

**Mid Term Evaluation of the
Biodiversity Management in the Coastal
Area of China's South Sea Project
(SCCBD)**

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Executive Summary

The *Biodiversity Management in the Coastal Area of China's South Sea Project* (SCCBD) is an 8-year project that aims to (i) strengthen conservation and sustainable use management capacities at four existing Marine Protected Areas, (ii) develop, test and demonstrate tools, instruments and approaches for addressing the root causes of critical threats to marine biodiversity in China's South Sea coastal areas; and (iii) implement appropriate tools for conservation and sustainable use at six project demonstration areas and promote their broader adoption across China's South Sea coastal area. The project is being implemented by the State Oceanographic Administration (SOA) of the Government of China in collaboration with four provinces (Hainan, Guangdong, Fujian and Zhejiang), one autonomous region (Guangxi) and local governments at the six demonstration areas.

In addition to funding from GEF and the Government China and support from UNDP, major contributions of technical assistance are being provided by the National Oceanic and Atmospheric Administration of the United States (NOAA), GIS software and training are being provided by ESRI, and Stora Enso, a Norwegian firm, has contributed to marine environment monitoring and restoration of mangroves in coastal areas of project demonstration site in Guangxi. The project is being implemented primarily through more 17 subcontracts with participating Chinese institutions.

The Mid Term Evaluation was undertaken in accordance with UNDP and GEF requirements to review progress to date and to recommend any revisions to the project implementation that may be needed during the remaining four year period. The evaluation included field visits to the demonstration sites, meetings with 13 of the subcontractors and interviews with more than 160 individuals.

The evaluation found that the project has been given a high priority by the participating government agencies. This has created a high level of awareness about the project and about biodiversity resources in coastal areas. The interest in the project also reflects the growing concern in China about the environmental impacts of intensive coastal development. It should also be noted that this is the first international project for many of the stakeholders and this lack of experience is apparent in some of the implementation. The international status of the project has also been partly responsible for the high degree of commitment and profile of the project.

The project has made relatively good progress in completing the planned activities. The project implementation has been generally satisfactory in terms of outputs completed and project management, particularly recognizing the project design complexity and the new experience with international projects. The exception is the lack of an effective project monitoring system, characterized by a general absence of reliable indicators of measurable outcomes in the project design. Most of the reporting is based on completion of activities and outputs.

The initial frameworks for biodiversity conservation and MPA management have been developed in each demonstration area. But the effectiveness, efficiency and sustainability of the outputs have been

adversely affected by the subcontractor-driven design of the project, insufficient technical guidance, limited consideration of local capacity needs, and uncertainty about expected end-results of the project. The subcontractor deliverables provide useful support for coastal biodiversity conservation but many of the MPA agencies and management staff do not have adequate capacity to fully utilize these outputs.

The effectiveness and efficiency of the project delivery through more than 17 subcontracts has imposed major complications and constraints on the project results: the terms of the subcontracts are not always consistent with the planned outputs; project ownership is dominated by the subcontractors whose interest tends to be completion of the contract deliverables rather than achievement of project outcomes. The subcontracting strategy has created unnecessary distraction that focuses attention away from project outcomes and results. The UNDP's rules/procedures for competitive bidding by external organizations has been a source of project implementation inefficiency because it created uncertainty about responsibilities and at times inconsistencies between the contractual obligations of the subcontractors and the mandate/responsibilities of the participating agencies to implement the project.

Some lack of understanding and clarity exists on the concepts of integrated coastal management, integrated pollution control, participatory management, sustainable livelihoods and financing mechanisms and their practical application in the demonstration areas. These concepts and the extent to which they can be used by the MPA agencies need to be further defined, discussed and assessed for potential dissemination and replication in the second phase of the project.

There have also been some technical assistance and quality assurance issues that could have benefited from external advisors serving as peer reviewers or professional mentors. Some the subcontractor staff indicated their limited experience and the need to improve the methods and level of analysis. The biodiversity surveys and analysis do not appear to provide sufficient technical direction for follow-up. The survey objectives are usually very general, the conceptual basis for many of the studies is often not clear, and assessment of the effects of threats on biodiversity resources is often missing. Most of these 'baseline' or 'overview' studies present basic information without analyses and specific recommendations. The project has not provided enough technical support, quality assurance and oversight to ensure that the biodiversity inventories and assessments provide practical action for further conservation planning in phase two of the project and beyond.

But it is also recognized that the mechanisms to integrate biodiversity conservation into coastal development plans are gradually evolving in China. The project is breaking new ground in the awareness-building and consultative processes with government officials and stakeholders across sectors, but there are still uncertainties about how this integration should occur.

With regard to sustainability, the evidence so far suggests that the increased awareness of governments and the public toward biodiversity conservation in the face of rapid coastal development pressures will sustain interest and support for the project objectives. The critical issue of institutional

uptake and operationalizing the project concepts and tools will affect the sustainability after project completion in 2012.

The Project Document set high expectations that by the end of the project the stakeholders will be applying innovative and adaptive Marine Protected Area (MPA) and integrated coastal management practices. The progress toward this result has been moderate and limited to date. The average rating of results to date – ‘marginally satisfactory’, reflects the need to now concentrate on demonstrating effective application of these new practices.

The Mid Term Evaluation presents six recommendations:

1. The project should focus on three priorities during the remaining project period (2009-2012):
 - a) further strengthening the capacity of MPA organisations so that they are able to effectively utilize the project outputs;
 - b) consolidating the project models for integrated coastal management, integrated pollution control, participatory management, sustainable livelihoods and MPA financing mechanisms that are to be disseminated and promoted for replication in Phase 2; and
 - c) developing and implementing a Phase 2 strategy for dissemination and replication of the project models at a national level.
2. A logical framework and strategic workplan should be prepared for the remainder of the project with an emphasis on clearly defined outcomes that are to be achieved by 2012. The project should narrow the scope of activities in Phase 1 with the aim of strengthening the MPA operations at the field level. Outcome 3 should be deferred to Phase 2 of the project.
3. The further strengthening of MPA capacities at each of the demonstration areas should include:
 - a) Ensuring that MPA staff are able to implement biodiversity monitoring strategies and protocols. The coral reef, mangrove, seagrass, algae and other habitat monitoring procedures developed at the demonstration areas should become routine operations for MPA staff. Additional support from the subcontractor organizations may be needed to assist this transfer of monitoring systems to the MPA government staff.
 - b) Ensuring that effective management plans or strategies are in operation at each of the MPA sites to guide management, conservation and restoration activities. Revisions to management plans should draw upon the technical outputs that have been prepared by the project to date. Improved management plans will strengthen the capacity and direction of MPA staff in biodiversity conservation.
 - c) Ensuring development of a basic information management system at each demonstration area that uses the GIS equipment and training provided by ESRI and the project. The GIS should be used for physical/biological and patrol data compilation and analyses and MPA program management. A limited effort at integrating the information management system into MPA operations will provide long term benefits.

- d) Ensuring that sustainable financing mechanisms are adopted or are in the process of development at the MPA sites in order to provide for cost recovery of the management operations.
4. The project should establish a Technical Advisory Group with the responsibility to:
 - a) review the conservation and restoration strategies and methods underway or proposed at the demonstration areas;
 - b) provide advice to MPA organisations on the efficacy of these strategies and methods and their potential for further development; and
 - c) review and validate the model approaches and tools that are to be disseminated in Phase 2 of the project.
 5. The NOAA training and technical assistance program should be encouraged to provide on-the-job mentoring for specific MPA conservation planning and management needs related to the project, and to assist the Technical Advisory Group. The capacity building priorities relate to biodiversity monitoring, management planning, information systems and financing mechanisms.
 6. On the basis of a re-formulated 2009-2012 Workplan and Budget, the project should secure formal commitments from central, provincial and local governments toward funding of Phase 2 of the project. It should recognize the changes that have occurred in coastal development and biodiversity conservation concerns since the original project design and the need to ensure effective implementation of Outcome 3 – ‘Appropriate tools are disseminated for broader adaptation across China’s South Sea coastal area’. It should also seek additional national and international co-financing to focus on national level discussion of MPA development and scaling up the experiences under the project.

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List of Acronyms

AC	Advisory Committee
AMA	Adaptive Management Advisor
APR	Annual Project Report
ESRI	Environmental Systems Research Institute GIS/Mapping Software
GEF	Global Environment Facility
GIS	Geographic Information System
GoC	Government of China
HDNR	Hepu Dugong Nature Reserve
ICM	Integrated Coastal Management
ICZM	Integrated Coastal Zone Management
IPCC	Inter-Provincial Coordination Committee
LPSC	Local Project Steering Committee
MEPL	Marine Environmental Protection Law
M&E	Monitoring and Evaluation
MPA	Marine Protected Area
MTE	Mid Term Evaluation
NGO	Non-Governmental Organization
NINMNR	Nanji Islands National Marine Nature Reserve
NOAA	National Oceanic and Atmospheric Administration (USA)
NPD	National Project Director
NPM	National Project Manager
PCU	Project Co-ordination Unit
PIC	Project Implementation Coordinator
PIR	Project Implementation Review
PSC	Project Steering Committee
RCO	Reporting and Contract Officer
RMB	Renminbi (unit of Chinese currency)
SC	Subcontract
SGC	Small Grant Contract
SNCRNR	Sanya Coral Reef National Reserve
SIU	Site Implementation Unit
SNMR	Shankou National Mangrove Reserve
SOA	State Oceanic Administration
SRF	(UNDP) Strategic Result Framework
TOR	Terms of Reference
TPR	Tripartite Review
UNDP	United Nations Development Programme
VCG	Village Conservation Group

1.0 Introduction

1.1 Purpose of the Evaluation

The *Biodiversity Management in the Coastal Area of China's South Sea Project* (SCCBD) seeks to ensure the long-term conservation and sustainable use of coastal and marine biodiversity in four sites along China's South Sea coastline through innovative demonstrations and cross-learning among multiple sites of significant biodiversity. The project concentrates activities at four demonstration areas within five coastal provinces. The project period is from 2005 to 2012 with funding from GEF in the first phase to 2009 and minor support thereafter.

There are three immediate project objectives, as stated in the Project Document:

- (i) Strengthen conservation and sustainable use management capacities at four existing Marine Protected Areas;
- (ii) Develop, test and demonstrate tools, instruments and approaches for addressing the root causes of critical threats to marine biodiversity in China's South Sea coastal areas; and
- (iii) Implement appropriate tools for conservation and sustainable use at the six sites¹ and promote their broader adoption across China's South Sea coastal area.

The purpose of the Mid Term Evaluation (MTE) is to conduct a systematic and impartial assessment of the project in order to determine the relevance, efficiency, effectiveness, impact and sustainability of the project activities and the contributions of the implementing partners. The evaluation is intended to help guide the project's implementation in achieving its objectives from now until the end of the project. The MTE is also meant to synthesize lessons to help improve the project design and implementation of project activities. The MTE terms of reference also direct the evaluation team to:

- Briefly review development and policy environment relating to coastal biodiversity conservation over the life of SCCBD, commenting on how these might have affected project performance and assess the extent to which the project remained relevant to the needs of its targets;
- Perform interim assessment of the extent to which SCCBD has successfully accomplished its objectives in terms of activities, outputs and outcomes as defined in the agreed Project Document (logframe), and assess the likelihood of achieving them upon project completion;
- Identify implementing agency's institutional strengths and weaknesses, and identify potential options for improving SCCBD, which could include modification of activities, project management responsibilities, schedule of activities and budget allocations, among others;
- Evaluate the relevance, effectiveness, efficiency and sustainability of project outcomes.

According to the UNDP Monitoring and Evaluation Handbook, project evaluations assess the efficiency and effectiveness of a project in achieving its intended results. They also assess the relevance and sustainability of outputs as contributions to medium-term and longer-term outcomes. Project evaluation can be invaluable for managing for results, and serves to reinforce the accountability of project managers. MTEs are a standard requirement of all UNDP/GEF projects.

¹ The Project Document refers to 'six sites'; the Guanxi demonstration area includes three sites: *Shankou National Mangrove Reserve, Hupu National Dugong Reserve and Weizhou Island proposed MPA*.

The MTE was undertaken from November 20 – December 11 in China, followed by preparation of the draft and final reports in December 2008.

1.2 Project Context

The SCCBD project was approved by the GEF Council in December 2004, the Project Document was signed in March, 2005, and project was launched in November 2005. The project was originally designed at a much larger scale and required a long period for formulation. The three years required between the GEF Project Brief and the approved Project Document led to delays in project start-up.

SCCBD is to last for eight years, the first four years to be supported by GEF and the remaining four years to be largely financed by Government of China. The State Oceanic Administration of China (SOA) is the national implementing partner and with provincial and local implementation partners.

The first component of the project addresses threats that are directly related to weak conservation capacity of existing MPAs. The second component involves a set of demonstrations to address key issues and develop much needed tools for managers of these MPAs and of the broader seascape area. These demonstrations have been selected in part because of their relevance to the sites themselves but also because of their relevance to the other project MPAs and coastal locations and the larger southern coastal area. During this stage, intensive cross-site learning is to take place, involving stakeholders from relevant project sites. Government-funded threat removal activities informed by the results of the demonstration components will then continue at each project site. The project's final stage will be to disseminate lessons to promote replication at other MPAs within the project area.

The project is implemented primarily through 17 subcontracts with participating Chinese institutions in an open bidding process. SCCBD is also assisted in partnership with National Oceanic and Atmospheric Administration of the United States (NOAA) as well as Stora Enso, a private firm that has contributed to marine environment monitoring and restoration of mangroves in coastal areas of project demonstration site in Guangxi. SCCBD was also supported by ESRI (GIS) in terms of software and trainings to their application. External technical support has been provided through NOAA training courses.

The geographic area of the project consists of the inshore waters surrounding the five coastal provinces of southern and southeastern China.² The provinces are: Guangxi, Hainan, Guangdong, Fujian and Zhejiang Provinces. Their surrounding waters form the northern extension of the South China Sea, as well as the southwestern portion of the East China Sea. See the map in Figure 1 below.

The project development process began in 2000. It was originally planned to be a very large project. After many years of conceptual proposals, the project was eventually approved for \$ 3.195 M GEF funding and a \$ 8.774 M in-kind contribution from the Government of China, together with \$ 0.46 M from NOAA. The project was formally launched at a ceremony on November 9, 2005, followed by an inception workshop and the first Project Steering Committee meeting.

² More precisely, it consists of China's coastal waters less than 20m deep running from 27°N to 17°N.



Figure 1: Project Demonstration Sites

The project is currently completing year 4 of the 8-year project. The first year was spent in preparation. The general budget status below shows the pattern of activity with about half of disbursements completed by the end of 2007. The project had spent about \$1.58 M USD or 49 % of the GEF funds in the first three years of the project to 2007³, with about \$1.62 M available for 2008-2009:⁴

2005	- 56.058 (\$ '000)
2006	- 640.739
2007	- 881.322
2008-2009	- 1,617,000 (approx. remaining)

The four project demonstration areas are described below (information from Project Document).

A. Nanji Islands

The Nanji Islands are located at the northeastern limits of the project area, some 30 nautical miles east of the Chinese mainland. In addition to the main island of Nanji, the archipelago includes some 7.6 km² of land area, including more than 50 islands greater than 500 m². The islands themselves are of remarkable scenic beauty, with many rocky cliffs and stone outcroppings and formations, as well as sandy and gravel beaches.

³ Cited from the Project Summary Report (2005-2007) presented by PCU on the MTE debriefing meeting, which are slightly different from the numbers in the Project Implementation Report and Annual Auditing Reports.

⁴ Note: the GEF funds were to be limited to the first four years, followed by four years of government funding. The current plan is to extend some small proportion of the GEF funding to the Phase 2 in 2010-2012.

The increased pace of development at Nanji Islands has brought new threats, as well as new opportunities, for conservation of the islands' marine biodiversity. These include the following:

- *Aquaculture*: Development of aquaculture activities is creating pollution threats as well as risks of ecological disruption due to changes in population dynamics of marine organisms and potential impacts from the introduction of non-native commercial species.
- *Tourism*: Increased tourist visitation is placing pressure on renewable resources (increased demand for freshwater and seafood) and exacerbating pollution problems (sedimentation, sewage and solid waste).
- *Unsustainable resource use*: Over-harvesting and occasionally destructive harvesting methods for fish and shellfish, the latter including the use of dynamite.

B. Sanya Coral Reef National Reserve

Sanya National Coral Reef Nature Reserve (SNCRNR) is located in tropical waters at the southern tip of Hainan Island it currently covers an area of 6,300 ha⁵ and is divided into three non-contiguous parts. Like all of China's MPAs, SNCRNR is organized into core, buffer and experimental zones. SNCRNR includes fringing reefs that together constitute the largest expanse of coral reef, and contain many of the best coral formations, found anywhere along China's coast.

The following factors continue to threaten globally significant and other marine biodiversity at SNCRNR:

- *Land-based and marine pollution sources*: Land-based sources of pollution, particularly domestic wastewater, appear to have caused significant damage to certain areas of the reef in past years. Sanya's recently constructed sewage treatment facility will have important benefits in this regard. However, it remains unclear at this point whether additional steps will be needed, such as possibly increasing the degree of treatment.
- *Rapid growth of marine tourism*: Tourism plays a large and increasingly important role in the economy of Sanya City, and SNCRNR is among the most important attractions for these visitors.
- *Inappropriate fishing methods*: Sanya's coral reef fishery has been largely depleted through years of over-fishing and destructive fishing practices. These methods continue to be employed occasionally, and can be highly destructive when used in the vicinity of the reef.
- *Coral removal*: While greatly reduced, this practice nevertheless continues.

C. Shankou mangrove reserve and associated marine ecosystems

The project area is located in the northeastern portion of the Beibu Gulf, ⁶ within the eastern coastal and nearshore waters of Guangxi Autonomous Region. It consists of an ecologically inter-connected and globally significant series of marine ecosystems, including mangroves, seagrasses and coral reefs. The site includes the following existing and proposed MPAs:

Shankou National Mangrove Reserve:

Hepu National Dugong Reserve:

Weizhou-Xieyang Island Marine Protected Area (proposed)

The following main threats face globally significant marine biodiversity at the component sites:

- *Shankou*: Harvesting of marine organisms and other mangrove products is damaging tree seedlings, harming existing trees' root structures and disturbing migratory birds. Some current damage and somewhat greater potential risk is associated with shrimp farming in the vicinity of the reserve. Finally, hunting of birds in mangrove areas may be affecting three globally threatened species as well as other migratory species.

⁵ A proposal has been made to expand the MPA to a total of 8,500 ha, based on an assessment by Hainan's Scientific Council for Nature Reserves.

⁶ The Beibu Gulf, known elsewhere as the Gulf of Tonkin, is a semi-enclosed water body located in the northwestern portion of the South China Sea.

- *Dugong reserve*: Based on the paucity of recent sightings, it appears that this reserve supports few remaining dugongs. It appears that decline in their favored feeding habitat (seagrasses) may be largely to blame. For this reason, a failure to restore this habitat could mean a permanent end to dugong populations in the area.
- *Weizhou / Xieyang Islands*: Major threats to globally significant reef ecosystems include: the removal of live corals for the aquarium trade; destructive fishing methods, and; solid waste and wastewater pollution.

D. *Dongshan-Nan'ao migratory species corridor*

The site consists of the coastal waters along the provincial boundary between Fujian and Guangdong provinces. The area is bounded to the south by Nan'ao Island and to the southeast by Dongshan Island. These richly endowed and biologically productive waters have historically supported some of China's most productive fishing grounds, particularly in areas of current convergence and upwelling such as occurs near these two islands. In addition, up to eleven distinct bay ecosystems can be identified within this roughly 500,000 ha marine area.

A number of threats have been identified as confronting the globally significant migratory species found within the site area. These include the following:

- *Overfishing* within the site area is depleting the fishery resources on which many migratory species depend, as well as leading to problems of by-catch.
- *Aquaculture* within the area has taken place mainly in shallow coastal waters and in an overly concentrated manner. This has had several impacts, including localized pollution problems, as well as problems for migratory species that find their nearshore migration routes blocked by densely concentrated aquaculture pens and nets.
- *Sand mining* at beaches within the site area is leading to loss of important spawning habitat for marine turtles and horseshoe crabs.

1.3 Key Issues for Evaluation

During the initial discussions and review for the MTE, the following key issues were identified to assist in scoping and focussing the subsequent interviews and data collection:

- The clarity of expected results of the project in relation to the Logical Framework Matrix, the Results Framework and the PIR Outcomes;
- Whether the high dependence on sub-contracts to deliver the key project outputs has been an effective implementation strategy;
- The measurable, demonstrated change in functional capacity of the project site MPA organizations;
- The extent to which the sub-contract outputs have been integrated into MPA operations;
- The sustainability of collaboration between the MPAs and the sub-contractors;
- The extent to which the project has established integrated coastal management as a formal approach in local government planning and decision making;
- The development of realistic financing mechanisms to maintain MPA management operations;
- The extent to which threats and risks to biodiversity have been measured and reduced; and
- The feasibility and reliability of the parameters, indicators and time frames for monitoring biodiversity changes.

1.4 Evaluation Methodology and Process

The Mid Term Evaluation was undertaken through a series of document reviews, interviews and meetings, and site visits at the four demonstration areas. Consistent with UNDP and GEF procedures, the evaluation strives to be evidence-based – it draws upon objective information on project design, implementation and results using explicit evaluation criteria and questions (Appendix 3) to assess performance and achievements. The content of the evaluation is in accordance with terms of reference provided by UNDP China.

An interview guide was prepared to provide the general framework of evaluation questions. This was supplemented by questionnaires (translated to Mandarin) based on the GEF Protected Areas Management Tracking Tool. The MTE included 43 responses to these questions at the demonstration areas where MPA nature reserves existed. The data were compared to earlier survey results from January 2006, although there were limitations in the comparability.

The MTE based the assessment on comparison of project results to the UNDP Project Document statements of objectives and outputs and the relevant indicators and targets, as well as the outcome statements in the annual Project Implementation Review (PIR). The evaluation process included:

- 5 provinces/autonomous region visited and related governmental agencies interviewed
- 4 demo sites, 4 marine/mangrove nature reserves visited
- 13 different subcontractors interviewed
- More than 160 individuals interviewed/met

The methodology and interview guide are presented in Appendix 3. The Management Effectiveness Tracking Tool Analysis is presented in Appendix 5. The List of Contacts/Interviews and the Travel Itinerary are presented in Appendices 6 and 7.

The MTE also includes ratings of Project Implementation and Project Results. The rating criteria are as follows:

Highly Satisfactory (HS)	Implementation of all components is in substantial compliance with the original/formally revised implementation plan for the project. The project can be presented as “good practice”.
Satisfactory (S)	Implementation of most components is in substantial compliance with the original/formally revised plan except for only a few which are subject to remedial action.
Marginally Satisfactory (MS)	Implementation of some components is in substantial compliance with the original/formally revised plan with some components requiring remedial action.
Marginally Unsatisfactory (MU)	Implementation of some components is not in substantial compliance with the original/formally revised plan with most components requiring remedial action.
Unsatisfactory (U)	Implementation of most components is not in substantial compliance with the original/formally revised plan.
Highly Unsatisfactory (HU)	Implementation of none of the components is in substantial compliance with the original/formally revised plan.

The MTE team appreciated the PCU and SIUs preparatory work for the mid-term evaluation of the project. A project Implementation Report (2006-2008) in September 2008 and a Technical Implementation Report (2006-2008) in October 2008 were prepared for the mid-term evaluation, which summarized the project implementation and technical outputs and annexed the reports from four demo sites. The following list presents all the reports reviewed in relation to the subcontracts to date (SC 1 – SC 14):

Demo area: Shankou mangrove and associated marine ecosystems

- Baseline report of Guangxi demo site (SC1 & SC2)
- Social economic situation survey in and around Shankou National Mangrove Nature Reserve (SC1)
- Monitoring protocol of mangrove biodiversity (SC2)
- Technical protocol of coral reef ecosystem monitoring (SC2)
- Investigation report of changed level of awareness/knowledge/skill among key stakeholders (SC1 & SC2)
- Implementation report of Guangxi demo site (Guangxi SIU)

Demo area: Sanya National Coral Reef Nature Reserve

- Biodiversity baseline report of SNCRNR (SC5)
- Simplified technical protocol for long-term monitoring of coral reef in SNCRNR (SC5)
- Technical analysis report on GIS and database construction (SC5)
- Working report of GIS and database construction (SC5)
- Investigation report of changed level of awareness/knowledge/skill among key stakeholders (SC5)
- Implementation report of Subcontract 5 (SC5)
- Report of coral reef transplantation and associated monitoring (SC6)
- Implementation report of Sanya demo site (Hainan SIU)

Demo area: Dongshan-Nan'ao migratory species corridor

- Baseline report of Dongsha-Nan'ao demo site (SC10)
- Mid to Long-term marine biodiversity monitoring plan in Dongsha-Nan'ao demo site (SC10)
- Inter- provincial action plan for marine biodiversity conservation in Dongshan-Nan'ao (SC11)
- Implementation report of Dongshan-Nan'ao (Guangdong and Fujian SIUs)

Demo area: Nanji Islands

- Baseline report of Nanji Islands demo site (SC14)
- Mid to Long-term biodiversity monitoring plan in Nanji Islands Marine Nature Reserve (SC14)
- Technical protocol of marine biodiversity survey in Nanji Islands Marine Nature Reserve (SC14)
- Biodiversity GIS system designing and building scheme for Nanji Islands (SC14)
- Implementation report of Nanji Islands (Zhejiang SIU)

2.0 Project Design

2.1 Project Strategy

The project strategy can be generally summarized as follows:

- increase the capacity of MPA staff to mitigate the threats to the four project MPAs;
- apply innovative tools and approaches to reduce the threats to MPA biodiversity; and
- establish mechanisms for disseminating the tools and approaches and related best practices.

The project has been described as follows:

The first component will address threats that are directly related to weak conservation capacity of existing MPAs, and which do not involve significant demonstration aspects. The set of demonstration components will address key issues and develop much needed tools for managers of these MPAs and of the broader seascape area. These demonstrations have been selected in part because of their relevance to the sites themselves but also because of their relevance to the other project MPAs and coastal locations and the larger southern coastal area. During this stage, intensive cross-site learning will also take place, involving stakeholders from relevant project sites. Government-funded threat removal activities informed by the results of the demonstration components will then continue at each project site. The project's final stage will be to disseminate lessons to promote replication at other MPAs within the project area.⁷

The tools and approaches that are to be developed by the project include:

- 1) Integrated pollution control
- 2) Integrated coastal zone management
- 3) Co-management and sustainable livelihoods
- 4) Inter-provincial cooperation for biodiversity conservation
- 5) Sustainable financing mechanisms for MPAs
- 6) Nature reserve designation processes

The project implementation strategy has gone through several iterations. The logical framework in the GEF document was replaced by a Results Framework in the UNDP Project Document that provided more geographic breakdown of outputs expected at each site. Outputs, output targets and indicative activities are presented in the framework. But the framework does not distinguish between outputs and outcomes and provides a weak basis for monitoring progress in terms of verifiable indicators. This was noted by the Adaptive Management Advisor (AMA) in 2006. The AMA initiated changes in the monitoring framework to add more clarity about expected project results at the site level but this framework appears to have been too onerous for the site project teams to adopt on their own.

Additional complexity is added by the subcontracts and coordinating their deliverables with the annual work plans which are based on the Project Document and subsequent revisions. Activity reporting by the subcontractors is linked to their contracts rather than the Project Document.

Further refinement of the project strategy can be seen in the 2007 PIR report format which identified a series of Outcomes, Indicators and Targets, with a different set of performance measures in response

⁷ Executive Summary Report for Shankou Demonstration Site, Guangxi Mangrove Research Centre, 2008, p.2.

to new GEF reporting requirements. Figure 2 outlines the approximate logic model for the project. Table 1 presents the project objectives identified in the Logical Framework in the GEF Project Brief. Appendix 4 lists the project outputs.

The following conclusions are presented about the clarity and effectiveness of the project strategy:

- The specific and measurable end results that are expected from the achievement of the three project Objectives (later defined in terms of Outcomes) are not well defined in the Project Document. This affects the clarity of the project strategy.
- The project strategy and activities are driven by the many subcontracts. Administering a large number of contracts places the primary ownership of outputs with the contractors who, to some degree, have vested interest in the project only to the extent of satisfying their contracts. (See also the discussion of Implementation Processes in Section 3.2 below)
- Strengthening of the capacity to implement tools, instruments and approaches as outlined in the project design may not always be consistent with the priorities and capacity development needs of the MPA organizations themselves.
- Capacity development and demonstration of new methods may have policy and institutional change implications that have not been considered within the scope of the project. For example, introducing integrated pollution control, and modifying economic development plans to address biodiversity concerns may have implications outside of the project mandate. Some of the innovations may be beyond the reach of the project partners.
- The continued change in the wording of objectives, outcomes and outputs and the monitoring indicators over the course of the project, the change in wording and numbering in the Annual Workplans, and the layering of subcontract deliverables over top of the project planning created a very complex framework that reduces the common understanding of the project strategy.
- The project strategy has not been particularly effective in guiding the selection of project activities. Causal relationships between project activities and expected results are sometimes poorly defined. See Figure 2. For example, the *demonstration of integrated pollution control* is assumed to be represented by water quality and pollution studies and the ongoing government program for wastewater management. The direct relevance of some of the activities to the project objectives can also be questioned. All of this points toward some degree of uncertainty in the strategy to achieve the vaguely-defined outcomes.
- Finally, it should be noted that for most of the implementing partners, this is their first international project and the concepts and standards, and results-based orientation are new to their understanding of project management.

Figure 2: SCCBD Coastal Biodiversity Project Design

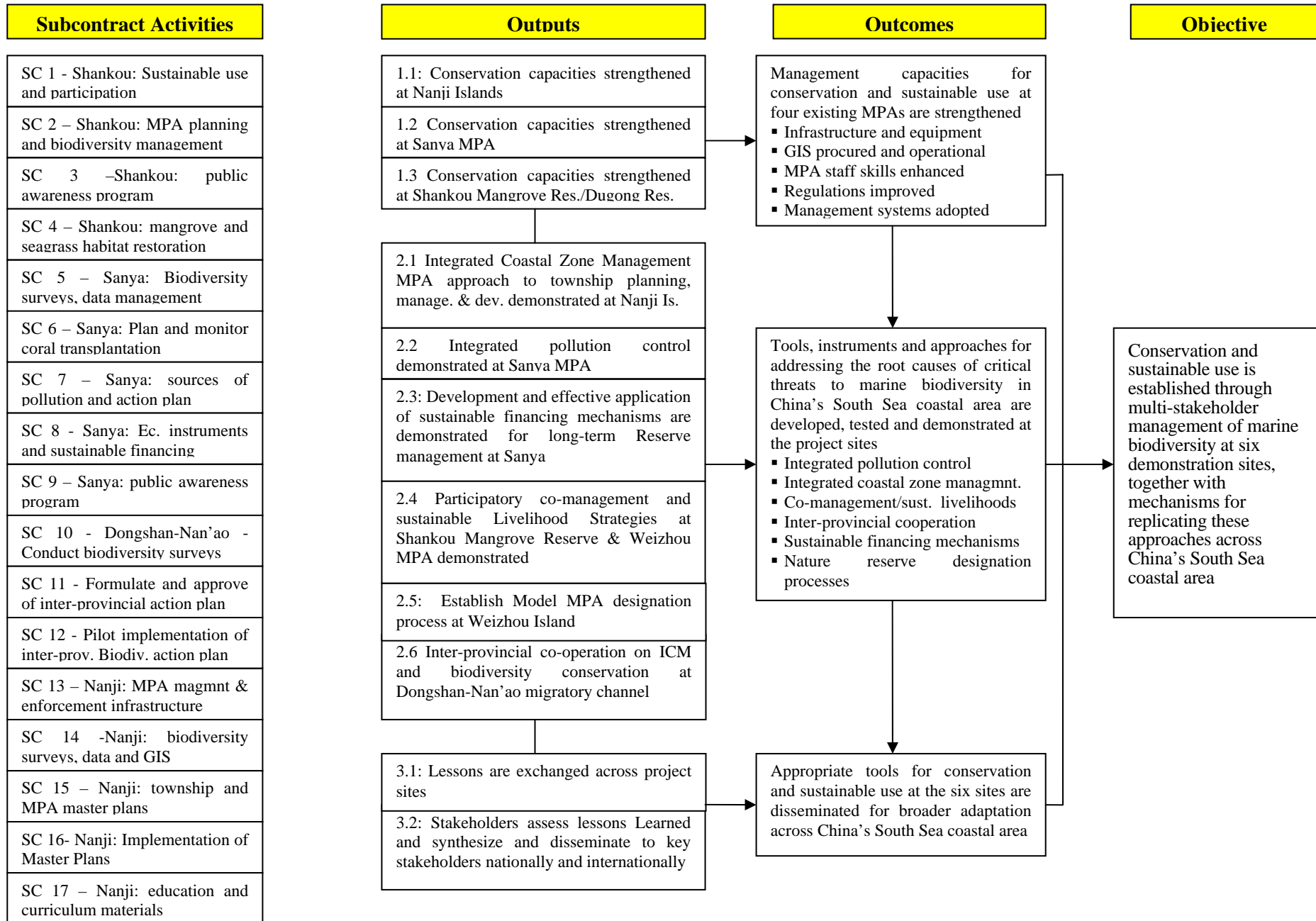


Table 1: Project Logical Framework Objectives

Description	Verifiable Indicators – Logical Framework
<p>Project objective</p> <p>To establish conservation and sustainable use through multi-stakeholder management of marine biodiversity at six demonstration sites, together with mechanisms for replicating these approaches across China’s South Sea coastal area</p>	<ul style="list-style-type: none"> • Each of the 4 MPAs are being managed effectively .This will include increased patrolling of MPA territories and long-term reduction of infringements on MPA regulations, financial sustainability in the pilot MPA and financial arrangements in place to lead to financial sustainability in the remaining MPAs. • Stakeholders at all sites are working together in the planning, management and conservation of natural resources through partnerships, co-management and other participatory mechanisms • Land-based sources of pollution (wastewater, agricultural runoff and sedimentation) are reduced to non damaging levels for biodiversity at all sites (based on scientific assessments). • Ship-based sources of pollution or damage (oil, solid waste, boat anchorage) are reduced to non damaging levels for biodiversity at all sites. • Inappropriate and destructive fishing methods (dynamite, cyanide, electric) are minimized at all sites. • Overharvesting (to be determined by scientific assessments) of fish and shellfish is halted at all sites. • Removal of coral is minimized at all reef sites • Coral damage from diving activities is minimized at all reef sites.
<p>Immediate Objective 1: Strengthen conservation and sustainable use management capacities at four existing MPAs</p>	
<p>Immediate Objective 1.1: Conservation capacities strengthened at Nanji Islands</p>	<p>1.1.1 MPA infrastructure visibly improved</p> <p>1.1.2 MPA staff skills demonstrably improved</p> <p>1.1.3 Biological monitoring programme strengthened</p>
<p>Immediate Objective 1.2: Conservation capacities strengthened at Sanya Coral Reef Reserve</p>	<p>1.2.1 Two biodiversity monitoring stations are established and operating (yr 2)</p> <p>1.2.2 Pilot coral reef transplantation is undertaken (yrs 1-2) and results are assessed (yrs 4 and 7)</p> <p>1.2.3 MPA staff and volunteer divers possess enhanced technical skills following completion of relevant training courses</p> <p>1.2.4 GIS-based maps of biodiversity hotspots are available and in use by managers (yr 3)</p> <p>1.2.5 Long-term biological monitoring programme is in operation (yr 3)</p>
<p>Immediate Objective 1.3: Conservation capacities strengthened at Shankou Mangrove Reserve and the Dugong Reserve</p>	<ul style="list-style-type: none"> • GEF-supported MPA investments are implemented as follows: <ul style="list-style-type: none"> ➤ Equipment received and in use (yr 1) • Co-financed investments are implemented as follows: <ul style="list-style-type: none"> ➤ Targeted restoration of mangrove and seagrass habitats. Est. area of former = 50 ha; latter area TBD. • Detailed zonation scheme for MPAs developed • Integrated management capacity involving local Governments and agencies (ICM approach) enhanced
<p>Immediate Objective 2: Develop, test and demonstrate tools, instruments and approaches for addressing the root causes of critical threats to marine biodiversity in China’s South Sea coastal area</p>	
<p>Immediate objective 2.1: The use of biodiversity overlays in planning is demonstrated at Nanji Islands</p>	<ul style="list-style-type: none"> • Comprehensive township-level master plan for Nanji Islands developed • Pilot implementation of master plan undertaken

Description	Verifiable Indicators – Logical Framework
Immediate objective 2.2: Integrated pollution control is demonstrated at Sanya Coral Reef Reserve	<ul style="list-style-type: none"> • Survival rate of pilot transplanted coral reef higher than 80% • Targeted pollution control investments made • Awareness raised among officials at municipal and provincial levels concerning the economic value of SNCRNR and the importance of pollution control investments
Immediate objective 2.3: Sustainable financing and the effective use of economic instruments for marine environmental protection are demonstrated at Sanya	<ul style="list-style-type: none"> • Action plan for sustainable financing under implementation • Alternative proposed economic instruments, e.g., user fees and charges, penalties, etc. in operation
Immediate objective 2.4: Participatory co-management and sustainable harvesting strategies involving local communities are demonstrated at Shankou Mangrove Reserve	<ul style="list-style-type: none"> • management plan for reserve, incl. details of permitted activities by VCGs and others in buffer and experimental zones developed • Pilot mangrove afforestation (50-100 ha) • Further identification of alternative sustainable livelihoods
Immediate objective 2.5: An effective process for establishing a new MPA, with international support, is demonstrated at Weizhou Island	<ul style="list-style-type: none"> • The MPA in Weizhou and Xieyang Islands is established in accordance with Kellerher G, 1999, <i>Guidelines for Marine Protected Areas</i>, IUCN and its experiences summarized for dissemination; • Solid waste and domestic sewage is under good control
Immediate objective 2.6: Inter-provincial co-operation is demonstrated at Dongshan-Nan'ao migratory channel	<ul style="list-style-type: none"> • Inter-provincial action plan for marine habitat protection and recovery prepared and under implementation • Obstacles to the migration of marine species such as Chinese white dolphins, sea turtles and Chinese horseshoe crabs are removed. • A new regulation for sandy beach conservation for migratory species is developed and submitted for approval • The joint committee between two provinces is in good operation and policy and strategic framework is established between the two provinces. • An MPA for Chinese horseshoe crab is under preparation for its establishment • A marine mammal rescue center is established in Dongshan in put into operation;
Immediate Objective 3 – Implement appropriate tools for conservation and sustainable use at the six sites and promote their broader adaptation across China's South Sea coastal area	
Immediate objective 3.1: Stakeholders at each site have learned from the demonstrated conservation approaches and are ready to apply the newly acquired capacity to their areas	<p>Studies prepared to analyse and synthesise results of demonstration components</p> <p>Experience/lessons exchanged through cross-site thematic working groups established and in operation</p> <p>Experience/ lessons exchanged through MPA staff exchanges and International staff exchanges with other GEF projects</p>
Immediate objective 3.2: Stakeholders at each site adapt and implement appropriate measures for conservation and sustainable use	<p><i>At Nanji Islands:</i> (i) Sustainable financing plan developed (ref. Output #6) ; (ii) New investments made in solid waste management and sewage treatment (ref. Output #5); (iii) Participation and alternative sustainable livelihoods for local residents (ref. Output #7)</p> <p><i>At Sanya:</i> (i) Participation and alternative sustainable livelihoods (ref. Output #7); (ii) Integrated approach to future planning undertaken (ref. Output #4)</p> <p><i>At Shankou et. al.:</i> (i) Sustainable financing plan for each MPA developed of (ref. Output #6); (ii) Sea area use projects reviewed, approved and adjusted in accordance with marine functional zonation scheme of Guangxi and Beihai City (WI, DR) (ref. Output #4); (iii) Regulatory controls on industrial pollution of MPA developed and implement (WI) (ref. Output #5); (iv) sewage treatment plant and improved solid waste disposal system for island (WI) established by Local Government (ref. Output #5)</p>

Description	Verifiable Indicators – Logical Framework
	<i>Dongshan-Nan'ao</i> : (i) migratory species action plan implemented (ref. Outputs #4-7)
Immediate objective 3.3: Project tools and results are synthesized and disseminated to MPA managers and other relevant officials throughout the wider project area	Best practices guide for establishing and operating MPAs, based on international experience and guidelines, but adapted based on China-specific conditions and, in particular, project experience developed and disseminated Training course for other MPA managers within the overall site area, utilizing the above guide organized.

Note: the 'Results Framework' in the Project Document and many of the subsequent workplans are not completely consistent with the above Logical Framework which was included in the Project Brief

2.2 Project Relevance

The extent to which the project and the implementation process remain relevant to China's priorities and GEF objectives is discussed below.

Policy Context

The policy document, "The Development of China's Marine Programs" (1998) describes the national sustainable marine development strategy. Comprehensive marine management initiatives are being undertaken in several locations. In the proposals for the 11th national Five-Year Plan (2006-2010), special emphasis was explicitly placed on "the development and protection of marine resources and the vigorous development of maritime industries."

SOA is an administrative government agency responsible for the supervision and management of sea use and marine environmental protection, for ensuring China's marine sovereignty and rights and for promoting research in marine science and technology".⁸ The primary department responsible for conservation is the Department of Marine Environmental Protection in conjunction with the Department of Sea Area Management and the Department of International Cooperation. . As the national executing agency, SOA expressed its strong underlying commitment and willingness to the introduction of integrated coastal zone management targeted by the project. The direct involvement of SOA provided high level policy and institutional environment/support to the project implementation.

The project may have gained greater relevance in recent years due to the concern about the environmental impacts of rapid coastal development and the interest in finding appropriate strategies to protect biodiversity. In February, 2008, the State Council approved the implementation of 'Outline of National Marine Programme Development Planning', which emphasized the marine environment and ecological protection concerning the marine environment supervision, pollution control and management, ecological monitoring and assessment, and ecological conservation and restoration. The MTE discussions confirmed that the project is important because it endeavours to further illustrate and expand the approaches to integration of environmental protection with coastal development. The active participation of five provinces reinforces this profile for the project.

Local Context

The project also remains highly relevant to addressing the pressing issues faced in the demonstration areas. This relevance is evident in the significant contributions of the provincial and local

⁸ State Oceanic Administration, The people's Republic of China, brochure, n.d.

governments toward conservation measures. The project has a substantial profile in each demonstration area and is directly relevant to the current development decisions that are occurring.

UNDP Country Program

The project remains complementary to the “China Country Program Document” Outcome 7: *Conservation and sustainable use of biodiversity is more effective*. Coordination, conservation in protected areas and mainstreaming of biodiversity into development plans and programmes are the major themes within the document. The project is directly focussed on these themes.

2.3 Project Schedule

In December 2004, the Project Brief was endorsed by GEF CEO, and in January, 2005, the project document was approved by the GEF Implement Agency of UNDP. The project schedule, 2005-2012, is divided into 2 phases (4 years of each). However, the project was actually initiated at November 2005 with almost 1 year delay due to the time required to resolve management arrangements and complex subcontracting procedures, especially where two provinces are involved. The planned activities are slightly delayed in comparison to the original disbursement schedule.

There is a concern about the timeframe for the project workplan. For example, the first two years of the project concentrated on the immediate objective 1 (Strengthen conservation and sustainable use management capacities at four existing MPAs) might not be enough. There were still gaps observed during MTE mission on transferring project outputs to the MPA staff. Similarly, there are uncertainties about the adequate timeframe for the development of tools and approaches for demonstration of integrated coastal zone management. Some of the activities may be beyond the project control, such as the approval of sustainable financial mechanism for MPA, and the creation of a new MPA at Weizhou Island. The project will need to be adjusted to account for these uncertainties.

2.4 Stakeholder Participation

The project implementation to date has been distinguished by extensive involvement at the national, provincial and local levels. The project management structure has provided for local coordination and advisory committee inputs and there have been various volunteer campaigns and initiatives that have engaged communities in the project. The small grants and other public awareness activities have also assisted stakeholder participation.

One issue of stakeholder participation relates to the MPA staff engagement in the project. The PCU have tried to broaden the process for input into workplans and budgets. There is still some view that the project belongs to the PCU and subcontractors rather than the MPA agencies. This is discussed in Section 3 below.

2.5 Project Budget and Co-financing

The project funding is provided by four donors, as outlined on Table 2. The total cost is estimated at almost \$13 million with in-kind contributions from the government the largest contributor.

Table 2: Total Project Contributions (\$USD, cash and in-kind)

Source	Type	Budget	Expenditure 05	Expenditure 06	Expenditure 07
GEF	PDF B	320,000			
	Full phase	3,195,000	56,058.18	640,739.42	881,322.36
GOC	In-kind	8,774,000	In-kind	In-kind	In-kind
NOAA		460,000	No data	No data	No data
Stora Enso		230,000	0.00	0.00	41,785.72
Total		12,979,000			

Table 3 presents the available financial information on expenditures to date and the budget for 2008 – 2012. The use of Stora Enso funds is shown in shaded rows. No data from NOAA costs are included in the table. The annual financial audits found no major issues with procedures and practices.

It is impossible to assess the cost of outputs or project management from these data. The PCU has been unable to provide a breakdown into budget lines approximating activities costs due to changes in the financial management systems in 2006. The largest costs are for contractual services, equipment and furniture and miscellaneous.

Table 4 shows the reported co-financing contributions to date by the government summarized from the co-financing reports of the five provinces/autonomous region. The total reported co-financing from the government is to RMB 183.508 M (around USD 26.8 M), about three times the amount of planned government co-financing in the project design. Note that some of these items are the estimated cost of ongoing and special government programs related to conservation in the vicinity of the project sites. But this is nevertheless, a major increase from the original planned contribution.

Table 4: Total Government Co-financing (RMB)

	2005	2006	2007	2008	other ⁹	Total
Hainan	2,595,000	2,008,000	5,002,000	3,625,000		13,230,000
Guangxi	3,435,000	2,845,000	1,975,000	895,000		9,150,000
Guangdong	27,685,500	40,853,300	33,479,200	16,670,000		118,688,000
Fujian	1,728,000	4,108,000	6,824,000	10,880,000	4,200,000	27,740,000
Zhejiang	2,520,000	2,225,067	7,411,373	182,200	2,362,118	14,700,758
Total	37,963,500	52,039,367	54,691,573	32,252,200	6,562,118	183,508,758

⁹ These numbers were reported without yearly breakdown.

Table 3: Project Expenditures and Budget (\$ USD)

Activity and duration	2005 expend.	2006 expend.	2007 expend.	2008 budget	2009 budget	2010 budget	2011 budget	2012 budget	Total Budget
Conservation Capacity Strengthened									
Contractual Services			363,606.32		-228,898.32				134,708.00
Equipment & Furniture	4,651.18	272,514.90	206,703.57	2,933	78,206.40				565,009.05
Miscellaneous		20,100.61	59,207.86	70,381	73,662.48	0.00			223,351.95
Micro Capital Grants			7,853.40	14,663	2,146.60				24,663.00
Good Practice									
local consultants				24,927	73.00				25,000.00
Contractual Services		167,962.77	43,301.76	249,267.00	369,135.47	25,600.00	0.00		855,267.00
Contractual Services-Stora Enso			24,695.53	0.00	124,304.47				149,000.00
Miscellaneous				73,314.00	30,642.00				103,956.00
Lessons learned									
Miscellaneous		79,940.36	37,570.68	76,246.00	85,292.96	5,000.00	5,000.00	10,000.00	299,050.00
Miscellaneous-Stora Enso			4,071.85	733.00	195.15				5,000.00
Management, Monitoring & Evaluation									
International Consultant		14,033.90	20,473.73	51,326.00	153,916.37				239,750.00
Local Consultants		26,427.35	48,333.03	39,912.00	41,139.62	14,400.00	14,400.00	14,400.00	199,012.00
Local Consultants-Stora Enso			3,112.31	5,279.00	18,808.69				27,200.00
Travel		27,405.76	43,365.76	35,000.00	3,528.48				109,300.00
Travel-Stora Enso			2,922.87	9,971.00	106.13				13,000.00
Professional Service			1,217.86	8,651.00	25,131.14				35,000.00
Professional Service-Stora Enso				4,000.00	0.00				4,000.00
Miscellaneous	36,573.00	34,621.42	61,592.43	71,470.00	98,676.15	4,000.00	4,000.00	44,000.00	354,933.00
Miscellaneous-Stora Enso			2,426.66	3,666.00	11,907.34				18,000.00
F&A- Stora Enso			4,800.00	9,000.00	0.00				13,800.00
Contract Service					21,000.00				21,000.00
Equipment & Furniture	14,834.00				-9,834.00				5,000.00
Subtotal of Stora Enso	0.00	0.00	41,785.72	32,649.00	155,565.28	0.00	0.00	0.00	230,000.00
Subtotal of GEF	56,058.18	640,739.42	881,322.36	718,090.00	757,990.04	49,000.00	23,400.00	68,400.00	3,195,000.00
Total	56,058.18	640,739.42	923,108.08	750,739.00	913,555.32	49,000.00	23,400.00	68,400.00	3,425,000.00

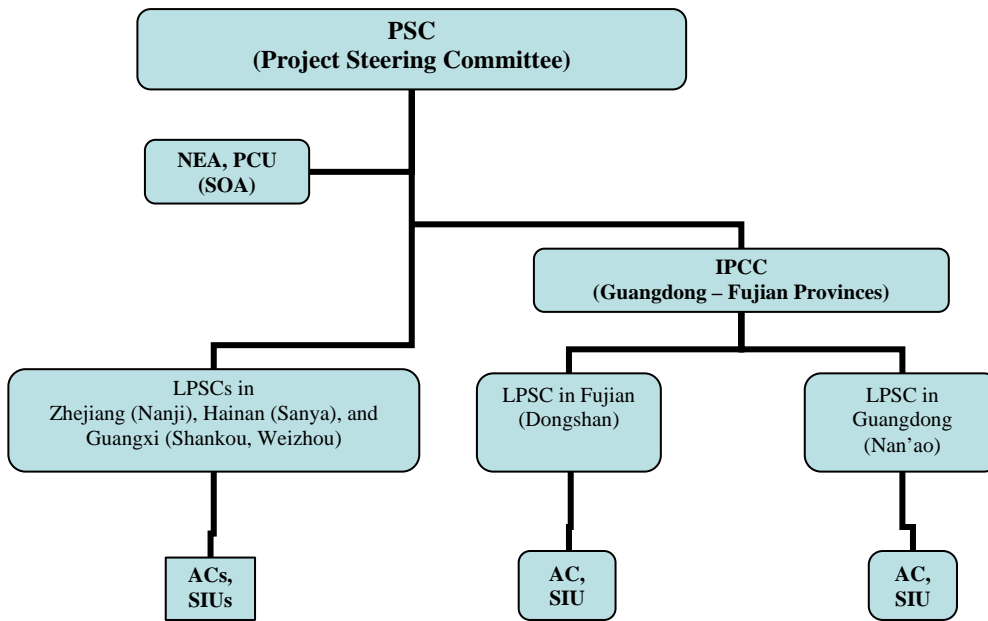
3.0 Project Implementation

3.1 Management Organization

The general structure of the project implementation includes six bodies and is illustrated in Figure 3.

- Project Steering Committee – the PSC has met four times (Nov 9, 2005, March 3-5, 2006, April 9-10, 2007, and January 7-8, 2008) They are responsible for executive direction and monitoring the overall direction and results of the program. Minutes of all of the meetings are prepared and distributed.
- Project Coordination Unit (SOA) – the PCU coordinates all aspects of the project including the annual work planning and budgeting, the procurement process and administering subcontracts, advising the SIUs and others, and regular reporting. They are responsible for day-to-day project implementation, coordinating and managing project activities in accordance with the rules and procedures of UNDP/GEF, the National Execution (NEX) Manual, and responding to guidance provided by the Project Steering Committee (PSC). The PCU staff has been visiting the project demonstration areas on a regular basis, usually every six months, and maintain regular communication with the SIUs.
- Interprovincial Coordination Committee (Guandong and Fujian Provinces, IPCC) – The IPCC committee has been established with an approved agreement to cooperate and coordinate. It has met five times. The first IPCC meeting on Jan. 6, 2006 at Nan'ao County identified the members of IPCC, LPSC, local Advisory Committee and SIUs. It has also approved the action plan for the Dongshan – Nanao corridor in Jan. 2008.
- Local Project Steering Committees (LPSC) at each of the five participant provinces/autonomous region – Each LPSC will be comprised of representatives from key government agencies at the provincial and local level. The SIUs have established five LPSCs of government staff to provide input into annual workplans and to facilitate activity implementation where necessary. These are operational groups that assist the SIUs in coordinating project and subcontractor activities. No formal structure or reporting occurs, but their roles is to approve Annual Work Plans and ensure co-funding support from local government and others.
- MPA agencies – These are the particular organizations and staff responsible for managing the MPAs. The MPAs generally work with the SIUs and subcontractors to implement the relevant project activities, although the degree of involvement varies between the project areas.
- Advisory Committees at the local level – These are informal groups that have been set up locally to assist volunteer activities and inputs from fisherman's associations and others. Not all of the sites have active advisory committees as such; the groups are involved in an ad hoc manner.

Figure 3: Management Structure for the Project



The following general observations are offered on the project management organization:

- The complex project design has required many levels of management and input. The structure appears to be working reasonably well, with some continuing concerns about the extent of local involvement. However, no major issues were identified in the overall organization. Some improvements in communication through regular newsletters may be needed.
- The degree of involvement at the SIU and site level is partly a function of the local responsibilities for implementation. Since most of the funding and activities are with the subcontractors, the criticisms of a centralized, subcontracting project strategy is still present among some of the local participants.
- The LPSC have not had a central focus or incentive for major involvement other than their input into Annual Workplans and assisting subcontractors where necessary. It may be useful to consider a more formal role in consolidating and overseeing the results of the subcontracts.
- It should be noted that the project complexity, the UNDP rules/procedures, and the ambitious project objectives have imposed a very large challenge for the PCU. In the context of this complicated project, they have performed well in managing the project implementation.

3.2 Implementation Processes

One of the key questions is whether the high dependence on sub-contracts to deliver the project has been an effective implementation strategy. This question has dominated the annual review discussions

because of the concerns about the centralized delivery of the project and the disincentives and other difficulties created by subcontracting most of the activities.

The annual reports and AMA reports note the initial difficulties with implementation and the efforts to respond to local government concerns:

In line with UNDP procedures the funding is allocated through sub-contracts to sub-contractors. Government agencies and MPAs cannot be sub-contractors. Typically, the sub-contractors are the institutions, academic or universities. Hence, in this procedure, the local governments and MPA do not receive the funding. In effect, UNDP finances sub-contractors to do the work required by the government agencies. It is understood that the local government and MPA initially feel a loss of control over funding through the UNDP procedures approach. Now the local governments and MPA are clarified that they have control over the sub-contractors by asking subcontractor to submit[ted] their report through respective SIUs and the local governments have strengthened their capacity to manage the sub-contractors and their capacity for overall planning and reporting on the sub-contract to national level by training courses and practical group planning courses.¹⁰

It was also explained that some of the subcontracted activities cannot be done by the subcontractors alone because they do not have the authority and the local government partners were at times having difficulty accepting the prescribed role of the subcontractor. The splitting up of six of the subcontracts and giving the SIU greater role in approving subcontract activities (although the subcontracts are really determined by the terms of the subcontract agreements) provided a measure of local involvement.

The PCU has made an effort to enhance local involvement by ensuring that work planning and budgeting are participatory, by clarifying reporting relationships to local governments and SIUs (as noted above), and by providing some training of local participants. In addition, some of the sub-contracts were broken down into smaller units to enhance the ability of to issue local contracts rather than national competitive bidding. Despite these efforts, it is clear that much of the local involvement is on a very part-time basis and their commitment is tempered by the limited funding that goes to the local agencies.

The following general observations are offered on these implementation process issues:

- The UNDP's rules/procedures for competitive bidding by external organizations have been is a significant source of project implementation inefficiency because it created uncertainty about responsibilities and at times inconsistencies between the contractual obligations and the mandate/responsibilities to implement the project.
- The subcontracting implementation strategy has also created an unnecessary distraction that focuses attention away from project outcomes and results.

¹⁰ Annual Review Report, January – December 2006, p. 1

- It needs to be recognized that many of the project activities have to be delivered by external organizations that have the capability to deliver the quality of expected services; the manner in which this delivery takes place and the benefits that are derived by the local partners is the critical issue.
- The allocation of funding in a perceived fair manner so that all partners have an incentive to be involved seems to be an important variable in China that may have been overlooked in UNDPs project delivery policies at the time of project design.

3.2 Work Planning and Annual Budgeting

Annual Work Plans are prepared with input from the demonstration areas, particularly the SIUs. The process is iterative and time-consuming. The process that has been implemented by the PCU appears to provide sufficient opportunity for input from the local level, within limits since some of the contracts have been already signed and are underway.

The final workplan documents, however, are sometimes confusing, with different wording and numbering than the Project Document and the PIR. The lack of cross-referencing with subcontract outputs is also a limitation.

3.4 Technical Assistance and External Advisors

A key question is whether the absence of international advisors has adversely affected the project implementation and the quality of outputs. The project design called for several external advisors in adaptive management, planning/coastal management, conservation biology and natural resources management. Due to the high costs of international consultants and the availability of NOAA experts, it was decided to forgo this approach. As an alternative, the PCU recruited seven national experts. Only an adaptive management advisor was employed on two short missions to review project implementation and monitoring. (see also the discussion under section 3.8). It was also assumed that technical quality in activity design was part of the Project document vetting and additional oversight by external advisors was not needed.

The 2007 report summarized the general approach that was adopted:

*Having studied carefully and completely the report of the AMA, the PCU has proposed corresponding measures for adaptive management at the national and local levels of the project. With the absence of relevant international advisors, the PCU has hired domestic advisors by adopting a flexible policy. The domestic advisors in the fields of conservation biology, marine protected areas, marine environmental economics, land and urban planning and integrated coastal zone management are participating in the project and advising the sites to promote their work.*¹¹

¹¹ Annual Report of GEF/UNDP/SOA Project on Biodiversity Management in the Coastal Area of China's South Sea, 2007, p. 3.

NOAA's involvement occurs under the MPA focus within the Sino-US Technical Support Protocol to Biodiversity Management. The project annual report indicates that "NOAA provided 17 specialists for training courses in the autumn of 2007 and four for guidance in drafting of reports in 2008. Hot line between SCCBD and NOAA built up for transferring materials about best practices." The PCU has stated that:

*The content of each training and study tour has been designed by PCU on the demand of each demonstration site. The US experience provided by NOAA staff and experts are tailored to Chinese reality and previewed by the project national experts. Taken the training course in April 2008 as an example. 4 NOAA experts have been chosen by PCU from 8 candidates, and provided hand-in-hand technical support to each demonstration site.*¹²

No training plans or post-training evaluations were available to the MTE team. The NOAA advisors were invited to provide observations on their experiences with SCCBD but no input was provided.

The following general observations are offered on the use of external advisors:

- There have been some technical assistance and quality assurance issues that could have benefited from external advisors serving as peer reviewers or professional mentors. Some the subcontractor staff indicated their limited experience and the need to improve the methods and level of analysis.
- The use of seven external national experts, as reported above, does not appear to have had much effect on the quality of project outputs. The role of these advisors was not apparent during the MTE mission and no independent reports were provided.
- The assumption that the technical aspects of the project were sufficiently addressed in the Project Document, the Project Implementation Plan and the terms of reference for subcontracts and that no further guidance was needed may have been a poor one in hindsight. Some scoping of to the key biodiversity concerns/questions and the alternative strategies for assessment would have been useful.
- The NOAA role appears to be only indirectly related to the project objectives and expected outcomes; their focus does not seem to be directly on capacity building in relation to the project but rather in sharing American experiences in MPA and coastal zone management. No capacity building strategy or training plan was available to the MTE to assess this external input from NOAA.
- The Adaptive Management Advisor played a key role in improving the subcontracting arrangements, but the results in terms of introducing adaptive management are very limited (see section 3.8 below).

¹² Comments provided on Draft MTE, January 2009, p.5.

3.5 Cost Effectiveness and Efficiency

It is difficult to comment on cost effectiveness without a clear breakdown of costs relative to outputs. The value for money of some of the subcontract outputs has not been assessed but there are some issues that are noted in the evaluation of results in Section 4 of this report.

Some questions of cost effectiveness arise in the UNDP contracting process and the efficiency of administering so many contracts. The dispersed activities and the difficult access and logistics have also constrained efficiency. Overall, the project operations have been generally well organized.

The primary cost effectiveness concern has been whether the subcontracting arrangement has been efficient and whether the outputs produced will lead to better biodiversity management results. The extent to which MPA staff and others are able to use the data, approaches, tools and equipment provided by the project is the fundamental question which needs to be considered in the remaining period of the project.

Section 4 review of results also questions some of the investment decisions of the project in supplementing government programs. Lack of clarity in the project design may have provided undue flexibility in activity selection. The rationale and direct relevance of some of the subcontracts such as water quality monitoring of sewage treatment plants discharges (Subcontract # 7), algae restoration (Subcontract # 16 a&b) water supply line and other infrastructure at Nanji (Subcontract # 16c and other direct funds) seem to suggest occasional ad hoc selection of investment rather than a careful analysis of what is *necessary and sufficient* to achieve the expected outcomes of the project. These criticisms are linked to the vague definition of expected outcomes in the project design.

There is a larger question of whether the original project design assisted the best use of GEF funding:

The project was designed in (2000). Since then, the situation has changed significantly and government co-funding and related investments have increased. It is possible that GEF funds could be more focussed on innovative and emerging issues. At present, GEF funds are used mostly to directly support the government programme. This is fine. However, the GEF funds are rather small, and may be better used for more innovative purposes: introducing new ideas, addressing new issues¹³.

This comment was also reinforced in the MTE field mission. The project and the pressures from coastal development have helped to leverage major funding for infrastructure and equipment. It is not always clear where GEF funding differs from government programs. Many of the project partners are only able to view the project benefits in terms of 'more equipment' and are not able to see the larger value of international support. They point out that GEF funding is minor but the prestige of the international project is what has helped the biodiversity issue gain attention.

The following general observations are offered with regard to cost effectiveness and efficiency:

¹³ Annual Review Report, January – December 2007, p. 2.

- Some activities could have been more effectively and efficiently delivered directly through the targeted government agencies, especially related to public awareness, and the project has tried to make some adjustments to accommodate this fact.
- Technical outputs of the Sub-contractors are only of effective value if they have an impact on management capacity and better decision making.
- The purpose of GEF funding in relation to government funding is not well defined and distinguished by the project partners. The central contribution of GEF may be in making better use of government funding and infrastructure and equipment investments through improved management systems and governance innovations.

3.6 Contributions of Implementing and Executing agencies

UNDP's responsibilities appear to have been generally fulfilled as per the Project Document, although the difficulties imposed by the UNDP subcontracting rules and procedures had an obvious negative effect on performance, as later described in this report. The level of oversight for a complex project such as this one is partly dependent upon the quality of the project design and implementation plan, and the resources available for UNDP review of field level activities. The changes in project officers have also probably not helped the management oversight. No critical comments were received about UNDP contributions to project direction and management. No review was undertaken of the financial oversight functions.

SOA's responsibilities as the national executing agency have also been sufficiently fulfilled as per the Project Document terms of reference. No major issues were expressed by the participating partners. The PCU has had an active role in managing all of the administrative and support functions required of them. The workplans and budgets have been participatory and on time and the records of meetings and reports on progress have been timely. Some weaknesses with regard to monitoring are noted in Section 3.8 below.

3.7 Risk Management

The key risks have been highlighted in the Project Document, none of which are identified as critical in the annual PIR (2008). They include:

- **Lack of decentralization:** involvement and accountability at the local level was an expressed concern of the SIU and MPA staff. This remains a concern, as noted in this report, but it has been offset to some extent by the actions of the PCU to improve participation.
- **Weizhou Island nature reserve designation** – after the approval of the project the Guangxi Autonomous Region government has been reluctant to agree to nature reserve creation. This remains a major barrier to achieving the original objective of demonstrating a model designation process resulting in Weizhou Island coral reefs being protected.

- **Co-financing commitment of the governments** – the concern was that the partner governments may not deliver on commitments made to the original. This risk has not arisen. The co-financing commitments have exceeded expectations.
- **Lack of understanding of the project by SIUs and subcontractors** – the concern was that the new concepts being introduced by the project and the national scale of the project would limit the local understanding of the purpose and objectives of the project. The efforts of the PCU to communicate and engage the local organizations and providing local training to provincial and local government officials has reduced this risk. But the MTE also found that the activity focus of the project and the perception of some that equipment is the primary benefit from the project suggest some lack of a larger vision of the project's purpose.

3.8 Monitoring and Reporting

The monitoring system presented in the Project Document has many deficiencies, as noted by the Adaptive Management Advisor (AMA) in his two missions. There has been little results-based or adaptive management as normally expected by UNDP because of the general absence of measures to track progress toward the project outcomes. Furthermore, it is difficult to use the Logical Framework because it is organized by thematic outputs rather than site locations.

The AMA attempted to establish a more rigorous monitoring process. Although there were many references during the MTE to project participants using adaptive management, a review of the reporting indicated very little progress in using the adaptive management scheme. Most of the reporting is based on completion of activities and outputs rather than achievement of outcomes. A more structured approach to defining the measures of outcomes has been adopted in the annual reports, due to the PIR framework that is imposed by UNDP/GEF, but most of the progress information is description of what the project has been doing. Some simplification of the framework proposed by the AMA would be needed to assist the use of adaptive management.

On the basis of these observations, it can be concluded that:

- Adaptive management as a concept is part of the project – i.e., awareness of the idea of ongoing adjustment of the program based on feedback from measuring changes in reliable indicators of results.
- But the monitoring system does not currently use the necessary indicators for this type of system and does not provide the information needed for results-oriented adaptive management.
- Despite these limitations, partly derived from the vague project design (see Figure 2), the project has been issuing regular and timely progress reports as per the GEF, UNDP and Government of China requirements.

3.9 Rating of Project Implementation

Table 5 summarizes the general rating of project planning and budgeting, project management and project monitoring and reporting. The project implementation has been generally satisfactory in terms of the scale of outputs completed and the overall project planning and management, particularly recognizing the project design complexity and the new experience with international projects. The exception is the lack of a systematic, results-oriented monitoring system. The reporting system has varied over the course of the project and mostly reports on activities and outputs completed.

Table 5: Rating of Project Implementation

IMPLEMENTATION ACTIVITY	IMPLEMENTATION INDICATORS	RATING	RATIONALE FOR RATING
Project planning and budgeting	<ul style="list-style-type: none"> ▪ Project design, work planning and budgeting that meets UNDP/GEF requirements. - Inception Report and annual workplan and budgets have been prepared as required and scheduled. 	S	Overall, the work planning and budgeting have been generally consistent with UNDP/GEF practices. The communication and clarity difficulties of the annual workplans may be due to complexities and weaknesses in the project design documents, although this should have been corrected by the PCU.
Project management	<ul style="list-style-type: none"> ▪ Regular oversight and management of the project implementation and finances in accordance with the Project Document, Inception Report and annual workplans and budgets. - Project committees have operated effectively and regularly, communication with partners has been effective and responses to implementation issues have been initiated. 	S	The project management quality is just inside the category of 'satisfactory' because of the substantive efforts of the PCU to respond to complaints by the SIUs and local governments regarding participation in the project, and the active administrative oversight of the many partners. This tended to offset the project management weakness related to the project implementation strategy and the limited technical quality assurance in some of the outputs.
Project monitoring and reporting	<ul style="list-style-type: none"> ▪ A monitoring plan and tracking and monitoring and reporting system based on reliable indicators of objectives, outcomes and outputs. - The efforts to establish an effective monitoring and adaptive management process have not produced reliable measurement of progress toward the project objectives and outcomes. 	MU	The monitoring reports are submitted on a regular and timely basis, but much of the information is simply a description of activities. As noted in this report, some of the poor monitoring is due to the vagueness in defining measurable end results from the project and the lack of effective indicators of outcomes.

4.0 Project Results

4.1 Progress toward the Project Objective

The Project Objective is to establish conservation and sustainable use through multi-stakeholder management of marine biodiversity at four demo sites, together with mechanisms for replicating these approaches across China's South Sea coastal area. This was further defined as:

Upon successful completion of the project, stakeholders will be applying innovative and adaptive Marine Protected Area (MPA) and integrated coastal management practices to mitigate and prevent threats to coastal ecosystem integrity. In doing so, stakeholders will be utilizing new partnerships, conservation tools, information and sustainable livelihoods to conserve coastal biodiversity in the priority sites.¹⁴

The indicators of Project Objective achievement (from the Logical Framework) are assessed below:

- Logical Framework Indicator: Each of the 4 MPAs are being managed effectively .This will include increased patrolling of MPA territories and long-term reduction of infringements on MPA regulations, financial sustainability in the pilot MPA and financial arrangements in place to lead to financial sustainability in the remaining MPAs.

- The Management Effectiveness self-assessment survey (Appendix 5) provided average scores for Sanya – 62%, Shankou – 74%, Dongshan 55% and Nanji – 77%. The project has enhanced patrolling capacity and processes as well as enforcement of regulations although no formal assessment of performance has occurred. Increased focus has also been placed on options for financial sustainability of the MPA management and it is anticipated that policy changes will be considered to introduce cost recovery concepts. Management skills have also been marginally improved through training provided by the project, although no training plan and follow-up assessment has been completed. The management capacity at each MPA has also not been formally assessed in terms of MPA management objectives and standards, personnel availability/job descriptions, information systems, management programs and procedures, etc. Management plans of various forms exist but they are very general and do not appear to be formally used to guide management activities. The substantial outputs generated by the project in terms of infrastructure, GIS equipment, inventory and monitoring data and protocols, awareness-building and number of people trained have not yet been developed into management programs that fully utilize the support provided by the project. The interviews with site MPA staff indicate significant deficiencies in their ability to apply the concepts and tools that have been introduced. The second stage of the project should focus on this task – ensuring effective management of the project MPAs.

- Logical Framework Indicator: Stakeholders at all sites are working together in the planning, management and conservation of natural resources through partnerships, co-management and other participatory mechanisms.

- It is difficult to measure progress toward co-management and participatory approaches since the Project Document is vague about expected outcomes from support for advisory committees, volunteers and sustainable livelihoods and ‘participatory mechanisms’. Like most of the project monitoring system,

¹⁴ SCCBD Implementation Plan, 2005.

the indicators of expected results have not been put into operational form were they provide meaningful measurement of progress. The available information, mostly data on project activities, is generally insufficient to measure achievement. The more formal mechanisms, however, such as the Inter-Provincial Coordinating Committee which have formal agreements and procedures, have provided obvious improvements in participation and cooperation and are more likely to have a sustainable effect .

- Logical Framework Indicator: Land-based sources of pollution (wastewater, agricultural runoff and sedimentation) are reduced to non damaging levels for biodiversity at all sites (based on scientific assessments).

- Sub-contract SC 7 at Sanya is undertaking an assessment of the effect of land-based pollution on marine water quality including effects on the coral reefs. The budget (\$75,000) is sufficient to provide for a systematic field assessment of source locations, quantities, qualities, discharge patterns and potential effects on sensitive site features. The results will be available in May 2009. There may be useful lessons for other project sites.

- Logical Framework Indicator: Ship-based sources of pollution or damage (oil, solid waste, boat anchorage) are reduced to non damaging levels for biodiversity at all sites.

- Sub-contract SC 7 at Sanya proposes to take account of the inshore boat basin water quality concerns as well as ship-based discharges. Increased enforcement may assist general compliance with pollution regulations.

- Logical Framework Indicator: Inappropriate and destructive fishing methods (dynamite, cyanide, electric) are minimized at all sites.

- Increased attention toward enforcement of fisheries and MPA regulations has undoubtedly reduced inappropriate and destructive fishing methods at many of the MPA sites although there has been no tracking of this outcome indicator.

- Logical Framework Indicator: Overharvesting (to be determined by scientific assessments) of fish and shellfish is halted at all sites.

- Increased attention toward enforcement of fisheries and MPA regulations has increased harvesting restrictions and undoubtedly reduced overharvesting pressures at the MPA sites although there has been no tracking of this outcome indicator. The subcontracts do not include scientific assessments of fish and shellfish harvesting although SC 10 at Dongshan-Nanao has includes a general review of by-catch of threatened species of concern.

- Logical Framework Indicator: Removal of coral is minimized at all reef sites

- Increased attention toward enforcement of MPA regulations may have reduced coral removal to some extent at the relevant MPA sites but there is no baseline or benchmark for this indicator.

- Logical Framework Indicator: Coral damage from diving activities is minimized at all reef sites.
- The scale of novice diving activities at some of the MPAs (e.g., hundreds of divers per day at some sites at Sanya during the high season) and the lack of specific management controls suggests that coral damage from tourism activities is a major concern. Observations from initial monitoring data indicate that increased suspended sediments is a significant threat at some of the sites although the causes may have many origins. The development of reef monitoring protocols and reef check processes will assist in managing diving impacts within an effective management plan and implementation program.

In assessing achievement of the Project Objective, it should first be recognized that the project has been given a high priority by the participating government agencies. This has created a high level of awareness about the project and about biodiversity resources in coastal areas. The interest in the project also reflects the growing concern in China about the environmental impacts of intensive coastal development. It should also be noted that this is the first international project for many of the stakeholders and this lack of experience is apparent in some of the implementation. The international status of the project has also been partly responsible for the high degree of commitment.

On the basis of the MTE discussions and field visits, the progress at the objective level can be described as follows:

- The participating organizations and staff – MPA agencies, other government agencies, and subcontractors, have all gained important knowledge of biodiversity and MPA management and the general frameworks for biodiversity conservation (information, analyses, strategies, regulations, technical skills) in coastal areas have been formulated at each project site, which has assisted progress toward the objective of multi-stakeholder management of marine biodiversity.
- There are however, apparent weaknesses in these frameworks that limit their effectiveness in fully utilizing the new approaches and tools developed in the project. The management capacities and the experience to effectively use the new information, knowledge and skills have to date not been fully developed and tested.
- In particular, the transfer of many of the outputs and skills that have been developed from the subcontractors to the responsible MPA agencies and staff is a constraint to full achievement of the project objectives and sustainability of the outputs. In some cases, the subcontractors recognize that they have an obligation to assist in follow-up use of their deliverables (GIS, monitoring protocols, co-management) but there is as of yet no structure to ensure that this post-subcontract implementation process actually occurs.
- While the project has developed some new institutional relations to support various forms of integrated coastal management practices (including integrated pollution prevention and control), further use of this approach may be a longer term objective that requires consideration of policy and institutional development. Nevertheless, the project has facilitated development of integrated approaches and has generated considerable public and financial support and goodwill for biodiversity conservation initiatives that cut across sectors and agencies.

4.2 Achievement of Outcomes and Outputs

Table 1 outlines the three expected outcomes and the indicators that were intended to be used in assessing project achievement. Appendix 4 also lists and assesses output completion at mid term. Detailed information on activities, outputs and results has been provided by the project staff and subcontract partners during the mid term evaluation. (The review of achievements is presented below for each project area/subcontract activities rather than by sequence of numbered outputs)

As of mid-term, the review was able to assess progress on the two main outcomes:

- Outcome 1: Conservation and sustainable use management capacities at four existing MPAs are strengthened
- Outcome 2: Tools, instruments and approaches for addressing the root causes of critical threats to marine biodiversity in China's South Sea coastal area are developed, tested and demonstrated

4.2.1 Nanji Islands MPA, Zhejiang

The primary outputs expected for Nanji are¹⁵:

- (1) MPA infrastructure strengthened in measurable ways,
- (2) MPA staff skills demonstrably improved,
- (3) Biological monitoring program made operational, and
- (4) The general public and school students in Nanji township and Pingyang County will know more about Nanji Island MPA.
- (5) Comprehensive township master plan for Nanji Islands under implementation.

The principle conservation theme at Nanji Islands has been the protection of water quality, algae and shellfish abundance and diversity and the threat of tourism development to the islands' biodiversity. The demonstration project is mostly implemented through Subcontract 13 (infrastructure/equipment), 14 (baseline survey), 15 (township planning) and 16 (formerly implementation of township planning; now algae restoration and water supply). Other activities involved training and study tours organized by the PCU. To date, Subcontract 13 and 14 have been completed and Subcontract 15 and 16 have just started.

The biodiversity conservation strategy at Nanji Islands centres on identifying important areas of algae and shellfish resources, monitoring their abundance and diversity, measuring water and sediment quality at nine sampling areas, and supporting active surveillance and enforcement patrols. No management plan is established but a proposed revised township plan is expected to include biodiversity conservation elements.

The following general observations were made during the field visits:

- The project outputs have been extensive and have been thoroughly documented by multiple subcontractors. They have generated modest but measurable improvements in MPA management

¹⁵ The outputs listed in this section are drawn from the UNDP ProDoc Results Framework.

capacity as well as increased awareness about the reserve. Many of project's technical outputs have sustainability issues since the subcontractors managed most of these outputs. The main project benefits have included provision of infrastructure and equipment, increased profile and recognition of the reserve, marine biodiversity monitoring program and survey protocol, and to a less extent, enhanced information and skills for MPA management.

- The rationale for selecting algae and shellfish as the key indicators of biodiversity values at Nanji Islands is appreciated but may not be representative of the range of island ecosystems/ecotopes and biodiversity values. The general ecological and habitat characteristics of the major coastal landscape units, particularly rocky intertidal zone, sandy intertidal zone, mud intertidal zone, subtidal zone and shoaling water area, need further characterization.
- The prescribed project target for Nanji is stated as “algae and shellfish are in a better state of health”. An ecosystem-based approach that provides a holistic perspective on managing environmental quality is needed as a basis for selecting management strategies for algae and shellfish. The use of restoration as a primary management strategy may be premature when other strategies such as reducing mariculture densities, enforcing harvesting regulations, reducing pollutant loadings, etc. have not been fully demonstrated.
- More consideration could be directed toward over-harvesting threats; the reported data in Table 16 of the Baseline Report indicate a tripling of shellfish harvest and a doubling of algae collection and fish catch since 1990. This pressure along with the observed changes in algal species and communities need to be considered within the specific shellfish and algae management plans and within the conservation plans for Nanji Reserve and adjacent waters.

Output 1.1: Conservation capacities strengthened at Nanji Islands

Extensive training has been provided on MPA management, biodiversity monitoring, GIS applications, enforcement and volunteer monitoring. The SIU identified the project achievements including:

- MPA infrastructure strengthened in measurable ways
- Communications/other equipment for management and enforcement
- Upgrade water and power supply systems at MPA
- MPA staff skills improved
- Technical regulation of marine biodiversity investigation and biodiversity monitoring program
- Create GIS system on biodiversity in Nanji Islands
- Staff's view enlarged, awareness raised, advance experience achieved
- Staff's awareness of biodiversity conservation raised
- Raised public awareness and knowledge

Standardized biodiversity monitoring/survey protocols were designed and tested. Intertidal surveys were completed at 8 sites in 2007. The procedures for monitoring were documented in a *Technical Regulation of Marine Biodiversity Investigation in Nanji Islands MPA*, and *Long and Medium Term Biodiversity Monitoring Program of Nanji Island MPA*. Parameters included nutrient salts, chlorophyll, temperature, salinity, Ecoli, dissolved oxygen (DO), Heavy metal and so on. (Period of

monitoring: One time in Spring and autumn separately (one time per season from 2005). Index of investigation: Set 1-3 sites in high-tide, mid-tide and low-tide zone, using quantitative box to collect samples.) Algae species like *Sargassum horneri* and *Gomphina veneriformis* will be monitored once or twice a month. Red tide monitoring is carried out everyday. A complementary survey of algae and shellfish was also undertaken by the Zhejiang Mariculture Research Institute.

Improvements to the management system have also included introduction of a single entrance ticket (100 RMB) which generates major revenue from around 80,000 visitors per year. All of this revenue is available to support MPA operations.

Comments:

- The biodiversity monitoring protocol and program provides a comprehensive framework for intensive monitoring of water and sediment qualities and algae and shellfish abundance and distribution. Other biodiversity components of conservation concern (fish, birds, mammals, invertebrates, plants, etc.) are not directly considered. Furthermore, this framework depends upon technical support from the Second Institute of Oceanography and cannot be implemented alone by the MPA staff and local organizations. More strategic review of the monitoring system and on-the-job training of the MPA staff may be needed.
- The special interest of the demonstration project in artificial propagation of macro algae *Sargassum honarai* (Subcontract 16 a and b) is not sufficiently justified since the cause and ecological significance of observed decline in this species has not been addressed, nor the implications for Nanji Islands biodiversity and the long term sustainability of restoration. This activity is driven by particular research interests. It should re-focus the program to:
 - a) assess the ecosystem functions and attributes that depend upon this particular algae species and the implications of decline on the local marine ecosystems,
 - b) identify the potential causes and pathways of the decline including the effects of mariculture expansion at Nanji Islands, and
 - c) examine the alternative conservation as well as restoration strategies for responding to ecosystem level changes if they are occurring.
- Subcontract # 16c provides support for water line construction for Nanji township. The rationale for ad hoc infrastructure investment is not consistent with the project outcomes and GEF criteria.

Output 2.1: Demonstrate Integrated Coastal Zone Management MPA approach to township planning, management and development at Nanji Islands

This output was to be implemented by Subcontract # 15 - Develop township urban/rural development master plan for Nanji Islands and Nanji MPA management plan (\$35,000)¹⁶, and Subcontract # 16 - Implement GEF-financed activities of township-level master plan and Nanji MPA management plan (\$116,000). Both Subcontract #15 and #16 have been re-formulated. Subcontract #15 has been divided into 2 sub-subcontracts, i.e. a) Assess the existing town ship planning with GIS maps of biodiversity distribution (\$9,000), and b) Integrated biology, ecology, geography, and socio-economic to assess the key activities and make a proposal to amend the township planning. The revising of

¹⁶ Note: the budget for SC15 in UNDP Prodoc is USD \$35,000.

township planning work is in progress and is expected to be completed by the end of 2009. Subcontract # 16 has been revised to focus on development and testing of algae restoration methods.

Comments:

- Due to slow start of the project, the township planning was completed before the project started. However, the township planning was regarded as having insufficient consideration in biodiversity conservation. The project then aimed at mainstreaming biodiversity into the existing township planning.
- Considering that the Nanji Islands MPA is larger geographically than the township, and the dual responsibility of the MPA staff for the management of nature reserve and the township, it is suggested that the project facilitate development of a master plan for the MPA utilizing the information and resources developed within the project.

4.2.2 Sanya MPA, Hainan Province

The primary outputs expected for Sanya are:¹⁷

- (1) The long term survey and monitoring program operational;
- (2) The Pilot coral reef transplantation is undertaken and results are assessed.
- (3) Link biodiversity conservation, with pollution reduction/control.
- (4) Develop funding mechanisms (fees, tax incentives/disincentives, penalties/fines).

The principal conservation theme in the Sanya MPAs is the management of visitors and tourism activities on the coral reefs. The biodiversity conservation at Sanya is based on monitoring and protecting the coral reefs and their habitats and species from direct threats of site tourism and indirect effects of water pollution related to urban development in Sanya.

A conservation and development plan for the MPA (2006-2010) is available with conservation principles and objectives, with guidelines for MPA patrol, sustainable tourism development, and capacity building of MPA management. Key issues on scientific research and monitoring system development have also been identified including the research on habitat and coral reef species monitoring, key communities and the stable mechanism of coral reef ecosystem, degradation and evolution mechanism of coral reef ecosystem function, restoration and conservation techniques of coral reef ecosystem, designing and study of tourism development and biodiversity conservation, etc.

The demonstration project in Sanya is mostly implemented through Subcontract # 5 (baseline survey), 6 (coral reef transplantation), 7 (pollution control) and 8 (sustainable financing). Other activities involved training and study tours organized by the PCU. The SIU identified the project achievements so far including:

- Management capacity of the MPA enhanced
- Capacity of scientific research strengthened
- Management measures of the MPA upgraded
- Public awareness and knowledge promoted
- Threats to the biodiversity identified

¹⁷ The outputs listed in this section are drawn from the UNDP ProDoc Results Framework.

The following general observations were made during the field visits:

- In general, the biodiversity surveys and *reef check* procedures development has been comprehensive and high quality, with some involvement/training of MPA staff in the reef check procedures and in the use of GIS data display capabilities.
- The very high levels of tourism use at the MPA sites with intensive development on some of the sites may be more of a direct threat to reef qualities and biodiversity than the less direct effects of Sanya's point and non-point discharges, especially where tourists go ashore on the islands and where no wastewater treatment is installed.
- Despite the 1:1 diver-instructor ratio, the large number of novice divers with limited buoyancy control, the shallow depths and the many photos of divers being photographed holding on to the reefs suggests a significant cumulative impact may be occurring due to tourist diving.
- The primary reef water quality concern is with suspended solids, although the cause of the increasing levels is not generally known; it is suspected to be generally related to high levels of surface runoff from Sanya but this needs further study. (see Subcontract #7a)

There are **three sets of outputs** that have been developed for Sanya:

Output 1.2 Conservation capacities strengthened at Sanya MPA

Significant progress has been made in capacity development through the biological and biodiversity monitoring program (Subcontract # 5), and the related development of GIS to display and assess the data which was collected. Permanent monitoring stations have been established at the three separate sites of the MPA, i.e. East and West Islands, Luhuitou peninsula – Yulinjiao area (including Da Donghai, Xiao Donghai, and Luhuitou), and Yalong Bay. The major coral reefs and other 'biodiversity hotspots' have been identified. Biodiversity surveys were completed on four sub-areas involving 26 sites: Yalong Bay (Dongpai and Yezhu Island), Da Donghai, Xiao Donghai and Sanya Bay). These provided data on the substrate/sediment environment, coral reef health, benthic attributes, species composition/abundance and other parameters. Up to 81 species of reef-building corals were identified (previously 65 species had been recorded).

As part of this output, the coral transplantation technology has been effectively demonstrated with initial positive results for two species (Subcontract # 6). Transplantation is suited to areas that have had physical damage due to typhoons or tourism but where water quality is adequate to maintain the transplanted species. These outputs are now virtually completed.

Overall, the two completed activity programs have effectively met their objectives. But there are also some important limitations in the outputs to date, as noted below.

Comments:

- Firstly, the MPA staff do not yet have sufficient capacity to maintain or expand the important reef monitoring program that was initiated by the subcontractor (South China Sea Institute of

Oceanology, Chinese Academy of Sciences) The project has had limited impact on the field level MPA staff and their capacity to manage the tourism pressures on biodiversity.

- Secondly, the GIS provides a useful tool to compile and display the data or to undertake spatial analysis. The local contractor (Hainan Marine Development and Design Institute) is the only organization currently able to manage the database or to undertake analyses.
- Thirdly, the reef transplantation technology, while providing valuable experience, has limited potential for practical application by MPA given the many inputs required and is only suitable at certain sites that can sustain the transplanted coral.

Output 2.2 Integrated pollution control is demonstrated at Sanya MPA

The water quality and pollution control studies are currently underway. The historical data on water quality have been supplemented by some additional, project-supported monitoring in an effort to identify the major pollution sources in the Sanya area and the effectiveness of the wastewater treatment system in reducing pollutant loadings and pollution. The initial report (Subcontract # 7a) will be completed in February 2009 and will provide the basis for part two (Subcontract # 7b) which will assess the impact of pollution on the coral reefs and propose an action plan. The project has also assisted dialogue and information sharing between agencies.

Comments:

- Although there is a general recognition that poor water quality may be placing stress on biodiversity, as of yet there is limited understanding of *integrated pollution control* by the stakeholders and how it can be implemented in Sanya, particularly within the project context. Presumably Subcontract #7b will provide the basis development of an integrated approach to pollution prevention and control within the ongoing consultative process initiated by the project.
- The government has made major investment in the sewerage system and treatment plant which is currently being upgraded. Water quality monitoring is undertaken by several agencies who maintain separate databases (in addition to the limited database created by the project). The agencies suggested that there was little possibility of having a coordinated data network on marine water quality because of different agency responsibilities.
- There is no overall technical water quality management plan for Sanya. The project outputs (Contract # 7a) may provide a useful assessment of current information on the general state of marine water quality and pollution sources. But the biological effects and impacts on the coral reefs may be difficult to assess at this regional scale. An action plan to address pollution issues is proposed (Contract # 7b) but without a more rigorous review of the institutional and policy framework and effective coordination arrangements, it may not be possible to demonstrate integrated pollution prevention and control in a complete manner.
- Under the influence of the SCCBD project, the 'Regulation of Marine Environment Protection in Hainan Province' was approved by the local government in 2008. This regulation will reportedly provide institutional and policy support to the integrated pollution control and prevention in Sanya.

Output 2.3 Demonstrate the development and effective application of sustainable financing mechanisms for long-term Reserve management at Sanya.

The study of sustainable financing mechanisms is underway and will be completed sometime in 2009. The concept of cost recovery for nature reserve (MPA) operations is not fully accepted and both MPA staff and the contractor have doubts about the feasibility of introducing any visitor fees for the nature reserve. In-kind contributions and salaries of MPA field staff are currently made by the commercial operators, environmental impact assessment of the commercial tourism are completed and the agreements are reviewed every three years. MPA field staff identified their current resource limitations and capacity needs.

Comments:

- The primary investigation on the running cost of Sanya MPA and the ‘willingness to pay’ studies of an environmental fee/tax are being conducted by the subcontractor (Hainan Provincial Price Certification Center), but the data are still in the process of analysis. The financing study may identify some options to fund the necessary costs, but there is recognition that introducing a new financing arrangement needs formal approval by the government. Policy direction at a higher level is needed for any major adjustments. (Note the differences with Nanji MPA financing.)

- While the MPAs provide a major source of revenues for the commercial operators (e.g., at West Island, a day trip costs RMB200 for the ferry boat); there are 2000 visitors per day on average), the concept of cost recovery for the essential management staff and resources to manage the reefs within some level of environmental carrying capacity could be addressed within the regular environmental review of the tourism operations.

4.2.3 Shankou, Dugong and Weizhou Island, Guangxi Autonomous region

The primary outputs expected for Shankou/Dugong/Weizhou are¹⁸:

- (1) Establish and strengthen information baseline for adaptive management.
- (2) Operational infrastructure and capacity of reserve strengthened
- (3) Restore 50 ha of mangrove habitat and TBD ha seagrass habitat. (Co-financed)
- (4) MPA’s capacity to work effectively with local communities is strengthened and vice versa.
- (5) Stakeholders pursuing alternative livelihoods.
- (6) Comprehensive assessment of Weizhou Island for possible MPA designation.
- (7) Weizhou MPA is legally established and operationalized.
- (8) Untreated solid waste and domestic sewage levels are reduced.

Besides the capacity strengthening objective, the principal conservation theme in the Shankou reserve is the co-management of mangrove forests with community stakeholders. The principal conservation theme in the Dugong reserve is the scientific uncertainties about the seagrass dynamics and seagrass habitat functions for dugong populations and other species. The principal conservation theme at Weizhou Island is the uncertain status and health of the coral reefs in the face of adjacent industrial development

¹⁸ The outputs listed in this section are drawn from the UNDP ProDoc Results Framework.

The biodiversity conservation strategy at Shankou is based on involving fishermen and local communities in mangrove conservation and the shift toward alternative livelihoods that reduce adverse impacts on mangroves. The strategy at Dugong is vaguely defined as protection and restoration of seagrasses although this is still evolving. There is no management plan for either reserve.

The results to date are mostly delivered through Subcontract 1, 2, 3 and 4. All the subcontracts in Guangxi Province have/will be implemented by Guangxi Mangrove Research Centre. Up till now, the Subcontract #1 and 2 have been completed. The major achievements to date identified by the Guangxi SIU include:

- Environment and marine biodiversity conservation has been integrated into the Beibu Gulf Economic Zone Development Plan
- Enacting “Guangxi Marine Environment Protection Plan”
- Strengthened cooperation among different government agencies and stakeholders, such as oceanic administration, environmental protection, forestry, research institute, etc.
- Establishment a partnership with the Sino-Europe Project for Conserving Biodiversity in Karst Areas
- Leveraged large amount of government resources to the infrastructure, equipment, scientific research, monitoring and public education of Shankou and Dugong MPAs, and capacity improved in the MPA management
- Raised public awareness on the mangrove conservation
- Sustainable and environment-friendly production in fish farming and species in the demo site
- The threats to biodiversity conservation in the demo site has been greatly reduced, including reduced bird nets, traditional fishery activities, and grazing.
- Monitoring in mangrove reserve and Weizhou Island have been integrated in the monitoring plan of SOA and funded regularly
- Much efforts have been made to establish a coral reef special MPA in Weizhou Island and Xieyang Island
- Equipment and management instrument of the reserves have been improved; management concept renewed; public participation encouraged; public education strengthen; alternative livelihoods such as ecotourism are being developed; GIS used for reserves management

The following general observations were made during the field visits:

- Firstly, the biodiversity threats in Guangxi have changed since project formulation. The major threats are now on rapid industrial and port development and oil tanker traffic and oil pipeline operations. The project is focussing on enhanced capacity to manage the MPAs but most of the biodiversity risks are in fact external to the project, related to the major development activities in the region.
- Secondly, the public awareness and education activities of the project have shifted toward greater focus on government awareness-building and various means of influencing policy and development decision making. A significant oil spill at Weizhou Island in August 2008 has also created local awareness of the vulnerability of the coral reefs.

- Thirdly, similar to Sanya, the biodiversity monitoring procedures and standards need to be fully implemented at the local field level to improve the quality of information that MPA staff collect on the status of the biological resources. Subcontract outputs need to be better integrated with government operations. For example, MPA staff are not currently able to input data into GIS and will depend upon the Mangrove Research Centre for technical support in maintaining and utilizing the GIS for management purposes. The informal arrangements for this collaboration may need to be formalized.
- Fourthly, the Guangxi demonstration project is implementing four large subcontracts (# 1-4; \$ 279,000) and the two Stora Enso components (Subcontract Stora Enso I; \$50,000, and Subcontract Stora Enso II: \$120,000). The wide range of activities and outputs has presented questions for the provincial staff of how to coordinate, synchronize and utilize the results of the project outputs, and the implications for future MPA management. The complementarities and synergies between the activities are uncertain.

The results to date include the following **three sets of outputs** from the project plan:

Output 1.3: Conservation capacities strengthened at Shankou Mangrove Reserve and the Dugong Reserve

Under this output, the project has assisted MPA capacity through Subcontract # 2: Support to MPA planning and biodiversity management at Weizhou, Shankou and Dugong Reserves (\$ 120,000). The project has also undertaken restoration activities through Subcontract # 4: Targeted mangrove and seagrass habitat restoration (\$ 54,000).

Overall, the activity program has been well organized and the progress has been relatively good. The demonstration project has established an impressive list of outputs in support of capacity building (see Annex 1). A baseline report on the MPA has provided a profile of biodiversity and socioeconomic attributes and a general list of threats to these areas. Surveys have been completed on the mangrove and seagrass species and distributions and on the coral reefs at Weizhou Island. Biodiversity survey protocols have been established for mangroves, seagrass and coral reefs. Improved data management and GIS capacities in all three sites has occurred. The SIU statement in their presentation that “Monitoring in mangrove reserve and Weizhou Island have been integrated in the monitoring plan of SOA and funded regularly” needs to be verified.

The following training activities have also been completed:

- Training course for integrated management of coast and marine MPA, Oct. 10-16, 2006; Xiamen, Fujian Six persons from Guangxi were trained.
- Training course on MPA capacity building and GIS use, June 1-7, 2007 Xiamen, Fujian Two members of the project team were trained.
- GIS Use Training Course for SCCBD Dec. 29, 2007 Beihai, Guangxi Staff of MPAs trained.
- Biodiversity monitoring training March 10, 2008 Hepu, Guangxi MPA staff trained on monitoring cold injuries of mangrove trees.
- Training on monitoring of biodiversity for SCCBD; March 11, 2008 Shankou reserve MPA staff trained on monitoring bird catching, mangrove fishing, etc

Comments:

- It should also be noted that the government has recently provided substantial funding for new offices and equipment for the MPA program, in recognition of the role of conservation in the ambitious economic development initiatives in coastal Guangxi. The *Guangxi Beibu Gulf Economic Zone Development Plan*, approved in 2008, is the primary focus for concerns about coastal biodiversity.¹⁹ The challenge is to develop a firm, proactive strategy for biodiversity conservation within the context of this plan that recognizes and anticipates the major threats posed by rapid development. It is uncertain whether the current set of outputs is substantive enough to ensure adequate conservation and MPA capacity and advocacy in Guangxi.
- Despite the various capacity building activities and new GIS facilities, the two MPAs do not have detailed management plans to guide conservation, co-management and compliance strategies and still have significant weaknesses in management capacity. Organizational development, operating practices and standards for managing the reserves, and enhanced professionalism in monitoring and enforcement duties could be usefully considered.
- Although the project has supported significant mangrove restoration (64 ha in reserve, 98 ha outside of reserve) and minor seagrass restoration plots, there remain technical uncertainties related to relatively low survival rates in mangrove plantation and the lack of tested protocols for seagrass restoration. Ecological monitoring of these habitat enhancement activities should form part of the MPA management capacity building. At the Dugong reserve, scientific and technical uncertainties constrain the development of a clear management strategy for seagrass habitats and potential for revival of dugong populations.

Output 2.4: Demonstrate Participatory co-management and sustainable Livelihood Strategies at Shankou Mangrove Reserve & Weizhou MPA.

The project has endeavoured to develop a participatory approach to management of the MPAs through Subcontract #1: Sustainable use and participation by local resource users and related non-governmental stakeholders (\$ 70,000). This has included extensive surveys of social characteristics, economic activities, coastal resource utilization by local people and identification of alternative livelihoods, employing rapid rural appraisal methods. The project established 200 Village Conservation Groups (120 are registered) and facilitated clean-up programs with Behai Civil Volunteer Association. Project staff provided assurances that the VCGs created by the project will be sustained, but in many other projects maintaining community-based organizations is a long term process and short term activities are not usually sufficient.

Related to co-management efforts, the project also undertook various public awareness and education activities, including contribution to the convening of China Mangrove Wetland Forum, special CCTV programme on mangrove and seagrass in the demo site, publicity of biodiversity conservation in local media such as Beihai Daily, Beihai TV station, and Beihai 365 website, establishment of Beihai Children Chorus Association, etc. A public awareness investigation has also been conducted in the

¹⁹ The plan identifies three zones: Urban Area (accounting for 9%), Rural Area (56%), and Ecological Area (35%, including nature reserves, water source reserve, and ecological rehabilitation area). It states that during the process of development, the area of nature reserve could be increased as necessary in the economic zone but a reduction is not permitted. There are 20 nature reserves listed in the plan, two of which are located in Weizhou Island (i.e. 1 provincial bird nature reserve, and 1 provincial coral reef nature reserve). The plan proposes marine ecological conservation areas in Maowehai Sea, Weizhou Island-Xieyang Island for coral reef conservation.

around villages to understand the change level of awareness/knowledge/skill among stakeholders. The lack of awareness of significance of conservation and its long-term value of biodiversity was identified, and suggestions were proposed to further enhance the public awareness and participatory management. There is another separate public awareness raising activity to be implemented through Subcontract #3: Undertake public awareness program based upon best practices and lessons learned from other parts of China/Asia (\$ 35,000). This program will result in development of awareness materials, including an educational exhibit, posters and brochures on related species and marine/coastal ecosystem integrity, identification educational center institutions and training to teachers in the use of the materials

Comments:

- There are three reserved zones in this demo site with quite different social and natural conditions, i.e. Shankou mangrove nature reserve, Dugong nature reserve, and Weizhou Island. This should be analysed for the development of project interventions in the future.
- The public awareness of government officials should be targeted in participatory design and implementation of the project activities.
- Sustainable alternative livelihood development and implicitly poverty alleviation is one of the important aspect for the participatory co-management, and should be targeted by the project. There is still no clear idea or strategy to address negative human activities from the nearby villagers.

Output 2.5: Establish Model MPA designation process at Weizhou Island.

The future role for conservation on Weizhou Island is uncertain since the government has decided on some undefined form of multi-use designation for the island conservation areas. The ability of MPA staff to document and advocate for biodiversity values in the context of this development pressure is a key challenge for the project. The project has produced a proposal for MPA status but this was rejected by the provincial government. After the comparison between different protection patterns of nature reserve, geological park, ecological zone, and special protected zone (special MPA), it is now tentatively selected to establish a special MPA in the Weizhou Island which is a new practice in China. A feasibility study has been conducted and related proposal has been submitted again for the approval of provincial government. The baseline survey suggested two key areas of northeast area (Niujiakeng) and southwest area (Zhuzheliao) as core areas of the MPA. Although the major function zone of the Weizhou Island has been identified as ecotourism and environment resources protection zone, the sub-function zoning of the area is still not clearly defined, and the proposal for special MPA status still faces some uncertainty

Comments:

- The project staff, Guangxi Land and Resources Bureau and SOA are actively trying to obtain approval for some type of conservation zone status but the prospects are uncertain. This is not a good indication that the expected output: “establishing a model MPA designation process” will be demonstrated at Weizhou Island.

- There is a national marine environment monitoring station on the island which could provide the environmental quality data. The local government responsible for the management of the island should be targeted by the project in terms of capacity building and awareness raising before the establishment of the special MPA.

4.2.4 Dongshan – Nan’ ao MPA Fujian/Guangdong

The primary outputs expected for Dongshan – Nan’ao are²⁰:

- (1) Inter-provincial cooperative program in place and operational.
- (2) Strengthened inter-provincial capacity for sustainable development and ICM.
- (3) Priority habitats identified and conserved.
- (4) Primary threats to priority migratory species (Chinese white dolphins, sea turtles, horseshoe crabs) measurably mitigated/reduced.

The Dongshan – Nan’ao demonstration project is dominated by one major outcome related to Output 2.6: demonstrate Inter-provincial co-operation on ICM and biodiversity conservation at Dongshan-Nan’ao migratory channel. This is implemented primarily through Subcontract # 10: Conduct biodiversity surveys establishing levels of primary threats, establish information baseline and conduct detailed GIS-based threats analysis using data from biodiversity and threat surveys (\$75,000), and Subcontract # 11: Formulate and gain approval of detailed inter-provincial action plan for conservation of globally significant biodiversity (\$ 40,000). Subcontract 12: Pilot implementation of inter-provincial biodiversity action plan (\$128,000) is still under negotiation for 2009.

The principal conservation theme in this demonstration project has been to develop a coordinated approach and set of information and strategies to address biodiversity within the coastal ecosystems that overlap the two provinces and to especially address the situation affecting three rare species under pressure: Chinese white dolphin (*Sousa chinensis*), sea turtle (5 species), and Horseshoe crab (*Tachypleus tridentatus*).

The biodiversity conservation strategy for Dongshan – Nan’ao is to protect and enhance habitat, food supply and migratory passage for the three species of concern. An “Interprovincial Action Plan” has been prepared with six strategies: protection of important migratory animals, coordination of legislation and law enforcement, plan for coordinated management of marine zones, fisheries regulation and restoration/enhancement, habitat and environmental protection, and increasing public awareness. The measures to implement the plan are very general. The major achievements to date identified by the local SIUs include:

- Established an effective inter-provincial cooperation and coordination mechanism for biodiversity conservation between Guangdong and Fujian Provinces
- Enhanced management capacities in ICM and marine and coastal biodiversity conservation in the demo site
- Built baseline information and identified key threats to biodiversity
- Developed and signed the Inter-Provincial Action Plan for Marine Biodiversity Conservation in Dongshan-Nan’ao
- Raised public awareness on biodiversity conservation

²⁰ The outputs listed in this section are drawn from the UNDP ProDoc Results Framework.

- Reduced fishing intensity and enhanced resource protection
- Enhanced enforcement of related marine management regulations/planning/function zoning
- Enhanced construction and management of MPAs
- Effective protection of rare and endangered marine species
- Construction of GIS system
- Established Mid and long-term marine biodiversity monitoring plan in Dongshan-Nan'ao

The following general observations were made during the field visits:

- Several important activities, including all of the GEF-funded items, that were planned under Output 2.3 (Workplan number) for 2008 have been deferred to Subcontract # 12 which has yet to be finalized. These include
 - Inter-provincial NGOs jointly conduct propaganda activities to protect marine biodiversity
 - Complete and implement sea use zonation plan, coordinate the use of trans-boundary sea area.
 - Conduct joint activities between two provinces in law enforcement on fishing, nearshore projects, aquatic wild animal shipment and sales.
 - Write a report on establishing an MPA for horseshoe crab
 - Build MPA network

The design of these activities (some of which have been already initiated by government) that are to be completed in Subcontract #12 needs to emphasize measurable results.

- Project staff suggested that the technical outputs delivered have been limited by inadequate background information, expertise and budget to conduct “field surveys to determine species distribution, migration routes and priority habitat, (e.g. ‘priority turtle nesting beaches/feeding grounds.)” as described in the Workplan. The field surveys therefore relied on interviews and questionnaires with fishermen.
- Some of the substantial government contributions can be viewed as complementary parallel activities the support conservation in general; such as improved fisheries regulations and the large scale artificial reef creation program that enhance aquatic productivity and fisheries in general.

The progress is discussed in terms of the **three output targets** listed in the project workplan:

Output Target 1: Inter-provincial cooperative program in place and operational.

The project has established the Inter-provincial Cooperative Committee (IPCC) which has met five times to date. The IPCC members include representatives from SOA, Guangdong Marine and Fishery Bureau, and Fujian Marine and Fishery Bureau. The directors of Guangdong and Fujian Marine and Fishery Bureaus chair the IPCC in rotation. This is a new practice in China, and therefore the creation of the IPCC and the resulting agreement between Guangdong and Fujian provinces to cooperate on biodiversity conservation is viewed as a significant milestone given the traditional barriers to such arrangements. The land/water use planning and zoning measures and the fisheries regulation by government to date have improved the general environment for conservation. The project has identified and raised awareness about many of the key sources of mortality and habitat degradation for the key species.

Comments:

- The coordinated approach to biodiversity conservation between provinces has facilitated an ecosystem-based perspective and joint recognition of the habitat and migration requirements of the key species of concern. The benefits of this collaboration however still need to be proven in joint and strategic action to enhance habitat conditions, reduce migration barriers and minimize by-catch/illegal fishing problems. The Action Plan that has been endorsed by governments is mostly a statement of principles and may not be detailed enough to ensure substantive action.
- The IPCC should be responsible for the implementation of the inter-provincial action plan and therefore, a operational workplan should be formulated for the implementation of the action plan and the sustainability IPCC mechanism should be secured after the project completion.

Output Target 2: Primary threats to priority migratory species (Chinese white dolphins, sea turtles, horseshoe crabs) and related habitats significantly and measurably mitigated/reduced.

The Report on the *Baseline Information of Dongshan - Nan ' ao Demonstration Region* provides a useful overview of threats to the key species, including water pollution (heavy metals, oil spills, and environmental estrogens), overfishing, accidental capture/longline fishery/illegal fishery, aquaculture and tourism development. Restorative measures that are listed include: artificial reefs, beach and floating wastes clean-up, removal of stake nets, animal rescue efforts. The suggested action is to strengthen the conservation network (communications), enhance public participation, and organize a long term marine biodiversity monitoring system.

Data on the distribution of the three key species were collected through questionnaires with fishermen and were combined with earlier limited survey data (Subcontract #10). This generated minor point data (with obvious sampling bias) for Horseshoe crab, Chinese white dolphin, and sea turtles. The field discussions noted the information and technical constraints in estimating spatial and temporal distributions and migration patterns.

Comments:

- The reports summarize existing information on the life history and basic habitat needs of these species but no effort was made to investigate the known spawning areas of the crab populations, the conditions affecting concentrations of dolphin sightings at the river mouths or disappearance of sea turtles from their traditional nesting areas (which have been displaced by development). There was no original data collection on key habitats for the three species, such as the Xiamen Bay and Pearl River breeding areas for Chinese white dolphin, the existing and disturbed sea turtle nesting beaches, the active area of sea turtles near Nanpeng Islands, and the suspected remaining areas that have suitability characteristics for Horseshoe crab spawning. The \$75,000 available for the baseline data collection task should have been adequate to cover these aspects.
- The relationship between the 12 MPAs (conservation zones) and the habitat needs of the three species of concern has not been assessed.
- The baseline information provides an initial review of information but does not offer sufficient basis for development of a focussed strategy for recovery of the three species. A more structured and targeted agenda is needed to address key habitat conservation and restoration priorities, area

fishing closures effectiveness on by-catch and illegal fishing reduction, and removal of stake nets and barriers in critical migration routes.

- An interesting initiative has been undertaken by the Buddhist temples to rescue sea turtles (including occasional reward payment to fishermen) because of their special religious symbolism. Religious characters are painted on the backs of the sea turtles encouraging fishermen to return them to the sea. A special tag is also attached, providing useful biological data. About 100 turtles have been tagged and returned to date. (No data provided on tagging results)

Output Target 3: Strengthened inter-provincial capacity for sustainable development/ICM.

Following Guangdong and Fujian Provincial marine function zoning programs approved by the State Council, the Shantou City, Nan' ao County, and Zhangzhou City (where Dongshan County located) have developed their own marine function zoning programs, and all of them have been approved for implementation. Dongshan County marine function zoning program has also being submitted for approval. The marine function zoning programs have been swapped between the two provinces. Several regulatory and technological solutions to address target fisheries, locations and seasons have been implemented jointly by the two provinces, including the prohibition of fishing activity during June and July each year. In Nan' ao County, the maricultural waters and shoals planning, management and mariculture license system have been developed. There is also a regulations for the development of uninhabited islands in Nan' ao County, and a fisher boat monitoring system recently established and put into use. All these management regulations/system provide the legal basis for the marine management and enforcement.

Seven trainings have been conducted for fishermen in Dongshan and Nan' ao Counties, including the marine biodiversity knowledge, protection measures of the rare and endangered three species (Chinese White Dolphin, Horseshoe Crab and sea turtle), introduction of mariculture species and techniques, related regulations and laws. Besides, many public awareness raising activities have also been implemented in the demo site, targeted at villagers, students, and general public through publicity materials, posters, visual CD, and thematic lectures.

Comments:

- The habitat inventory and assessment program that has been initiated by the project for the key species still needs to be developed and a long-term monitoring protocol established for scientific collaboration and joint management of these species in the project area.
- The nature reserve designation should be integrated into the migratory species protection in this area as an important part of the inter-provincial action plan for the biodiversity conservation in Dongshan-Nan' ao.

4.3 Dissemination and Replication Outcomes

The project places a high importance on the dissemination and replication of project results through Outcome 3: *Lessons learned are disseminated to project sites and other areas in China' s South Sea*, and Phase two of the project (*Replication of lessons learned during Years 4-8*) will be implemented in

the remaining project period. Some dissemination of good practices has already initiated from the first phase of the project among four targeted demo sites.

The project itself has provided a good platform for exchanging information and experiences among project participants and partners. So far, three dissemination workshops have been conducted with different topics, i.e. June 12-14, 2006 in Wenzhou City, Zhejiang Province: Exploration of Conservation and Management Modalities on China Marine Biodiversity Conservation -- Lessons Learned and New Concepts

- September 27-28, 2007 in Nanning City, Guangxi Autonomous Region: Experience sharing in MPA construction and management
- September 22-23, 2008 in Xiamen City, Fujian Province: Measures to conserve migratory species with global significance, and establishment of cross-regional cooperation mechanism include MPA network building.

Several study tours have also been conducted in USA (3 times), Viet Nam, and attending the UNESCO/IOC WESPEC workshop etc.

Comments:

- The dissemination and replication is very important to the project success considering the large area covered by the project. There are two related aspects: demonstrating the good practices and then disseminating and replicating elsewhere. Due to weaknesses in the current Logframe, it is recommended to prepare a Logframe and Project Workplan for the remainder of the project to 2012 with a focus on good practices dissemination and objectively verifiable measures of the project objectives.
- Since it is a national project, the SOA, as the designated department responsible for marine biodiversity conservation, has a key role to facilitate the process of dissemination and replication.

4.4 Sustainability of Project Results

The potential for project sustainability will largely depend upon the extent to which (a) the project outputs and trained staff are formally integrated and maintained within the MPA organizations and other government departments, and (b) the tools, instruments and approaches being promoted by the project are firmly adopted in the form of legislation, policy, plans, operating manuals and guidelines and/or standards and procedures of the organizations involved in biodiversity conservation. In other words, have the project results become part of the institutional and community processes and operating practices related to biodiversity conservation.

The evidence so far suggests that the increased awareness of governments and the public toward biodiversity conservation in the face of rapid coastal development pressures will sustain interest and support for the project objectives. The critical issue of institutional uptake and operationalizing the project concepts and tools will affect the sustainability after project completion in 2012.

The following comments are provided on project sustainability:

- The MPA staff play key roles in the effective management of the nature reserves, and the project results (outputs, outcomes) should contribute to these functions. However, most of the project activities have so far been carried out by different subcontractors (usually research institutes). This

reduced in large measure the MPA staff ownership of the project. PCU realizes this issue and the rest of the subcontracts have been re-formulated with many of the activities to be carried out by the MPA agency. If the project proceeds with MPA management plan development/revisions in the next phase, it is strongly suggested that this be led by the MPA agencies themselves, with any technical support if necessary

- During the MTE mission, it was obvious that institutional capacity still needs to be improved technically and managerially to take over the project outputs. The training activities of the project in the next phase have targeted this issue to assist the MPAs in use of the project outputs.
- Financial resources should not be a problem in the next phase considering the investment and commitment from governments in all levels. However, the degree of ownership by MPAs and local government will directly influence the financial resources to the project results in the future.
- There is policy support to the marine biodiversity conservation. The State Oceanic Administration (SOA) has a strong willingness to promote the integrated coastal management in China. During the project implementation, there were several important policies issued by State Council related directly to the project, including the *Outline of National Marine Program Development Planning*, *Guangxi Beibu Gulf Economic Zone Development Plan* etc. Principles and targets were set for marine biodiversity conservation. Hainan Province recently approved the regulations of marine environment conservation, and the *Guangxi Marine Environment Protection Plan* was enacted.
- The public awareness raising also increased the sustainability of the project results. Especially the participatory co-management concept introduced in the project activities.

4.5 Rating of Project Results

The Project Document set high expectations that by the end of the project the stakeholders will be applying innovative and adaptive Marine Protected Area (MPA) and integrated coastal management practices. The progress toward this result has been relatively moderate to date primarily because of the need to ensure that the data, monitoring systems, staff training and other capacity development outputs of the project are actually being effectively utilized by the responsible MPA organizations. The assessment of results is further complicated by the high degree of emphasis on activities and outputs rather than measurable outcome level results within the project design.

Table 6 summarizes the relative achievement of results to date in relation to the planned outputs. The average rating of results to date – ‘marginally satisfactory’ reflects the need to now concentrate on demonstrating effective application of these new practices in the remaining project period.

Table 6: Rating of Achievements at Mid Term

OBJECTIVES AND OUTPUTS	STATUS OF OUTPUTS	RATING	RATIONALE FOR RATING
Immediate Objective 1 - Strengthen conservation and sustainable use	The project has assisted with equipment and infrastructure, boundary demarcation, baseline/monitoring data, developing GIS systems, mapping of hotspots, training and equipping some	MS	The project has contributed to significant awareness of biodiversity and the conservation tools that can be used to improve management. But the transfer of capacity development

management capacities at four existing MPAs	of the staff and certain restoration techniques such as coral transplantation and mangrove, seagrass and algae restoration.		to the relevant MPA agencies remains to be seen. The realistic application of new approaches and tools may require additional capacity building.
Output 1.1: Conservation capacities strengthened at Nanji Islands	<p>Target 1: MPA infrastructure strengthened in measurable ways.</p> <ul style="list-style-type: none"> - Boundary markers, look-out posts communications and other equipment installed. Water and power supply systems constructed. New vehicle and boat. GIS equipment and training provided. <p>Target 2: MPA staff skills demonstrably improved.</p> <ul style="list-style-type: none"> - General MPA management training provided. No formal assessment of capacity levels. No operational management plan to guide programming. No GIS application. <p>Target 3. Biological monitoring program made operational and effective.</p> <ul style="list-style-type: none"> - Protocol established and demonstrated; some parameters will be monitored regularly, particularly water and sediment quality and shellfish and algae. <p>Target 4. The general public and school students in Nanji township and Pingyang County will know measurably more about Nanji Island MPA by the end of the project.</p> <ul style="list-style-type: none"> - Initial public awareness-raising has been undertaken. 	MS	A new awareness of biodiversity and MPA management possibilities has been introduced by the project. New equipment and infrastructure have improved the patrolling capacity and effectiveness. The ability to utilize the new skills, equipment and monitoring systems in ongoing management has yet to be tested. The monitoring protocol will likely be only partially maintained. Furthermore, there is no functional management plan in place and the 'biodiversity conservation' objectives appear to be restricted to algae and shellfish.
Output 1.2: Conservation capacities strengthened at Sanya MPA	<p>Target 1: Long term survey and monitoring program operational.</p> <ul style="list-style-type: none"> - Protocols have been developed and tested and some staff have been trained. Ongoing program not yet fully operational. - Staff provided some training in biodiversity conservation, data management and management decision-making (GEF). - GIS equipment set up and Arcview operational. - Field staff have a limited, undefined role in site management and public education. <p>Target 2: Pilot coral reef transplantation is undertaken and results assessed.</p> <ul style="list-style-type: none"> - Transplantation demonstration and evaluation has been completed. 	MS	The biodiversity inventory data and GIS capabilities, the reef monitoring and reef check procedures and coral transplantation methods have been introduced to the MPA staff. Staff are unable as of yet to implement the methods on their own but the contractor has indicated a willingness to assist future implementation. The critical capacity of the reefs to maintain existing intensive level of use without degradation has yet to be defined and there is no operational management plan to guide MPA use.
Output 1.3: Conservation capacities strengthened at Shankou Mangrove Reserve and the Dugong Reserve	<p>Target 1: Establish and strengthen information baseline for adaptive management.</p> <ul style="list-style-type: none"> - Baseline information on nature and extent of main threats to biodiversity have been assessed. <p>Target 2. Operational infrastructure and capacity of reserve strengthened</p> <ul style="list-style-type: none"> - Enhanced infrastructure and transportation for sanctuary management - GIS equipment set up but no formal process for data entry and system applications - Staff training in MPA management 	MS	The mangrove restoration, community mobilization and alternative livelihoods have been strengthened. The four nature reserves face similar issues in terms of capacity strengthening, such as maintaining the monitoring and GIS application capacity, and implementing functional, structured management plans. The restoration results need to undergo routine technical assessment to ensure cost effectiveness and replication feasibility.

	<p>Target 3: Restore 50 ha of mangrove habitat and TBD ha seagrass habitat.</p> <ul style="list-style-type: none"> - Mangrove restoration target has been met, but survival rates are low. - Seagrass restoration requires more technical support 		
<p>Immediate Objective 2 - Develop, test and demonstrate tools, instruments and approaches for addressing the root causes of critical threats to marine biodiversity in China's South Sea coastal area</p>	<p>The project has focused on developing:</p> <ul style="list-style-type: none"> - Integrated pollution control - Integrated coastal zone management - Co-management and sustainable livelihoods - Inter-provincial cooperation for biodiversity conservation - Sustainable financing mechanisms for MPAs - Nature reserve designation processes 	MS	<p>The tools, instruments and approaches have been developed and introduced in the project areas but there is not sufficient evidence that they have yet been fully tested and demonstrated in a reliable manner by the responsible authorities. The short term, extensive nature of the project and the vague definition of expected results in terms of implementing the innovations creates limitations for reporting and evaluation.</p>
<p>Output 2.1: Demonstrate Integrated Coastal Zone Management MPA approach to township planning, management and development at Nanji Islands</p>	<ul style="list-style-type: none"> - Initial township planning studies complete <p>Incomplete outputs:</p> <ul style="list-style-type: none"> - Collect, review and synthesize relevant findings of marine biological studies at Nanji Islands, to provide historic picture of ecosystem changes and current status (GEF) - Create and demonstrate GIS-based biodiversity overlays using data gathered under IO 1.1 for use in planning exercise. - Synthesize biological, ecological, geographical, and socio-economic information and assess areas of priority use (conservation, fishing, tourism, etc) and develop zoning model. - Develop and secure adoption of a township-level master plan for Nanji Is. 	-	<p>Results to be determined in the next year.</p>
<p>Output 2.2: Integrated pollution control is demonstrated at Sanya MPA</p>	<p>Target 1: Link biodiversity conservation, with pollution reduction/control.</p> <ul style="list-style-type: none"> - The initial 'link' has been developed <p>Government has invested in pollution control/waste water treatment measures around Sanya; the project is providing water quality monitor support.</p> <p>The forthcoming studies will assess pollution sources and biodiversity - pollution relationships and develop an action plan.</p>	S	<p>Despite the useful contribution to understanding water pollution sources and impacts, it is not evident that integrated pollution control will be fully demonstrated or that the project has the authority and capacity to implement this broad concept of land and wastewater management of point and non-point sources of pollutant. A modest interpretation of expected outcomes is that the project will raise awareness and established a working relationship between MPA organization and the pollution control authorities in local and provincial government.</p>
<p>Output 2.3: Demonstrate the development and effective application of sustainable financing mechanisms for long-term Reserve management at Sanya.</p>	<p>Target 1: Develop funding mechanisms (fees, tax incentives/disincentives, penalties/fines).</p> <ul style="list-style-type: none"> - The project has completed a study of annual recurrent costs of MPA management, reviewed existing financing mechanism experience in China (cost recovery, etc..) and associated laws/regulations and has conducted "willingness to pay" surveys to determine appropriate user fees (park entrance fees, diver fees, sport fishing 	-	<p>To be determined</p>

	fees, etc..). It is assessing various options for funding mechanisms.		
Output 2.4: Demonstrate Participatory co-management and sustainable livelihood strategies at Shankou Mangrove Reserve & Weizhou MPA.	<p>Target 1: MPA's capacity to work effectively with local communities is strengthened and vice-versa.</p> <ul style="list-style-type: none"> - Worked with local stakeholders and develop a participatory program for reserve management. - Enable stakeholders to establish a new NGO, (e.g. "the Shankou Mangrove Ecosystem Conservation Association") to serve as the main local community partner of the MPA. - Provide training in participatory management to MPA staff and NGO staff - Strengthen local capacity for participatory management by organizing resource users and stakeholders into Village Conservation Groups (VCG) in areas around the MPA. - Develop management roles and responsibilities of VCGs and NGO and develop cooperative agreements between MPA and the groups. (GEF, MPA <p>Target 2: Stakeholders pursuing alternative livelihoods.</p> <ul style="list-style-type: none"> - Stakeholders provided access to funding for new, sustainable livelihoods and products, although long term viability is uncertain. 	S	The co-management concept has been introduced by undertaking various community activities but it may require many more years of active involvement of communities to sustain the VCGs. , and the sustainable livelihood development still needs to be verified in terms of local viability and sustainability and demonstrated improvements to conservation objectives. The 'co-management model' needs to be further assessed for replication potential.
Output 2.5: Establish Model MPA designation process at Weizhou Island.	<p>Target 1: Comprehensive assessment of Weizhou Island for possible MPA designation.</p> <ul style="list-style-type: none"> - extensive studies and proposals prepared and submitted <p>Target 2: Weizhou MPA is legally established and operationalized.</p> <ul style="list-style-type: none"> - not achieved to date. <p>Target 3: Solid waste and domestic sewage levels are reduced significantly.</p> <ul style="list-style-type: none"> - no information on progress. 	MU	The prospects for establishing a model designation process are poor. However, some multi-use designation may be possible. The likelihood that this designation would protect sensitive coral reefs is questionable. Extra effort by project staff to overcome the reluctance for designation. Despite the efforts, the results to date cannot be considered a model process for MPA designation.
Output 2.6: demonstrate Inter-provincial co-operation on ICM and biodiversity conservation at Dongshan-Nan'ao migratory channel	<p>Target 1: Inter-provincial cooperative program in place and operational.</p> <ul style="list-style-type: none"> - Program is established. <p>Target 2: Primary threats to priority migratory species (Chinese white dolphins, sea turtles, horseshoe crabs) and related habitats significantly and measurably mitigated/reduced.</p> <ul style="list-style-type: none"> - Various actions are underway within and outside of the project to reduce species habitat and stock threats <p>Target 3: Strengthened inter-provincial capacity for sustainable development/ ICM.</p>	S	The committee has established an active program of cooperation on various conservation measures.
Immediate Objective 3 – Implement appropriate tools for conservation and sustainable use	The primary model tools that are to be implemented and disseminated (Integrated pollution control, Integrated coastal zone management, Co-management and sustainable livelihoods, Inter-provincial	-	To be determined in Phase 2

at the six sites and promote their broader adaptation across China's South Sea coastal area	cooperation for biodiversity conservation, Sustainable financing mechanisms, Nature reserve designation processes) need to be further refined and assessed before large scale promotion.		
Output 3.1: Lessons are Exchanged across project sites.	Target 1: Lessons are exchanged across project sites. - Some exchanges and joint trainings have occurred between the project sites	-	To be determined in Phase 2
Output 3.2: Stakeholders assess lessons Learned (Successes/Failures) and synthesize and disseminate to key stakeholders Nationally and internationally.	Target 1: Project experiences and their relevance to other sites assessed. Target 2: Easily understandable, useful summaries of lessons learned and best practices. Target 3: Lessons learned and best practices handbook. - To be completed I the next phase of the project.	-	To be determined in Phase 2

Note: * HS = Highly satisfactory; S = Satisfactory; MS = Marginally satisfactory; MU= Marginally unsatisfactory; U = Unsatisfactory; HU = Highly unsatisfactory.

5.0 Conclusions and Recommendations

5.1 Conclusions

General

1. After a slow start-up, the project has made relatively good progress in completing the planned activities. Project staff and subcontracting partners and stakeholders have diligently and enthusiastically fulfilled their duties. As a result, the project has generated considerable interest in and support for coastal biodiversity conservation in the project areas. The project remains relevant, timely and important to global and national biodiversity conservation goals. The second phase of the project, to commence after 2009, will be financed largely by the government and there are some concerns about sustaining the commitment and momentum in the final phase.
2. The biodiversity monitoring and management concepts and methods have been successfully introduced. Infrastructure and training have improved MPA capacity. But the practical application of the new monitoring and management tools requires further support. The partner organizations still have limited capacity to implement biodiversity conservation as envisioned in the project design. The project objective - "Conservation and sustainable use is established through multi-stakeholder management" also needs to be better defined in the remaining project period in terms of the outcomes or end-results that will be achieved.
3. The project has substantially improved awareness of coastal biodiversity and modestly enhanced the capacity of participating organizations to address the threats to biodiversity resources. The initial frameworks (approaches, tools, methods) have been developed in each of the demonstration areas. But the effectiveness, efficiency and sustainability of the project outputs have been adversely affected by the subcontractor-driven design of the project, insufficient technical guidance, limited consideration of local capacity needs, and uncertainty about expected end-results of the project.
4. Most of the activities and outputs have been delivered by the subcontractors as per the terms of their contracts. Some training and public awareness (small grants) have been managed by the PCU. The majority of the training has been delivered by NOAA, ESRI and the China Training and Education Centre for Marine Biodiversity Conservation and Ecosystem Management in Xiamen City. The MTE discussions indicated that there has not been sufficient capacity assessment in each of the demonstration areas to guide the three project delivery agents (PCU, subcontractors and external trainers). While an effort was made to improve consultation with the local partners in annual work planning, it has not been adequate to replace a thorough needs assessment, diagnosis of the specific approaches and tools to be promoted in each area, and identification of the local challenges in adopting and demonstrating the approaches and tools.
5. Despite the significant progress, the management methods and capacities for addressing critical threats to biodiversity still require further development and evidence of effective application. The project is in the early stages of introducing integrated coastal management, integrated pollution control, participatory management, sustainable livelihoods and MPA financing mechanisms. These concepts and the extent to which they can be used by the MPA agencies need to be further

defined, discussed and assessed for potential dissemination and replication in the second phase of the project.

6. The GEF expenditure to date (about USD \$ 2.33 M) has been relatively small compared to government co-financing (estimated USD \$26.8 M). However, the significant national profile and attention that has been given to the project has been directly related to international GEF involvement. The project is at a timely position to influence policy development for MPAs and integrated coastal development in China. The Phase 2 replication strategy will be critical to determining the project impact at a national level.

Demonstration Area Progress

7. The outputs produced by the subcontractors provide useful support for coastal biodiversity conservation but many of the MPA agencies and management staff do not have adequate capacity to fully utilize these outputs. The expertise for biodiversity inventory and assessment, GIS systems and management plans mostly resides with the subcontractors rather than the government authorities. Increased effort to transfer the subcontract results to the local level and to encourage sustainability is needed throughout the project demonstration areas.
8. Sanya: Good progress has been made in biodiversity surveys, monitoring protocols, GIS development and awareness building. However, many of the subcontract outputs have yet to be fully incorporated into MPA management systems and capacity. MPA management plans need to be upgraded for each site, drawing upon the project outputs. More attention is needed on the long term carrying capacity of the nature reserves for diving and sightseeing visitors and mitigating direct impacts on the coral reefs. The resources and programs for site management of the nature reserves are insufficient, particularly given the intensive tourism pressures on the sites. Progress toward integrated pollution control and sustainable financing is still evolving.
9. Shankou-Dugong-Weizhou: The MPA capacity development program has made good progress in completing the planned activities. Information systems and knowledge of biodiversity and habitats have been developed and many community-based awareness and involvement activities have been completed. The two MPAs and the proposed Weizhou Island ‘special MPA’ are threatened by the new industrial development projects in the coastal area of Guangxi. Development concerns overshadow MPA conservation and management. The strategy for balancing development and biodiversity conservation has yet to be formulated by government and the project may not be able to have an impact at this regional scale. This is a key challenge for the project at mid term: to effectively use the project tools to advocate conservation interests, strengthen management capabilities and influence development decision making in Guangxi.
10. Dongshan - Nan’ ao: The project has progressed well in completing a full range of GEF and government-funded initiatives. It has established the inter-provincial mechanisms for joint action on the three species at risk. The Inter-provincial Coordinating Committee has met five times. They have begun to implement coordinated land and water use zoning, various fisheries regulatory and enforcement measures, along with public awareness-raising about the species. Enhancement and rescue programs have also been established by governments. The project has initiated a network of 12 existing MPAs in the demo areas, although the specific role of each of

these for biodiversity conservation remains to be defined. Much of the baseline information is also very generalized, based on literature review and observations provided by fishermen rather than original field survey of critical habitats. The action plan lacks a clear program of strategic action to address the information gaps and immediate threats to the species at risk.

11. Nanji Islands: The nature reserve program development has improved management infrastructure and staff skills, strengthened regulations and patrol effectiveness, visitor management and information systems. The technical protocols have been established based on systematic criteria and includes a range of water quality parameters, benthic communities, algae and shellfish. The extent to which these are representative measures of the important biodiversity attributes of the islands, and whether they can be regularly monitored at the nine sampling stations remains to be seen. Complementary surveys of algae and shellfish have also been completed. Despite the studies and monitoring protocols for water quality, algae and shellfish, it is not evident what the overall biodiversity conservation strategy is for Nanji Islands Nature Reserve. The dramatic decline in one species of algae (*Sargassain horneri*) has not been explained in terms of its ecological implications or the feasible strategies to understand and address the causes of this decline. No functional management plan is in place to guide conservation programs.
12. The biodiversity surveys are often very general and the assessment of interactions between biodiversity resources and threats is often missing. Most of these ‘baseline’ or ‘overview’ studies present basic information without analyses and provide few definitive conclusions or directions for follow-up by MPA organizations. The project has not provided enough technical support, quality assurance and oversight to ensure that the biodiversity inventories and assessments provide practical action for further conservation planning in phase two of the project and beyond.
13. The mechanisms to integrate biodiversity conservation into coastal development plans are in the process of formulation in the project areas. The project is breaking new ground in the awareness-building and consultation with government officials and stakeholders across sectors. But there are still uncertainties about how integrated coastal development should be promoted in the project areas, especially since the project is primarily focussed on technical issues.

Project Design and Implementation

14. The effectiveness and efficiency of the project delivery through more than 17 subcontracts has imposed major complications and constraints on the project results: project implementation and ownership is dominated by the subcontractors whose interest tends to be completion of the contract deliverables rather than achievement of project outcomes. The project strategy does not sufficiently address the institutional and human resource challenges of the specific MPAs.
15. Another major observation from the mid term review is that the main objectives – building MPA management capacity and introducing new approaches, often require legal, organizational and cultural changes (alternative livelihoods, development attitudes) to sustainable natural resources management that are not easily addressed by short term introduction of technical innovations. They require a long term approach to policy and institutional as well as human resources development that exceed the scope of this project.

16. The project design does not specify the expected MPA management capacity building. The information and methods developed by the project could, in many cases, assist in updating or formulating detailed management strategies for the project sites. Practical management plans that are fully endorsed by local stakeholders are needed to guide MPA decision making and to enhance the profile of these protected areas. Many of the protected area management plans and biodiversity action plans are too general. Greater technical assistance is needed in identifying the critical management questions and information gaps and in refining the proposed management strategies and actions.
17. The project design and work plans and reports contain many changes in format, wording and numbering that contribute toward a confusing array of activities, outputs, outcomes and objectives since project approval. The project design has evolved through four iterations: The Logical Framework in the GEF Project Brief, the Results Framework in the UNDP Project Document, the outcome statements in the annual reports (PIR) and the annual workplans (AWP). Each of these offers a slightly different interpretation of the project. The changes in wording and numbering of outputs and targets in the AWP are particularly disconcerting. There is no documentation on how and why these changes occurred. However, this variation may be related to the complex thematic and geographic organization of the project and the changes in reporting requirements. The Project Document lacks clearly defined, measurable outcomes that are expected to emerge from the long list of project outputs delivered through many subcontracts.
18. The project was originally planned with GEF funding of Phase 1 in 2005-08 and government funding of Phase 2 in 2009-12. Due to delays in start-up and disbursements, this has been shifted to Phase 1 in 2005-2009 and Phase 2 in 2010-12. There is a concern that Phase 2 will be neglected once GEF funding ends. Given the interest and pressures for conservation and sustainable use in China's south seas, Phase 2 has become more important and the reduced time frame, budget constraints and possible GEF/UNDP withdrawal may significantly affect the potential impact of the project.

5.2 Recommendations

1. The project should focus on three priorities during the remaining project period (2009-2012):
 - d) further strengthening the capacity of MPA organisations so that they are able to effectively utilize the project outputs;
 - e) consolidating the project models for integrated coastal management, integrated pollution control, participatory management, sustainable livelihoods and MPA financing mechanisms that are to be disseminated and promoted for replication in Phase 2; and
 - f) developing and implementing a Phase 2 strategy for dissemination and replication of the project models at a national level.
2. A logical framework and strategic workplan should be prepared for the remainder of the project with an emphasis on clearly defined outcomes that are to be achieved by 2012. The project should narrow the scope of activities in Phase 1 with the aim of strengthening the MPA operations at the field level. Outcome 3 should be deferred to Phase 2 of the project.

3. The further strengthening of MPA capacities at each of the demonstration areas should include:
 - a) Ensuring that MPA staff are able to implement biodiversity monitoring strategies and protocols. The coral reef, mangrove, seagrass, algae and other habitat monitoring procedures developed at the demonstration areas should become routine operations for MPA staff. Additional support from the subcontractor organizations may be needed to assist this transfer of monitoring systems to the MPA government staff.
 - b) Ensuring that effective management plans or strategies are in operation at each of the MPA sites to guide management, conservation and restoration activities. Revisions to management plans should draw upon the technical outputs that have been prepared by the project to date. Improved management plans will strengthen the capacity and direction of MPA staff in biodiversity conservation.
 - c) Ensuring development of a basic information management system at each demonstration area that uses the GIS equipment and training provided by ESRI and the project. The GIS should be used for physical/biological and patrol data compilation and analyses and MPA program management. A limited effort at integrating the information management system into MPA operations will provide long term benefits.
 - d) Ensuring that sustainable financing mechanisms are adopted or are in the process of development at the MPA sites in order to provide for cost recovery of the management operations.
4. The project should establish a Technical Advisory Group with the responsibility to:
 - a) review the conservation and restoration strategies and methods underway or proposed at the demonstration areas;
 - b) provide advice to MPA organisations on the efficacy of these strategies and methods and their potential for further development; and
 - c) review and validate the model approaches and tools that are to be disseminated in Phase 2 of the project.
5. The NOAA training and technical assistance program should be encouraged to provide on-the-job mentoring for specific MPA conservation planning and management needs related to the project, and to assist the Technical Advisory Group. The capacity building priorities relate to biodiversity monitoring, management planning, information systems and financing mechanisms.
6. On the basis of a re-formulated 2009-2012 Workplan and Budget, the project should secure formal commitments from central, provincial and local governments toward funding of Phase 2 of the project. It should recognize the changes that have occurred in coastal development and biodiversity conservation concerns since the original project design and the need to ensure effective implementation of Outcome 3 – ‘Appropriate tools are disseminated for broader adaptation across China’s South Sea coastal area’. It should also seek additional national and international co-financing to focus on national level discussion of MPA development and scaling up the experiences under the project.

6.0 Lessons Learned

The lessons learned from the project at mid-term are primarily related to project design and management:

- a) **The project design:** The project objectives should be realistic and achievable in line with the planned duration, funding level, and local absorption capacity. Given the long history of the project preparation stage, activity design should be flexible enough to adapt to the changing situation in terms of threats to biodiversity and social economic development. The precision and clarity with which the planned results are defined affects all aspects of project implementation. Project outcomes need to have reliable indicators of achievement. Many GEF projects are designed by consultants who are not responsible for the subsequent implementation. It is important therefore to have a well organized inception phase that builds a common understanding of the results needed to achieve the project objectives.
- b) **The project delivery strategy:** The subcontracting approach used in the project was viewed as a requirement imposed by UNDP rules and procedures. The experience has not been particularly effective or efficient from the perspective of implementing the project objectives. Review of this project experience by UNDP may be useful.
- c) **The project management:** Most project participants are involved in a GEF project for the first time. A full time project manager is important to provide adequate guidance and supervision to the local implementation, and to build common understanding of the project plan and supportive operational annual work plan. MPA managers need a practical adaptive environmental management framework that recognizes information deficiencies and that provides a structured learning process for decision making based on feedback from reliable monitoring systems.
- d) **The project ownership:** The targeted stakeholders – the local governments and MPAs, should be directly involved in project implementation and production of outputs in conjunction with an organized capacity building strategy. The local SIUs and MPAs should be the lead agencies in the implementation of project activities rather than passive receiver of project outputs. The responsibility of local SIUs and MPAs should be correspondingly defined in the project document
- e) **Capacity building:** The capacity building of the MPAs is a long term task and should be systematically planned. Given the current situation, the development of MPA management plan based on the best information to date should be in the core of the capacity building. A multidisciplinary teams of social and natural scientists is necessary to guarantee the quality of the management plan.

- f) **The training activities and information sharing:** All the participants benefited to various extents from the project training. The involvement of international experts provided opportunities to introduce some new concepts and cases in marine biodiversity management. However, as an important part of capacity building, the trainings should be planned based on capacity needs assessment and focused (on-the-job) training, and evaluations should be conducted to ensure the training quality. Capacity building in general should include a formal training plan, on-the-job exercises and an evaluation process.

- g) **The public awareness raising:** There have been a lot of activities carried out to raise public awareness in the project areas by all the subcontractors. However, government officials should also be targeted for awareness raising particularly the provincial level government which is the important decision maker for the MPAs sustainability. The public awareness raising also needs to be well planned and integrated into the master plans of MPAs.

- h) **Technical soundness of the applied research:** Given the many scientific uncertainties and data deficiencies that have been encountered in the surveys of target species and habitats, it is important to develop the approaches and skills for addressing biodiversity concerns under such conditions – scoping of the conservation biology questions, discussion of appropriate approaches and methods of data collection and analyses, and ensuring the surveys are oriented toward providing the best available management advice.

- i) **Time frame of activities:** Not enough time was allowed for the research activities in the project, such as the coral reef transplantation, and mangrove/seagrass restoration. The development and demonstration of tools/approaches also need a longer time frame than that designed in the project.