fisheries <i>refugia</i> implemented at 3 priority locations in Indonesia	Awareness materials published online Annual reports of outreach programmes at 3 priority locations, including tracking of extent of community acceptance	Awareness and outreach materials are sufficiently well designed to engage community members and resource users
	3.3 Knowledge generated and	Status of national web portal	No existing mechanism for the	National knowledge management system	Online national web portal on fisheries	Internet connectivity at provincial and

	experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally	Status of publication of GEF IW experience note	capture, management and sharing of knowledge and experiences in the use of area based tools for fisheries management in Indonesia	on the use of fisheries <i>refugia</i> in capture fisheries management established and operational	<i>refugia</i> Published GEF IW experience note on application of fisheries <i>refugia</i> in Indonesia	community-level offices of government agencies and other stakeholders adequate to support web-based information sharing
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Table 1(d) Logical framework matrix for component 4 of Indonesia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
4. National coordination for integrated fish stock and critical habitat management in Indonesia	4.1 Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Indonesia	Extent and continuity of national government agency participation in National Fisheries <i>Refugia</i> Committee meetings	Limited cross-sectoral engagement in the planning of coordinated actions to manage threats to fish stocks and critical habitat linkages	National Fisheries <i>Refugia</i> Committee (NFRC) established, functional and advising national decision-makers and regional fora	NFRC Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Willingness of fisheries and environment sectors to engage in joint planning and decision-making via NFRC
	4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries <i>refugia</i> management in Indonesia	Status of the NTSC and the uptake of its scientific and technical advice	Lack of a formal mechanism for the sharing of science and technical knowledge between government agencies and other stakeholders involved in fish stock and coastal environmental management	National Technical Working Group (NTWG) established, functional and advising site-level management boards, the NFRC and the Regional Scientific and Technical Committee	NTWG Terms of Reference and quarterly meeting reports (scientific and technical advice and participants lists)	Securing adequate and consistent inputs of expertise to work of NTWG may be compromised if incentives for national specialists to participate in work of the NTWG are inadequate
	4.3 Community-led planning of fisheries <i>refugia</i> management at priority locations in Indonesia	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of fisheries <i>refugia</i> management	Minimal stakeholder participation in planning of local actions to manage threats to fish stocks and critical habitats linkages	Local community action catalysed via establishment and operation of site-based management boards for fisheries <i>refugia</i> at (1) Bangka Belitung, (2) Kalimantan Barat, and (3) Kepulauan Riau	Management Board Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Existing tensions between local fisherfolk and government agencies may limit community leader participation in management planning

3.3 Malaysia's Logical Framework Matrix for the SEAFDEC/UNEP/GEF Fisheries Refugia Project

Table 1(a) Logical framework matrix for component 1 of Malaysia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in Malaysia	1.1 Procedures for the delineation of fisheries <i>refugia</i> boundaries and the setting of priorities for <i>refugia</i> management developed, documented and shared nationally	Status of boundary delineation and agreement on proposed management interventions	<i>Refugia</i> site location identified although need to work with stakeholders, including academe and researchers, to delineate boundaries	Agreement among stakeholders on the boundaries of fisheries <i>refugia</i> , key threats to <i>refugia</i> sites, and priority management interventions	Fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for 2 priority sites	Adequate local cooperation to agree boundaries and compile and analysis information to identify threats and agree management actions
	1.2 Community-based <i>refugia</i> management plans that are consistent with the FAO and ASEAN-SEAFDEC Guidelines for Responsible Fisheries developed and implemented as a demonstration of integrated fisheries and habitat management in Malaysia	Status of adoption and implementation of the management plans	Guide to planning of <i>refugia</i> management developed and published in inter-governmentally endorsed regional guidelines and a need exists to apply this at the local level	Community-based <i>refugia</i> management plans developed, adopted, and under implementation at 2 fisheries <i>refugia</i> sites	Published management plans and annual implementation reports	Sufficient local buy-in from local officials to ensure management plan implementation
	1.3 Community action for fisheries <i>refugia</i> management catalysed at 2 sites	Status and effectiveness of the management board and volunteer networks	Fisheries enforcement active although need exists to refine scope of work to support <i>refugia</i> management	Networks of management boards and community-based fisheries and habitat management volunteers for <i>refugia</i> management established at 2 fisheries <i>refugia</i> sites	Quarterly reports of network meetings and activities [including list of participants and results of work]	Fisherfolk and resource users willing to participate in management on a voluntary basis
	1.4 Fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing will help monitor empowered to enforce agreed management rules at priority <i>refugia</i>	Increase in capacity to participate in <i>refugia</i> management among target community members	Capacity building programmes at the community level focus on seafood quality and capacity issues with little emphasis on links between fisheries and environment	Community capacity programmes at 2 fisheries <i>refugia</i> sites, including participatory activities to monitor fish habitats within <i>refugia</i> , collect lost and abandoned fishing gear, and develop responsible fishing practices at the	Training materials published online and reports of training and awareness activities	Training materials are sufficiently well designed to engage target audience

				community level		
	1.5 Strengthened community participation in fisheries <i>refugia</i> management	Number of GEF Small Grants Programme projects commissioned and implemented in support of <i>refugia</i> management objectives	Low level mobilization of civil society, community organization and the private sector in site-based fisheries and habitat management	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 2 sites	Annual report of Refugia-SGP partnership	There will be sufficient number of civil society and community based organizations in priority sites to act as GEF SGP project proponents

Table 1(b) Logical framework matrix for component 2 of Malaysia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in Malaysia	2.1 Enhanced policy guidance for improved management of the effects of fishing on critical habitats	Status of policy revision and endorsement	Environmental impacts of fishing and aquaculture reflected in national fisheries sector plan although minimal attention to effects of fishing on critical fish habitats	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 Malaysia's national fisheries policy	Published national review and recommendations for reforms of national, provincial and municipal regulations/ordinances for responsible fishing practices at priority <i>refugia</i> Endorsed revised policy	Willingness of the fisheries sector to engage on issues relating to environmental performance
	2.2 Nationally endorsed guidelines on the establishment and management of fisheries <i>refugia</i>	Status of endorsement of national guidelines	ASEAN-SEAFDEC regional guidelines endorsed	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 the environment	Published national guidelines on establishing and operating fisheries <i>refugia</i>	Willingness of the fisheries and environment sectors to agree on guidelines promoting cross-sectoral cooperation
	2.3 Nationally endorsed	Status of	Absence of policy,	National policy, legal and	National report on	National and

	policy, legal, and planning frameworks for the establishment and management of fisheries <i>refugia</i> , including the reduced use of destructive fishing gear and practices in areas of critical habitats	endorsement of national fisheries <i>refugia</i> policy, enactment of supporting laws, and plan implementation	laws, and plans relating to the demarcation of boundaries, formal designation, and operational management of fisheries <i>refugia</i>	planning frameworks for demarcating boundaries and managing <i>refugia</i> assessed and required reforms endorsed, including requirements for assessing socio-economic impacts of management measures and stakeholder consultation	policy, legal and institutional aspects of <i>refugia</i> establishment and management published Endorsed policy and executive orders, provincial/local ordinances and by-laws Endorsed National Action Plan for the management of priority fisheries <i>refugia</i> and associated biodiversity	provincial government commitment to reform
2.4	Enhanced access to information relating to status and trends in fish stocks and their habitats in Malaysia waters of the SCS	Volume of new and additional information compiled on: biomass trends; recruitment; fish size; fish habitat area and quality; and volume and value of landings by fishing area and fishing gear use	Lack of baseline assessment on fish stocks and habitats on South China Sea coast of Malaysia	Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats published and disseminated at national and regional levels	Quarterly and annual reports on fish stocks and habitats published online	Adequate coordination with provincial and municipal fisheries officers to access required information
2.5	Improved national-level management and sharing of information and data on fish early life history in Malaysia waters of the SCS	Status of the database and the number of datasets contained therein	Access to data generated from fish early life history research is constrained by a lack of central repository	Establishment and population of an online national database of fish egg and larvae distribution and abundance in SCS waters of Malaysia	Database online and populated with datasets	Willingness of individual scientists and data holders to share information for inclusion in a national repository
2.6	Enhanced access to information relating to the locations and status of coastal habitats and management areas in Malaysia waters of the	Status of the national GIS and the number of sites presented and characterised	Information relating to fisheries and their habitats contained a number of national databases and	National online Geographical Information System on fisheries and marine biodiversity featuring information on locations and	Geographical Information System online and populated with site-based information	Internet connectivity in provincial and local offices of departments of fisheries and environment

	SCS			management status of coastal habitats, fisheries <i>refugia</i> , MPAs, and critical habitats for threatened and endangered species		adequate to support online updating of database
	2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites	Completeness of site characterisations for 2 priority <i>refugia</i>	Information collection largely focuses on volumes with little attention to species & size selectivity of gear, size frequency and maturity, role of habitats in pdcn	Fisheries and habitat data collection programmes operational to characterise 2 priority <i>refugia</i> sites	Characterisations for 2 <i>refugia</i> sites accessible online	Consistent use of standardised data collection methods and procedures

Table 1(c) Logical framework matrix for component 3 of Malaysia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Malaysia	3.1 Enhanced national uptake of best practices in integrating fisheries management and biodiversity conservation in the design and implementation of fisheries management systems	Number of best practice approaches and measures tested and codified Number, scope and reach of communications to share best practices Demonstrable use of best practices in policy and planning	Lessons learned in coastal habitat management from SCS project network of 23 demonstration sites documented although few examples relating to integrated fisheries and biodiversity management	Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally	Online catalogue of national best practice approaches and measures Communications on best practices published and syndicated	Sufficient number of best practices will be generated at priority <i>refugia</i> sites
	3.2 Improved community acceptance of area based approaches to marine management	Extent of community acceptance of the use of fisheries <i>refugia</i> in coastal fisheries management	Awareness programmes at the community level rarely address area based management approaches	Public awareness and outreach programme to promote local social, economic and environmental benefits of fisheries <i>refugia</i> implemented at 2 priority locations in Malaysia	Awareness materials published online Annual reports of outreach programmes at 3 priority locations, including tracking of extent of community acceptance	Awareness and outreach materials are sufficiently well designed to engage community members and resource users
	3.3 Knowledge generated and experiences from establishing and	Status of national web portal Status of publication	No existing mechanism for the capture, management and sharing of	National knowledge management system on the use of fisheries <i>refugia</i> in capture	Online national web portal on fisheries <i>refugia</i>	Internet connectivity at provincial and community-level offices of government

	operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally	of GEF IW experience note	knowledge and experiences in the use of area based tools for fisheries management in Malaysia	fisheries management established and operational	Published GEF IW experience note on application of fisheries <i>refugia</i> in Malaysia	agencies and other stakeholders adequate to support web-based information sharing
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Table 1(d) Logical framework matrix for component 4 of Malaysia's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
4. National coordination for integrated fish stock and critical habitat management in Malaysia	4.1 Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Malaysia	Extent and continuity of national government agency participation in National Fisheries <i>Refugia</i> Committee meetings	Limited cross-sectoral engagement in the planning of coordinated actions to manage threats to fish stocks and critical habitat linkages	National Fisheries <i>Refugia</i> Committee (NFRC) established, functional and advising national decision-makers and regional fora	NFRC Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Willingness of fisheries and environment sectors to engage in joint planning and decision-making via NFRC
	4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries <i>refugia</i> management in Malaysia	Status of the NSTC and the uptake of its scientific and technical advice	Lack of a formal mechanism for the sharing of science and technical knowledge between government agencies and other stakeholders involved in fish stock and coastal environmental management	National Scientific and Technical Committee (NSTC) established, functional and advising site-level management boards, the NFRC and the Regional Scientific and Technical Committee	NSTC Terms of Reference and quarterly meeting reports (scientific and technical advice and participants lists)	Securing adequate and consistent inputs of expertise to work of NTWG may be compromised if incentives for national specialists to participate in work of the NTWG are inadequate
	4.3 Community-led planning of fisheries <i>refugia</i> management at priority locations in Malaysia	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of fisheries <i>refugia</i> management	Minimal stakeholder participation in planning of local actions to manage threats to fish stocks and critical habitats linkages	Local community action catalysed via establishment and operation of site-based management boards for fisheries <i>refugia</i> at 2 priority <i>refugia</i> sites	Management Board Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Existing tensions between local fisherfolk and government agencies may limit community leader participation in management planning

3.4 Philippines' Logical Framework Matrix for the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project

Table 1(a) Logical framework matrix for component 1 of the Philippines' national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in the Philippines [Calamaines, Bolinao, and Masinloc]	1.1 Procedures for the delineation of fisheries <i>refugia</i> boundaries and the setting of priorities for <i>refugia</i> management developed, documented and shared nationally	Status of boundary delineation and agreement on proposed management interventions	<i>Refugia</i> site location identified although need to work with stakeholders, including academe and researchers, to delineate boundaries	Agreement among stakeholders on the boundaries of fisheries <i>refugia</i> , key threats to <i>refugia</i> sites, and priority management interventions	Fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for 3 priority sites	Adequate local cooperation to agree boundaries and compile and analysis information to identify threats and agree management actions
	1.2 Community-based <i>refugia</i> management plans that are consistent with the FAO and ASEAN-SEAFDEC Guidelines for Responsible Fisheries developed and implemented as a demonstration of integrated fisheries and habitat management in the Philippines	Status of adoption and implementation of the management plans	Guide to planning of <i>refugia</i> management developed and published in inter-governmentally endorsed regional guidelines and a need exists to apply this at the local level	Community-based <i>refugia</i> management plans developed, adopted, and under implementation at 3 fisheries <i>refugia</i> sites	Published management plans and annual implementation reports	Sufficient local buy-in from local officials to ensure management plan implementation
	1.3 Community action for fisheries <i>refugia</i> management catalysed at 3 sites	Status and effectiveness of the management board and volunteer networks	Bantay Dangat (fisheries enforcement volunteers) active although need exists to refine scope of work to support <i>refugia</i> management	Networks of management boards and community-based fisheries and habitat management volunteers for <i>refugia</i> management established at 3 fisheries <i>refugia</i> sites	Quarterly reports of network meetings and activities [including list of participants and results of work]	Fisherfolk and resource users willing to participate in management on a voluntary basis
	1.4 Fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing, empowered to enforce agreed management rules at priority <i>refugia</i>	Increase in capacity to participate in <i>refugia</i> management among target community members	Capacity building programmes at the community level focus on seafood quality and capacity issues with little emphasis on links between fisheries and environment	Community capacity programmes at 3 fisheries <i>refugia</i> sites, including participatory activities to monitor fish habitats within <i>refugia</i> , collect lost and abandoned fishing gear, and develop responsible fishing practices at the community level	Training materials published online and reports of training and awareness activities	Training materials are sufficiently well designed to engage target audience

	1.5 Strengthened community participation in fisheries <i>refugia</i> management	Number of GEF Small Grants Programme projects commissioned and implemented in support of <i>refugia</i> management objectives	Low level mobilization of civil society, community organization and the private sector in site-based fisheries and habitat management	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 5 sites	Annual report of Refugia-SGP partnership	There will be sufficient number of civil society and community based organizations in priority sites to act as GEF SGP project proponents
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Table 1(b) Logical framework matrix for component 2 of the Philippines' national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in the Philippines	2.1 Enhanced policy guidance for improved management of the effects of fishing on critical habitats	Status of policy revision and endorsement	Environmental impacts of fishing and aquaculture reflected in national fisheries sector plan although minimal attention to effects of fishing on critical fish habitats	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 Philippine's national fisheries policy	Published national review and recommendations for reforms of national, provincial and municipal regulations/ordinances for responsible fishing practices at priority <i>refugia</i> Endorsed revised policy	Willingness of the fisheries sector to engage on issues relating to environmental performance
	2.2 Nationally endorsed guidelines on the establishment and management of fisheries <i>refugia</i>	Status of endorsement of national guidelines	ASEAN-SEAFDEC regional guidelines endorsed	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 the environment	Published national guidelines on establishing and operating fisheries <i>refugia</i>	Willingness of the fisheries and environment sectors to agree on guidelines promoting cross-sectoral cooperation
	2.3 Nationally endorsed policy, legal, and planning frameworks for the establishment and	Status of endorsement of national fisheries <i>refugia</i> policy,	Absence of policy, laws, and plans relating to the demarcation of	National policy, legal and planning frameworks for demarcating boundaries and managing <i>refugia</i>	National report on policy, legal and institutional aspects of <i>refugia</i> establishment	National and provincial government commitment to

	management of fisheries <i>refugia</i> , including the reduced use of destructive fishing gear and practices in areas of critical habitats	enactment of supporting laws, and plan implementation	boundaries, formal designation, and operational management of fisheries <i>refugia</i>	assessed and required reforms endorsed, including requirements for assessing socio-economic impacts of management measures and stakeholder consultation	and management published Endorsed policy and executive orders, provincial/local ordinances and by-laws Endorsed National Action Plan for the management of priority fisheries <i>refugia</i> and associated biodiversity	reform
	2.4 Enhanced access to information relating to status and trends in fish stocks and their habitats in Philippines' waters of the SCS	Volume of new and additional information compiled on: biomass trends; recruitment; fish size; fish habitat area and quality; and volume and value of landings by fishing area and fishing gear use	Review of fisheries and their habitats on the SCS coast of the Philippines prepared during 2004-2006	Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats published and disseminated at national and regional levels	Quarterly and annual reports on fish stocks and habitats published online	Adequate coordination with provincial and municipal fisheries officers to access required information
	2.5 Improved national-level management and sharing of information and data on fish early life history in Philippines' waters of the SCS	Status of the database and the number of datasets contained therein	Access to data generated from fish early life history research is constrained by a lack of central repository	Establishment and population of an online national database of fish egg and larvae distribution and abundance in SCS waters of the Philippines	Database online and populated with datasets	Willingness of individual scientists and data holders to share information for inclusion in a national repository
	2.6 Enhanced access to information relating to the locations and status of coastal habitats and management areas in Philippines' waters of the SCS	Status of the national GIS and the number of sites presented and characterised	Information relating to fisheries and their habitats contained a number of national databases and	National online Geographical Information System on fisheries and marine biodiversity featuring information on locations and management status of coastal habitats, fisheries <i>refugia</i> , MPAs, and critical	Geographical Information System online and populated with site-based information	Internet connectivity in provincial and local offices of departments of fisheries and environment adequate to support online updating of database

				habitats for threatened and endangered species		
	2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites	Completeness of site characterisations for 3 priority <i>refugia</i>	Information collection largely focuses on volumes with little attention to species & size selectivity of gear, size frequency and maturity, role of habitats in pdcn	Fisheries and habitat data collection programmes operational to characterise 3 priority <i>refugia</i> sites [Calamaines, Bolinao, and Masinloc]	Characterisations for 3 <i>refugia</i> sites accessible online	Consistent use of standardised data collection methods and procedures

Table 1(c) Logical framework matrix for component 3 of the Philippines' national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in the Philippines	3.1 Enhanced national uptake of best practices in integrating fisheries management and biodiversity conservation in the design and implementation of fisheries management systems	Number of best practice approaches and measures tested and codified Number, scope and reach of communications to share best practices Demonstrable use of best practices in policy and planning	Lessons learned in coastal habitat management from SCS project network of 23 demonstration sites documented although few examples relating to integrated fisheries and biodiversity management	Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally	Online catalogue of national best practice approaches and measures Communications on best practices published and syndicated	Sufficient number of best practices will be generated at priority <i>refugia</i> sites
	3.2 Improved community acceptance of area based approaches to marine management	Extent of community acceptance of the use of fisheries <i>refugia</i> in coastal fisheries management	Awareness programmes at the community level rarely address area based management approaches	Public awareness and outreach programme to promote local social, economic and environmental benefits of fisheries <i>refugia</i> implemented at 5 priority locations in the Philippines	Awareness materials published online Annual reports of outreach programmes at 5 priority locations, including tracking of extent of community acceptance	Awareness and outreach materials are sufficiently well designed to engage community members and resource users
	3.3 Knowledge generated and experiences from establishing and operating fisheries <i>refugia</i> captured and shared nationally,	Status of national web portal Status of publication of GEF IW experience note	No existing mechanism for the capture, management and sharing of knowledge and experiences in the use of area based tools for	National knowledge management system on the use of fisheries <i>refugia</i> in capture fisheries management established and operational	Online national web portal on fisheries <i>refugia</i> Published GEF IW experience note on application of fisheries	Internet connectivity at provincial and community-level offices of government agencies and other stakeholders adequate to support

	regionally, and globally		fisheries management in the Philippines		<i>refugia</i> in the Philippines	web-based information sharing
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Table 1(d) Logical framework matrix for component 4 of the Philippines' national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
4. National coordination for integrated fish stock and critical habitat management in the Philippines	4.1 Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in the Philippines	Extent and continuity of national government agency participation in National Fisheries <i>Refugia</i> Committee meetings	Limited cross-sectoral engagement in the planning of coordinated actions to manage threats to fish stocks and critical habitat linkages	National Fisheries <i>Refugia</i> Committee (NFRC) established, functional and advising national decision-makers and regional fora	NFRC Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Willingness of fisheries and environment sectors to engage in joint planning and decision-making via NFRC
	4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries <i>refugia</i> management in the Philippines	Status of the NTSC and the uptake of its scientific and technical advice	Lack of a formal mechanism for the sharing of science and technical knowledge between government agencies and other stakeholders involved in fish stock and coastal environmental management	National Technical and Scientific Committee (NTSC) established, functional and advising site-level management boards, the NFRC and the Regional Scientific and Technical Committee	NTSC Terms of Reference and quarterly meeting reports (scientific and technical advice and participants lists)	Securing adequate and consistent inputs of expertise to work of NTSC may be compromised if incentives for national specialists to participate in work of the NTSC are inadequate
	4.3 Community-led planning of fisheries <i>refugia</i> management at priority locations in the Philippines	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of fisheries <i>refugia</i> management	Minimal stakeholder participation in planning of local actions to manage threats to fish stocks and critical habitats linkages	Local community action catalysed via establishment and operation of site-based management boards for fisheries <i>refugia</i> at (1) the Calamaines Islands, (2) Bolinao, Pangasinan, and (3) Masinloc, Zambales	Management Board Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Existing tensions between local fisherfolk and government agencies may limit community leader participation in management planning

3.5 Thailand's Logical Framework Matrix for the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project

Table 1(a) Logical framework matrix for component 1 of Thailand's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in Thailand [Chang Strait and Mu Koh Samui]	1.1 Procedures for the delineation of fisheries <i>refugia</i> boundaries and the setting of priorities for <i>refugia</i> management developed, documented and shared nationally	Status of boundary delineation and agreement on proposed management interventions	<i>Refugia</i> site location identified although need to work with stakeholders, including academe and researchers, to delineate boundaries	Agreement among stakeholders on the boundaries of fisheries <i>refugia</i> , key threats to <i>refugia</i> sites, and priority management interventions	Fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for 2 priority sites	Adequate local cooperation to agree boundaries and compile and analysis information to identify threats and agree management actions
	1.2 Community-based <i>refugia</i> management plans that are consistent with the FAO and ASEAN-SEAFDEC Guidelines for Responsible Fisheries developed and implemented as a demonstration of integrated fisheries and habitat management in Thailand	Status of adoption and implementation of the management plans	Guide to planning of <i>refugia</i> management developed and published in inter-governmentally endorsed regional guidelines and a need exists to apply this at the local level	Community-based <i>refugia</i> management plans developed, adopted, and under implementation at 2 fisheries <i>refugia</i> sites	Published management plans and annual implementation reports	Sufficient local buy-in from local officials to ensure management plan implementation
	1.3 Community action for fisheries <i>refugia</i> management catalysed at 2 sites	Status and effectiveness of the management board and volunteer networks	Fisheries enforcement is active although need exists to refine scope of work to support <i>refugia</i> management	Networks of management boards and community-based fisheries and habitat management volunteers for <i>refugia</i> management established at 2 fisheries <i>refugia</i> sites	Quarterly reports of network meetings and activities [including list of participants and results of work]	Fisherfolk and resource users willing to participate in management on a voluntary basis
	1.4 Fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing, empowered to enforce agreed management rules at priority <i>refugia</i>	Increase in capacity to participate in <i>refugia</i> management among target community members	Capacity building programmes at the community level focus on seafood quality and capacity issues with little emphasis on links between fisheries and environment	Community capacity programmes at 2 fisheries <i>refugia</i> sites, including participatory activities to monitor fish habitats within <i>refugia</i> , collect lost and abandoned fishing gear, and develop responsible fishing practices at the	Training materials published online and reports of training and awareness activities	Training materials are sufficiently well designed to engage target audience

				community level		
	1.5 Strengthened community participation in fisheries <i>refugia</i> management	Number of GEF Small Grants Programme projects commissioned and implemented in support of <i>refugia</i> management objectives	Low level mobilization of civil society, community organization and the private sector in site-based fisheries and habitat management	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 2 sites	Annual report of <i>Refugia</i> -SGP partnership	There will be sufficient number of civil society and community based organizations in priority sites to act as GEF SGP project proponents

Table 1(b) Logical framework matrix for component 2 of Thailand's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in Thailand	2.1 Enhanced policy guidance for improved management of the effects of fishing on critical habitats	Status of policy revision and endorsement	Environmental impacts of fishing and aquaculture reflected in national fisheries sector plan although minimal attention to effects of fishing on critical fish habitats	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 Thailand's national fisheries policy	Published national review and recommendations for reforms of national, provincial and municipal regulations/ordinances for responsible fishing practices at priority <i>refugia</i> Endorsed revised policy	Willingness of the fisheries sector to engage on issues relating to environmental performance
	2.2 Nationally endorsed guidelines on the establishment and management of fisheries <i>refugia</i>	Status of endorsement of national guidelines	ASEAN-SEAFDEC regional guidelines endorsed	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 the environment	Published national guidelines on establishing and operating fisheries <i>refugia</i>	Willingness of the fisheries and environment sectors to agree on guidelines promoting cross-sectoral cooperation
	2.3 Nationally endorsed	Status of	Absence of policy,	National policy, legal and	National report on	National and

	policy, legal, and planning frameworks for the establishment and management of fisheries <i>refugia</i> , including the reduced use of destructive fishing gear and practices in areas of critical habitats	endorsement of national fisheries <i>refugia</i> policy, enactment of supporting laws, and plan implementation	laws, and plans relating to the demarcation of boundaries, formal designation, and operational management of fisheries <i>refugia</i>	planning frameworks for demarcating boundaries and managing <i>refugia</i> assessed and required reforms endorsed, including requirements for assessing socio-economic impacts of management measures and stakeholder consultation	policy, legal and institutional aspects of <i>refugia</i> establishment and management published Endorsed policy and executive orders, provincial/local ordinances and by-laws Endorsed National Action Plan for the management of priority fisheries <i>refugia</i> and associated biodiversity	provincial government commitment to reform
2.4	Enhanced access to information relating to status and trends in fish stocks and their habitats in Thailand's waters of the SCS	Volume of new and additional information compiled on: biomass trends; recruitment; fish size; fish habitat area and quality; and volume and value of landings by fishing area and fishing gear use	Review of fisheries and their habitats on the SCS coast of Thailand prepared during 2004-2006	Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats published and disseminated at national and regional levels	Quarterly and annual reports on fish stocks and habitats published online	Adequate coordination with provincial and municipal fisheries officers to access required information
2.5	Improved national-level management and sharing of information and data on fish early life history in Thailand's waters of the SCS	Status of the database and the number of datasets contained therein	Access to data generated from fish early life history research is constrained by a lack of central repository	Establishment and population of an online national database of fish egg and larvae distribution and abundance in SCS waters of Thailand	Database online and populated with datasets	Willingness of individual scientists and data holders to share information for inclusion in a national repository
2.6	Enhanced access to information relating to the locations and status of coastal habitats and management areas in Thailand's waters of the	Status of the national GIS and the number of sites presented and characterised	Information relating to fisheries and their habitats contained a number of national databases and	National online Geographical Information System on fisheries and marine biodiversity featuring information on locations and	Geographical Information System online and populated with site-based information	Internet connectivity in provincial and local offices of departments of fisheries and environment

	SCS			management status of coastal habitats, fisheries <i>refugia</i> , MPAs, and critical habitats for threatened and endangered species		adequate to support online updating of database
	2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites	Completeness of site characterisations for 2 priority <i>refugia</i>	Information collection largely focuses on volumes with little attention to species & size selectivity of gear, size frequency and maturity, role of habitats in pdcn	Fisheries and habitat data collection programmes operational to characterise 2 priority <i>refugia</i> sites [Chang Strait and Mu Koh Samui]	Characterisations for 2 <i>refugia</i> sites accessible online	Consistent use of standardised data collection methods and procedures

Table 1(c) Logical framework matrix for component 3 of Thailand's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Thailand	3.1 Enhanced national uptake of best practices in integrating fisheries management and biodiversity conservation in the design and implementation of fisheries management systems	Number of best practice approaches and measures tested and codified Number, scope and reach of communications to share best practices Demonstrable use of best practices in policy and planning	Lessons learned in coastal habitat management from SCS project network of 23 demonstration sites documented although few examples relating to integrated fisheries and biodiversity management	Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally	Online catalogue of national best practice approaches and measures Communications on best practices published and syndicated	Sufficient number of best practices will be generated at priority <i>refugia</i> sites
	3.2 Improved community acceptance of area based approaches to marine management	Extent of community acceptance of the use of fisheries <i>refugia</i> in coastal fisheries management	Awareness programmes at the community level rarely address area based management approaches	Public awareness and outreach programme to promote local social, economic and environmental benefits of fisheries <i>refugia</i> implemented at 2 priority locations in Thailand	Awareness materials published online Annual reports of outreach programmes at 5 priority locations, including tracking of extent of community acceptance	Awareness and outreach materials are sufficiently well designed to engage community members and resource users
	3.3 Knowledge generated and experiences from establishing and	Status of national web portal Status of publication	No existing mechanism for the capture, management and sharing of	National knowledge management system on the use of fisheries <i>refugia</i> in capture	Online national web portal on fisheries <i>refugia</i>	Internet connectivity at provincial and community-level offices of government

	operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally	of GEF IW experience note	knowledge and experiences in the use of area based tools for fisheries management in Thailand	fisheries management established and operational	Published GEF IW experience note on application of fisheries <i>refugia</i> in Thailand	agencies and other stakeholders adequate to support web-based information sharing
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Table 1(d) Logical framework matrix for component 4 of Thailand's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
4. National coordination for integrated fish stock and critical habitat management in Thailand	4.1 Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Thailand	Extent and continuity of national government agency participation in National Fisheries <i>Refugia</i> Committee meetings	Limited cross-sectoral engagement in the planning of coordinated actions to manage threats to fish stocks and critical habitat linkages	National Fisheries <i>Refugia</i> Committee (NFRC) established, functional and advising national decision-makers and regional fora	NFRC Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Willingness of fisheries and environment sectors to engage in joint planning and decision-making via NFRC
	4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries <i>refugia</i> management in Thailand	Status of the NSTC and the uptake of its scientific and technical advice	Lack of a formal mechanism for the sharing of science and technical knowledge between government agencies and other stakeholders involved in fish stock and coastal environmental management	National Technical and Scientific Committee (NSTC) established, functional and advising site-level management boards, the NFRC and the Regional Scientific and Technical Committee	NSTC Terms of Reference and quarterly meeting reports (scientific and technical advice and participants lists)	Securing adequate and consistent inputs of expertise to work of NSTC may be compromised if incentives for national specialists to participate in work of the NSTC are inadequate
	4.3 Community-led planning of fisheries <i>refugia</i> management at priority locations in Thailand	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of fisheries <i>refugia</i> management	Minimal stakeholder participation in planning of local actions to manage threats to fish stocks and critical habitats linkages	Local community action catalysed via establishment and operation of site-based management boards for fisheries <i>refugia</i> at (1) Chang Strait and (2) Mu Koh Samui	Management Board Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Existing tensions between local fishermen and government agencies may limit community leader participation in management planning

3.6 Vietnam's Logical Framework Matrix for the SEAFDEC/UNEP/GEF Fisheries *Refugia* Project

Table 1(a) Logical framework matrix for component 1 of Vietnam's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Identification and management of fisheries and critical habitat linkages at priority fisheries <i>refugia</i> in Vietnam	1.1 Procedures for the delineation of fisheries <i>refugia</i> boundaries and the setting of priorities for <i>refugia</i> management developed, documented and shared nationally	Status of boundary delineation and agreement on proposed management interventions	<i>Refugia</i> site location identified although need to work with stakeholders, including academe and researchers, to delineate boundaries	Agreement among stakeholders on the boundaries of fisheries <i>refugia</i> , key threats to <i>refugia</i> sites, and priority management interventions	Fisheries <i>refugia</i> profile reports, including maps and site characterisations, published for 3 priority sites	Adequate local cooperation to agree boundaries and compile and analysis information to identify threats and agree management actions
	1.2 Community-based <i>refugia</i> management plans that are consistent with the FAO and ASEAN-SEAFDEC Guidelines for Responsible Fisheries developed and implemented as a demonstration of integrated fisheries and habitat management in Vietnam	Status of adoption and implementation of the management plans	Guide to planning of <i>refugia</i> management developed and published in inter-governmentally endorsed regional guidelines and a need exists to apply this at the local level	Community-based <i>refugia</i> management plans developed, adopted, and under implementation at 3 fisheries <i>refugia</i> sites	Published management plans and annual implementation reports	Sufficient local buy-in from local officials to ensure management plan implementation
	1.3 Community action for fisheries <i>refugia</i> management catalysed at 3 sites	Status and effectiveness of the management board and volunteer networks	Fisheries enforcement active although need exists to refine scope of work to support <i>refugia</i> management	Networks of management boards and community-based fisheries and habitat management volunteers for <i>refugia</i> management established at 3 fisheries <i>refugia</i> sites	Quarterly reports of network meetings and activities [including list of participants and results of work]	Fisherfolk and resource users willing to participate in management on a voluntary basis
	1.4 Fishing communities, particularly artisanal fishermen and women involved in inshore gleaning and processing, empowered to enforce agreed management rules at priority <i>refugia</i>	Increase in capacity to participate in <i>refugia</i> management among target community members	Capacity building programmes at the community level focus on seafood quality and capacity issues with little emphasis on links between fisheries and	Community capacity programmes at 3 fisheries <i>refugia</i> sites, including participatory activities to monitor fish habitats within <i>refugia</i> , collect lost and abandoned fishing gear, and develop responsible	Training materials published online and reports of training and awareness activities	Training materials are sufficiently well designed to engage target audience

			environment	fishing practices at the community level		
	1.5 Strengthened community participation in fisheries <i>refugia</i> management	Number of GEF Small Grants Programme projects commissioned and implemented in support of <i>refugia</i> management objectives	Low level mobilization of civil society, community organization and the private sector in site-based fisheries and habitat management	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 3 sites	Annual report of Refugia-SGP partnership	There will be sufficient number of civil society and community based organizations in priority sites to act as GEF SGP project proponents

Table 1(b) Logical framework matrix for component 2 of Vietnam's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Improving the management of critical habitats for fish stocks of transboundary significance via national actions to strengthen the enabling environment and knowledge-base for fisheries <i>refugia</i> management in Vietnam	2.1 Enhanced policy guidance for improved management of the effects of fishing on critical habitats	Status of policy revision and endorsement	Environmental impacts of fishing and aquaculture reflected in national fisheries sector plan although minimal attention to effects of fishing on critical fish habitats	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 Vietnam's national fisheries policy	Published national review and recommendations for reforms of national, provincial and municipal regulations/ordinances for responsible fishing practices at priority <i>refugia</i> Endorsed revised policy	Willingness of the fisheries sector to engage on issues relating to environmental performance
	2.2 Nationally endorsed guidelines on the establishment and management of fisheries <i>refugia</i>	Status of endorsement of national guidelines	ASEAN-SEAFDEC regional guidelines endorsed	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 the environment	Published national guidelines on establishing and operating fisheries <i>refugia</i>	Willingness of the fisheries and environment sectors to agree on guidelines promoting cross-sectoral cooperation
	2.3 Nationally endorsed	Status of	Absence of policy,	National policy, legal and	National report on	National and

	policy, legal, and planning frameworks for the establishment and management of fisheries <i>refugia</i> , including the reduced use of destructive fishing gear and practices in areas of critical habitats	endorsement of national fisheries <i>refugia</i> policy, enactment of supporting laws, and plan implementation	laws, and plans relating to the demarcation of boundaries, formal designation, and operational management of fisheries <i>refugia</i>	planning frameworks for demarcating boundaries and managing <i>refugia</i> assessed and required reforms endorsed, including requirements for assessing socio-economic impacts of management measures and stakeholder consultation	policy, legal and institutional aspects of <i>refugia</i> establishment and management published Endorsed policy and executive orders, provincial/local ordinances and by-laws Endorsed National Action Plan for the management of priority fisheries <i>refugia</i> and associated biodiversity	provincial government commitment to reform
	2.4 Enhanced access to information relating to status and trends in fish stocks and their habitats in Vietnam waters of the SCS	Volume of new and additional information compiled on: biomass trends; recruitment; fish size; fish habitat area and quality; and volume and value of landings by fishing area and fishing gear use	Review of fisheries and their habitats on the SCS coast of Vietnam prepared during 2004-2006	Annual synthesis reports of new and additional information and data relating to the stocks of priority fish, crustaceans and molluscs and their habitats published and disseminated at national and regional levels	Quarterly and annual reports on fish stocks and habitats published online	Adequate coordination with provincial and municipal fisheries officers to access required information
	2.5 Improved national-level management and sharing of information and data on fish early life history in Vietnam waters of the SCS	Status of the database and the number of datasets contained therein	Access to data generated from fish early life history research is constrained by a lack of central repository	Establishment and population of an online national database of fish egg and larvae distribution and abundance in SCS waters of Vietnam	Database online and populated with datasets	Willingness of individual scientists and data holders to share information for inclusion in a national repository
	2.6 Enhanced access to information relating to the locations and status of coastal habitats and management areas in Vietnam waters of the	Status of the national GIS and the number of sites presented and characterised	Information relating to fisheries and their habitats contained a number of national databases and	National online Geographical Information System on fisheries and marine biodiversity featuring information on locations and	Geographical Information System online and populated with site-based information	Internet connectivity in provincial and local offices of departments of fisheries and environment

	SCS			management status of coastal habitats, fisheries <i>refugia</i> , MPAs, and critical habitats for threatened and endangered species		adequate to support online updating of database
	2.7 Strengthened information base for the planning, monitoring and evaluation of management at priority fisheries <i>refugia</i> sites	Completeness of site characterisations for 3 priority <i>refugia</i>	Information collection largely focuses on volumes with little attention to species & size selectivity of gear, size frequency and maturity, role of habitats in pdcn	Fisheries and habitat data collection programmes operational to characterise 3 priority <i>refugia</i> sites	Characterisations for 3 <i>refugia</i> sites accessible online	Consistent use of standardised data collection methods and procedures

Table 1(c) Logical framework matrix for component 3 of Vietnam's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Information Management and Dissemination in support of national-level implementation of the fisheries <i>refugia</i> concept in Vietnam	3.1 Enhanced national uptake of best practices in integrating fisheries management and biodiversity conservation in the design and implementation of fisheries management systems	Number of best practice approaches and measures tested and codified Number, scope and reach of communications to share best practices Demonstrable use of best practices in policy and planning	Lessons learned in coastal habitat management from SCS project network of 23 demonstration sites documented although few examples relating to integrated fisheries and biodiversity management	Best practice approaches and measures for integrated fisheries and habitat management captured, documented and communicated nationally	Online catalogue of national best practice approaches and measures Communications on best practices published and syndicated	Sufficient number of best practices will be generated at priority <i>refugia</i> sites
	3.2 Improved community acceptance of area based approaches to fisheries and coastal marine management	Extent of community acceptance of the use of fisheries <i>refugia</i> in coastal fisheries management	Awareness programmes at the community level rarely address area based management approaches	Public awareness and outreach programme to promote local social, economic and environmental benefits of fisheries <i>refugia</i> implemented at 3 priority locations in Vietnam	Awareness materials published online Annual reports of outreach programmes at 3 priority locations, including tracking of extent of community acceptance	Awareness and outreach materials are sufficiently well designed to engage community members and resource users
	3.3 Knowledge generated and experiences from establishing and	Status of national web portal Status of publication	No existing mechanism for the capture, management and sharing of	National knowledge management system on the use of fisheries <i>refugia</i> in capture	Online national web portal on fisheries <i>refugia</i>	Internet connectivity at provincial and community-level offices of government

	operating fisheries <i>refugia</i> captured and shared nationally, regionally, and globally	of GEF IW experience note	knowledge and experiences in the use of area based tools for fisheries management in Vietnam	fisheries management established and operational	Published GEF IW experience note on application of fisheries <i>refugia</i> in Vietnam	agencies and other stakeholders adequate to support web-based information sharing
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Table 1(d) Logical framework matrix for component 4 of Vietnam's national project design for the SEAFDEC/UNEP/GEF fisheries *refugia* project

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
4. National coordination for integrated fish stock and critical habitat management in Vietnam	4.1 Strengthened cross-sectoral coordination in the establishment and operation of fisheries <i>refugia</i> in Vietnam	Extent and continuity of national government agency participation in National Fisheries <i>Refugia</i> Committee meetings	Limited cross-sectoral engagement in the planning of coordinated actions to manage threats to fish stocks and critical habitat linkages	National Fisheries <i>Refugia</i> Committee (NFRC) established, functional and advising national decision-makers and regional fora	NFRC Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Willingness of fisheries and environment sectors to engage in joint planning and decision-making via NFRC
	4.2 National scientific and technical expertise and knowledge harnessed to inform policy, legal and institutional reforms for fisheries <i>refugia</i> management in Vietnam	Status of the NSTC and the uptake of its scientific and technical advice	Lack of a formal mechanism for the sharing of science and technical knowledge between government agencies and other stakeholders involved in fish stock and coastal environmental management	National Scientific and Technical Committee (NSTC) established, functional and advising site-level management boards, the NFRC and the Regional Scientific and Technical Committee	NSTC Terms of Reference and quarterly meeting reports (scientific and technical advice and participants lists)	Securing adequate and consistent inputs of expertise to work of NTWG may be compromised if incentives for national specialists to participate in work of the NTWG are inadequate
	4.3 Community-led planning of fisheries <i>refugia</i> management at priority locations in Vietnam	Continuity of participation of community stakeholders in the planning, monitoring and evaluation of fisheries <i>refugia</i> management	Minimal stakeholder participation in planning of local actions to manage threats to fish stocks and critical habitats linkages	Local community action catalysed via establishment and operation of site-based management boards for fisheries <i>refugia</i> at Bach Long Vi Island (Haiphong), Hon Cau Island (Binh Thuan) and Phu Quoc Island	Management Board Terms of Reference and quarterly meeting reports (joint management decisions and participant lists)	Existing tensions between local fisherfolk and government agencies may limit community leader participation in management planning

4 DEVELOPING A PROJECT MONITORING AND EVALUATION FRAMEWORK

It is proposed that the key principles to be adopted in Project Monitoring and Evaluation Framework are as follows:

- Simple understandable indicators and targets
- Quantitative measures have been adopted where practical
- The use of studies, independent auditors and monitoring for the sole purpose of demonstrating achievement against numerical Project Document targets be kept to a minimum
- Monitoring aligns as much as practical with project activities; and
- That overall progress is classified into broad categories (Complete; Mostly Complete; Partially Complete; Mostly Incomplete and Incomplete) to reflect the level of reporting required

Of importance is the use of simple and understandable indicators and targets. The following tables presents a summary of example resource related (Table A) and institutional related (Table B) indicators.

Table A A Preliminary Set of Performance Assessment Criteria and Means of Verification for the Resource-related Objectives of a Regional Fisheries *Refugia* Plans.

Resource-Related Objectives	Performance Assessment Criteria	Means of Verification
Longer-Term Objectives		
1. Biomass of commercially important fish (pelagic and demersal) and invertebrate species in the Gulf of Thailand and South China Sea maintained	Biomass trend (multi-year average annual percentage rate of change)	Results of abundance surveys employing relative abundance (CPUE), swept area, acoustic, or egg production methods
2. Average size of commercially important fish (pelagic and demersal) and invertebrate species caught in the Gulf of Thailand and South China Sea maintained or increasing	Average fish size relative to historical average	Results of size-frequency analyses of fish landed at key landing places and in markets
3. Egg production of commercially important fish and invertebrate species in the Gulf of Thailand and South China Sea maintained or increasing	Abundance of eggs and larvae of commercially important species in key spawning areas relative to historical average	Results of surveys of egg and larval fish density in key spawning areas
4. Recruitment of commercially important fish and invertebrate species to fisheries the Gulf of Thailand and South China Sea maintained or increasing	Year class strength relative to historical average	Results of abundance surveys employing relative abundance (CPUE) or swept area methods
Shorter-Term Objectives		
1. Reduced capture of juveniles and pre-recruits of commercially important fish (pelagic and demersal) and invertebrate species, as well as endangered species, in critical fisheries habitats of the Gulf of Thailand and South China Sea	Abundance of juveniles in fishery <i>refugia</i> areas a) Fishing effort dynamics in fishery <i>refugia</i> areas b) Selectivity of fishing operations conducted within juvenile <i>refugia</i> c) Frequency of inappropriate fishing operations in fishery <i>refugia</i> areas d) Volume and size composition of commercially important fish (pelagic and demersal) and invertebrate species landed and traded in main markets	a) Results of fishery dependent and independent surveys b) Interviews of fishers, fishing communities, and traders c) Results of studies of species and size composition conducted within <i>refugia</i> d) Observations/reports of illegal or destructive fishing in fishery <i>refugia</i> areas e) Results of studies of the volume and size of fish landed at main landing places and traded in main market

<p>2. Reduced targeting and capture of commercially important fish (pelagic and demersal) and invertebrate species in spawning condition, and when forming spawning aggregations, in the Gulf of Thailand and South China Sea</p>	<p>a) Fishing effort dynamics in fishery <i>refugia</i> areas b) Selectivity of fishing operations conducted within spawning <i>refugia</i> c) Gonosomatic index (GSI) of commercially important fish (pelagic and demersal) and invertebrate species landed and traded in main markets d) Abundance of eggs and larvae of commercially important species in key spawning areas</p>	<p>a) Interviews of fishers, fishing communities, and traders b) Results of studies of species and size composition of landings during known spawning seasons c) Results of studies of the gonosomatic condition of commercially important species landed and traded in main markets d) Results of surveys of egg and larval fish density in key spawning areas</p>
<p>3. System of fisheries <i>refugia</i>, including both juvenile and spawning <i>refugia</i>, which provides for:</p> <p>a) networks of fisheries <i>refugia</i> across the geographical ranges of individual species, b) networks of fisheries <i>refugia</i> that include both juvenile and spawning <i>refugia</i>, c) fisheries management consistent with the RGRFSEA</p>	<p>Total number/size of juvenile <i>refugia</i> and spawning <i>refugia</i>:</p> <p>a) Number of species for which a network of fisheries <i>refugia</i> has been developed across its geographical range b) Number of fisheries <i>refugia</i> networks that include multiple <i>refugia</i> types c) Number of fisheries <i>refugia</i> for which management systems have been developed</p>	<p>The number and size of fisheries <i>refugia</i> as defined in <i>refugia</i> management plans adopted by national governments</p> <p>a) Description of the species – specific linkages between <i>refugia</i> in management plans for each <i>refugia</i> in a geographical range based network b) Description of the life-cycle – specific linkages between <i>refugia</i> in management plans for each <i>refugia</i> in a life-cycle based network c) Adoption of <i>refugia</i> management plans</p>

Table B A Preliminary Set of Performance Assessment Criteria and Means of Verification for the Institutional-related Objectives of a Regional System of Fisheries *Refugia*.

Institutional-Related Objectives	Performance Assessment Criteria	Means of Verification
<p>1. Integration of fish life-cycle considerations in fisheries and habitat management in the Gulf of Thailand and South China Sea</p>	<p>Preparation and publication of a management plan for a regional system of fisheries <i>refugia</i>.</p>	<p>Adoption by appropriate regional fora of a management plan for a regional system of fisheries <i>refugia</i>. Management plan to include:</p> <p>a) goals, objectives, target reference points, indicators, and performance measures for each <i>refugia</i> (and <i>refugia</i> network in the system) b) system for reporting on results of analysis of data collected in support of the regional <i>refugia</i> system c) criteria for the identification of new <i>refugia</i> d) research priorities and national commitments of support to the conduct of fisheries research</p>
<p>2. National level commitments to integrate the fisheries <i>refugia</i> concept into fisheries and habitat management</p>	<p>Preparation and publication of National Plans of Action for the Development of the Regional System of Fisheries <i>Refugia</i></p>	<p>Adoption of plans of action by appropriate Government Ministries.</p>
<p>3. Regionally agreed fisheries <i>refugia</i> science programme, which details:</p> <p>a) Objectives b) Decision-support inputs c) Strategic research partnerships/resourcing d) Research activities</p>	<p>Preparation and publication of a fisheries <i>refugia</i> science programme</p>	<p>Adoption of the programme at a regional expert consultation and then representatives of five SEAFDEC member countries</p>
<p>4. Regionally agreed framework of criteria, target reference points,</p>	<p>Preparation of a framework of criteria, target reference points,</p>	<p>Adoption of the framework at a regional expert consultation</p>

<p>indicators, and performance measures for identifying and evaluating the performance of <i>refugia</i> that, aim to:</p> <ul style="list-style-type: none"> a) reduce the capture of juveniles and pre-recruits of commercially important fish, and endangered species, in critical fisheries habitats b) reduce the targeting and capture of commercially important fish in spawning condition, and when forming spawning aggregations c) contribute to the development of species-specific networks of <i>refugia</i> across (i) the geographical range, and (ii) the life-cycle, of individual species. 	<p>indicators, and performance measures for identifying and evaluating the performance of fisheries <i>refugia</i></p>	
<p>5. Regional agreement on standardised methodology for the identification and evaluation of important:</p> <ul style="list-style-type: none"> a) juvenile <i>refugia</i> b) spawning <i>refugia</i>, and c) <i>refugia</i> that can assist in building geographical range and life-cycle based networks of <i>refugia</i> 	<p>Preparation and publication of standards for <i>refugia</i> identification and evaluation methods relating to data collection and storage, and analysis</p>	<p>Adoption by appropriate intergovernmental fora of regional standards</p>
<p>6. Regionally agreed guidelines on the use of the fisheries <i>refugia</i> concept in fisheries management.</p>	<p>Regional agreement on guidelines for the use of the fisheries <i>refugia</i> concept</p>	<p>Adoption by appropriate intergovernmental fora of regional guidelines</p>