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***Reversing Environmental Degradation Trends
in the
South China Sea and Gulf of Thailand***

REPORT

Eighth Meeting of the Project Steering Committee

Hanoi, Viet Nam, 25th – 26th August 2008



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Report of the Meeting

1. OPENING OF THE MEETING

1.1 Opening Address on behalf of UNEP

1.1.1 Dr. John Pernetta, Project Director opened the meeting, at 0830 on 25th August 2008, and welcomed participants on behalf of the Executive Director of UNEP, Dr. Achim Steiner; and the Director of the UNEP Division of Global Environment Facility Co-ordination, Dr. Maryam Niamir-Fuller. Dr. Pernetta noted this would be the eighth and final formal meeting of the Project Steering Committee within the framework of the UNEP/GEF project entitled "*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*".

1.1.2 Dr. Pernetta stated that the Committee had an important responsibility to ensure that appropriate arrangements for implementation of the revised Strategic Action Programme were identified prior to closure of the project. He noted that this meeting had been preceded by the ninth meeting of the Regional Scientific and Technical Committee which had been conducted in a highly collegial manner and which had made various recommendations for the consideration of the Project Steering Committee on many of the matters on the current agenda.

1.1.3 Dr. Pernetta reflected upon the many significant achievements and successes of the project in terms of the production of innovative, "cutting edge" science and the development of successful management structures and practices for regional co-ordination. He noted that the successes reflected the hard work and inputs of the many project partners including nationally designated focal points, local, provincial and central government officers and regional experts. He recalled that to date the only experts and consultants used in the project had come from the participating countries.

1.1.4 Dr. Pernetta noted that the demonstration sites had provided many excellent examples of best practice and that it was important to ensure that the successes resulting from these activities were not lost following project closure. He noted that the success of the demonstration site activities clearly illustrated the importance of having strong involvement of the local government and local communities in project design and execution.

1.1.5 In conclusion Dr. Pernetta expressed the hope that the successes of the past seven years would be reflected in the outcome of the present meeting and that despite the full agenda the meeting would complete the agenda providing a platform for expansion of regional co-operation.

1.1.6 Dr. Pernetta noted with pleasure that Deputy Minister Dr. Tran Hong Ha had taken time from a busy schedule to address the meeting and invited him to address the meeting on behalf of the host government.

1.2 Welcome Address on behalf of the Government of Viet Nam

1.2.1 The Honourable Deputy Minister, Dr. Ha, welcomed participants to Hanoi and to the eighth meeting of the Project Steering Committee on behalf of the Government of Viet Nam and the Ministry of Natural Resources and Environment, and noted that he was honoured to be present during the opening of this important meeting.

1.2.2 Dr. Ha noted that this eighth and final meeting of the PSC would be important in providing an opportunity to review the achievements and to agree on procedures for future cooperation, he noted the remarkable achievements of the project particularly the mechanisms for regional cooperation in environmental management and stated that Viet Nam would seriously and actively seek to improve that cooperation in the future.

1.2.3 Dr. Ha briefly reviewed the background to the project and noted that the Ministry of Natural Resources and Environment would work to maintain the national network and coordination mechanism; promote outputs and outcomes of the project; and ensure sustainability of interventions at the projects habitat demonstration sites.

1.2.4 In conclusion Deputy Minister, Dr. Ha again welcomed all participants to Vietnam; wished them an enjoyable stay in Viet Nam; and expressed the hope that the GEF would continue support to the implementation of the SAP.

1.3 Introduction of Members

1.3.1 The Project Director noted that since a number of alternates were present, it would be useful for participants to introduce themselves to the meeting. Participants briefly introduced themselves providing information regarding their involvement in the project. The list of participants is attached as Annex 1 to this report.

2. ORGANISATION OF THE MEETING

2.1 Co-option of Members

2.1.1 Members were reminded that under the rules of procedure as amended during the fifth meeting of the PSC in 2005 the minimum period for designation of alternates was two weeks (10 working days) prior to the commencement of the meeting.

2.1.2 Members were invited to note that in accordance with this amended rule, His Excellency Mr. Khong Sam Nuon, Secretary of State for the Environment was duly nominated as the alternate for the National Focal Point from Cambodia; Ms. Wahyu Indraningsih and Ms. Zulhasni were duly nominated as the alternates for the National Focal Point and National Technical Focal Points for Indonesia respectively; Mr. Ahmad Rizal Khalit and Mr. Hashim bin Daud were duly nominated as the alternates for the National Focal Point and National Technical Focal Points for Malaysia respectively; Ms. Maria Lourdes G. Ferrer was duly nominated as the alternate for the National Focal Point for the Philippines; Dr. Sirikul Bunpapong and Ms. Nirawan Pipitsombat were duly nominated as alternates for the National Focal Point and National Technical Focal Point for Thailand respectively. Since all of these alternates had been designated in accordance with the rules of procedure they were recognised as being full members of the committee with the same powers and duties as the regular members.

2.1.3 Dr. Pernetta, noted that Dr. Bui Cach Tuyen had been nominated as the alternate for the National Focal Point for Viet Nam after the due date and consequently the committee was required to formally co-opt him as a full member and alternate for the National Focal Point of Viet Nam.

2.1.4 The Project Director called for a motion to co-opt Dr. Tuyen as a full member of the committee under Rule 6 of the Rules of Procedure. Dr. Gil Jacinto proposed that Dr. Tuyen be co-opted as a full member of the committee and the motion was passed by acclamation.

2.1.5 Dr. Pernetta reminded members that Mr. Li Xinmin National Focal Point for China, had requested that a representative of the Ministry of Foreign Affairs be accorded the status of observer at the meeting in accordance with sub-clause 1 of rule 6 of the Rules of Procedure. Dr. Pernetta had circulated this request on the 30th July 2008 with a request for a prompt response from members. A number of members had responded that they had no objections whilst an equal number had expressed objections. In the absence of a consensus Mr. Li had withdrawn the request.

2.2 Election of Officers

2.2.1 Members were reminded that under the Rules of Procedure the committee should elect from amongst the members, a Chairperson, Vice-Chairperson and Rapporteur to serve until the convening of the subsequent regular meeting of the committee and that the Rules of Procedure designate the Project Director as the Secretary to the Committee.

2.2.2 The committee noted that during the fifth meeting of the committee, Ms. Wahyu, Dr. Jacinto, and Dr. Nawarat Krairapanond were elected as Chairperson, Vice-Chairperson and Rapporteur respectively. During the sixth meeting Dr. Jacinto, Mr. Henk Uktolseya, and Ms. Nirawan were elected as Chairperson, Vice-Chairperson, and Rapporteur respectively. During the seventh meeting Mr. Khong, Mr. Lee Heng Keng, and Ms. Ferrer were elected as Chairperson, Vice-Chairperson, and Rapporteur respectively.

2.2.3 The Project Director invited the participants to nominate members to the positions of Chairperson, Vice-Chairperson and Rapporteur of the Committee. Mr. Khong nominated Dr. Mai Trong Nhuan as the Chairperson for the eighth meeting of the Project Steering Committee, and this nomination was seconded by Dr. Jacinto. Dr. Jacinto nominated Ms. Wahyu as the Vice-Chairperson, and this nomination was seconded by Mr. Rizal. Ms. Wahyu nominated Mr. Rizal as the Rapporteur, and this nomination was seconded by Ms. Ferrer. The officers were duly elected by acclamation.

2.3 Documentation Available to the Meeting

2.3.1 The Chairperson, Dr. Mai, invited the Secretary of the Committee, Dr. Pernetta to introduce the discussion and information documents together with any additional documents prepared during the seventh meeting of the Regional Scientific and Technical Committee.

2.3.2 Dr. Pernetta drew members attention to the list of documents prepared as document UNEP/GEF/SCS/PSC.8/Inf. 2 and highlighted the discussion documents before the meeting together with additional documents presented to and considered by the Regional Scientific and Technical Committee. Dr. Pernetta noted that there were a number of substantive publications also included in the meeting documents for the information of members. These included both technical and information documents as well as the reports of the regional meetings convened during the year. The list of documents is attached as Annex 2 to this report.

2.4 Programme of Work and Administrative Arrangements for the Conduct of the Meeting

2.4.1 The Chairperson invited the Secretary to introduce the proposed programme of work presented in information document UNEP/GEF/SCS/PSC.8/Inf.3 and to advise members of the administrative arrangements for the conduct of the meeting.

2.4.2 Dr. Pernetta noted that as stated in the Rules of Procedure, the meeting would be conducted in English, and in plenary, although smaller working groups could be formed at the discretion of members, to deliberate on items between the plenary sessions. He noted that it was proposed that the meeting be convened at 0800 and close at 1700 hrs with morning and afternoon breaks for coffee and one hour for lunch.

3. ADOPTION OF THE MEETING AGENDA

3.1 The Chairperson invited the members to consider the provisional agenda for the meeting as presented in discussion document UNEP/GEF/SCS/PSC.8/1, and the annotated provisional agenda UNEP/GEF/SCS/PSC.8/2. He invited them to propose any additional items for inclusion under agenda item 10 and to consider and amend as appropriate the agenda for the meeting.

3.2 Dr. Guo suggested that the primary function of the present meeting was to ensure that the outputs of the project were achieved and hence it should focus on adoption of the SAP, he suggested that in order to ensure that these objectives were achieved, items dealing with future actions should be deleted from the agenda.

3.3 In this regard he noted that COBSEA had passed a resolution directing the COBSEA Secretariat to prepare a proposal to implement the SAP and consequently in his view it was not appropriate for the SCS Project PCU to develop such proposals. He noted further that the documents for the present meeting had been received too late for consideration under the UN rules for distribution that required meeting documents to be distributed six weeks in advance of the meeting. He noted that there had been insufficient time for national level consultation regarding the content of the documents. Given the limited time available to the meeting and the need to ensure sufficient time for members to consider the adoption of text of the SAP, MoU and project activities in the next few months, he proposed the deletion of agenda Items 7.1, 7.3 and 7.4.

3.4 Furthermore Dr. Guo requested that the meeting report for the present meeting be prepared by the Secretariat sufficiently early to allow adequate consideration by members prior to its adoption.

3.5 His Excellency Mr. Khong Sam Nuon indicated that in his view all sub-agenda items should be retained. Although he recognised that China had not participated in the fisheries component of the project the substance of the item was of considerable interest to 5 of the 7 countries and had been designed to implement the fisheries component of the South China Sea Strategic Action Programme.

3.6 Dr. Pernetta apologised for the lateness of completion of some of the documents for the present meeting, but noted that this was due to the limited staffing in the PCU, he noted further that every effort would be made by the Secretariat to ensure production of the meeting report for the present meeting in a timely manner to ensure adequate consideration by the members, but that this was contingent upon members limiting their discussion to allow adequate time for the Secretariat to prepare the draft report.

3.7 Dr. Pernetta noted that the SAP includes a fisheries component and that during its previous meeting the PSC had taken note of the initial steps in development of a GEF project for implementation of the component of the SAP which did not involve the participation of either China or Malaysia. He noted further that: China's representatives in the RSTC and PSC had received all reports on the activities of the fisheries component over the past seven years; that the proposal had been developed by the RWG-F; reviewed by the RSTC' and that it would be inappropriate for the PSC to ignore these developments. He stated that should China or any other country not wish to participate in this activity that was of course acceptable, but nevertheless the PSC had a responsibility to try and ensure that mechanisms were put in place that would ensure successful implementation of the SAP.

3.8 Dr. Pernetta further noted that the resolution of COBSEA does not spell out the operational mechanisms through which COBSEA would oversee or implement the SAP and that the RTF-L had examined both the views of the PSC and the COBSEA recommendations and resolutions in providing its proposals for an operational structure. In addition the 7th meeting of the PSC had taken note of the GEF Secretariat conditionality for follow up SAP implementation projects.

3.9 Finally Dr. Pernetta noted that the COBSEA resolution states that the COBSEA secretariat will develop proposals but both the COBSEA Secretariat and the Project Co-ordinating Unit were part of UNEP hence any proposals developed by the PCU would be passed to the COBSEA Secretariat for onward transmission to COBSEA.

3.10 Dr. Guo stated that China appreciated the hard work of the PCU in developing the fisheries *refugia* project and does not object to the submission of the proposal to the GEF, but that they did not consider the present meeting as an appropriate venue in which to discuss this proposal further since COBSEA was now the entity responsible for implementing the SAP.

3.11 The Chairperson, Dr. Mai suggested and the meeting agreed that it was indeed the business of the committee to consider future developments with respect to the implementation of the SAP and that the meeting should not spend too much of its limited time in discussing the provisional agenda. The agenda was adopted as proposed and is contained in Annex 3 of this report.

4. OPENING STATEMENTS ON BEHALF OF THE PARTICIPATING COUNTRIES

4.1 The Chairperson invited the Minister or Senior Official from each country participating in the UNEP/GEF South China Sea Project to give a brief opening statement regarding their country's participation in the project, highlighting the perceived benefits and plans with regard to the implementation of the National Action Plans and Strategic Action Programme.

4.2 Dr. Tuyen noted that in the case of Viet Nam the Deputy Minister had already highlighted the advantages of Vietnamese participation in the project and made a commitment to ensuring that national level co-ordination meetings would continue to be funded and held following project closure.

4.3 Ms. Maria Lourdes G. Ferrer, thanked the Government of Viet Nam for hosting the meeting and the PCU for their support to the organisation of the meeting. She noted that over the last 6 months national activities had focussed on ensuring that the project would be completed on time. She informed the meeting that the mangrove component had finalised the National Action Plan and conducted two echo-seminars on mangrove management. The wetland component NAP is being finalised and echo seminars on wetlands have been conducted. She noted that in the case of Land-based Pollution a separate NAP had not been completed but the committee is developing key steps/actions for inclusion in an Integrated National Action Plan (INAP).

4.4 Ms. Ferrer informed the PSC that a meeting In June 2008 participated in by all relevant agencies had considered the content of the individual NAPs for inclusion in an Integrated National Action Plan. She noted that the arrangements for operationalising Presidential Order 533 on adopting integrated coastal management as a national strategy were under finalisation by the Department of Environment and Natural Resources. Once completed these would greatly benefit the implementation of the NAPs and SAP. She noted further that the participants and others in the Philippines could clearly see the value of collaborative and participatory management as practices in the SCS project, and expressed support for the implementation of the SAP, through the priority projects and collaboration with the small grants programme.

4.5 Ms. Wahyu Indraningsih expressed on behalf of all the Indonesian partners her sincere thanks and high appreciation to the PCU for their support and in particular Dr. Pernetta for his guidance and to the partners in the other countries who had also provided technical support and advice. She noted that although nothing was ever perfect Indonesia would try and overcome all remaining obstacles and apologised for any inconvenience that might have been caused by failures on the part of Indonesia during the operation of the project.

4.6 Ms Wahyu urged the members of the PSC to bear in mind the need for and importance of strengthened regional cooperation, particularly in terms of meeting the minimal requirements of the GEF and noted the need to consider and endorse an appropriate mechanism for strengthened coordination as an input to the COBSEA. She expressed the wish that all countries would provide constructive inputs during the course of the meeting.

4.7 Mr. Li Xinmin noted that since the formal launch of the project seven years have passed and there had been a large number of achievements in China, including: strengthened Information management and communication; improved understanding of the importance and economic value of habitats amongst government officers; and better knowledge and awareness of the importance of coastal habitats at the community level through the demonstration sites.

4.8 Mr. Li expressed the view that the finalisation of the Strategic Action Programme and the supporting NAPs were important outcomes for improving the management of South China Sea and Gulf of Thailand. He noted the contributions of the PSC in guiding the process. Given that only 4 months remained he noted further that there was much to do to ensure the project was closed on time which was why China had wished to amend the agenda and ensure that the meeting focussed on the mandate of the SCS project itself, including the terminal evaluation. He reminded members that COBSEA had decided to take over SAP implementation and suggested that any matters relating to SAP implementation should be discussed within the framework of COBSEA. He concluded by wishing the eighth PSC meeting a great success.

4.9 His Excellency Mr. Khong thanked the Government of Viet Nam for hosting the meeting and all participating countries for their strong cooperation and the warm atmosphere that characterised most meetings of the project. He noted that Cambodia has two demonstration site projects, Peam Krasop and Kampot and that these had provided great benefits to the local governments and communities.

4.10 His Excellency thanked Dr. Pernetta and his team for their hard work, particularly in guiding successful revision of the SAP and informed the meeting that Senior Minister Dr. Mok Mareth wished to convey his thanks to the PCU and to all other countries for their strong cooperation. His Excellency expressed the hope that the SAP could be implemented with strong cooperation from all countries and noted further that the donors forum would be convened in October to help generate support for implementation of priority actions in the framework of the SAP. He wished the meeting every success and expressed the hope that the discussions would run smoothly.

4.11 Mr. Ahmad Rizal Khalit thanked, on behalf of the Government of Malaysia, the Government of Viet Nam for hosting the meeting and noted that Malaysia had been involved in four components since 2002. In all components national reports and National Action Plans had now been completed and he stated that Malaysia continue to support regional cooperation and coordination of the management of the marine environment of the South China Sea.

4.12 Dr. Sirikul Bunpapong, National Technical Focal Point for Thailand noted that over the six years of project implementation many important outputs and outcomes had been achieved including the development and finalisation of the SAP and NAPs that would be important in providing the structure for future regional actions and co-operation. She noted that the present GEF project would be completed by the end of 2008 and expressed the hope that the SAP will be implemented with strong regional coordination among the countries and continued support from the GEF.

5. REPORT OF THE CHAIRPERSON OF THE REGIONAL SCIENTIFIC AND TECHNICAL COMMITTEE

5.1 Sustaining the Project Website Beyond December 2008

5.1.1 Prior to inviting the Chairperson of the RSTC to present the report of that meeting Dr. Mai requested the Project Director to provide clarification regarding the nature of the committee and the roles of members. Dr. Pernetta noted that the committee was an intergovernmental body but that the membership was specified as “one member shall represent the government with authorisation to participate in decisions of the committee on project matters”; and “one individual should be a regionally recognised, national expert with good knowledge and experience in the marine environment and shall provide guidance on the scientific and technical aspects of the project”.

5.1.2 The Chairperson invited Ms. Nirawan, Chairperson of the 9th meeting of the Regional Scientific and Technical Committee to present the report of that committee. Ms. Nirawan drew the attention of members to the report of the ninth meeting of the Regional Scientific and Technical Committee which had been tabled as document UNEP/GEF/SCS/RSTC.9/3, and to her own summary report contained in document UNEP/GEF/SCS/PSC.8/5 that highlighted the outcome of deliberations during the ninth meeting of the committee in Hue, Viet Nam 20 – 22nd August 2008.

5.1.3 Ms. Nirawan noted that the Chairperson’s report contained recommendations to the Project Steering Committee regarding a number of matters that formed separate items under the current agenda that would be presented during the meeting at appropriate points. The outcome of deliberations of the RSTC relating to the Project website, the demonstration sites and the Regional Training Programme would be considered under the current agenda item.

5.1.4 Ms. Nirawan reported that the RSTC had agreed that the following recommendation should be delivered to the eighth Project Steering Committee meeting:

The RSTC recognises that the existing project website provides a rich and extremely valuable source of information, data, databases, training materials, models and other items of relevance to the South China Sea. Furthermore the website was recognised internationally by Google Earth, the GEF Secretariat and IW-Learn as being the most comprehensive body of information and data pertaining to any large marine ecosystem or shared water body world-wide. In addition the number of individual visits to the site per month (c110,000); the numbers of document downloads; and the number of countries from which visitors originate (120+ of which the seven participating countries all rank in the top 20) attest to the global and regional significance of the site.

In light of this, and recognising that COBSEA has decided to take responsibility for oversight of the implementation of the Strategic Action Programme the RSTC recommends that the Project Steering Committee recommend to COBSEA that the COBSEA Secretariat be charged with responsibility for maintaining a South China Sea website. The COBSEA Secretariat would need to assess the resource requirements both financial and human, bearing in mind that the site would need to be modified to make pages available for the national focal points to provide up-dates of the actions and activities associated with the implementation of the National Action Plans and Strategic Action Programme.

5.1.5 Ms. Ferrer agreed that since COBSEA was to co-ordinate SAP implementation it would be logical for the COBSEA Secretariat to take responsibility for maintaining a South China Sea website and queried whether or not the changes referred to in the report of discussion could be made prior to the handover of responsibilities from the PCU to COBSEA. In response Dr. Pernetta indicated that this would be possible provided that Mr. Paterson agreed, since the website was run and up-dated on Mr. Paterson’s personal time.

5.1.6 Dr. Sirikul agreed that the website should be maintained by the COBSEA Secretariat and that Thailand would develop pages on NAP implementation that could be linked with the SCS website. The representatives from Malaysia, Cambodia, Indonesia and Viet Nam considered this an appropriate idea and Dr. Guo indicated that China also agreed with this proposal.

5.2 Consideration of the Achievements of the Demonstration Sites and Pilot Activities

5.2.1 Ms. Nirawan, Chairperson of the RSTC noted that the plan approved by the RSTC in December 2007 had been for the experience notes highlighting significant achievements of the demonstration sites to be submitted to the PCU no later than 30th March providing sufficient time for editing by the PCU, translation at the national level, and publication in national languages prior to the closure of national activities. In the event, a number of these had been received in draft in late June and July; consequently insufficient time remained for translation and publication in national languages.

5.2.2 The RSTC had agreed that the time remaining for producing the notes in national languages was insufficient but that the lessons learned notes should be edited and formatted for publication at the regional level in English language. It was further agreed that the lessons learned notes should be published before mid October 2008 in order that they can be distributed by the Thailand National Focal Point in their booth during the 10th Conference of Parties to the Ramsar Convention. All focal points agreed that they would post the notes on appropriate websites at the national level.

5.2.3 Ms. Nirawan noted that Thailand supports the RSTC recommendation that the lessons learned be printed in English by the PCU and translated and published in national languages by the National Focal Points in each country. Mr. Rizal indicated that he had no comment on this matter since Malaysia has no demonstration sites.

5.2.4 Ms. Ferrer agreed with the recommendations of the RSTC and noted that translation was not a significant problem in the case of the Philippines. Ms. Wahyu noted that Indonesia agreed with this recommendation and that translation would be undertaken at the national level. Dr. Guo noted that China supported the recommendation of the RSTC.

5.3 The South China Sea Regional Training Programme

5.3.1 The committee took note of the RSTC discussions regarding the successful outcomes of the regional training programme and the fact that: all National Technical Focal Points had agreed that they would endeavour to make national language training materials developed for the national echo seminars accessible online in the near future; a DVD-ROM containing all training materials had been produced; that these were all loaded to the Training Portal of the Project Website; that two courses had not been run due to difficulties in identifying an appropriate partner institution; that the staff exchange had not been as successful as envisaged and that the numbers of study tours had been fewer than anticipated.

5.3.2 Ms. Nirawan supported the recommendation of the RSTC that training materials posted on the SCS website would remain available once the COBSEA Secretariat assumed responsibility for the site and that Thailand would also maintain the materials on their own website. Ms. Ferrer agreed and stated that the materials could be loaded to the DENR website.

5.3.3 Mr. Rizal thanked the PCU for their hard work in organising the programme noting the number of courses organised and the large number of echo-seminars which had permitted transfer of experiences to the national level.

5.3.4 Dr. Guo noted that some training activities had been particularly well received including the economic valuation which had been replicated through a national echo-seminar although he was not aware of any other echo-seminars in China.

5.3.5 Both Mr. Savath and Dr. Mai agreed that materials would be loaded to appropriate websites in Cambodia and Viet Nam respectively.

5.3.6 In response to a query Dr. Pernetta informed the Committee that the planned workshop on Project Planning and Management had not been conducted since it had always been envisaged that he would personally play a significant role as a trainer in that workshop and he had insufficient time to date.

6. ADOPTION OF THE REVISED STRATEGIC ACTION PROGRAMME AND AGREEMENT CONCERNING THE PROCESS FOR SIGNATURE OF THE MEMORANDUM OF UNDERSTANDING

6.1 The Vice-Chairperson invited the Project Director to outline the proposed changes received from the National Focal Points and National Technical Focal Points in advance of the meeting and the extent to which these have been incorporated into the current draft (draft #6) of the Strategic Action Programme.

6.2 Dr. Pernetta reminded the Committee that during the seventh meeting of the Project Steering Committee in Trat Province, Thailand from 17th – 19th December 2007 it was agreed that all consultations at the national level regarding the content and adoption of the SAP should be completed and the outcomes transmitted to the PCU by the end of March 2008. Dr. Pernetta noted that this would have allowed for consolidation of any suggested amendments and re-circulation of the final draft prior to the RSTC and PSC meetings.

6.3 Dr. Pernetta informed the meeting that as of the end of July written responses had been received only from China and Philippines together with a verbal communication from Cambodia indicating that no changes to the text were being proposed by that country.

6.4 Dr. Pernetta noted that version 6 incorporated some but not all changes proposed by China and that the written response from the Philippines was directed more towards a discussion of the process of implementation than towards the content of the document. Dr. Pernetta noted that draft six had been considered by the RSTC which had also reviewed in some detail the comments from China and a record of their decisions can be found in section 11 of document (UNEP/GEF/SCS/RSTC.9/3). In addition a number of factual changes had been made to the area of seagrass in Viet Nam and of coral reefs in Malaysia that had resulted in changes in the tables and elsewhere in the text. He noted that all changes were contained in Annex 5 of the RSTC meeting report.

6.5 Ms. Nirawan noted the very serious consideration given to the comments of China by the RSTC that had resulted in some textual changes and noted further that the RSTC was recommending that the PSC adopt the final (draft 7) version of the SAP and the text of the Memorandum of Understanding. Ms Nirawan noted further that during the ninth meeting of the RSTC, the National Focal Points or their alternates had briefed the committee on the outcome of the final round of national discussions of the contents of the draft strategic action programme and of the memorandum of understanding.

6.6 Dr. Guo proposed that the changes be considered one by one on the screen and there being no objections the text was projected in track mode. On coming to the changes made to the final paragraph on page 2, Dr. Guo queried which version was being projected and on being informed that this was draft #6 with the changes made in the RSTC displayed in track mode suggested that the version that should be projected was draft #5 which was the version discussed in China.

6.7 Dr. Pernetta assured Dr. Guo that the only changes introduced to draft number 5 were those proposed by China and that once these had been introduced version 6 had been distributed to all countries. Dr. Jacinto confirmed that draft #6 had been received in the Philippines and had been used in the national discussions and workshop. It was agreed that draft #6 with changes by the RSTC would be considered by the PSC.

6.8 Dr. Guo proposed that the final sentence on page 2 be changed to "... Ministers responsible for the Marine environment *or their representatives*". Mr. Savath suggested that adding "*or their representatives*" might lead to a reduction in the impact of the MoU and noted that it had already been discussed and agreed that it would be signed by Ministers.

6.9 Dr. Pernetta suggested that by including "*or their representatives*" it inferred a requirement for the MoU to be signed during a meeting and that although the 9th RSTC meeting had recommended that the MoU be signed by Ministers in Hanoi during the first week of October, this might not be possible and it might be that the MoU would be signed individually by Ministers in the capital cities. He noted the wording does not preclude signature by a lesser official in the absence of the Minister, provided that the individual concerned has been authorised to sign.

6.10 Dr. Guo noted that it was not possible to guarantee that the Minister for Environmental Protection from China will be able to sign the MoU in October and reiterated his suggestion that “*or their representatives*” be inserted in order to provide some flexibility. He suggested that the word *marine* be deleted and all members accepted this proposal, however his proposal that Ministers responsible for Environment be changed to Ministers responsible for Environmental Protection was not accepted since it was more restrictive.

6.11 Dr. Pernetta proposed and the meeting agreed that the current draft of the text of the SAP (draft #7) with the changes in track mode be duplicated over lunch and distributed to speed discussion in the afternoon. Following resumption after the lunch break it became clear that none of the other countries were in support of the insertion of “... *or their representatives*” to the final paragraph on page 2.

6.12 Ms. Ferrer suggested that since the MoU is less “binding” than an MoA the procedures for signature by Minister or an alternate could be included in the information regarding the ceremony for signing the MoU and simply be communicated to Ministers. She agreed that in the event there was no suitable meeting then copies would be sent and signed individually.

6.13 Dr. Gou noted that China respected the views of the other countries but again stated that China strongly supported the addition of “... *or their representatives*”. Dr. Pernetta proposed that a possible compromise would be to include a footnote to the word Minister stating “*In the event that the Memorandum is signed in a meeting and a Minister is unable to be present, his/her representative in the meeting may sign the Memorandum if authorised to do so by the Minister*”. Mr. Li consulted with Beijing and was informed that this was acceptable.

6.14 Dr. Mai then proceeded to guide the meeting through each correction. Dr. Guo requested the deletion of item 4 in the land-based pollution activities since this involved national activities. Dr. Jacinto noted that as revised it was a regional activity involving preparation of recommendations and not interventions at the national level. No other additions or modifications were suggested and the text was adopted as final.

6.15 Dr. Guo requested and the meeting agreed to a change in wording to the footnote relating to China’s non-participation in the Coral Reef and Fisheries component of the SAP.

6.16 The full, final text is attached to this document as Annex 4 and will be published in full as a separate publication.

6.17 Dr. Mai, Chairperson drew the attention of the committee to the final text of the Memorandum of Understanding as contained in Annex 6 of the RSTC meeting report, document UNEP/GEF/SCS/RSTC.9/3 and requested Dr. Pernetta to advise of any changes.

6.18 Dr. Pernetta drew the attention of members to two minor textual errors in the original text that had been corrected in the version attached as Annex 6 to the RSTC meeting report namely: the “United General Assembly” should read “United Nations General Assembly” and the phrase “The Ministries of Environment” at the bottom of the page should be changed to “the Ministries responsible for environmental affairs in each country” in conformity with section two of the document. In addition the RSTC had agreed to put the name “Strategic Action Programme” in full throughout.

6.19 The Project Steering Committee agreed the final text of the MoU which is attached as Annex 5 to this report.

6.20 Regarding the signature of the Memorandum of Understanding, the PSC took note of the fact that three Ministerial Meetings on the Environment (11th Informal ASEAN Ministerial Meeting; the 7th ASEAN plus three Environment Ministers Meeting; and the 1st East Asian Summit Meeting of Environment Ministers) would be convened in Hanoi, Viet Nam during the first week of October and that VEPA was serving as the host of these meeting.

6.21 The Committee agreed with the RSTC that this would indeed be a suitable opportunity for signature of the MoU and requested Deputy Minister Tran Hong Ha to facilitate this process. The Committee noted further that the focal points in all countries where final clearance was outstanding should contact the agencies responsible informing them of the proposed date of signature and requesting their final clearance well in advance of this event.

7. IMPLEMENTING THE STRATEGIC ACTION PROGRAMME: OPERATIONAL CONSIDERATIONS

7.1 Outcome of the Deliberations of COBSEA Regarding Co-ordination of the Implementation of the Strategic Action Programme

7.1.1 The Chairperson invited Dr. Pernetta to present document UNEP/GEF/SCS/RSTC.9/15, entitled "*Outcome of the Deliberations of COBSEA Regarding the Implementation of the Strategic Action Programme for the South China Sea and Recommendations Regarding Operational Arrangements*".

7.1.2 Dr. Pernetta noted that document UNEP/GEF/SCS/PSC.8/6 includes a brief overview of COBSEA deliberations and their outcomes and follow up actions within the SCS project since the previous meeting of the Project Steering Committee. Dr. Pernetta noted that following discussions between himself and the COBSEA Secretariat it had been agreed to seek the views of the RTF-L on possible operational arrangements.

7.1.3 The RTF-L had considered this matter and noted that: the resolution of COBSEA does not provide any details concerning the operational mechanisms for COBSEA oversight; COBSEA only meets every two years; COBSEA has 10 member countries; and that the COBSEA Secretariat has limited financial and human resources. In considering these constraints the RTF-L recognised that they had implications for the future operational structure. Firstly the RTF-L considered that countries bordering the South China Sea would not wish other countries to be involved directly in decisions relating to the environmental management of the South China Sea. Secondly if direction of SAP implementation was to be effective then there was a need for a body to meet more frequently than every two years.

7.1.4 The proposal of the RTF-L took these matters into consideration and proposed that COBSEA establish a Standing Committee called the South China Sea Strategic Action Programme Implementation Committee composed only of the countries participating in the SAP, that would meet annually to oversee SAP implementation.

7.1.5 In addition the RTF-L recommended the creation of a SAP Implementation Unit within the COBSEA Secretariat to strengthen the existing COBSEA Secretariat and provide technical support to the countries in implementing the SAP.

7.1.6 Dr. Pernetta noted that these recommendations had been sent to UNEP senior management immediately following the RTF-L meeting and that subsequently both he and the COBSEA Co-ordinator had received notification that the proposals were accepted by UNEP management.

7.1.7 Dr. Guo noted the document had been received very late and there had been no time for a national level review, in principle China objects to discussing these documents in this meeting not because of the documents themselves but for two reasons: insufficient time for national consultation and the view of China that consideration of matters relating to SAP implementation should be done by COBSEA.

7.1.8 Dr. Pernetta reiterated that the PCU and COBSEA were both parts of UNEP and to some extent it was academic which part developed proposed operational mechanisms for SAP implementation, however he noted that it was the responsibility of the PSC to make sure that the SAP is indeed implemented. He suggested it would be remiss of the members not to make sure arrangements are in place for SAP implementation and noted that the committee was not being asked to agree the text merely to provide some guidance to the PCU regarding the acceptability or otherwise of the proposals.

7.1.9 Ms. Nirawan indicated that Thailand supported the proposed framework in principle and was of the view that the PSC should recommend this to COBSEA for their consideration. Mr. Savath noted that Cambodia was also in support of the proposals and in expressing her support Ms. Ferrer urged members to consider seriously the need to make sure that arrangements for SAP implementation are in place before the end of this year.

7.1.10 Mr. Rizal noted that he did not wish to comment on this matter at this stage, whilst Dr. Mai indicated that Viet Nam was strongly in support of the proposals.

7.1.11 Dr. Guo expressed disagreement regarding the PSC forwarding this recommendation to COBSEA, since these proposals should be developed and forwarded by the COBSEA Secretariat although he noted with appreciation the work of the PCU, RTF-L and RSTC. In response Dr. Jacinto used an analogy. He noted that he could recommend that Dr. Guo go to Halong Bay but that he not use the travel agent that he (Dr. Jacinto) had used the previous day, but used another travel agent with better quality and well maintained vehicles. Although he could make many such recommendations it was still up to Dr. Guo whether he took any of the advice or decided to go somewhere else.

7.1.12 Dr. Jacinto noted that what he has heard suggests that most of the PSC would like to submit the proposals to COBSEA in order that the SAP Implementation is well managed and the goals achieved. He noted that it was in the interests of the group (that has helped shepherd the project for many years) to make sure that the SAP becomes operational. He noted further that it was not the business of the PSC to run COBSEA, but there was an obligation on the part of the PSC to provide some guidance with respect to how COBSEA might go about coordination of SAP implementation.

7.1.13 Mr. Savath fully supported the views expressed by Dr. Jacinto with respect to SAP implementation and the need to strengthen coordination.

7.2 Status of the Agreement between UNEP and the GEF Small Grants Programme

7.2.1 The Chairperson invited Dr. Pernetta to introduce this Agenda item and Dr. Pernetta informed the Committee that following the seventh meeting of the Project Steering Committee, Dr. Sulan Chen of the GEF Small Grants Programme (SGP) had drafted text for an agreement between UNEP, UNDP, and UNOPs covering the transfer of funds to the SGP. He noted that this text had been cleared by UNDP and UNOPs, and was subsequently approved by UNEP Senior Management in late July.

7.2.2 Dr. Pernetta noted with regret that although the text had been accepted in UNEP headquarters further delays had arisen. He noted that immediately prior to the ninth meeting of the RSTC he had been advised that it would be necessary to request specific approval from the GEF CEO. Dr. Pernetta noted that he has not been informed if this request had been sent to GEF or if a reply from GEF has been received by UNEP. He expressed his hope that the agreement would be signed prior to the Second NGO Forum and Fourth Mayors' Round-Table to be convened in Shantou, China from 22nd – 26th October 2008 at the invitation of Vice Mayor Su Yaoguang

7.2.3 Ms. Ferrer expressed her view that the execution of activities under the SGP partnership will form an important part of SAP implementation, particularly at the community level. Ms. Ferrer noted that it was very unfortunate that this agreement had not yet been signed, particularly as the delays encountered appear to have been caused by administrative matters. Dr. Guo noted that whilst China does not participate in the GEF SGP it does not object to the partnership. He informed the meeting that the only request of China is that projects should not be conducted in diplomatically sensitive areas.

7.3 Status of the GEF Project Proposal on Development and Operation of the Regional Fisheries Refugia System

7.3.1 The Vice-Chairperson invited Dr. Pernetta to brief the Committee on developments of the proposed GEF project entitled "*Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand*".

7.3.2 Dr. Pernetta reminded the Committee that during the seventh meeting convened in December 2007, the initial steps towards preparation of a GEF fisheries *refugia* project proposal were noted and that proposals regarding allocation of resources at the national level from the biodiversity allocations under the GEF resource allocation framework presented. He reminded the Committee further that this project was aimed at enabling the implementation of the fisheries component of the revised Strategic Action Programme.

7.3.3 Dr. Pernetta noted that two meetings of the Regional Working Group on Fisheries had been convened during the first half of 2008 to: revise the GEF Project Identification Form (PIF); develop

costed programmes of national activities; identify possible sources of project co-financing; and to agree procedures and deadlines for securing GEF Operational Focal Point Endorsement of the project and letters of commitment with respect to the co-financing of the project by the Departments of Fisheries in the participating countries. He noted that the outcomes of this work were contained in document UNEP/GEF/SCS/RSTC.9/17.

7.3.4 The Chairperson of the RSTC, Ms. Nirawan noted that following a review of the status of development of the proposal on establishment and operation of the regional fisheries *refugia* system, the RSTC had decided to recommend to the PSC that the PCU should continue the task of developing this project and that it should be submitted to the GEF Secretariat through DGEF in UNEP headquarters, as soon as possible. Ms. Nirawan noted that the RSTC had agreed that the outstanding letters of endorsement should be secured as soon as possible and preferably before 30th September 2008, and that the National Technical Focal Points would provide assistance in this regard.

7.3.5 Ms. Ferrer indicated that this project had the support of the Philippines and sought clarification regarding the funds required from the resource allocation for biodiversity for the project. Mr. Paterson of the PCU was asked to provide clarification regarding this. He informed the Committee that initial discussions in the Philippines had identified that US\$3.9 million from the national resource allocation could be made available to the project, although he had been recently informed by the fisheries focal point for the Philippines that this figure would likely change. Ms. Ferrer queried what proportion of the funds for the project would be required from national and regional allocations of funds from the GEF. Dr. Pernetta noted that it was proposed that the regional activities of the project be funded through the international waters portfolio and that the national, site based activities be funded through the biodiversity portfolio which is subject to the GEF Resource Allocation Framework.

7.3.6 Dr. Guo noted that China had requested that this Agenda item be deleted. He informed the meeting that China does not object to the project, although he stated that China's position was that the PSC should not discuss matters relating to SAP implementation. The Vice-Chairperson suggested and the meeting agreed that the meeting should consider this matter as it involves five of the seven participating countries. The representatives from Cambodia, Indonesia, Philippines, Thailand, and Viet Nam agreed with the recommendation of the RSTC.

7.4 Elements for Inclusion in a Follow-up GEF Supported International Waters Project for SAP Implementation

7.4.1 The Chairperson of the PSC invited the Chairperson of the RSTC to present the outcome of discussions regarding the content of document UNEP/GEF/SCS/RSTC.9/18 elements for inclusion in a GEF supported international waters project for implementation of the Strategic Action Programme for the South China Sea.

7.4.2 Ms. Nirawan noted that during the RSTC discussion of the document the National Technical Focal Points, or their alternates, had expressed their support for the proposed elements. It was noted that there appeared to be a consensus view amongst the group that the proposed elements addressed the GEF conditionality and were acceptable in principle. It was noted that the elements would require considerable discussion at the national level, although it was agreed that they would act as a suitable starting point for elaboration of a full project document for a SAP implementation project. The RSTC concluded that the proposed elements would seem to outline an adequate process that would enable participating countries to meet the requirements of the GEF and recommended that the PSC give consideration to these proposals.

7.4.3 Dr. Guo noted that China was not in agreement with this item being discussed and did not agree that this document should be submitted to COBSEA. As before he based this view on the inadequate time for consideration at national level. He also disagreed with the content of parts of the document noting that the GEF operates on 3 principles to support GEF projects (1) activities not repeating; (2) incremental principle, only support incremental cost; (3) project should solve regional or global problem.

7.4.4 Dr. Pernetta noted that the GEF does fund national/single country projects, in the areas of chemicals, biodiversity, and climate change in addition to addressing regional and global problems. Indeed most biodiversity, climate change and chemicals projects were single rather than multi-country

whereas International Waters projects are multi-country involving shared water bodies. He noted that in the International Waters portfolio the development of a SAP was considered analogous to the enabling activities in the biodiversity and climate change portfolios. The policy of the GEF was not to fund SAP implementation unless there was a formal well financed mechanism that could be used to ensure activities were carried on after the project is completed or unless development of such a mechanism was incorporated into the project proposal. He noted further that the present document was not before the meeting for consideration and approval of the detail.

7.4.5 The Vice-chairperson recommended that the meeting not discuss the details rather the principle. Ms. Ferrer noted that anyone evaluating a new project would be looking for strong coordination and the Philippines agreed in principle although the details will have to be worked out. Mr. Hashim bin Daud supported the comments of the Philippines but noted that Malaysia was not in a position to go into the detail at this stage, since further national consultation was needed.

7.4.6 Mr. Savath and Dr. Tuyen stated that both Cambodia and Viet Nam supported the proposals in principle as do Thailand and Indonesia. Ms. Wahyu sought clarification regarding the next steps.

7.4.7 Dr. Pernetta noted that at this stage it was not worth undertaking formal consultations at the national level since this document only presented one portion of a potential GEF project proposal and that it would be better to consider this in its entirety when this element could be put in context. He reminded members that at the last PSC, six countries supported the development of a GEF SAP implementation project, but that meeting had not tackled the issue of the GEF Secretariat conditionality for funding a SAP Implementation project. Should any member wish to undertake informal consultations and send the outcomes to the PCU Dr. Pernetta undertook to incorporate such suggestions in the draft by September 30th.

7.4.8 Dr. Guo agreed there was a need to implement the SAP but stated that China's opinion was that all elements should be considered and decided upon by COBSEA. Dr. Jacinto noted that the PSC had discussed this item, views had been expressed, and there appeared to be enough interest and agreement in principle for it to be worth the time of Dr. Pernetta in developing a full project proposal.

7.5 National Priority Projects and the Regional Donor's Forum

7.5.1 Ms. Nirawan informed the meeting that the RSTC had reviewed progress in development of national priorities and the quality of 26 concept papers received and edited by the PCU. The RSTC noted that:

- Six of the total 26 concept papers appeared to align closely with the SAP targets and were suitable for delivery to the partnership workshop following minor revision;
- Five proposals were partly or indirectly related to the SAP targets and could be re-written to improve their fit with the SAP;
- Four of the proposed projects should be executed as national activities in the context of any SAP implementation project;
- Three of the proposals should be included as regional actions in the SAP implementation project;
- Two proposals regarding fisheries could be included as part of the proposed GEF fisheries *refugia* project; and
- Six concept papers were possibly not suitable for submission to the partnership workshop.

7.5.2 Ms. Nirawan noted that the RSTC had agreed that project concepts which could be included as regional actions in a SAP implementation project and those which align closely with the proposed fisheries *refugia* project should not be submitted to the partnership workshop. Ms. Nirawan noted further that the RSTC had also agreed that the SAP itself and the proposal for the GEF SAP Implementation project could be presented at the workshop which would thus provide potential co-financing partners with the opportunity of considering participation.

7.5.3 Ms. Nirawan informed the meeting that National Technical Focal Points of all participating countries supported the convening of the Technical Workshop and Partnership Workshop as planned, taking account that concept papers should be revised comprehensively to ensure high quality proposals are delivered to donors. Members agreed to a deadline for receipt of final concept papers of 10th September 2008.

7.5.4 Dr. Guo noted that he had no objections to the deadline but these had not been included in the meeting schedule and China had requested that the COBSEA Secretariat be involved in this. Dr. Pernetta noted that the omission of these meetings from the previous meeting schedule was an oversight on his part but the meeting text was quite clear and the PSC had approved funds for their execution during the last meeting. The proposed dates were now 13 – 14th October for the Technical Workshop followed by the Partnership workshop or Donor's Forum on 16th – 17th October.

7.5.5 The committee agreed with the recommendations of the RSTC concerning the planning and execution of these events.

8. FINANCIAL AND BUDGETARY MATTERS

8.1 Final Expenditure Report for 2007 and Anticipated Expenditures to December 2008

8.1.1 The Vice-Chairperson invited Dr. Pernetta to present the final expenditure report for 2007 and anticipated expenditures to December 2008 contained in document UNEP/GEF/SCS/PSC.8/9 "*Expenditure Report for 2007, Draft Report for 2008 and Budget Allocations for 2009*".

8.1.2 Dr. Pernetta reminded the Committee that each year the expenditure report for the project is presented to the Project Steering Committee with the most up-to-date figures available. He noted that subsequently the actual expenditures are adjusted as outstanding obligations from the preceding year are liquidated and the final expenditures for the current year become finalised.

8.1.3 Dr. Pernetta informed the Committee that Table 1 of UNEP/GEF/SCS/PSC.8/9 summarised anticipated expenditures to 31st December 2007 against those approved by the seventh PSC meeting. He noted that within the personnel component (1000 budget line) the overall variance was insignificant since the early departure of the Fund Management Officer balances the increase in post adjustment and under budgeting of allowances for other staff members.

8.1.4 Dr. Pernetta informed the meeting that there would likely be under-expenditure in the sub-contracts component (2000 budget lines), and noted that this reflected a downward adjustment of allocations following budget revisions in the first quarter of 2008. He informed the meeting further that there would also be savings in the training and meetings component (3000 budget lines), which reflecting in part the fact that few requests for individual training, exchange programmes or study tours had been received by the PCU.

8.1.5 Dr. Pernetta noted that expenditures on equipment and premises would exceed those anticipated and that this was due to increases in rental charges by the UN-ESCAP for Office space and provision of services. He informed the meeting that there would likely be under-expenditure against the 5000 budget lines due to the costs of meeting and other reports being lower than originally budgeted. Dr. Pernetta informed the meeting further that expenditures presented in Table 2 of the document represent the final expenditures from 2002 to 31st December 2007.

8.1.6 Dr. Pernetta noted that it would not be necessary for the PSC to approve expenditures. In reference to Table 2, he noted that the anticipated unspent balance reported was US\$609,109. He suggested that the main conclusion that could be drawn was that if expenditures proceed at the current rate that there would likely be an unspent balance of US\$500,000 at the end of 2008. He informed the Committee that it would likely be necessary for this unspent balance to be returned to the GEF.

8.1.7 The Vice-Chairperson invited the Chairperson of the RSTC to inform the meeting of the outcomes of RSTC deliberations regarding this matter. Ms. Nirawan noted that the ninth meeting of the RSTC had discussed the use of unspent cash balances currently held by the Inter Ministry Committees and Specialised Executing Agencies. Ms. Nirawan noted further that the RSTC had identified it would not be possible to close the project document until all expenditures were reported and that it was suggested by the RSTC that given past delays in the submission of expenditure statements and audit reports that it may not be appropriate to recommend the implementation of new or additional activities. It was suggested by the RSTC that activities approved by the Project Director could perhaps be undertaken provided that the relevant IMC or SEA could guarantee the submission of a terminal audit report to the PCU by the end of October 2008.

8.1.8 Mr. Rizal noted that progress and expenditure reports for the Inter-Ministry Committee in Malaysia had been submitted to the PCU immediately prior to the meeting, and that he had received confirmation of receipt of these from the Fund and Administration Officer, Ms. Nita Venturelli. Dr. Guo queried why a draft operational budget was provided for the year 2009. Dr. Pernetta responded by informing the Committee that several staff members would be required during the month of January 2009 to close and reconcile the end year accounts prior to closure of the 2008 financial record.

8.1.9 The expenditure report, draft operational budget and schedule of remaining meetings are contained in annexes, 6 and 7 of this report.

8.2 Consideration of the Co-financing Reported to June 2008

8.2.1 The Vice-Chairperson invited Dr. Pernetta to introduce document UNEP/GEF/SCS/RSTC.9/5 "*Co-financing of the Project to Date and Comparison with Original Agreed Estimates*". Before proceeding to introduce the document Dr. Pernetta reminded the Committee that the level of co-financing raised is a good indicator of government commitment to and involvement in, the project and that this will be used by the Global Environment Facility to gauge the success of the project and in decision making about any GEF funded follow up actions.

8.2.2 Dr. Pernetta directed the attention of the Committee to Table 11 of the document and informed members that the total cost of project implementation to date (US\$33,770,308) was very close to the original budget submitted to and approved by the GEF (US\$34,05,830). He informed the Committee that the actual figures contained in the document were incomplete in that the final expenditure and progress reports had yet to be received from a number of demonstration sites and it seemed likely therefore that the estimates of co-financing from these sources will be revised upwards.

8.2.3 Dr. Pernetta noted that the document did also not contain estimates of in-kind co-financing from participation in the three Regional Scientific Conferences; the three Mayors' Round-Tables; the NGO Fora; the seven regional training courses; and the 37 national level echo seminars convened to date. In the case of the last two items, Dr. Pernetta noted that the estimated co-financing totals in excess of US\$157,570 and US\$316,470 respectively and that the final analysis should result in a significant increase in government in-kind co-financing.

8.2.4 Dr. Pernetta informed the meeting that the RSTC had considered this matter in detail and had noted that the procedure for tracking in-kind co-financing would be useful in the design and implementation of other GEF and UNEP projects. The RSTC had also noted that the model would be useful to participating countries in demonstrating government commitment to the implementation of national projects, which is becoming increasingly important when working with donor organisations.

8.2.5 Dr. Jacinto expressed his view that the procedure of the South China Sea Project used to track in kind co-financing was highly innovative and sets a benchmark for future projects. He noted that this represented a significant achievement of the project and the experience and lessons learned should be transferred to other projects and programmes. There were no other comments from members regarding this matter.

9. ARRANGEMENTS FOR THE TERMINAL EVALUATION OF THE PROJECT

9.1 The Chairperson invited Dr. Pernetta to introduce this Agenda item. Dr. Pernetta reminded members that during the seventh meeting of the PSC in December 2007 a tentative schedule for the conduct of the terminal evaluation of the project was discussed and accepted by the committee. The meeting recalled further that it was anticipated that the first draft of the evaluation report would be available by 24th July 2008 for presentation and review by the RSTC and PSC.

9.2 Dr. Pernetta informed the Committee that he had contacted UNEP's Evaluation and Oversight Unit (EOU) immediately following the seventh PSC meeting and provided the EOU with the PSC approved schedule of meetings for 2008. He noted further that he had been informed in January 2008 that the schedule did not suit the EOU, and that he had only been informed 2 days prior to the ninth RSTC meeting that the EOU had selected two evaluators, namely Dr. Helen Yap and Mr. Josh Bann. He informed the meeting that he had not been informed if contracts for the evaluators had been issued or if a work plan or timetable had been prepared.

9.3 Dr. Pernetta reminded the Committee that he had initiated the process for the evaluation in July 2007, and the EOU had identified two possible evaluators who had attended the Third Mayors' Round-Table and Third Regional Scientific Conference in November 2007 to meet with a wide range of stakeholders and become aware of the required scope of work.

9.4 Ms. Nirawan informed the Committee that the ninth meeting of the RSTC had expressed its overall concern that the revised timeframe for the terminal evaluation might not provide adequate opportunities for national inputs and a collective response to the draft evaluation report. Ms. Nirawan noted that the RSTC had identified that the short period of time available for the conduct of the evaluation would restrict: the opportunity for national co-ordinators and individual project component focal points to interact with the evaluators; to provide responses to queries from the evaluators; and the time available to review and comment on the draft report.

9.5 Ms. Nirawan informed the meeting that a particular concern of the RSTC was that neither the RSTC nor the PSC would have the opportunity of providing a collective regional response to the draft evaluation and consequently they would be forced to respond from an individual country perspective. It was noted that the RSTC had instructed the Project Director to communicate these concerns to the UNEP Division of Global Environment Facility Coordination and UNEP's Evaluation and Oversight Unit.

9.6 Ms. Ferrer noted that it was indeed unfortunate that the original schedule had not been met as the evaluators may now have been indeed left with insufficient time to conduct an appropriate evaluation of the project, particularly given the fact that seven countries were involved. Ms. Ferrer noted that although projects are often evaluated in their last six months, it would have been useful for the draft report to have been available to the meeting in order that it could be reviewed from the regional perspective. Dr. Pernetta noted that as national level activities of the project ceased on 30th June 2008 the original schedule involved evaluation during the last six months of project activities.

9.7 Ms. Wahyu expressed her concern that the short time available for the evaluation would create difficulties for the focal ministries in making arrangements for the evaluators to undertake country visits. Ms. Wahyu also noted that many of the GEF funded activities at the demonstration sites had ceased in June 2008 and that site managers may not be available to assist evaluators review the achievements and weaknesses of activities at the demonstration sites. She noted further that unplanned visits to accompany the evaluators from Jakarta to the demonstration sites would incur unplanned expenditures.

9.8 Dr. Guo suggested that every effort should be made by the PCU to ensure that the evaluation be completed as soon as possible in order to ensure the timely closure of the project. As a point of clarification, Dr. Pernetta informed the Committee that it is not the responsibility of the PCU to manage the evaluation, and that as evaluations are independent in nature they are managed by the EOU. He informed the Committee further that the EOU has no obligation to conduct evaluations at the convenience of stakeholders and the timing of the evaluation seems likely to go beyond the point of project closure. Mr. Rizal asked the Project Director what would be the possible implications if the evaluation was not conducted, and Dr. Pernetta responded by stating that it would create difficulties in securing further funds from the GEF.

10. ANY OTHER BUSINESS

10.1 The Chairperson invited members to raise any additional items of business under this agenda item.

10.2 Ms. Nirawan informed the Committee that the ninth meeting of the RSTC had recommended that an *ad-hoc* meeting of the RSTC be convened prior to closure of the project to review the draft terminal evaluation report and draft project document for a GEF funded SAP implementation project. There were no objections to this recommendation.

11. ADOPTION OF THE REPORT OF THE MEETING

11.1 The Rapporteur, Mr. Rizal presented the report of the meeting prepared by the Secretariat for the consideration, amendment and approval of the members.

11.2 The report was projected, amended in track mode and approved as it appears in this document.

12. CLOSURE OF THE MEETING

12.1 The Chairperson expressed his sincere thanks on behalf of all members to all members of the PCU and the Project Director for their continuous support over the past seven years to all meetings of the committee. He invited all members to make some final remarks.

12.2 Mr. Li noted that China wished to express appreciation for the successes to date and state that it was fully committed to implementing the SAP under the umbrella of COBSEA, he expressed thanks to all members for their co-operation and to the PCU for their support during project implementation.

12.3 His Excellency Mr. Khong expressed his thanks on behalf of Cambodia to all members of the committee for their hard work and to the PCU and Dr. Pernetta for their support and wished all participants success in implementing the SAP.

12.4 Ms. Wahyu thanked the Government of Viet Nam for hosting the meeting and all participants for their hard work and expressed the hope that strong co-operation would characterise the implementation of the SAP. She expressed her deep thanks for the support of the PCU.

12.5 Ms. Ferrer thanked the Government for hosting the meeting and the PCU led by Dr. Pernetta for all assistance over the last seven years and looked forward to future co-operation in implementing the SAP.

12.6 Mr. Hashim thanked all members for their co-operation and congratulated the officers of the committee for a good job well done and the PCU for their support.

12.7 Dr. Sirikul thanked the Government of Viet Nam and the PCU for their support and hard work over the years.

12.8 Dr. Mai thanked participants for their hard work and co-operation in ensuring that the agenda was completed and invited the Project Director to make a few remarks. Dr. Pernetta thanked members for their support over the past seven years and stated that it had been his pleasure and privilege to act as Project Director and to serve as Secretary to this Committee over the last seven years.

12.9 Dr. Mai then formally closed the meeting at 1730 on 26th August 2008.

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ANNEX 2

List of Documents

Discussion documents

UNEP/GEF/SCS/PSC.8/1	Agenda.
UNEP/GEF/SCS/PSC.8/2	Annotated Agenda.
UNEP/GEF/SCS/PSC.8/3	Report of the Meeting.
UNEP/GEF/SCS/PSC.8/4	Report of the Chairperson of the Regional Scientific and Technical Committee to the Project Steering Committee regarding the outcomes of the ninth meeting of the committee in Hue, Viet Nam, August 2008. (<i>to be tabled during the meeting</i>)
UNEP/GEF/SCS/PSC.8/5	Revised Strategic Action Programme. (Draft 6)
UNEP/GEF/SCS/PSC.8/6	Outcome of the Deliberations of COBSEA Regarding the Implementation of the Strategic Action Programme for the South China Sea and Recommendations Regarding Operational Arrangements.
UNEP/GEF/SCS/PSC.8/7	Status of the agreement between UNEP and the GEF Small Grants Programme.
UNEP/GEF/SCS/PSC.8/8	Elements for inclusion in a GEF Supported International waters Project for Implementation of the Strategic Action programme for the South China Sea.
UNEP/GEF/SCS/PSC.8/9	Final expenditure report for 2007 and projected expenditures to December 2008.

Information documents

UNEP/GEF/SCS/PSC.8/Inf.1	List of Participants.
UNEP/GEF/SCS/PSC.8/Inf.2	List of Documents.
UNEP/GEF/SCS/PSC.8/Inf.3	Programme.
UNEP/GEF/SCS/RSTC.9/3	UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. <i>Report of the Ninth Meeting of the Regional Scientific and Technical Committee, 20th – 25th August 2008 Hue, Viet Nam, UNEP/GEF/SCS/RSTC.9/3.</i>
UNEP/GEF/SCS/RSTC.9/4	Status of the Six Month Progress and Expenditure Reports and Audit Reports from the Focal Points.
UNEP/GEF/SCS/RSTC.9/5	Co-financing of the Project to date and Comparison with Original Agreed Estimates.
UNEP/GEF/SCS/RSTC.9/6	Timetable and Status of Project Closure.
UNEP/GEF/SCS/RSTC.9/9	Achievements and Lessons Learned from the Demonstration Sites and Pilot Activities.
UNEP/GEF/SCS/RSTC.9/10	Final Report of the Regional Training Programme.
UNEP/GEF/SCS/RSTC.9/11	Analysis of the Usage and Effectiveness of the South China Sea online Collaborative Information Base and Recommendations Regarding Operation and Management Following Project Closure.
UNEP/GEF/SCS/RSTC.9/14	Final text of the Memorandum of Understanding.
UNEP/GEF/SCS/RSTC.9/17	Status of the GEF Project entitled: " <i>Establishment and operation of a Regional System of Fisheries refugia in the South China Sea and Gulf of Thailand</i> ".
UNEP(DEPI)/EAS IG.19/3	Report of the Nineteenth Meeting of the Coordinating Body on the Seas of East Asia (COBSEA) on the East Asian Seas Action Plan.

The following documents are supplied in published form.

Meeting Reports

- UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Tenth Meeting of the Regional Working Group on Fisheries.* UNEP/GEF/SCS/RWG-F.10/3.
- UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Seventh Meeting of the Regional Task Force on Legal Matters.* UNEP/GEF/SCS/RTF-L.7/3.
- UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Ninth Meeting of the Regional Working Group on Wetlands.* UNEP/GEF/SCS/RWG-W.9/3.
- UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Ninth Meeting of the Regional Working Group on Coral Reefs.* UNEP/GEF/SCS/RWG-CR.9/3.
- UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Ninth Meeting of the Regional Working Group on Mangroves.* UNEP/GEF/SCS/RWG-M.9/3.
- UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Eighth Meeting of the Regional Task Force on Economic Valuation.* UNEP/GEF/SCS/RTF-E.8/3.
- UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Ninth Meeting of the Regional Working Group on Seagrass* UNEP/GEF/SCS/RWG-SG.9/3.
- UNEP, 2008 Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Seventh Meeting of the Project Steering Committee.* UNEP/GEF/SCS/PSC.7/3.
- UNEP, 2008. Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. *Report of the Eighth Meeting of the Regional Scientific and Technical Committee.* UNEP/GEF/SCS/RSTC.8/3.

Technical Reports

- UNEP. 2008 National Reports on Seagrass in the South China Sea. UNEP/GEF/SCS Technical Publication No. 12.
- UNEP. 2008 National Reports on Wetland in the South China Sea. UNEP/GEF/SCS Technical Publication No. 13.
- UNEP. 2008 National Reports on Mangrove in the South China Sea. UNEP/GEF/SCS Technical Publication No. 14.

Document received during the meeting

China: - Explanations for the discontinuance of the Pilot Activities in LingDing Yan and the Land-based Pollution Component in China. (3 pages)

Malaysia: IMC

- Six Monthly Progress Report **January 2008 – June 2008.**
- Cash Advance Request for **December 31, 2007 to June 30, 2008.**
- Six Monthly Project Expenditure from **July – December 2007.**

Wetland

- Cash Advance Request period ending **July 1, 2008.**
- Six Monthly Project Expenditure from **January – June 2008.**

Philippines:

- Mangrove National Action Plan, (DENR 2004) 1 copy.
- Mangrove Country Report: 2004, (DENR 2004) 1 copy.
- The Current Policy System Governing Philippines Mangroves, (DENR 2004) 1 copy.

ANNEX 3

Agenda

- 1. OPENING OF THE MEETING**
 - 1.1 Opening Address on behalf of UNEP
 - 1.2 Welcome Address on behalf of the Government of Viet Nam
 - 1.3 Introduction of Members
- 2. ORGANISATION OF THE MEETING**
 - 2.1 Co-option of Members
 - 2.2 Election of Officers
 - 2.3 Documentation Available to the Meeting
 - 2.4 Programme of Work and Administrative Arrangements for the Conduct of the Meeting
- 3. ADOPTION OF THE MEETING AGENDA**
- 4. OPENING STATEMENTS ON BEHALF OF THE PARTICIPATING COUNTRIES**
- 5. REPORT OF THE CHAIRPERSON OF THE REGIONAL SCIENTIFIC AND TECHNICAL COMMITTEE**
 - 5.1 Sustaining the Project Website beyond December 2008
 - 5.2 Consideration of the Achievements of the Demonstration Sites and Pilot Activities
 - 5.3 The South China Sea Regional Training Programme
- 6. ADOPTION OF THE REVISED STRATEGIC ACTION PROGRAMME AND AGREEMENT CONCERNING THE PROCESS FOR SIGNATURE OF THE MEMORANDUM OF UNDERSTANDING**
- 7. IMPLEMENTING THE STRATEGIC ACTION PROGRAMME: OPERATIONAL CONSIDERATIONS**
 - 7.1 Outcome of the Deliberations of COBSEA Regarding Co-ordination of the Implementation of the Strategic Action Programme
 - 7.2 Status of the Agreement between UNEP and the GEF Small Grants Programme
 - 7.3 Status of the GEF Project Proposal on Development and Operation of the Regional Fisheries *Refugia* System
 - 7.4 Elements for Inclusion in a Follow-up GEF Supported International Waters Project for SAP Implementation
 - 7.5 National Priority Projects and the Regional Donor's Forum
- 8. FINANCIAL AND BUDGETARY MATTERS**
 - 8.1 Final Expenditure Report for 2007 and Anticipated Expenditures to December 2008
 - 8.2 Consideration of the Co-financing Reported to June 2008
- 9. ARRANGEMENTS FOR THE TERMINAL EVALUATION OF THE SOUTH CHINA SEA PROJECT**
- 10. ANY OTHER BUSINESS**
- 11. ADOPTION OF THE REPORT OF THE MEETING**
- 12. CLOSURE OF THE MEETING**

ANNEX 4
Revised Draft Strategic Action Programme



United Nations
Environment Programme

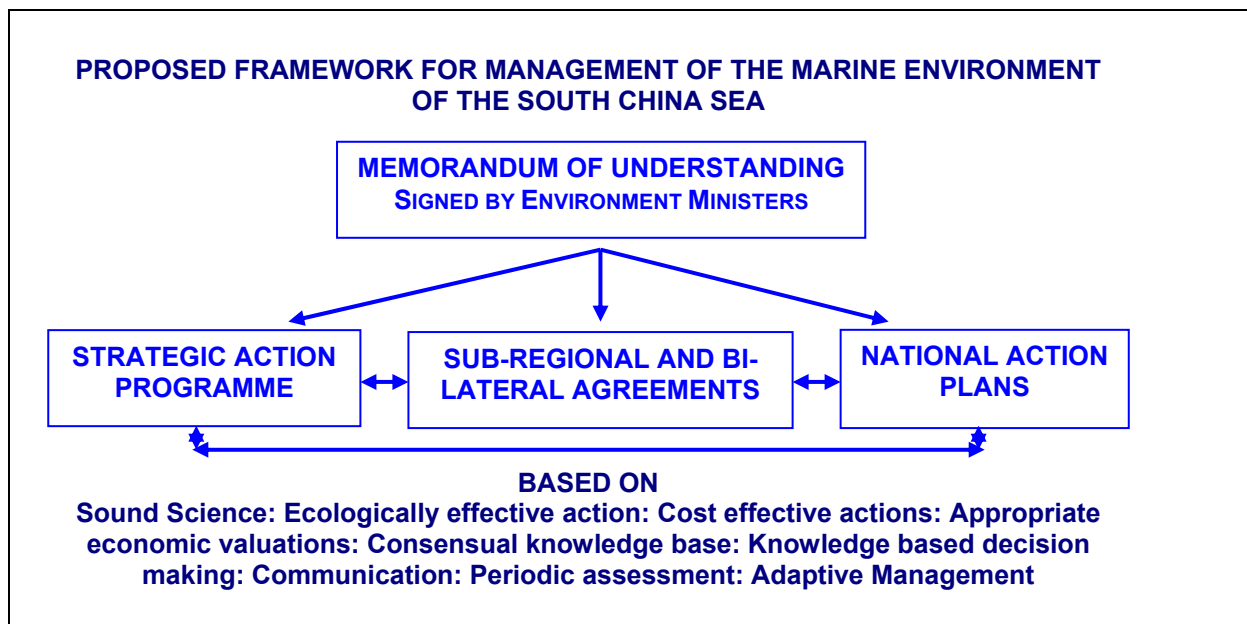


UNEP/GEF South China Sea
Project



Global Environment
Facility

REVISED DRAFT STRATEGIC ACTION PROGRAMME



August 25th 2008

STRATEGIC ACTION PROGRAMME FOR THE SOUTH CHINA SEA

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THE DEVELOPMENT OF THE STRATEGIC ACTION PROGRAMME¹ FOR THE SOUTH CHINA SEA²

One of the anticipated outputs from the UNEP/GEF Project entitled “Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand” is an up-dated Strategic Action Programme, and the present document contains the current draft currently under consideration by the governments of the participating countries³. It is anticipated that national discussions of this document will be completed over the next six months and that the countries will commence implementation of the envisaged actions in 2008/2009.

The South China Sea is a semi-enclosed sea, which supports a number of unique habitats and ecosystems that are amongst the most biologically diverse shallow water marine ecosystems globally. The countries surrounding the South China Sea have undergone very rapid economic development and rapid population increase in coastal areas over the past two decades resulting in degradation and loss of coastal habitats and resources.

Recognising that actions were urgently needed to halt degradation of the environment of this marine basin, the countries of the region sought the assistance of UNEP and the Global Environment Facility (GEF) in preparing a Transboundary Diagnostic Analysis of the issues and problems and their societal root causes as the basis for development of a Strategic Action Programme. A proposal was endorsed by the twelfth intergovernmental meeting of the Coordinating Body for the Seas of East Asia (COBSEA) in December 1996 and the GEF financially supported this initiative.

During the Project Development Phase from 1996 to 2001 and in accordance with the GEF Operational Strategy activities were undertaken at the national and regional level to prepare national reports of water-related environmental issues and problems; a Transboundary Diagnostic Analysis (TDA) (UNEP SCS/TDA ver. 3); and a Strategic Action Programme (SAP). These documents were submitted to the Thirteenth Intergovernmental Meeting of COBSEA (UNEP/(WATER)/EAS IG9/3), which endorsed the draft SAP. This Strategic Action Programme was prepared in collaboration and cooperation with other regional institutions, organisations and bodies including: Food and Agricultural Organisation of the UN; South East Asia (START) Regional Centre; The South China Sea Informal Working Group at the University of British Columbia; the IOC Sub-Commission for the Western Pacific (WESTPAC); and the GEF/UNDP/IMO Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas.

The TDA identified the priorities among water-related problems and concerns, their socio-economic root causes, the sectorial implications of actions needed to mitigate them and the extent to which the problems were transboundary in either origin or effect. The draft Strategic Action Programme based on the findings of the regional Transboundary Diagnostic Analysis (TDA) was used as the basis for preparing the full GEF Project document, which entered the work programme of the GEF in December 2000. Due to the geopolitical sensitivity of the South China Sea marine basin the countries expressed the wish that no international or regional entities, other than UNEP be involved in the management of the project.

The actions proposed in the framework of the draft Strategic Action Programme were wide ranging in both context and proposed areas for action and the key elements of the project included actions that would lead to the further elaboration and development of the draft Strategic Action Programme. Experiences over the period 2002 to 2006 in managing appropriate activities at both the national and regional levels have been utilised in the drafting of the present revised SAP that has been developed through an iterative process with activities at the national level feeding into the regional review process which in turn provided advice and guidance to the national entities in finalising their draft inputs to the regional SAP.

¹ No activities shall be undertaken under this Strategic Action Programme in disputed areas of the South China Sea, nor shall issues of sovereignty be addressed directly or indirectly through project activities.

² The term "South China Sea" is used in its geographic sense and does not imply recognition of any territorial claims within the area.

³ Cambodia, People's Republic of China, Indonesia, Malaysia, Philippines, Thailand and Viet Nam.

A key element in this process has been the development of detailed National Action Plans by each country that address the specific concerns and issues relevant to the components of the draft Strategic Action Programme. These National Action Plans are at various stages of government approval but it is anticipated that all will be approved for implementation by the end of 2007.

During the development of the NAPs the regional working groups have analysed their contents and developed the regional elements for inclusion in the SAP on the basis of the identified national actions and priorities. These have been aggregated into the present revised draft which therefore presents a shared vision regarding the actions that need to be undertaken at the regional level in support of national actions. Regional level actions include *inter alia* networking, capacity building, public awareness and education and applied research into management techniques and approaches that maximise the level of sustainable use without adverse environmental impact.

One significant and perhaps unique element of this Strategic Action Programme is the inclusion of detailed economic values for coastal habitat goods and services and their use in the determination of regionally applicable Total Economic Values. These have been subsequently applied in an analysis of the costs and benefits of the regional actions proposed in this Strategic Action Programme. In some instances the SAP is clearly cost effective since a modest investment of 3 million US dollars at a regional level is associated with a net benefit of 1.5 billion US dollars per annum if the mangrove targets are met over the next five years. It is anticipated that total investment at the national level to achieve this benefit will be of the order of 300 million US dollars.

The final section examines the need for regional co-operation and suggests that the SAP serve as the primary instrument for regional co-operation in the management of the marine and coastal environment, amongst the countries bordering the South China Sea and that this co-operation be formally established via a Memorandum of Understanding signed by the Ministers⁴ responsible for the Environment.

⁴ *In the event that the Memorandum is signed in a meeting and a Minister is unable to be present, his/her representative in the meeting may sign the Memorandum if authorised to do so by the Minister.*

STRATEGIC, PRIORITY ACTIONS FOR MANGROVES IN THE SOUTH CHINA SEA⁵

Around 30% of the world's remaining mangrove is found in the countries participating in this project and 8% of the World's total is found along the margins of the South China Sea marine basin. Rates of loss are generally higher along the South China Sea coastlines than elsewhere in the seven countries participating in the UNEP GEF project. For example around 80% of the mangrove bordering the Gulf of Thailand has been lost compared with only around 20% on the Andaman coast of Thailand. The annual rates of loss in the seven countries, between 1990 and 2000, were greater than the world average (Table 1). Such losses represent a loss of global biological diversity that must be a matter of global concern (UNEP, 2004). The total area of mangrove lost in the participating countries over different time spans (70 years for the Philippines) was estimated in 1998 at 4.2 million ha suggesting that over half of the original mangrove bordering the South China Sea had been lost during the last century.

Table 1 Estimates of Area (Ha) and Rates of Loss of Mangrove Habitat in Seven Countries Bordering the South China Sea, Compared with the World Totals. [Most recent data from FAO, 2003] (Based on UNEP, 2004. *Mangroves in the South China Sea*. UNEP/GEF/SCS Tech. Publ. No. 1.)

	Most recent estimate FAO	Date of FAO estimate	National Estimates of total mangrove area			Current South China Sea area	% Rates of loss per year	
			1980	1990	2000		1980 - 1990	1990-2000
Cambodia	72,835	1997	83,000	74,600	63,700	72,350	-1.01	-1.46
China	36,882	1994	65,900	44,800	23,700	23,446	-3.20	-4.71
Indonesia	3,493,110	1988	4,254,000	3,530,700	2,930,000	934,000	-1.70	-1.70
Malaysia	587,269	1995	669,000	620,500	572,100	532,100	-0.72	-0.78
Philippines	127,610	1990	206,500	123,400	109,700	28,014	-4.02	-1.11
Thailand	244,085	2000	285,500	262,000	244,000	62,618	-0.82	-0.69
Viet Nam	252,500	1983	227,000	165,000	156,608	156,608	-2.73	-0.51
Total	4,814,291		5,790,900	4,821,000	4,099,808	1,799,136	-1.67	-1.61
World	15,763,000	1992	19,809,000	16,361,000	14,653,000	15,763,000	-1.74	-1.04
% world total	30.54		29.23	29.47	27.62	11.41		

THREATS TO MANGROVES BORDERING THE SOUTH CHINA SEA

The causes of mangrove destruction identified in the TDA (UNEP, 1998) along the coastlines bordering the South China Sea, included conversion to pond aquaculture, particularly for shrimp, clear felling of timber for woodchip production, land clearance for urban and port development and human settlements; and harvest of timber products for domestic use (UNEP, 2004). Present causes of loss of mangrove habitat are no longer dominated by shrimp culture although this remains one cause of conversion in China, Indonesia and Viet Nam. Conversion of mangrove to land for industrial purposes (including harbour construction) has grown over the last ten years, and is now significant in China, but of low importance in Indonesia, the Philippines and Viet Nam, and not important in Thailand and Cambodia. Degradation of mangrove habitats as a consequence of chronic pollution from shrimp farming operations is now more prevalent in China, Indonesia and Thailand, whilst charcoal production continues to degrade mangrove in Cambodia, Indonesia and the Philippines despite legislation banning all harvesting of mangroves in Cambodia and the Philippines. At a regional level the following are seen as the current threats to mangrove systems bordering the South China Sea:

ANTHROPOGENIC THREATS

1. Reclamation and infrastructure development.
2. Pollution from Shrimp farming (China, Indonesia, Thailand).
3. Industrial conversion (China, small in Philippines, Indonesia and Viet Nam, negligible in Cambodia, and Thailand).
4. Charcoal production (Indonesia, Philippines and Cambodia).
5. Conversion-to shrimp culture potential long-term threat in Viet Nam.

NATURAL THREATS

1. Sea level rise.
2. Episodic events –tsunami, typhoon.

⁵ Initially Malaysia did not participate in this sub-component of the UNEP/GEF Project.

Transboundary influences are seen through the operation of the world markets and global trade for example, in shrimp. The high global level of demand for shrimp is itself driven by demand in Japan, North America and Europe which sets the world price such that, economic incentives for the conversion of “non-productive” mangrove habitats operate at both the individual and national levels in producing countries. Hard currency income and economic development fuel the motives at the national level whilst individual producers, at least in the short-term, derive considerable cash income from cutting mangrove and converting to shrimp ponds.

On a smaller scale, trade in charcoal derived from mangrove in Cambodia to Thailand was a major cause of mangrove loss in the areas of Cambodia close to the Thai border, in the recent past. This market appears to have declined somewhat over the last five years under the influence of more widespread use of cheap and convenient, liquid gas in Thailand.

When mangrove forests are destroyed and replaced by alternative forms of land use, not only are the species of plants and animals lost but also many services provided by mangrove systems are lost as well. This is well known in Viet Nam where the function of coastal vegetation, particularly mangroves is considered a vital service with measurable economic benefits as a protection against hurricane damage and marine based flooding. Mangrove degradation causes losses in direct and indirect economic values that support socio-economic development at both local and national scales.

CURRENT MANAGEMENT OF MANGROVES AND PROPOSED TARGETS⁶

Table 2 presents information relating to the management of mangrove areas in six of the seven countries bordering the South China Sea. Five categories of mangrove forest are recognised in the region: production forest, used on a sustainable basis for timber and wood chip production; conversion forest, a category in Indonesia representing areas of mangrove land designated for alternative land use under current plans; Parks and Protected Areas; and areas in which timber extraction is not permitted but extractive use of other resources is permitted. In the case of Thailand, another category is recognised namely “Private land, unregulated use”, which accounts for 10,000 hectares.

Table 2 Areas of Mangrove Currently under Different Forms of Land-use Designation and Management.

	Cambodia	China	Indonesia	Philippines	Thailand	Viet Nam	Total	%
Total area (ha)	72,350	23,446	934,000	28,014	62,616	156,608	1,277,034	100
Production forest	0	0	610,800	0	1,600	18,000	630,400	49.36
Conversion	0	0	165,000	0	0	0	165,000	12.92
Parks & Protected Areas (Conservation) non-extractive use	13,558	15,772	158,200	27,072	11,520	20,000	246,122	19.27
Non-use of mangrove but extractive resource use (fish, crabs etc.)	58,792	7,674	0	942	39,496	118,608	225,512	17.66
Private land, unregulated use	0	0	0	0	10,000	0	10,000	0.78
Area currently under management Regulated in laws/regulations	13,558	15,772	768,800	27,072	11,520	155,000	987,793	77.40
Areas estimated as currently under sustainable management ⁷	13,558 8,820	15,772 1,000 ⁸	158,200 100,000	26,010	11,520 1,600	20,000 18,000 46,608	432,078	32.60

This table illustrates the complexity of management regimes in six of the seven countries concerned but does not provide a mechanism for objectively determining the effectiveness of that management regime. For example in Cambodia 13,558 hectares of mangrove are contained within Parks and Protected areas for which there is no legal extractive use of either the mangrove trees or other resources, this area is also listed as being under a management regime regulated in law, and again within the areas listed as being sustainably managed at the present time. The assumption is that since

⁶ These targets were accepted by the sixth meeting of the Regional Scientific and Technical Committee.

⁷ Areas considered as being sustainably managed at the present time include all lands designated as production forest since it is a legal requirement that these be replanted; all mangrove lands contained within National Parks and Protected Areas; and a proportion of the mangrove area subject to extractive use of non-timber resources.

⁸ Area outside the protected area for which some form of management plans exist – estimated.

access to and use of this area is restricted the management is sustainable. In contrast, 58,792 hectares in Cambodia are currently not regulated under the law, and are subject to extractive resource use other than the mangroves themselves and of this area only 8,820 are considered as being exploited in a sustainable manner. The target for Cambodia is therefore to ensure that all 49,972 hectares of mangrove outside the legally protected Parks and protected areas are used in a sustainable manner by 2012. Targets for the six countries are presented in Table 3 below.

Table 3 Targets [Proposed areas in hectares to be subject to changes in designation and/or management regime] for Future Mangrove Management.

	Cambodia	China	Indonesia	Philippines	Thailand	Viet Nam	Total	% of total area of mangrove
Area to be transferred to National Parks and Protected Area status	0	5,330	20,000	631	1,400	30,000	57,361	4.49
Non-conversion of mangrove but sustainable use	0	0	165,000	0	1,600	0	166,600	13.05
Improved management relating to sustainable use	49,972	0	490,800	2,000	10,000	50,000	602,772	47.20
Replanting of deforested mangrove land	2,500	500	0	2,000	8,000	8,000	21,000	1.64
Enrichment planting to increase mangrove biodiversity	0	5,000	0	1,000	3,200	2,000	11,200	0.88

Recognising that the existence of a management regime and legal protection do not necessarily reflect the effectiveness of management the RWG-M developed a set of indicators of the sustainability of current management. Table 4 presents the indicators of sustainability discussed and agreed during the seventh meeting of the Regional Working Group. The indicators are grouped into three classes, which in the case of the management indicators are divided into three sub-groups. In the case of both "management capacity" and "management tools" if all the indicators are met there is a higher likelihood that management is more sustainable than if only a few, or none are present.

Table 4 Sustainable Management Indicator Matrix. [A baseline, mid-term and end of first phase of SAP implementation assessment of these indicators is required to indicate whether or not the targets have been met.]

Management Indicators	Ecological/Environmental Indicators	Socio-Economic Indicators
MANAGEMENT CAPACITY <ul style="list-style-type: none"> Formal Management framework Trained Man-power (No./levels) Facilities and equipment Sustainable Financing 	<ul style="list-style-type: none"> Forest Cover Tree density (trees over 1.5 metres high) Number of True Mangrove species <i>Scylla spp</i> (size and abundance) <i>Sesarma spp</i> (size and abundance) 	FISHERIES <ul style="list-style-type: none"> Catch per unit effort Total landing from mangrove area Income Nos. people directly involved
MANAGEMENT APPROACH <ul style="list-style-type: none"> Sectorial Integrated Community-based Multiple-use 		TOURISM <ul style="list-style-type: none"> Number of visitors Number of tourism operators Income Nos. people directly involved
MANAGEMENT TOOLS <ul style="list-style-type: none"> Licensing and permits Seasonal closure Zoning 		FORESTRY <ul style="list-style-type: none"> Volume of timber Weight of charcoal product Income Nos. people directly involved

CHALLENGES FOR MANGROVE MANAGEMENT

The National Action Plans provide information regarding the challenges for mangrove management at the national level which centre on:

1. Lack of sustainable financing, Cambodia, Philippines, and Indonesia less so in China, Thailand and Viet Nam;
2. Poverty of coastal communities in all countries⁹;
3. Weak or non-existent law enforcement, in all countries;
4. Ineffective management systems and land-use planning (Viet Nam and Indonesia);
5. Lack of experience and techniques for multi-species replanting (in all countries);
6. Lack of long-term regional and international co-ordination and co-operation;
7. Inadequacies and weaknesses in the management systems in Viet Nam and Indonesia;
8. Lack of understanding on the part of the general public and decision makers regarding the functions and values of mangrove ecosystems.

REGIONAL ACTIONS AND COST ESTIMATES

The proposed regional activities to promote sustainable management of Mangroves were elaborated during the seventh meeting of the Regional Working Group on Mangroves and are presented in Annex 4 of the report of that meeting. Table 5 of this document presents the actions and also includes preliminary cost estimates prepared by the regional working group during the seventh meeting. A total of 35 actions are proposed grouped into three components.

1. BUILDING CAPACITY TO ENSURE LONG-TERM SUSTAINABLE USE OF MANGROVE HABITATS AND RESOURCES

The objective of this component is to increase the knowledge of government officials, managers and stakeholders regarding the functions, value and approaches to sustainable management of mangrove ecosystems. The component is divided into two subcomponents the first of which outlines the required regional mechanisms for information exchange via the World Wide Web, study tours and visits, periodic meetings and targeted training activities. The second subcomponent focuses on the development and dissemination of the necessary materials for use at all levels in promoting knowledge and awareness of sustainable management practices.

2. ENHANCING MANGROVE MANAGEMENT SKILLS THROUGH DEVELOPMENT AND DISSEMINATION OF REGIONALLY APPLICABLE TOOLS

This component aims to provide a sound scientific and technical basis for sustainable management of mangrove ecosystems at the regional levels. The two sub-components focus on the development of guidelines and other tools as information resources, and facilitate their regional dissemination and adoption by mangrove managers and the second addresses applied research needs, knowledge management, and monitoring of mangroves for sustainable management.

3. INSTITUTIONAL ARRANGEMENTS AND REGIONAL CO-ORDINATION

The objective of this component is to assist countries in effectively and sustainably managing their mangrove resources through: the development of mechanisms including policy, where appropriate on ecological security; the integration of sound science into policy making and management decision making; and fostering cost effective strategic actions that enhance regional co-operation.

⁹ Originally listed as Coastal Poverty.

Table 5 Proposed Regional Actions for the Mangrove Component of the Regional Strategic Action Programme.

Component	Sub-Component	Activity	2008	2009	2010	2011	2012	Total
1. Building Capacity to ensure long-term sustainable use of mangrove habitats and resources	1.1 Mechanisms for information exchange	1.1.1 Maintain and expand the existing regional website as a mechanism for programmed exchange of information and experience between managers, government officials, teachers, research students, and community leaders	20,000	20,000	20,000	20,000	20,000	100,000
		1.1.2 Organise programme of study visits for government officials, community leaders, and mangrove managers to demonstration sites to study on-going practices in rehabilitation, management and conservation in the region.	40,000	40,000	40,000	40,000	40,000	200,000
		1.1.3 Organize regional forum every two years to share knowledge and experiences on how to improve government services in managing mangroves in Marine Parks and MPAs		30,000		30,000		60,000
		1.1.4 Meeting to secure Regional exchange of experience on how to enforce the laws in practice	18,000	18,000	18,000	18,000	18,000	90,000
		1.1.5 Regional training programme for country trainers on effective monitoring the state of mangrove ecosystems.	35,000					35,000
		1.1.6 Regional workshop every two years for exchange of experiences of developing livelihood and other income generation activities		30,000		30,000		60,000
		1.1.7 To Establish a network of environmental journalists and educators, and provide them materials of awareness on mangroves.						0
	1.2 Materials for use at all levels in promoting knowledge and awareness of sustainable management practices	1.2.1 Develop regional guidelines on establishment of community based micro-credit schemes	24,000					24,000
		1.2.2 To establish a regional bibliography			148,000			148,000
		1.2.3 Produce guide books for mangrove rehabilitation, management and conservation in the region	144,000					144,000
		1.2.4 To translate relevant national publications to English for regional use	140,000	140,000	140,000	140,000		560,000
		1.2.5 Development of curricular and materials for use in training programmes relating to sustainable use and management of mangroves, offered by educational institutions in the region.		97,000				97,000

Table 5 cont. Proposed Regional Actions for the Mangrove Sub-component of the Regional Strategic Action Programme.

Component	Sub-Component	Activity	2008	2009	2010	2011	2012	Total
2. Enhancing mangrove management skills through development and dissemination of regionally applicable tools	2.1 Develop guidelines and other tools as information resources, and facilitate their regional dissemination and adoption for mangrove managers	2.1.1 To develop regionally applicable standards and criteria for defining sustainability of mangrove management system.	41,000	30,000				71,000
		2.1.2 Document models for sustainable use of mangrove ecosystem	30,000	18,000				48,000
		2.1.3 Identify and encourage the use of environmental friendly technologies for timber harvesting, fishing and shrimp farming	30,000	36,000				66,000
		2.1.4 Promote multiple-use of mangrove resources and alternative livelihood	23,000	46,000				69,000
		2.1.5 Establish criteria and guidelines for zoning of mangrove ecosystem	29,000	27,000	15,000			71,000
		2.1.6 Develop and design standardized methodology and guideline for inventory and assessment, using skilled managers and community volunteers	27,000	18,000				45,000
	2.2 Applied research, knowledge management, and monitoring of mangroves for sustainable management	2.2.1 Establish a regional system to Periodically Monitor the state of Mangrove Ecosystem in the region	27,000	27,000	15,000			69,000
		2.2.2 Study the potential impacts of sea level rise, climate change, and episode events on mangrove ecosystems bordering the South China Sea	27,000	66,600	15,000			108,600
		2.2.3 Quantification of mangrove as a carbon sink	27,000	114,200	15,000			156,200
		2.2.4 Develop algorithms for interpretation of remotely sense images of mangrove associations and zonation.	27,000	36,800	15,000			78,800
		2.2.5 Build on the work of the RTF-E of economic value of mangrove goods and services in order to determine total economic value of mangrove ecosystems						
		2.2.6 To establish a mechanism for collection and exchange of regional mangrove data and information	29,000	15,000	15,000			59,000
		2.2.7 Establish a web-based regional mangrove information centre				27,000	15,000	42,000
		2.2.8 Test and elaborate the criteria and indicators of sustainable mangrove management				63,500	63,500	127,000
2.2.9 Develop and test guidelines to strengthen community participation in mangrove management				63,500	63,500		127,000	
2.2.10 Establish guidelines to promote participation of local communities in management of mangrove habitats		27,000	18,000				45,000	
3. Institutional Arrangement and Regional Co-ordination	3.1 Integration of Research Programme with Management and Policy Making	3.1.1 To maintain the network of communication between policy makers managers, and scientists as established under the UNEP/GEF/SCS Project, to ensure the inclusion of new research findings in management and policy making				72,500	72,500	145,000
		3.1.2 Establish an expert group to assist participating countries in meeting their obligations under international conventions relating to biological diversity and RAMSAR conventions				25,000	25,000	50,000
	3.2 International and Regional Co-operation	3.2.1 To maintain the network of mangrove specialists established under the UNEP/GEF/SCS Project, to advice the governments on sustainable management of mangroves				72,500	72,500	145,000
		3.2.2 Organise periodic regional conference to facilitate cross-sectorial discussion of issues and problems relating to mangrove management.			25,000	25,000	25,000	75,000
		3.2.3 Establishment of formal mechanism for cooperation in managing the mangroves of the South China Sea.			20,000	20,000		40,000
		3.2.4 Establish an appropriate mechanism to monitor and evaluate the implementation of SAP and achievement of the mangrove targets			27,000		18,000	45,000
GRAND TOTAL			765,000	827,600	655,000	710,500	369,500	3,327,600

STRATEGIC, PRIORITY ACTIONS FOR CORAL REEFS IN THE SOUTH CHINA SEA¹⁰

Southeast Asia is recognised as the global centre of coral reefs, both in terms of extent and species diversity. An estimated 1/3 of the earth's coral reefs (91,700 per 284,300sq. km) are located in the seas of Southeast Asia (Burke *et al.*, in UNEP, 2004). Fringing reefs are well developed away from the major river estuaries, particularly in the Philippines and the central - southern areas of the South China Sea. All major reef types fringing, patch or platform reefs, and atolls occur in the South China Sea, with a total estimated reef area of the order of 10,000km² (based on aggregation of national statistics - Spalding *et al.* 2001). Offshore, a series of large platform reefs and atolls are found; the most well-known being the Spratly Islands, the Tung-Sha Reefs and the Paracel Islands. These oceanic reefs are highly diverse and are thought to play a key role in the maintenance and replenishment of regional biodiversity, and may be particularly important in the replenishment of populations of some harvested species, such as the giant groupers.

If coral reefs are the most diverse tropical marine ecosystem on earth, then the Indo-Pacific in general and the South China Sea in particular are home to the most diverse coral reef ecosystems. The South China Sea is considered as the area with the highest diversity of hermatypic corals in the world (Veron, 1995). More than 70 hermatypic coral genera are recorded from the reefs of the South China Sea and hotspots of coral species diversity occur at Nha Trang (Viet Nam) with 351 species and El Nido (Palawan, Philippines) with 305 species. Records of more than 200 species occur in a number of sites in Viet Nam, Indonesia, and the Philippines (UNEP, 2004).

Coral reefs are an important marine ecosystem and habitat that provide nurseries and breeding grounds for coral reef associated species and some pelagic and migratory species. Like an oasis in the ocean, coral reefs serve as aggregation points for schools of migratory pelagic fish and as much as a quarter of the diet of pelagic and migratory species such as the yellow fin tuna (*Thunnus albacares*) is from reef-associated organism (Grandperin, 1978). The high species richness of corals and reef-associated fauna and flora in the South China Sea makes this area a valuable source of genetic and biochemical materials.

THREATS TO CORAL REEFS BORDERING THE SOUTH CHINA SEA

Not only are the coral reefs in South East Asia the most biologically diverse and productive reef ecosystems in the world but, they are also the most threatened and damaged reefs, with unprecedented rates of coral reef destruction from anthropogenic pressures that have accelerated over recent decades (Tun *et al.*, 2004). The Regional Working Group on Coral Reefs, identified regionally significant threats to coral reefs in the South China Sea, as being over-fishing, use of destructive fishing techniques, pollution (mainly eutrophication) and sedimentation (Table 6). Indirect causes of these threats are unsustainable practices in the fisheries sector, coastal development, deforestation and unsustainable tourism. Coral bleaching is considered as a serious threat to coral reefs in the region.

Table 6 Prioritisation of the Threats to Coral Reefs Bordering the South China Sea (excluding China).

	Cambodia		Indonesia		Malaysia		Philippines		Thailand		Viet Nam		Region
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Weighted Score
Direct threats													
Over-fishing	1	0.4	1	5.2	5	29.0	1	61.9	7	84.07	1	14.69	195.2
Destructive fishing	2	0.7	2	10.5	2	11.6	2	123.8	5	60.05	2	29.38	236.1
Sedimentation	5	1.9	4	21.0	1	5.8	3	185.7	4	48.04	3	44.04	306.4
Pollution (Eutrophication)	4	1.5	5	26.2	4	23.2	5	309.6	6	72.06	4	58.72	491.2
Coral bleaching	8	3.0	3	15.7	7	40.5	9	557.2	1	12.01	5	73.4	701.8
Indirect threats													
Unsustainable fisheries and aquaculture	3	1.1	8	41.9	9	52.1	4	247.6	8	96.08	8	117.4	556.3
Coastal development	6	2.2	7	36.7	6	34.7	6	371.5	3	36.03	6	88.08	569.2
Unsustainable tourism	9	3.3	9	47.2	3	17.4	8	495.3	2	24.02	9	132.1	719.3
Deforestation on upland areas	7	2.6	6	31.4	8	46.3	7	433.4	9	108.09	7	102.8	724.6
Total area of coral reefs	2,807		39,287		43,411		464,000		90,000		110,000		749,505
Proportion of total coral reef area	0.37		5.24		5.79		61.91		12.01		14.68		

¹⁰ China did not participate in the Coral Reef Sub-component consequently did not provide and did not review data and information of this section.

Table 6 presents the threats ranked for each country from 1 to 9, with 1 the most, and 9 the least serious. The ratio of the coral reef area in each country compared to the total area for the South China Sea (excluding China) was used to weight the individual country ranks resulting in a regional weighted score. The weighted scores suggest that on a regional scale the most serious threat is over-fishing; followed by destructive fishing; sedimentation; pollution; unsustainable fisheries practices; coastal development; coral bleaching; unsustainable tourism; and finally deforestation on upland areas.

THE MANAGEMENT STATUS OF CORAL REEFS BORDERING THE SOUTH CHINA SEA

Based on the provision of data by the Focal Points of the participating countries a total area of 749,505ha of coral reefs were identified in six countries as follows: Cambodia, 2,807ha; Indonesia, 39,287ha; Malaysia, 43,394ha; Philippines, 464,000ha; Thailand, 90,000ha; and Viet Nam, 110,000ha.

Table 7 provides details of the management status of coral reef target sites bordering the South China Sea, including *inter alia* their legal status and effectiveness of management. In the case of Cambodia, Indonesia, Malaysia and Thailand, the total coral reef area is estimated as being the same as these areas of targeted sites. The area of coral reefs in the 82 target coral reef sites is 217,390ha (29% of the total area in the South China Sea, excluding China), of which 99,673ha (13% of the total area) at 61 sites, is under management at the present time. In terms of management effectiveness only around 16% of this area at thirteen sites is considered as being under successful management. Thirty seven percent of sites are considered to be moderately well managed (medium effectiveness) while for 24% of the sites management effectiveness is considered low, and 23% have plans but no effective management.

Table 7 Management Status of Coral Reef Sites in the South China Sea.

Country & Site Name	Area (ha)	Live Coral Cover (%)	Management legal status	Area under Management (ha)	Management Effectiveness ¹¹
Cambodia	2,808			293	
Koh Kong	73	47	Fisheries Management Area (FMA)		
Koh Sdach	529	29	Proposed MPA		
Koh Rong	468	23	Proposed MPA		
Koh Takiev	293	58	National Park	293	Medium
Koh Tang	439	38	FMA		
Prek Ampil	953	53	FMA		
Koh Pouh	53	41	FMA		
Indonesia	39,286			12,511	
Anambas	6,255	52	Marine Management Area (MMA)	6,255	Low
Bangka	2,934	37	MMA	2,934	Medium
Belitung	2,271	52	MMA	2,271	Low
Karimata	1,041	53	Marine Reserve	1,041	Medium
Senayang Lingga	4,735	37			
Barelang dan Bintan	6,145	44			
Natuna	15,905	31			
Malaysia	43,394			28,209	
Pulau Redang	2,550		Marine Park	1,658	High
Pulau Lima	878		Marine Park	571	High
Pulau Ekor Tebu	812		Marine Park	528	High
Pulau Pinang	978		Marine Park	636	High
Pulau Perhentian Kecil	1,621		Marine Park	1,054	High
Pulau Perhentian Besar	1,824		Marine Park	1,186	High
Pulau Lang Tengah	1,230		Marine Park	800	Medium
Pulau Susu Dara	286		Marine Park	186	Medium
Palau Tenggol	480		Marine Park	312	Low
Palau Nyireh	288		Marine Park	187	Low
Pulau Kapas	427		Marine Park	277	Low
Pulau Tioman	5,023		Marine Park	3,265	High
Pulau Labas	896		Marine Park	582	Medium
Pulau Sepoi	891		Marine Park	579	Medium
Pulau Gut	904		Marine Park	588	Medium
Pulau Tokong Bahara	903		Marine Park	587	Low

¹¹ **Categories of Management Effectiveness: Low:** Area declared or proposed to be declared for management; Management Plan developed and approved. **Medium:** Existing Management Framework is implemented with inadequacy of manpower, finance and/or equipment: **High:** Existing Management Framework is implemented with enough trained manpower, equipment, facilities and sustainable finance.

Table 7 cont. Management Status of Coral Reef Sites in the South China Sea.

Country & Site Name	Area (ha)	Live Coral Cover (%)	Management type	Area under Management (ha)	Management Effectiveness
Malaysia continued					
Pulau Chebeh	898		Marine Park	584	High
Pulau Tulai	1,272		Marine Park	827	High
Pulau Sembilang	1,212		Marine Park	788	Low
Pulau Seri Buat	1,544		Marine Park	1,004	Low
Pulau Rawa	1,016		Marine Park	660	Medium
Pulau Hujung	1,047		Marine Park	681	Medium
Pulau Tengah	1,030		Marine Park	669	Medium
Pulau Besar	1,683		Marine Park	1,094	Medium
Pulau Tinggi	2,036		Marine Park	1,323	High
Pulau Aur	1,949		Marine Park	1,267	Low
Pulau Pemanggil	1,758		Marine Park	1,143	Low
Pulau Harimau	980		Marine Park	637	Medium
Pulau Gual	914		Marine Park	594	Medium
Pulau Mensirip	932		Marine Park	606	Medium
Pulau Sibul	852		Marine Park	554	High
Pulau Sibul Hujung	237		Marine Park	154	High
Pulau Mentinggi	880		Marine Park	572	High
Pulau Kuraman	1,339		Marine Park	870	Low
Pulau Rusukan Besar	894		Marine Park	581	Low
Pulau Rusukan Kecil	930		Marine Park	605	Low
Philippines	464,000			2,390	
Batanes	2,050	55	Protected Land/Seascape	40	Medium
Bolinao/Lingayen Gulf	9,560	40	Municipal Coastal Development Plans & National Park	750	Medium
Masinloc, Zambales	2,000	31	Protected Land/Seascape & Fish Sanctuary	120	Medium
Batangas Bay, Maricaban Strait	100	52	Marine Tourism Reserve	80	Medium
Puerto Galera, Mindoro	48	22	Man & Biosphere Reserve	20	Medium
Calamianes Group of Islands	18,200	29		300	Low
El Nido, Palawan	4,250	21	Marine Park	1,000	Medium
Port Barton	454	38.2		80	Low
Balabac	2500		Environmental Critical Protection Zone		
Thailand	90,000			54,000	
Mu Koh Chumporn	7,790	55	National Park	7,360	Medium
Mu Koh Chang	18,670	40	Marine National Park	11,780	Medium
Mu Koh Ang Thong	5,110	55	Marine National Park	5,110	Medium
Mu Koh Samui	38,990	40	Marine National Park	22,770	Low
Mu Koh Samet	4,200	35	Marine National Park	3,240	Medium
Sichang Group	760	20	None	0	
Sattaheep Group	1,670	33	Navy Control Area	1,320	Low
Lan and Phai Group	3,910	18	Navy Control Area	1,200	Low
Chao Lao	860	30	None	0	
Prachuab	2,450	40	Marine National Park	270	Low
Koh Tao Group	2,300	45	None	0	
Song Khla	1,200	20	None	0	
Koh Kra	670	40	None	0	
Losin	950	40	Navy Control Area	950	Low
Viet Nam	110,000			2,270	
Cu Lao Cham	200	34	MPA	100	Medium
Nha Trang bay	570	26	MPA	100	Medium
Con Dao	1,000	23	National Park	1,000	Medium
Phu Quoc	600	42	Proposed MPA	0	
Ninh Hai	1,070	37	Proposed MPA & Community - based Management	1,070	Medium
Ca Na bay	2,270	41	Proposed MPA	0	
Ha Long - Cat Ba	N/A	43	World Heritage & National Park	No Available	Medium
Hai Van - Son Tra	N/A	51	Proposed MPA	0	
Bach Long Vi	N/A	22	Proposed MPA	0	

TARGETS

Table 8 presents general status of coral reef management in the South China Sea geographic region of the six countries based on information assembled for 82 individual coral reef areas. The area to be added to the total area managed sustainably by the year 2015 is 54,130ha, thereby increasing the total area under sustainable management to 153,803ha which represents 20% of the total reef area of the South China Sea or 71% of the area of the target sites.

Table 8 Status of Coral Reef Management in the South China Sea Biographic Region of the Participating Countries.

	Cambodia	Indonesia	Malaysia	Philippines	Thailand	Viet Nam	Total
Total coral reef area in the South China Sea (ha)	2,808	39,286	43,394	464,000	90,000	110,000	749,488
Total coral reef area of the 82 target sites	2,808	39,286	43,394	36,662	89,530	5,710	217,390
Coral reef area under existing management at the 83 sites	293	12,511	28,209	2,390	54,000	2,270	99,673
Number of target sites with management information	7	7	36	9	14	9	82
No effective management, plans only	6	3	0	1	5	4	19
No. of sites with low management effectiveness	0	2	11	2	5	0	20
No. of sites with medium management effectiveness	1	2	12	6	4	5	30
No. of sites with high management effectiveness	0	0	13	0	0	0	13
Existing management types ¹² [1]	FMA, MPA, NP	MMA, MR	MP	PLS, MCDP, MTS, MBR, ECPZ	NP, MNP, NCA,	MPA, NP, CBM, WH	
Target area to be added for management by 2015 (ha)	1,965	5,580	15,185	10,100	18,000	3,300	53,130
Total area to be under management by 2015 (ha)	2,258	18,091	43,394	12,490	72,000	5,570	153,803

Coral reef monitoring has expanded over more than last ten years in most countries bordering the South China Sea and provided technical baselines for long-term coral reef management (Tun *et al.*, 2004). The data obtained in the framework of the Global Coral Reef Monitoring Network (GCRMN) indicated that the percentage of reefs in Southeast Asia countries had declined in state from one quartile category to a lower one, equivalent around 16%, during the period of 1994 – 2004.

It was noted that setting a target for the total area under management did not represent a target for the state of the reef although it could be assumed that those under management would, depending on the management regime, be more likely to sustain their biological diversity than those that were not under management. Therefore, the Regional Working Group on Coral Reefs considered an additional target related to the reduction of degradation rate. The focal points of participating countries agreed that improvement of coral reef management in next ten year could support to reduce decadal degradation rate of coral reefs in their countries, resulting in a regional estimation as around 5%. The regional assessment of coral reef status for the next period to 2014 following the GCRMN plan will enable to follow up this expectation and evaluate management effectiveness during implementing the revised SAP.

The specific targets for Coral Reef management are:

- **By 2015, at least 70% of the existing area of coral reefs in the 82 target coral reef sites (153,000ha) to be put under an appropriate form of sustainable management;**
- **By 2015, reduce the regional decadal rate of degradation in live coral cover from the present rate of 16% to 5%.**

¹² Cambodia - FMA: Fisheries Management Area, MPA: Marine Protected Area, NP: National Park; Indonesia - MMA: Marine Management Area, MR: Marine Reserve; Malaysia - MP: Marine Park; Philippines - PLS: Protected Land/Seascape, MCDP: Municipal Coastal Development Plan, MTS: Marine Tourism Reserve, MBR: Man & Biosphere Reserve, ECPZ: Environmental Critical Protection Zone; Thailand - NP: National Park, MNP: Marine National Park, NCA: Navy Control Area; Viet Nam - MPA: Marine Protected Area, NP: National Park, CBM: Community-based Management, WH: World Heritage).

Many of the coral reefs in the region are under existing management with low effectiveness and criteria for effective management have not been identified or applied. The working group developed a sustainable management indicator matrix on the assumption that sustainable management of coral reefs means management of the ecosystem in such a way that the resource(s) can be used continuously in a cost effective and ecologically friendly manner.

Such a management regime would normally have a formal management framework, clearly understood at every level by all stakeholders. One approach to assessing management sustainability is to use indicator(s) and three categories are proposed; namely: management, ecological-environmental, and socio-economic indicator(s) (Table 9).

The purpose of the defining these indicators is to provide a means of assessing whether an area is or, is not, under sustainable management in the context of the targets of the SAP, which states that by the year 2015, 70% of the coral reef area in 82 target sites of the South China Sea shall be under sustainable management. Depending on the objective(s), management input(s) (column 1) are expected to produce measurable output(s) which should be reflected through ecological indicator(s) (column 2) and/or socio-economic indicator(s) (column 3).

Table 9 Sustainable Management Indicator Matrix. [A baseline, mid-term and end of first phase of SAP implementation assessment of these indicators is required to indicate whether or not the targets have been met.]

Management Indicators	Ecological/Environmental Indicators	Socio-Economic Indicators
MANAGEMENT CAPACITY <ul style="list-style-type: none"> • Formal Management framework • Trained Man-power (numbers/levels) • Facilities and equipment • Sustainable Financing 	<ul style="list-style-type: none"> • Live Coral Cover • Butterflyfish (density) • Grouper (number of fish larger than 30cm) • Sea Urchin <i>Diadema</i> • Giant clam <i>Tridacna squamosa</i> 	FISHERIES <ul style="list-style-type: none"> • Catch per unit effort • Total landing • Income • Number of people involved
MANAGEMENT APPROACH <ul style="list-style-type: none"> • Sectorial • Integrated • Community-based • Multiple-use 		TOURISM <ul style="list-style-type: none"> • Number of visitors • Number of tourism operators • Income • Number of people involved
MANAGEMENT TOOLS <ul style="list-style-type: none"> • Licensing and permits • Seasonal closure • Zoning 		

REGIONAL ACTIONS AND COST ESTIMATES¹³

During the sixth meeting of the Regional Working Group on Coral Reefs (RWG-CR), a comparative analysis of the content of the National Action Plans was undertaken to identify common threats to the habitats and actions needed at the regional level. The seventh meeting of the RWG-CR reviewed and expanded the text, which is presented in Annex 6 of the meeting report (UNEP/GEF/SCS/RWG-CR.7/3). The RSTC reviewed the proposed regional actions and suggested a re-arrangement of the order of components and actions, to ensure that the regional actions address the identified threats to coral reefs and improve the effectiveness of management. The eight meeting of the RWG-CR in Phu Quoc, Viet Nam, 4th – 7th June 2007 considered and revised the proposed regional actions and estimated costs required for these actions as presented in Table 10.

A total of 37 regional actions are proposed under the coral reef sub-component of the revised SAP. The actions are allocated in four components as below.

¹³ The activities proposed in the coral reef sub-component focus on non-oceanic reef systems outside disputed areas in the coastal waters of the countries bordering the South China Sea.

1. ENHANCEMENT OF RESOURCE AND HABITAT MANAGEMENT

This component is divided into two sub-components. The first aims to promote good environmental governance and sustainable management of coral reef ecosystems. Regional actions focus on the review, synthesis, assessment and dissemination of good experiences and lesson learnt in the management of coral reefs. The second sub-component is to maintain a regional management framework to ensure the use of sound science in the sustainable management of coral reefs in the South China Sea. Regional actions include: maintenance of the regional expert group and coordinating mechanism, involvement and empowerment of stakeholders and communities and sharing experiences between countries on coral reef research and management.

2. PUBLIC AWARENESS, COMMUNICATION AND EDUCATION

The objective is to increase awareness of stakeholders regarding the ecological roles, economic values, and need for sustainable management of coral reefs. This component will facilitate the mainstreaming of information into educational programmes, develop information campaigns and sharing of training materials through the regional website.

3. RESEARCH AND MONITORING

The component aims to provide relevant scientific data and information for sustainable management of coral reefs. A number regional actions are proposed to support the scientific community in: assessing status of coral reefs; monitoring biological and socio-economic factors; maintaining, updating GIS and meta-databases and disseminating information for management purpose; and developing mechanism in environment impact assessment in transboundary areas.

4. SUSTAINABILITY AND CAPACITY BUILDING

The component is developed with the aim to improve regional capacity in management of transboundary issues regarding coral reefs. Some proposed actions are related to human resource development by exchanging experts, training trainers, sharing experiences in enforcement and developing capacity in fund raising and financial sustainability. Other actions focus on maintenance and improvement of the networks of demonstration sites, research centres and reef management agencies; and provision guideline for sustainable use of coral reefs and information on value added benefit derived from transboundary management of reefs.

Table 10 Proposed Regional Actions for the Coral Reef Component of the Strategic Action Programme.

Component	Sub-Component	Activity	Description	2008	2009	2010	2011	2012	2013	2014	2015	Total	
1. Enhancement of Resource and Habitat Management	1.1 To promote good environmental governance and sustainable management of coral reef ecosystem	1.1.1 Review, synthesis and formulation of good practices in coral reef sustainable management	2 workshops, 5 days, 2 times; consultancy, printing and distribution				44,500			44,500		89,000	
		1.1.2 Assessment and advice of technique on enhancement and rehabilitation of coral reefs.	Workshops, 3 days, 2 times; consultancy, printing and distribution					37,600				37,600	
		1.1.3 Review and formulation of good practices in community - based management activities at the region	Workshops, 3 days, 2 times; consultancy, printing and distribution					37,600				37,600	
		1.1.4 Introduction of cost effective waste management and environment friendly systems	Workshops, 3 days, 2 times; consultancy				34,600					34,600	
		1.1.5 Synthesis of successes on alternative livelihood programme, including funding mobilisation & technical support	Workshops, 3 days, 2 times; consultancy, printing and distribution				18,800			18,800		37,600	
		1.1.6 Review of existing transboundary management practices and identification of priorities in transboundary management zones	Workshops, 3 days, 2 times; consultancy, printing and distribution					37,600				37,600	
	1.2 To maintain of regional management framework to ensure the use of sound science in the sustainable management of coral reefs in the South China Sea	1.2.1 Regional coral reef expert group maintained to integrate research programmes and data and information used for coral reef management.	6 workshops, 3 days, consultancy		13,950	13,950	13,950	13,950	13,950	13,950			83,700
		1.2.2 Monitor achievement of SAP targets and NAP objectives every 5 year period.	Consultancy					18,000				18,000	36,000
		1.2.3 Synthesis of laws that contribute effectively to sustainable coral reef management, emphasizing on rule and regulation for good management practices	Workshop, 3 days & consultancy							37,950			37,950
		1.2.4 Regional coordinating mechanism to facilitate convergence of national and regional action plans.	2 workshop, 3 days & consultancy			37,950				37,950			75,900
		1.2.5 Information exchange for promotion of stakeholder involvement in sustaining management.	Printing, distribution & consultancy							14,000			14,000
		1.2.6 Review of traditional value and knowledge, and application in coral reef management in the region	Printing, distribution & consultancy					27,000					27,000
		1.2.7 Establishment of recognition and award system for good management of coral reefs.	Workshop & Award		45,300								45,300
		1.2.8 Review of level of compliance to various int'l obligations and conventions pertaining coral reefs	Consultancy				8,000						8,000
		1.2.9 Exchange and sharing experience between nations on coral reef research and management.	2 workshop			13,950				13,950			27,900

Table 10 *cont.* Proposed Regional Actions for the Coral Reef Component of the Strategic Action Programme.

Component	Sub-Component	Activity	Description	2008	2009	2010	2011	2012	2013	2014	2015	Total	
2. Public Awareness, Communication and Education	2.1 Increase awareness of stakeholders on the ecological roles, economic values of coral reefs, and need for sustainable management	2.1.1 Facilitation of mainstreaming of regional coral reef information and education programme	Development, printing, distribution & national workshop		14,000	25,000			25,000			64,000	
		2.1.2 Development and launching of regional information campaigns for sustainable use of coral reefs.	Consultancy, printing & 2 seminars				24,160				24,160	48,320	
		2.1.3 Sharing training materials among the countries by dissemination through regional website.	No cost										
3. Research and Monitoring	3.1 To provide relevant scientific data and information for sustainable management of coral reefs	3.1.1 Facilitation of and support to assess baseline information and status of coral reefs	Data collection, 6 countries, 2 time, 3 workshop, printing and distribution		55,300			55,300			55,300	165,900	
		3.1.2 Facilitation of and support to regular biological and socio-economic monitoring	3 workshops & support to target sites		33,950			33,950			33,950	101,850	
		3.1.3 Analysis of regional socio-economic status and culture significance of coral reefs, to provide vital information for sustainable management and use of coral reefs	2 workshops, 3 days				13,950				13,950	27,900	
		3.1.4 Management and update of coral reef GIS and other databases by SEA START RC.	Technical staff one month/year * 8 years	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	8,000	
		3.1.5 Prepare a base map of coral reefs in SCS and overlays to reflect indicators of sustainable management	Consultancy				14,000					14,000	28,000
		3.1.6 Regular analysis, synthesis and update of databases, and dissemination of information to general public, decision makers, governments, potential partners	2 workshops & printing, distribution				16,950					16,950	33,900
		3.1.7 Develop mechanism for analysis of impacts of different development scenarios on coral reef environment.	Consultancy			16,000					16,000		32,000
		3.1.8 Develop a research project regarding economic valuation of coral reefs in the South China Sea, focusing on indirect values	2 workshops, in-country surveys, 30 sites		38,680					38,680			77,360

Table 10 cont. Proposed Regional Actions for the Coral Reef Component of the Strategic Action Programme.

Component	Sub-Component	Activity	Description	2008	2009	2010	2011	2012	2013	2014	2015	Total	
4. Sustainability and Capacity Building	4.1 To improve regional capacity in management of transboundary issues regarding coral reefs	4.1.1. Exchange of experts for human resource development in coral reef management.	Experts, training course, administrative cost	12,835	12,835	12,835	12,835	12,835	12,835			77,010	
		4.1.2. Conduct of training of trainers for coral reef management at regional level	2 training courses, payments for trainers, administrative cost	64,614			64,614						129,228
		4.1.3. Exchange of experiences regarding skill of law enforcement and exchange of information, compliance and effectiveness of enforcement	Workshop					18,600					18,600
		4.1.4. Review and formulation of mechanism for financial sustainability for application in the region.	Workshop and consultancy							34,600			34,600
		4.1.5. Development of capacity in fund raising and implementation of financial scheme for coordination of coral reef management	Workshop, payment for trainers	29,100									29,100
		4.1.6. Maintenance of demonstration site network through forum of local government officials, project management personnel from demonstration sites	2 fora	27,900			27,900						55,800
		4.1.7. Forum of research centres and reef management agencies	2 fora		27,900			27,900					55,800
		4.1.8. Development of guideline for sustainable use of coral reefs	Consultancy, printing & distribution			20,500							20,500
		4.1.9. Provision of information on value added benefit of enhancement of sustainable use derived from transboundary management of reefs	Workshop & consultancy			34,600							34,600
Total				135,449	242,915	175,785	295,259	321,335	229,915	94,250	177,310	1,672,218	

STRATEGIC, PRIORITY ACTIONS FOR SEAGRASS IN THE SOUTH CHINA SEA

The recently published World Atlas of Seagrass (Green and Short, 2003) provides information on the world's seagrass habitats globally, incorporating their status in the face of environmental change. This is part of an ongoing initiative of the UNEP-WCMC to develop a comprehensive global GIS dataset with data derived from multiple sources. There are however, still substantial information gaps and for the South China Sea the UNEP/GEF project has already provided the first comprehensive seagrass data set from China. These data, however, was based on field survey at known sites in SCS countries and one should be aware that it does not reflect the total distribution of seagrass or seagrass beds in these countries. Some algorithms for mapping seagrass using remote sensing has been developed but this has yet to be applied to the entire South China Sea coastline.

Of the approximately 60 seagrass species described worldwide 18 species are found in, the coastal waters of the South China Sea. The numbers of seagrass species known to occur in each country are: Cambodia, 9; China, 8; Indonesia, 12; Malaysia, 14; Thailand, 12; Philippines, 15; and Viet Nam, 14. *Halophila* is the most diverse and widespread genus in coastal waters throughout the region. Further taxonomic work is essential to verify the 4 new *Halophila* species found in Malaysia (Japar *et al.* 2004).

The coastlines of the northern sub-region, in China and northern Viet Nam, have characteristics of subtropical areas, and the species include *Zostera japonica* together with *Halophila beccarii*, *Halophila ovalis*, *Halophila decipiens*, *Enhalus acoroides*, *Thalassia hemprichii*, *Halodule pinifolia*, *Halodule uninervis*, *Cymodocea rotundata* and *Ruppia maritima*. All but the first are widespread throughout the South China Sea region. Additional seagrass species recorded in the tropical zone include *Halophila spinulosa*, *Halophila minor*, *Cymodocea serrulata*, *Halodule pinifolia*, *Syringodium isoetifolium* and *Thalassodendron ciliatum*.

The sub-tropical species *Zostera japonica* often forms mono-specific seagrass beds, and has been recorded in Tieshan Bay and Pearl Bay, Guangxi Province, and Hong Kong in China. Its distribution also extends down to northern and central Viet Nam, and its' occurrence in Binh Dinh Province represents the southernmost limit of this temperate species in the Indo-west Pacific.

Of the tropical species, *Thalassodendron ciliatum* is generally found in seagrass beds from the intertidal to the low sub-tidal zone (2 – 17m) in the eastern part of Indonesia, and the southern and western shores of the Philippines. This species also occurs in the seagrass beds in Con Dao, southern Viet Nam. In the Philippines, it has been reported in Cuyo Island, the northernmost limit of its distribution in the Indo-west Pacific.

CURRENT MANAGEMENT STATUS OF SEAGRASS BEDS BORDERING THE SOUTH CHINA SEA

In the South China Sea region there has been a rapid rate of seagrass loss and decline in recent years. Indonesia has lost about 30-40% of its seagrass beds, with as much as 60% being destroyed around Java. In Singapore, the patchy seagrass habitats have suffered severe damage largely through burial under landfill operations. In Thailand, losses of the beds amount to about 20-30% and in the Philippines, it is about 30-50%. Very little information on seagrass loss is available from Cambodia, China, Malaysia, and Viet Nam (UNEP, 2004).

On the basis of data provided by the participating countries in the eighth meeting of the RWG-SG, the total of 43 target seagrass sites are recorded in the coastal areas bordering the South China Sea with the details as follows: Cambodia 33,814ha in 4 sites; China 1,960ha from 4 sites; Indonesia 3,035ha from 7 sites; Malaysia 222ha from 13 sites; Philippines 23,245ha from 5 sites; Thailand 2,553ha from 4 sites; and Viet Nam 13,503ha from 6 sites. Table 11 provides information regarding current management status indicating that 12,928ha (16.5%) of the total area is currently under some form of management. The total estimated area of seagrass amounts to 78,332ha of which 25,876ha (33%) is targeted to be under sustainable management by 2012.

Table 11 Status of Some Seagrass Sites in the South China Sea and Gulf of Thailand. Numbers summed for each country only reflect the sites shown in this table and do not represent the country totals.

Country and Site Name	Area (ha)	Legal Status	Area under Management	Management Effectiveness ¹⁴	Target for Management by 2012
Cambodia	33,814		2,000		11,446
Kampong Sam Bay	164	None	No	N/A	0
Chroy Pros	3,910	Provincial designated MPA	2,000	Medium	0
Kampot	25,240	Proposed fish Sanctuary	No	N/A	10,096
Kep Beach & Koh Tonsay	4,500	None	No	N/A	1,350
China	1,960		150		700
Hepu seagrass bed	540	National Dugong Reserve	150	Medium	150
Liusha seagrass bed	900	None ¹⁵	No	N/A	200
LiAn seagrass bed	320	Proposed Marine Park	No	N/A	200
Xincun seagrass bed	200	Proposed Marine Park	No	N/A	150
Indonesia	3,035		0		2,420
Medang-Mesanak	5	None	No	N/A	5
Temiang	5	None	No	N/A	5
East Bintan	2,000	Proposed Marine Management Area	No	N/A	1,500
Mapor	275	Proposed Marine Management Area	No	N/A	275
Anambas	150	Proposed Marine Management Area	No	N/A	35
Bangka-Belitung	350	Proposed Marine Management Area	No	N/A	350
Senayang	250	Proposed MPA	No	N/A	250
Malaysia	222		17		40
Tanjung Adang Laut Shoal	40	None	No	N/A	40
Tanjung Adang Darat Shoal	42	None	No	N/A	0
Merambong Shoal	30	None	No	N/A	0
Sungai Kemaman	17	None	No	N/A	0
Telaga Simpul	28	None	No	N/A	0
Sungai Paka Shoal	43	None	No	N/A	0
Pulau Tinggi Mersing	3	Marine Park	3	Medium	0
Pulau Perhentiar	3	Marine Park	3	Medium	0
Pulau Redang	2	Marine Park	2	Medium	0
Setiu Terengannu	3	None	No	N/A	0
Pulau Besar Mersing	3	Marine Park	3	Medium	0
Merchang	2	None	No	N/A	0
Tunku Abdul Rahman Park	6	State Park	6	Medium	0
Philippines	23,245		6,641		6,920
Cape Bolinao	22,400	Environmentally Critical Area - MPA	6,000	Medium	6,720
Puerto Galera	114	Fish sanctuary part of the Man and Biosphere reserve/	60	Low/Medium	50
Ulugan Bay	11	Fish sanctuary part of the Man and Biosphere reserve/	11	Medium	0
Honda Bay	470	Fish Sanctuary part of the Man and Biosphere reserve/	320	Medium	150
Puerto Princesa	250	Protected Area part of the Man and Biosphere reserve/	250	Medium	0
Thailand	2,553		1,780		0
Kung Krabane Bay	700	None ¹⁶	700	High	0
Tungka Bay	1,080	National Park	1,080	Low	0
Sarat Thani	500	None	No	N/A	0
Pattani Bay	273	None	No	N/A	0
Viet Nam	13,503		2,340		5,050
Phu Quoc archipelago	4,600	Phu Quoc Marine Protected ¹⁷ Area	2,050	Low	3,000
Con Dao Islands	200	National Park	200	Medium	200
Phu Qui Island	400	Proposed MPA	No	N/A	0
Thuy Trieu	800	Proposed MPA	50	N/A	350
Tam Giang	2,000	Proposed Ramsar	No	N/A	1,000
Cu Lao Cham	40	MPA	40	Medium	0

¹⁴ **Categories of Management Effectiveness: Low:** Area declared or proposed to be declared for management; Management Plan developed and approved. **Medium:** Existing Management Framework is implemented with inadequacy of manpower, finance and/or equipment: **High:** Existing Management Framework is implemented with enough trained manpower, equipment, facilities and sustainable finance.

¹⁵ Local Reserve.

¹⁶ Under King's project.

¹⁷ Phu Quoc National Park is an area of designated terrestrial Forest whilst the Marine Protected Area has recently been declared by the Provincial Government adjacent to the National Park.

THREATS TO SEAGRASS

The Regional Working Group identified six threats to seagrass including: destructive fishing such as push net, trawler; sedimentation from coastal development; waste water, effluents; nutrients; coastal construction; and over-fishing. Focal points from each country were asked to rank the relative importance of these six threats. To determine the regional significance of each threat the rank for each threat was weighted using the proportion of the area of seagrass in the country concerned compared with the regional total. The resultant values were summed to produce the regional weighted total, which is inversely related to the regional significance (small values are more significant than larger values). The relative importance of the threats from a regional perspective is summarised in Table 12.

Table 12 Regional ranking of threats to seagrass, by the members of RWG-SG, 1=most serious and 6=least serious. (scoring regionally the threats based on country score provided by the focal points and rate between seagrass areas of each country and region)

Country	Cambodia		China		Indonesia		Malaysia		Philippines		Thailand		Viet Nam		Total	
Area (ha)	33,814		1,960		3,035		222		23,245		2,553		13,503		78,332	
Proportion of regional total	0.458		0.027		0.041		0.003		0.315		0.035		0.121		1.00	
	Rank	weight score	Rank	weight score	Rank	weight score	Rank	weight score	Rank	weight score	Rank	weight score	Rank	weight score	Total Weight score	Regional ranking
Destructive fishing such as push net, trawler	1	0.432	1	0.025	1	0.039	3	0.009	2	0.593	1	0.033	1	0.172	1.303	1
Sedimentation from coastal development	4	1.727	3	0.075	3	0.116	4	0.012	3	0.890	2	0.065	2	0.345	3.230	2
Waste water effluent	3	1.295	4	0.100	5	0.194	5	0.015	4	1.187	4	0.130	5	0.862	3.783	3
Nutrients	6	2.590	5	0.125	4	0.155	6	0.018	1	0.297	3	0.098	6	1.034	4.317	5
Coastal construction	5	2.158	2	0.050	2	0.077	2	0.006	5	1.484	6	0.196	3	0.517	4.488	6
Over-fishing	2	0.863	6	0.150	6	0.232	1	0.003	6	1.780	5	0.163	4	0.690	3.882	4

CHALLENGES FOR SEAGRASS MANAGEMENT

Challenges for sustainable seagrass management (not in order of priority) in the countries bordering the South China Sea are:

1. Lack of sustainable financing.
2. Lack of awareness among people who are causing damages to seagrass on their consequences.
3. Coastal development plans, if any, usually do not take seagrass into consideration.
4. Poverty of coastal communities.
5. Lack of effective seagrass management systems.
6. Weak law enforcement.
7. Lack of long-term regional and international cooperation/coordination.

GOAL AND TARGETS

During the 6th meeting of the RWG-SG, there was agreement regarding the goal of the SAP with respect to seagrass which was defined as:

“To conserve, manage and sustainably utilise seagrass habitats and resources.”

The specific targets for management and conservation of seagrass ecosystems in the SCS are as follows:

- *Twenty-one managed areas totalling 26,576 hectares (approximately 33% of the 78,332 hectares identified as seagrass sites) in the South China Sea, to be brought under sustainable management by the year 2012.*
- *Government recognition of the ecological importance of seagrass through amendment of the management plans for seven existing MPAs with significant areas of seagrass habitat, to include specific seagrass-related management actions by the year 2012.*
- *Adoption of 7 new Marine Protected Areas specifically focussing on seagrass habitats identified in the prioritised listings of the SCS Project, by the year 2012.*

Table 13 Sustainable Management Indicator Matrix. [A baseline, mid-term and end of first phase of SAP implementation assessment of these indicators is required to indicate whether or not the targets have been met.]

Management Indicators	Ecological/Environmental Indicators	Socio-Economic Indicators
MANAGEMENT CAPACITY <ul style="list-style-type: none"> • Formal Management framework • Trained Man-power (No./levels) • Facilities and equipment • Sustainable Financing 	<ul style="list-style-type: none"> • Percent seagrass cover • Shoot density per sq m • Abundance of sea urchin, <i>Tripneustes gratilla</i> • Abundance of sea cucumber, <i>Stichopus chloronotus</i> 	FISHERIES <ul style="list-style-type: none"> • Catch per unit effort • Total landing from the seagrass area • Proportion of rabbitfish (siganids) in total landing • Income No. people involved
MANAGEMENT APPROACH <ul style="list-style-type: none"> • Sectorial • Integrated • Community-based • Multiple-use 		TOURISM <ul style="list-style-type: none"> • Number of visitors • Number of tourism operators • Income No. people involved
MANAGEMENT TOOLS <ul style="list-style-type: none"> • Zoning 		AWARENESS Proportion of local people that are aware of seagrass ecosystems functions and values

REGIONAL ACTIONS AND COST ESTIMATES

The overall goal of the proposed regional activities is to enhance the sustainable use and management of seagrass resources and ecosystems in the region. The activities were elaborated during the seventh meeting of the Regional Working Group on Seagrass and are presented in Annex 6 of that meeting report. Table 14 of this document itemises the actions and includes preliminary cost estimates prepared by the regional working group during the seventh meeting. There are 15 actions proposed, which are grouped into three components.

1. BUILDING CAPACITY AND AWARENESS AT ALL LEVELS TO ENSURE LONG-TERM SUSTAINABLE USES OF SEAGRASS HABITATS AND RESOURCES

The aim of this component is to increase the knowledge of government officials, managers, and stakeholders concerning the importance and value, of seagrass resources and ecosystems in the region. This component is divided into two sub-components; the first of which provides details of the actions required to maintain and elaborate regional mechanisms for knowledge and information exchange through training, site visits, meetings, regional symposia, a South China Sea website, and publications. The second focuses on the production of materials for use in promoting knowledge and awareness of sustainable practices.

2. ENHANCING MANAGEMENT SKILLS THROUGH DEVELOPMENT AND DISSEMINATION OF REGIONALLY APPLICABLE TOOLS

This component aims to enhance the management skills and experience of all stakeholders by providing a sound scientific and technical basis for management of seagrass resources and ecosystems. The first sub-component involves compiling, developing and enhancing guidelines and other tools for disseminating and facilitating experiences and good practices at the regional level. The second sub-component focuses on the application of research and knowledge for monitoring and sustainable management of seagrass habitats.

3. INSTITUTIONAL ARRANGEMENTS AND REGIONAL CO-ORDINATION

This component aims at assisting the countries in effectively managing their seagrass resources and ecosystems in a sustainable manner, via the development of mechanisms including policy, where appropriate for co-ordination of actions. The first sub-component addresses the integration and promotion of research programmes with policy and decision-making and the second focuses on international and regional co-operation and co-ordination. This includes the maintenance and enhancement of the existing regional seagrass network, development and collection of data/information on seagrass at regional scales, promotion of transboundary management, zoning, and promotion of regional/sub-regional bodies for joint management of seagrass resources and ecosystems, where appropriate.

Table 14 Proposed Regional Actions for the Seagrass Sub-component of the Regional Strategic Action Programme.

Components	Sub-components	Activities	Description	Total Costs	Costs by Year				
					2008	2009	2010	2011	2012
1. Building capacity and awareness at all levels to ensure long-term sustainable uses of seagrass habitats and resources	1.1 Mechanisms for knowledge and information exchange	1.1.1 Exchange of personnel among seagrass sites.	3 pers/country, 7 countries, 2 times, 30 days. Costs: air fare: US\$500, Stipend: US\$15/per/day	39,900		19,950		19,950	
		1.1.2 Regional Training on seagrass management models and National Echo-seminars.	Biennial Trainings: (4 pers/country, 7 countries/course) + (National echo-seminars: 7 countries, US\$5,000 x 2 seminars)	210,000	70,000	35,000	70,000	35,000	
		1.1.3 Maintain the SCS Website and input new data and information.	In-kind contribution from the network						
		1.1.4 Bi-annual seagrass "YALAMUN" publication. For example the outputs from 2.1.4.	Translation into 7 languages from in-kind contribution. English text to be prepared by a coordinating entity						
		1.1.5 Biennial Regional Conference on seagrass management.	2 conferences, 100 pers./conference, 3 days/conference	186,000	93,000				93,000
	1.2 Materials for use at all levels in promoting knowledge and awareness of sustainable management practices	1.2.1 National echo-seminars to incorporate seagrass into primary and secondly school curricula.	1 seminar, US\$5,000/country, 7 countries	35,000	35,000				
		1.2.2 Compilation, selection, production and dissemination of general awareness materials of seagrass through national media.	In-kind contribution from the national government						
2. Enhancing management skills through development and dissemination of regionally applicable tools	2.1 Develop and enhance guidelines and other tools as information resources and facilitate their regional dissemination and adoption for seagrass management	2.1.1 Further enhance the regional seagrass GIS database (e.g. finer resolutions, using standardized methods, technology).	Updating the GIS database to the regional database by SEAs as in-kind contribution. Maintaining the regional GIS database by a coordinating entity: 20% of staff of SEA START RC (US\$200/month, 12 months, 5 years)	12,000	2,400	2,400	2,400	2,400	2,400
		2.1.2 More assessment of baseline information on seagrass from unstudied areas to find the seagrass distribution.	National activities as in-kind contribution from the national governments						
		2.1.3 Expand and up-date the regional seagrass meta-database.	Updating the meta database to the regional database by SEAs as in-kind contribution. Maintaining the regional meta database by a coordinating entity: 20% of staff of SEA START RC (US\$200/month, 12 months, 5 years)	12,000	2,400	2,400	2,400	2,400	2,400
		2.1.4 Regional synthesis of experiences and lessons learnt at UNEP/GEF/SCS demonstration and other sites; and replicate models useful in other areas.	A 3-day workshop for participants from national echo-seminar and demo-site, 2 per/country, 7 countries	13,020			13,020		
		2.1.5 Development of criteria and award system for successful seagrass management.	It will be discussed during regular meetings of the RWG-SG. Award after 5 years: Total three prizes: US\$10,000	10,000					10,000

Table 14 cont. Proposed Regional Actions for the Seagrass Sub-component of the Regional Strategic Action Programme.

Components	Sub-components	Activities	Description	Total Costs	Costs by Year				
					2008	2009	2010	2011	2012
3. institutional arrangement and regional coordination	3.1 Integration of research results into Management and policy making	3.1.1 Develop guidelines to integrate research results into management and policy making	These guidelines will be discussed during the regular the RWG-SG meetings. A workshop with participation of the RWG-SG, policy makers, invited scientists and legal experts: 3 days, 7 countries, 3 pers/country, 3 invited speakers	22,320		22,320			
	3.2 International and regional cooperation, and co-ordination	3.2.1 Annual Meetings of the Regional Working Group on Seagrass (RWG-SG)	1 meeting/year, 5 years, 1 per/country, 7 countries, 5 days	54,250	10,850	10,850	10,850	10,850	10,850
		3.2.2 Promote transboundary management of seagrass for sustainable fisheries and the protection of endangered species (dugongs and turtles)	Five 3-day workshops for the development of management plans. 1 Cambodia-Viet Nam (US\$6,000*5=30,000), 2.Philippine-Malaysia-Indonesia (US\$10,000*5=50,000), 3.Viet Nam-China (10,000*5=50,000). 10 pers/workshop	130,000	26,000	26,000	26,000	26,000	26,000
	3.3 Improvement of the management plans of current seven prioritised MPAs	3.3.1 Review of existing data and information, legislations and regulations related to the establishment of MPA	In-kind co-financing from the government						
		3.3.2 Amend the existing management plans to include specific seagrass related management actions based on results of the legal review.	In-kind co-financing from the government						
	4. Strengthening managed seagrass areas and establishment of new MPAs with focussing on seagrass habitat.	4.1 Put 23 managed areas into sustainable management	4.1.1 Review and update existing data and information on the 23 seagrass areas	In-kind co-financing from the government					
4.1.2 Develop sustainable management plans based existing data and information			In-kind co-financing from the government						
4.1.3 Implement the management plans			Beyond the target time (after 2012)						
4.2 Establishment of 7 new MPAs focussing on seagrass habitat		4.2.1 Development criteria for selecting the MPAs focussing on seagrass	Regional Working Group Meetings.						
		4.2.2 From the prioritised listings of seagrass areas, select 7 sites for the establishment of 7 new MPAs (in regional working meetings)	Regional Working Group Meetings						
		4.2.3 Development and adoption of management plans for the 7 MPAs	In-kind co-financing from the government						
		4.2.4 Implement the 7 MPAs	Beyond the target (after 2012)						
Total					724,490	239,650	118,920	124,670	96,600

STRATEGIC PRIORITY ACTIONS FOR COASTAL WETLANDS BORDERING THE SOUTH CHINA SEA

MANAGEMENT STATUS OF COASTAL WETLANDS BORDERING THE SOUTH CHINA SEA

Under the UNEP/GEF South China Sea Project, activities in the wetland sub-component focus on five specific types of wetlands, namely intertidal mudflats, estuaries, lagoons, peat swamps and non-peat swamp, excluding mangroves, coral reefs and seagrass beds which are the subjects of separate sub-components. Table 15 summarises the legal and management status of major lagoons, estuaries, inter-tidal mudflats, peat swamps and non-peat swamps bordering the South China Sea. A total area of 4,201,145ha of the five specific types of wetland sites has been identified, specifically lagoons (34,921ha), estuaries (1,203,871ha), inter-tidal flats (691,859ha), non-peat swamps (1,623,567ha), peat swamps (646,927 ha).

Table 15 Legal and Management Status of some Inter-tidal Mudflats, Estuaries, Coastal Lagoons and Coastal Peat Swamps bordering the South China Sea.

Name of site	Area (ha)	Legal and Management Status		
		Protected – Non-use (Subsistence/commercial)	Sustainable use	Non-sustainable use
Estuaries				
Cambodia				
Koh Kapik Ramsar in Koh Kong Province	12,000	National Park and RAMSAR site	N.A.	N.A.
China				
Pearl river	12,783	Wetland Park (200ha)	N.A.	N.A.
Beilun river	1,083	National level nature reserve	N.A.	N.A.
Indonesia				
Bakau Selat Dumai	60,000	Yes		
Pulau Padang dan Tanjung Pandan	111,500	-		√
Muara Sungai Guntung	26,000	Small part		√
Delta Banyuasin	200,000	Yes		
Sembilang	387,500	Yes	-	-
Philippines				
Malampaya Sound	24,500	Protected seascape	N.A.	N.A.
Pansipit River Estuary	15	N.A.	N.A.	√
Thailand				
Pattani Bay	6,149	N.A.	N.A.	√
Ban Don Bay	49,459	N.A.	N.A.	√
Welu River Estuary	10,400	N.A.	N.A.	√
Thung Kha Bay-Savi Bay	5,204	National Park	N.A.	N.A.
Pak Phanang Bay	13,597	N.A.	√	N.A.
Viet Nam				
Balat Estuary	26,397	National Park and National Nature Reserve	N.A.	N.A.
Tien River Estuary	100,691	Than Phu Nature Reserve – small part of the estuary	N.A.	√
Dong Nai River Estuary	49,711	Can Gio Biosphere Reserve	N.A.	√
Van Uc Estuary	6,990	N.A.	N.A.	√
Bach Dang Estuary	80,358	N.A.	N.A.	√
Tien Yen Estuary	24,738	N.A.	N.A.	√
SUBTOTAL	1,203,871	692,184	38,097	328,511 [+137,500]
Peat Swamps				
Cambodia				
Prek Kampong bay in Kampot Province	16,250	National Park	N.A.	N.A.
Prek Kampong Som Shanoukeville	10,800	National Park	N.A.	N.A.
Indonesia				
Berbak NP	162,700	yes		
SM Terusan Dalam	74,750	yes		
Way Kambas NP	130,000	yes		
Sungai Merang	150,000	yes		
Thailand				
Wetlands in Thale Noi Wildlife Non-hunting Area	45,700	Includes RAMSAR Site	N.A.	N.A.
Phru To Daeng Wildlife Sanctuary	20,120	Wildlife Sanctuary; RAMSAR site	N.A.	N.A.
Wetlands in Thale Sap Wildlife Non-hunting Area	36,467	Non-hunting Area		N.A.
Phru Kan Tulee	140	N.A.	√	N.A.
SUBTOTAL	646,927	564,620	82,307	0

Table 15 cont. Legal and Management Status of some Inter-tidal Mudflats, Estuaries, Coastal Lagoons and Coastal Peat Swamps bordering the South China Sea.

Name of site	Area (ha)	Legal and Management Status		
		Protected – Non-use (Subsistence/commercial)	Sustainable use	Non-sustainable use
Non-peat Swamps				
Cambodia				
Kampong Trach in Krong Kep	7,500	National Park	N.A.	N.A.
Prek Toek Sap	21,259	National Park	N.A.	N.A.
Indonesia				
Tulang Bawang	86,000	Partly		
Rawa-rawa Kubu Padang Tikar	1,499,000	-		
Thailand				
Khao Sam Roi Yot National Park	9,808	National Park	N.A.	N.A.
SUBTOTAL	1,623,567	38,567 [86,000]	0	[1,499,000]
Lagoons				
Cambodia				
Beoung Ka Chang	4,503	National Park & RAMSAR site	N.A.	N.A.
China				
Wenchang	218	Provincial level nature reserve	N.A.	N.A.
Viet Nam				
Tam Giang-Cau Lagoon	21,600	N.A.	N.A.	√
Tra O Lagoon	2,000	N.A.	N.A.	√
Degi Lagoon (Binh Dinh Province)	1,600	N.A.	N.A.	√
Thi Nai lagoon (Binh Dinh Province)	5,000	N.A.	N.A.	√
SUBTOTAL	34,921	4,721	0	30,200
Inter-tidal flats				
Cambodia				
Ruer Sey Srock Toul Srav Gnamim Krong Kep	4,890	National Park	N.A.	N.A.
China				
Shantou	1,435	Municipal level nature reserve	N.A.	N.A.
Hepu	3,951	Municipal level nature reserve	N.A.	N.A.
Danzhou	806	Provincial level nature reverse	N.A.	N.A.
Indonesia				
CA Pulau Burung	200	yes		
Tanjung Datuk	25,000	-		
Tanjung Jabung	3,000	yes		
Paloh	176,548	yes		
Muara Kendawangan	150,000	yes		
CA Pulau Dua	30	yes		
Pualu Rambut	46	yes		
Muara Angke	25	yes		
CA Muara Gembong	10,481	yes		
Philippines				
Balayan Bay Tidal flats	75,000	N.A.	√	N.A.
Manila Bay Tidal Flat	30,000	N.A.	√	N.A.
El Nido, Palawan mudflats	54,303	Protected Seascape	N.A.	N.A.
Thailand				
Don Hoi Lot	2,409	RAMSAR Site	N.A.	N.A.
Wetlands in Mu Koh Chang National Park	65,000	National Park	N.A.	N.A.
Wetlands in Mu Koh Ang Thong National Park	10,200	National Park and RAMSAR Site	N.A.	N.A.
Thung Kha Bay – Savi Bay	5,204	National Park	N.A.	N.A.
Viet Nam				
Ca Mau Southwest Tidal Flat	60,711	National Park	N.A.	N.A.
Kim Son Tidal Flat	12,620	N.A.	N.A.	√
SUBTOTAL	691,859	487,323	161,712	37620
TOTAL	4,201,145	1,787,415	282,116	[2,032,831]

THREATS TO COASTAL WETLANDS

Population growth, and urbanisation of the coastal fringe, combined with rapid economic growth in this region places tremendous pressure on coastal wetland ecosystems. Major threats to the coastal wetlands bordering the South China Sea can be grouped as follows:

1. LOSS OF WETLAND AREAS THROUGH CONVERSION FOR:

- Agriculture
- Aquaculture
- Port and harbour development
- Human settlement
- Tourist development
- Urbanization
- Industrialization

2. DEGRADATION OF WETLAND ECOSYSTEMS AS A RESULT OF:

- Over-exploitation of living resources
- Use of inappropriate fishing techniques and gear
- Pollution
- Deforestation in upland area
- Invasive species
- Global trends and natural episodic events such as sea level rise, typhoons and tsunami

Overall it has been estimated that around 30% of coastal wetlands are lost in Southeast Asia each decade giving an approximate annual loss in value of 3% per annum.

GOAL AND TARGETS

The ultimate goal of the SAP for wetland management and use is to:

Promote the sustainable use of coastal wetland resources by developing integrated management plans and enhancing conservation and restoration of coastal wetlands bordering the South China Sea and the Gulf of Thailand, specifically lagoons, estuaries, mudflats, peat swamps, and non-peat swamps.

The specific targets for wetland management are:

- *By the year 2012, to set up or update management plans for at least three lagoons, nine estuaries, five tidal flats, one peat swamp and one non-peat swamp in the South China Sea (See Table 16).*
- *By the year 2012, to increase by at least 7 wetland areas, the number of sites or specified wetland areas with protection status (i.e. non-hunting area, nature reserves, protected areas, Ramsar Sites, etc).*
- *By the year 2017, to have a regional estuary monitoring scheme implemented in the participating countries .¹⁸*

Table 16 list of sites specified in the targets. N = no existing management plan; u = existing but out-dated plans requiring amendment and up-dating.

	Lagoons	Estuaries	Tidal mudflats	Peat swamp	Non-peat swamp
Cambodia		Koh Kapik-N			
China	Wenchang -N	Pearl river-N; Beilun river-U	Shantou-N; Hepu-N; Zhazhou-N		
Indonesia		Sembilang NP-U			
Philippines		Malampaya sound-U; Pansipit-N	Manila Bay-N		
Thailand				Thale Noi non hunting area – U	Khao Sam Roi Yot National Park-U
Viet Nam¹⁹	Tamgiang-Cauhai-N; Thi Nai-N	Tien River Estuary; Dong Nai-U; Balat-U	Southwest Ca Mau-U		
Total	3	9	5	1	1

¹⁸ UNEP, 2005. *Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. Report of the Fifth Meeting of the Regional Working Group on Wetlands. UNEP/GEF/SCS/ RWG-W.5/3.*

¹⁹ Amendments provided by the Viet Nam Focal Point on 29th May following the 8th meeting of the RWG-W.

Table 17 Sustainable Management Indicator Matrix. [A baseline, mid-term and end of first phase of SAP implementation assessment of these indicators is required to indicate whether or not the targets have been met.]

Management Indicators	Ecological/Environmental Indicators	Socio-Economic Indicators
MANAGEMENT CAPACITY <ul style="list-style-type: none"> Formal Management framework Trained Man-power (No./levels) Facilities and equipment Sustainable Financing 	<u>Estuaries:</u> <ul style="list-style-type: none"> Turbidity Water colour Absence or presence of oil contamination <u>Intertidal Mudflat:</u> <ul style="list-style-type: none"> Mudflat area (ha) Abundance of cockle or clam Abundance of shore bird Amount of litters Erosion/deposit (progression/regression) <u>Coastal Lagoon:</u> <ul style="list-style-type: none"> Water area (ha) Plants reflect salinity change such as <i>Nipa</i> sp. and <i>Metroxylon sagu</i> Area of associated habitats (seagrass, mangroves) <u>Peat Swamp:</u> <ul style="list-style-type: none"> Abundance of primary trees Freshwater supply (inundation mark) Amount of litters Abundance of water birds <u>Non-peat Swamp:</u> <ul style="list-style-type: none"> Land and water area (ha) Turbidity Abundance of water birds 	FISHERIES (Estuaries, Intertidal mudflats, lagoons,) <ul style="list-style-type: none"> Catch per unit effort Total landing Catch composition Income No people directly involved
MANAGEMENT APPROACH <ul style="list-style-type: none"> Sectorial Integrated Community-based Multiple-use 		TOURISM <ul style="list-style-type: none"> Number of visitors Number of tourism operators Income No people directly involved
MANAGEMENT TOOLS <ul style="list-style-type: none"> Zoning Regulations and agreements (e.g. seasonal closures, licensing, and permits) 		FORESTRY (Peat Swamp & Non Peat Swamp) <ul style="list-style-type: none"> Volume of timber Income No. people directly involved

REGIONAL ACTIONS AND COSTING

The proposed regional activities are designed to promote sustainable management and use of the wetland ecosystems are categorised into five main components; namely:

Component 1 – Capacity development to enhance sustainable wetland management.

Component 2 – Institutional arrangements and international collaboration.

Component 3 – Participatory wetlands management and monitoring mechanism.

There are in total 22 actions proposed and these are grouped into three components each of which contains specific objectives, and activities, while the approximate costs are presented in Table 18.

COMPONENT 1. CAPACITY DEVELOPMENT TO ENHANCE SUSTAINABLE WETLAND MANAGEMENT

The main objective of this component is to enhance and sustain the capacity of wetland management agencies and strengthen knowledge and public awareness on the wise use of wetlands in the region. This component is divided into two sub-components; the first of which focuses on the required regional mechanisms for human resource development through a training programme including study tours and field visits for wetland managers, community representatives, students, and NGO members. The second sub-component encompasses the production and dissemination of materials for public awareness, the development of an educational centre, the development of curricula, and the production of national newsletters.

COMPONENT 2. INSTITUTIONAL ARRANGEMENTS AND INTERNATIONAL COLLABORATION

This component aims to improve the effectiveness of national policy, legal and institutional arrangements and co-ordination. It is divided into two sub-components, the first of which involves the maintenance and strengthening the Regional Working Group on Wetlands, as the regional scientific and technical advisory body on coastal wetland management. The second sub-component focuses on establishment of linkages among wetland management institutes or agencies in the region and on the maintenance of linkages between and within the academic and professional communities.

COMPONENT 3. PARTICIPATORY WETLANDS MANAGEMENT AND MONITORING MECHANISM

The objective of this component is to maintain and update the regional Wetlands GIS database and meta-database including scientific baseline data for wetland conservation and sustainable use. Activities are grouped into two sub-components; the first of which involves developing regional handbooks/manuals, and guidelines; maintaining regional GIS- and meta-databases, developing and implementing the regional estuary monitoring scheme. The second sub-component involves the convening of regional meetings among countries to review the status of wetland management plans, develop manuals/handbooks for sustainable use including restoration of estuaries, coastal lagoons, etc.

Table 18 Proposed Actions for Coastal Wetland Management and Conservation.

Components Objectives	Sub-components	Regional Activities	ESTIMATED COST (US\$)						Total
			Basis for estimation	Years					
				2008	2009	2010	2011	2012	
1. Capacity development to enhance sustainable wetland management. <i>To enhance and sustain the capacity of wetland management agencies and strengthen knowledge and public awareness on wise use of wetland management in the region</i>	1.1 <i>Human Resource Development</i>	1.1.1 Training needs assessment (forms of training, target audiences, places of training, timeframe, existing course programme)	2 times in 10 years x 50,000 first time of assessment 20,000 for the updating of the assessment	50,000	0	0	0	20,000	70,000
		1.1.2 Biennial Training Course; may include elements on basic ecology, law enforcement, monitoring, valuation, management and community participation.	15/days per course; 3 people per course from 7 countries. 75,000 US\$ per course Total 150,000	0	75,000	0	75,000	0	150,000
		1.1.3 Regional inter-country training. The programme may include study tours, and field visit for wetland managers, communities, students, and NGOs	1 study tour per year, 1 week duration 15 participants: S25,000US per year	25,000	25,000	25,000	25,000	25,000	125,000
		1.1.4 Personnel exchange programme	1 person/country/year, up to 2 months, 5 years (\$5000 x 7 X 5= 175,000	35,000	35,000	35,000	35,000	35,000	175,000
	1.2 <i>Communication, education & public awareness</i>	1.2.1 Develop regional education and public awareness plan, based on national needs assessment	National Focal Points and National Committees x 7 countries 25 days In-Kind contribution (7x2 mtgs x 10,000) = 140,000: 1 regional meeting 16 people 8 days to finalise plan	0	35,000	0	0	0	35,000
		1.2.2 Edit, Translate, Publish and disseminate the regional education and public awareness plan to stakeholders in participating countries by CD and hardcopy	Editorial (15,000) and translation costs (5 x 15,000 US\$), Publication 7 X 3,000 US\$ Total 110,000 US\$	0	0	110,000	0	0	110,000
		1.2.3 Develop curricula guidelines (context, format, directed to different educational levels, and covering different type of wetlands)	(1 consultant x 3 months x 10,000) (translation in 7 local languages x4,000) (made publicly available via the web)	0	58,000	0	0	0	58,000
		1.2.4 Produce national newsletters to disseminate within countries in this region.	National Focal Points and National Committees x 7 countries	0	0	0	0	0	0

Table 18 *cont.* Proposed Actions for Coastal Wetland Management and Conservation.

Components Objectives	Sub- components	Regional Activities	ESTIMATED COST (US\$)						
			Basis for estimation	Years					Total
				2008	2009	2010	2011	2012	
2. Institutional arrangements and international collaboration <i>To improve the effectiveness of national policy, legal and institutional arrangement and coordination</i>	2.1 <i>Enhancing the policy, legal and institutional framework</i>	2.1.1 Review the implementation of the NAPs at regional level and review and update the existing framework of wetland policy and regulation in the region.	2 meetings of National Focal Points site managers, practitioners and potential donors; 1 in year 1 the second in year 5, 45 people 6 days 60,000 per time.	60,000	0	0	0	60,000	120,000
		2.1.2 Maintain and strengthen the Regional Working Group on Wetlands to provide policy, scientific and technical advice on coastal wetland management to the participating countries.	Regional biennial meetings, 20,000/meeting	20,000	0	20,000	0	0	40,000
		2.1.3 Undertake a regional review of current stakeholders' roles in wetland management and conservation and Identify good practices on community empowerment.	National Focal Points and National Committees x 7 countries 25 days In-Kind contribution 1consultant x 2 months x 10,000) = 20,000 Output to be reviewed in the regional biennial meeting	20,000	0	0	0	0	20,000
		2.1.4 Promote the replication of good practices in community empowerment regionally through pilot activities.	(\$40,000 per activity x 7 countries) = 280,000	0	280,000	0	0	0	280,000
		2.1.5 Compile and analyse traditional knowledge and practices and to evaluate their utility in the modern context.	(2 consultants x 3 months x 10,000) = 60,000	0	60,000	0	0	0	60,000
	2.2 <i>Promotion of international cooperation</i>	2.2.1 Organize international conference on wetland management among countries in region and international agency.	(2 conferences x 100,000) = 200,000	0	0	100,000	0	10,000	110,000

Table 18 cont. Proposed Actions for Coastal Wetland Management and Conservation.

Components Objectives	Sub-components	Regional Activities	Basis for estimation	ESTIMATED COST (US\$)					Total
				Years					
				2008	2009	2010	2011	2012	
<p>3. Participatory wetlands management and monitoring mechanism</p> <p><i>To maintain and update Regional Wetlands GIS database and meta-database including scientific baseline for wetland conservation and sustainable use</i></p>	<p>3.1 <i>Develop , maintain information system and disseminate products</i></p>	3.1.1 Develop a regional handbook/manual for standardization of techniques for wetland resource assessment and the conduct of socio-economic surveys economic valuation studies and cultural assessments.	(1 consultant X 4 months X 10,000) + (1 Mtg/country 4 days, 10,000 X 7) 110,000 I regional meeting 35,000 and publication costs (3,000 copies at 10\$/copy)	0	0	110,000	30,000	0	140,000
		3.1.2 Develop guidelines on wetland classification and mapping for estuaries and mudflats area and develop a regional map of peat-swamps, non-peat swamp and coastal lagoons.	(1 consultants X 3 months X 10,000) + (2 Mtgs. X 25,000) = 80,000	35,000	45,000	0	0	0	80,000
		3.1.3 Regional Wetland data and information compilation	(1consultant x 2 weeks per year) = 15,000	3,000	3,000	3,000	3,000	3,000	15,000
		3.1.4 Develop guidelines for and implement a regional estuarine monitoring scheme.	(1 consultant x 6months x 8,000) (1 regional expert meeting 25 participants 5 days coordination 35,000)	0	0	48,000	35,000	0	83,000
	<p>3.2 <i>Wetland conservation and restoration</i></p>	3.2.1 Develop or update wetland management plans for the important priority coastal wetland sites in the region.	National Focal Points and National Committees x 7 countries 25 days In-Kind contribution Plans to be reviewed regionally during meetings under 2.1.2	0	0	0	0	0	0
		3.2.2 Establish criteria and guidelines for zoning of wetland ecosystem use for management and conservation.	1 consultant x 2 months x 10,000 I regional meeting 35,000	0	0	55,000	0	0	55,000
		3.2.3 Conduct, pilot tests to elaborate the criteria and indicators of sustainable wetlands use.	National Focal Points and National Committees x 7 countries 25 days In-Kind contribution 1 research assistant per country 1 year (7 x 10,000) (1 regional mgt x 25,000) = 120,000	70,000	25,000	0	0	0	95,000
		3.2.4 Disseminate environmental friendly methods and good practices in the region.	Via regional website, loaded by National Committee members	0	0	0	0	0	0
TOTAL COSTS				248,000	616,000	506,000	298,000	153,000	1,821,000

MANAGING FISH HABITAT AND FISH STOCKS IN THE SOUTH CHINA SEA²⁰²¹

The South China Sea and Gulf of Thailand is a global centre of shallow water marine biological diversity, supporting a significant world fishery of importance to the food security of, and as a source of export income for, Southeast Asian countries. The fisheries sector is significant since unrefined estimates of the value of capture production indicate that capture fisheries contribute more than 2.0 percent to total GDP in the majority of countries in the area. Since the majority of fisheries are small-scale in nature, and land fish in a large number of decentralised landing places for distribution through complex marketing networks at the community level, estimates of the value of capture fisheries production are largely underestimates and do not adequately value the artisanal or subsistence part of the sector.

Landings from the Gulf of Thailand and the South China Sea contribute to approximately 10 percent of reported global fisheries production per annum. It is considered likely that increased inter-annual variations in landings will be observed in the future as the fisheries of both areas become increasingly dependent on small pelagic species. This results from “fishing down the food chain” that has occurred in both areas. Demersal fisheries in the Gulf of Thailand and South China Sea are fully exploited with evidence showing that the landings of many species are declining. Declining fish availability, coupled with over-capacity and the dependence of coastal communities on small scale coastal fisheries for income generation has led to the adoption of destructive fishing practices such as blast fishing to maintain short-term incomes and food production. These trends suggest that production from capture fisheries will wane in coming years unless fishing effort and related over-capacity, are reduced.

FISHERIES MANAGEMENT ISSUES

Fisheries management in the Gulf of Thailand and South China Sea must balance the interests of multiple jurisdictions, coastal community dependence on fisheries for food security, in the face of problems resulting from over-fishing, destructive fishing practices, incidental capture of endangered species, and the inherently complex nature of the tropical multi-species fisheries. Most marine fisheries in Southeast Asia are characterised by excess competition among fishers, and as such suffer from the problems of over-capitalisation and over-exploitation. Despite this trend, the management of the majority of fisheries conducted in the region continues to rely heavily on input control based approaches.

This situation has provided the impetus for the development of innovative approaches to moderate the tendency to over-exploit Southeast Asian fish resources. Significant efforts are being made throughout the region to decentralise the responsibility for fisheries management with the aim of establishing co-management approaches to fisheries. The notion of rights-based approaches to the management of the region’s small coastal fisheries is also gaining ascendancy. It is also well recognised that coral reef, seagrass, mangrove, and wetland habitats contribute significantly to the productivity of coastal fisheries, and act as refuges for the majority of fished species during critical phases of their lifecycles. Fisheries management involving decentralisation and rights-based systems will need to incorporate strategies that aim to foster the critical links between the life-cycles of important fish species and coastal and marine habitats.

IMPROVING THE INTEGRATION OF FISHERIES AND HABITAT MANAGEMENT – THE REGIONAL FISHERIES REFUGIA INITIATIVE

Based on the recognition that coral reef, seagrass, mangrove, and wetland habitats help to sustain coastal fisheries, and act as refuges for important species during many phases of their life-cycles, new approaches to fisheries management will need to be supported by initiatives that aim to foster improved management of critical fish life-cycle and habitat linkages. Such approaches should ensure adequate cross sectorial consultation between fisheries and environment departments in the countries bordering the South China Sea and Gulf of Thailand. This is particularly important in relation to the designation of Marine Protected Areas and Fisheries Management Areas in order to ensure that areas designated for protection by environment ministries are, whenever possible congruent with critically important areas for fish stocks.

²⁰ China did not participate in the activities of this component consequently did not provide or review data in this section.

²¹ Malaysia did not participate initially in the activities of this component but was involved in the review of species of transboundary importance and future proposed actions in developing the regional refugia system.

In order to develop a mechanism to facilitate this, the Regional Working Group on Fisheries (RWG-F) has been and is collaborating with the Southeast Asian Fisheries Development Center (SEAFDEC) to:

- Establish a system of **fisheries refugia** in the South China Sea and Gulf of Thailand that focuses on the critical links between fish stocks and their habitats.

INFORMATION BOX 1

The RWG-F Definition of Fisheries *Refugia*

Fisheries *refugia* in the context of the UNEP/GEF South China Sea Project are defined as:

“Spatially and geographically defined, marine or coastal areas in which specific management measures are applied to sustain important species [fisheries resources] during critical stages of their life cycle, for their sustainable use.”

Fisheries *refugia* should:

NOT be “no take zones”,

Have the objective of sustainable use for the benefit of present and future generations,

Provide for some areas within *refugia* to be permanently closed due to their critical importance [essential contribution] to the life cycle of a species or group of species,

Focus on areas of critical importance in the life cycle of fished species, including spawning, and nursery grounds, or areas of habitat required for the maintenance of broodstock,

Have different characteristics according to their purposes and the species or species groups for which they are established and within which different management measures will apply,

Have management plans.

Management measures that may be applied within fisheries *refugia* may be drawn from the following [non-exhaustive] list:

Exclusion of a fishing method (e.g. light luring, purse seine fishing),

Restricted gears (e.g. mesh size),

Prohibited gears (e.g. push nets, demersal trawls),

Vessel size/engine capacity,

Seasonal closures during critical periods,

Seasonal restrictions (e.g. use of specific gear that may trap larvae),

Limited access and use of rights-based approaches in small-scale fisheries.

The regional fisheries *refugia* initiative addresses the present problems by drawing on fisheries management concepts that are easily understood at the fishing community level, and emphasising sustainable use rather than prohibition. It focuses on building fishing community support for spatial planning approaches to coastal and marine resource management. This activity has been recognised by regional and International fisheries organisations as a unique regional fisheries initiative in that it represents one of the first attempts to develop integrated fisheries and environmental management for regional benefit.

FISHERIES REFUGIA – A UNIQUE RESPONSE TO THE OVER-EXPLOITATION OF FISHERIES

The effective management of fisheries and their habitats in the South China Sea and Gulf of Thailand requires an institutional setting in which collaboration and partnership is fostered and encouraged. For the fisheries sector this requires the establishment of workable mechanisms to effect the integration of fisheries issues into broader initiatives for marine resource and environmental management. Such mechanisms should be aimed at:

- Improving the understanding amongst stakeholders, including *inter alia* fisher folk, scientists, policy-makers, and fisheries managers, of ecosystem and fishery linkages, as a basis for integrated fisheries and habitat management; and
- Building the capacity of fisheries ministries and departments to engage in meaningful dialogue with the environment sector regarding how multiple marine use planning (in whatever form) can best contribute to improving the state of fisheries in areas of the South China Sea and the Gulf of Thailand.

In order to provide regional policy support to this activity, regional guidelines on the use of fisheries *refugia* for capture fisheries management in Southeast Asia were prepared by the RWG-F, and subsequently published as part of the ASEAN-SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia²². Specific resource and institutional objectives for a regional system of fisheries *refugia* have been elaborated by the RWG-F (Tables 19 and 20).

Table 19 A Preliminary Set of Performance Assessment Criteria and Means of Verification for the Resource-related Objectives of a Regional Fisheries *Refugia* Plans.

Resource-Related Objectives	Performance Assessment Criteria	Means of Verification
Longer-Term Objectives		
1. Biomass of commercially important fish (pelagic and demersal) and invertebrate species in the Gulf of Thailand and South China Sea maintained	Biomass trend (multi-year average annual percentage rate of change)	Results of abundance surveys employing relative abundance (CPUE), swept area, acoustic, or egg production methods
2. Average size of commercially important fish (pelagic and demersal) and invertebrate species caught in the Gulf of Thailand and South China Sea maintained or increasing	Average fish size relative to historical average	Results of size-frequency analyses of fish landed at key landing places and in markets
3. Egg production of commercially important fish and invertebrate species in the Gulf of Thailand and South China Sea maintained or increasing	Abundance of eggs and larvae of commercially important species in key spawning areas relative to historical average	Results of surveys of egg and larval fish density in key spawning areas
4. Recruitment of commercially important fish and invertebrate species to fisheries the Gulf of Thailand and South China Sea maintained or increasing	Year class strength relative to historical average	Results of abundance surveys employing relative abundance (CPUE) or swept area methods
Shorter-Term Objectives		
1. Reduced capture of juveniles and pre-recruits of commercially important fish (pelagic and demersal) and invertebrate species, as well as endangered species, in critical fisheries habitats of the Gulf of Thailand and South China Sea	Abundance of juveniles in fishery <i>refugia</i> areas a) Fishing effort dynamics in fishery <i>refugia</i> areas b) Selectivity of fishing operations conducted within juvenile <i>refugia</i> c) Frequency of inappropriate fishing operations in fishery <i>refugia</i> areas d) Volume and size composition of commercially important fish (pelagic and demersal) and invertebrate species landed and traded in main markets	a) Results of fishery dependent and independent surveys b) Interviews of fishers, fishing communities, and traders c) Results of studies of species and size composition conducted within <i>refugia</i> d) Observations/reports of illegal or destructive fishing in fishery <i>refugia</i> areas e) Results of studies of the volume and size of fish landed at main landing places and traded in main market
2. Reduced targeting and capture of commercially important fish (pelagic and demersal) and invertebrate species in spawning condition, and when forming spawning aggregations, in the Gulf of Thailand and South China Sea	a) Fishing effort dynamics in fishery <i>refugia</i> areas b) Selectivity of fishing operations conducted within spawning <i>refugia</i> c) Gonosomatic index (GSI) of commercially important fish (pelagic and demersal) and invertebrate species landed and traded in main markets d) Abundance of eggs and larvae of commercially important species in key spawning areas	a) Interviews of fishers, fishing communities, and traders b) Results of studies of species and size composition of landings during known spawning seasons c) Results of studies of the gonosomatic condition of commercially important species landed and traded in main markets d) Results of surveys of egg and larval fish density in key spawning areas
3. System of fisheries <i>refugia</i> , including both juvenile and spawning <i>refugia</i> , which provides for: a) networks of fisheries <i>refugia</i> across the geographical ranges of individual species, b) networks of fisheries <i>refugia</i> that include both juvenile and spawning <i>refugia</i> , c) fisheries management consistent with the RGRFSEA	Total number/size of juvenile <i>refugia</i> and spawning <i>refugia</i> : a) Number of species for which a network of fisheries <i>refugia</i> has been developed across its geographical range b) Number of fisheries <i>refugia</i> networks that include multiple <i>refugia</i> types c) Number of fisheries <i>refugia</i> for which management systems have been developed	The number and size of fisheries <i>refugia</i> as defined in <i>refugia</i> management plans adopted by national governments a) Description of the species – specific linkages between <i>refugia</i> in management plans for each <i>refugia</i> in a geographical range based network b) Description of the life-cycle – specific linkages between <i>refugia</i> in management plans for each <i>refugia</i> in a life-cycle based network c) Adoption of <i>refugia</i> management plans

²² SEAFDEC, 2006. *Supplementary Guidelines on Co-management using Group User Rights, Fisheries Statistics, Indicators and Fisheries Refugia*. Southeast Asian Fisheries Development Center, Bangkok, Thailand. 84pp.

Table 20 A Preliminary Set of Performance Assessment Criteria and Means of Verification for the Institutional-related Objectives of a Regional System of Fisheries *Refugia*.

Institutional-Related Objectives	Performance Assessment Criteria	Means of Verification
1. Integration of fish life-cycle considerations in fisheries and habitat management in the Gulf of Thailand and South China Sea	Preparation and publication of a management plan for a regional system of fisheries <i>refugia</i> .	Adoption by appropriate regional fora of a management plan for a regional system of fisheries <i>refugia</i> . Management plan to include: a) goals, objectives, target reference points, indicators, and performance measures for each <i>refugia</i> (and <i>refugia</i> network in the system) b) system for reporting on results of analysis of data collected in support of the regional <i>refugia</i> system c) criteria for the identification of new <i>refugia</i> d) research priorities and national commitments of support to the conduct of fisheries research
2. National level commitments to integrate the fisheries <i>refugia</i> concept into fisheries and habitat management	Preparation and publication of National Plans of Action for the Development of the Regional System of Fisheries <i>Refugia</i>	Adoption of plans of action by appropriate Government Ministries.
3. Regionally agreed fisheries <i>refugia</i> science programme, which details: a) Objectives b) Decision-support inputs c) Strategic research partnerships/resourcing d) Research activities	Preparation and publication of a fisheries <i>refugia</i> science programme	Adoption of the programme at a regional expert consultation and then representatives of five SEAFDEC member countries
4. Regionally agreed framework of criteria, target reference points, indicators, and performance measures for identifying and evaluating the performance of <i>refugia</i> that, aim to: a) reduce the capture of juveniles and pre-recruits of commercially important fish, and endangered species, in critical fisheries habitats b) reduce the targeting and capture of commercially important fish in spawning condition, and when forming spawning aggregations c) contribute to the development of species-specific networks of <i>refugia</i> across (i) the geographical range, and (ii) the life-cycle, of individual species.	Preparation of a framework of criteria, target reference points, indicators, and performance measures for identifying and evaluating the performance of fisheries <i>refugia</i>	Adoption of the framework at a regional expert consultation
5. Regional agreement on standardised methodology for the identification and evaluation of important: a) juvenile <i>refugia</i> b) spawning <i>refugia</i> , and c) <i>refugia</i> that can assist in building geographical range and life-cycle based networks of <i>refugia</i>	Preparation and publication of standards for <i>refugia</i> identification and evaluation methods relating to data collection and storage, and analysis	Adoption by appropriate intergovernmental fora of regional standards
6. Regionally agreed guidelines on the use of the fisheries <i>refugia</i> concept in fisheries management.	Regional agreement on guidelines for the use of the fisheries <i>refugia</i> concept	Adoption by appropriate intergovernmental fora of regional guidelines

This initiative is considered important regionally because of the potential fisheries benefits associated with effective fisheries and habitat management at the local level. It is likely that the role of such approaches to fisheries management will become more important in the region, especially in the light of the continuing importance of fisheries to food security, nutritional security, and maintenance of livelihoods. Such approaches may also assist in curbing the effects of trends in regional fisheries relating to over-capacity and over-exploitation, the use of destructive fishing gear and practices, habitat destruction and pollution, and illegal fishing.

OBJECTIVES, TARGETS, REGIONAL ACTIONS AND COST ESTIMATES

The general longer-term objectives of this component of the SAP are to:

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

The specific targets identified for the fisheries component of the Strategic Action Programme are:

- By 2012 to have established a regional system of a minimum of twenty *refugia* for the management of priority, transboundary, fish stocks and endangered species;
- By 2012 to have prepared and implemented fisheries management systems in the identified *refugia* based on, and consistent with, the ASEAN SEAFDEC Regional Guidelines for Responsible Fisheries in Southeast Asia.

More specifically the planned activities are expected to achieve the following outcomes in addition to the targets specified above:

- Improved integration of habitat and biodiversity conservation considerations in the management of fisheries in the South China Sea and Gulf of Thailand;
- Improved national management of the effects of fishing on critical habitats within fisheries *refugia*; and,
- Enhanced uptake of good practices in integrating fisheries management and biodiversity conservation in the design and implementation of regional and national fisheries management systems, and marine protected areas.

To date 46 known critical spawning and nursery areas for important fisheries species have been identified in the Gulf of Thailand and the South China Sea. Fourteen of these areas have been selected for inclusion in an initial regional system of fisheries *refugia*, and an additional nine sites have been identified as tentative fisheries *refugia* sites. Developing a regional and national level system of *refugia* requires actions at both national and regional level.

The planned regional activities are outlined in Table 21 however it must be recognised that without supporting national investments the regional activities will not be sufficient to meet the targets specified. National level activities will include, but not be limited to the following:

- Evaluate the effectiveness of fisheries management systems.
- Evaluate the status and trends of fisheries resources in relation to catch efforts and availability of resources in defined areas.
- Reduce the use of fishing gear and practices that damage ecologically sensitive areas with the long term aim of removing and replacing them with more environmentally acceptable fishing gear and practices.
- Review compliance with international and regional fisheries agreements and guidelines.
- Promote the application of the Regional Guidelines for Responsible Fisheries in Southeast Asia through workshops, awareness building, translation into national languages and education of people.
- Develop educational and public awareness materials on sustainable fishery practices.
- Implement programmes to provide information on sustainable fishery practices among small and artisanal fishing communities, and commercial fisheries operators as appropriate.
- Train technical fisheries staff in the identification of fish eggs and larvae.
- Design and establish a programme for identifying important spawning and nursery areas.
- Establish *refugia* in areas identified as critical habitats for the life cycle of fisheries resources.
- Establish in selected *refugia* sound management systems, which can be tested to determine if they are leading to sustainable exploitation of resources and reduction of conflicts between groups of fishermen.

Table 21 Proposed Regional Actions for the Fisheries Component of the Regional Strategic Action Programme.

Components	Sub-Components	Regional Activities	ESTIMATED COST (US\$)								
			Basis for estimated Costs	2008	2009	2010	2011	2012	TOTAL		
1. Development of a Regional Network of Fisheries Refugia Sites	1.1 Identification of Fisheries and Critical Habitat Linkages in the South China Sea and Gulf of Thailand	1.1.1 Develop criteria for identifying and delineating the boundaries of critical habitat areas that act as fisheries <i>refugia</i> for regionally important fish stocks, particularly those of transboundary importance	(1 person month x 9,000) + (2 regional meetings x 15,000) = 39,000	39,000						39,000	
		1.1.2 Compile National information on the boundaries of the 14 sites selected for inclusion in the regional system of fisheries <i>refugia</i> , and additional 9 sites identified as tentative <i>refugia</i>	(2 person months x 9,000) + (25 x information collection x 3,000) + (6 NFP co-ordinating x 3,000) = 96,000	96,000							96,000
		1.1.3 Compile a regional GIS database of national information on known fishing grounds, spawning and nursery areas for fishery species of transboundary importance	(3 person months x 9,000) + (1 st regional meeting x 10,000) + (2 nd regional meeting x 15,000) + (1 person month x 3 years (2010-2012) x 9,000 = 79,000	37,000	15,000	9,000	9,000	9,000			79,000
		1.1.4 Establish a database for the regional compilation of National fish egg and larvae data generated from samples collected during SEAFDEC research cruises	(6 person months x 9,000) + (2 * regional meetings x 15,000) = 54,000	24,000	18,000	33,000	9,000				84,000
		1.1.5 Compile maps of fish egg and larvae distribution/abundance using data generated from samples collected during SEAFDEC research cruises	(6 person months x 9,000) = 54,000		9,000	18,000	18,000	9,000			54,000
		1.1.6 Compile regional GIS maps from National level information on the distribution of coastal habitats, and locations of marine protected areas and fisheries management zones	(6 person months x 9,000 (2008)) + (1 regional mtg. x 15,000 (2008)) + (3 person months x 9,000 (2010)) + (1 regional mtg. x 15,000 (2010)) + (1 person month x 9,000 (2012)) + (1 regional mtg. * 15,000 (2011)) = 135,000	69,000			42,000		24,000		135,000
		1.1.7 Develop a modelling system that links known sources and sinks of fish larvae to ocean circulation patterns and nutrient/chlorophyll concentrations in the South China Sea and Gulf of Thailand	(3 person months x 9,000) = 27,000					27,000			27,000
		1.1.8 Convene annual technical meetings to (a) review regional findings and national designations of <i>refugia</i> , and to (b) make recommendations regarding the adoption of national <i>refugia</i> as components of the regional system of fisheries <i>refugia</i>	(5 meetings x 20,000) = 100,000	20,000	20,000	20,000	20,000	20,000	20,000		100,000

Table 21 cont. Proposed Regional Actions for the Fisheries Component of the Regional Strategic Action Programme.

Components	Sub-Components	Regional Activities	ESTIMATED COST (US\$)							
			Basis for estimated Costs	2008	2009	2010	2011	2012	TOTAL	
1. Cont. Development of a Regional Network of Fisheries Refugia Sites	1.2 Improving the Management of Critical Habitats for Fish Stocks of Transboundary Significance	1.2.1 Identify in conjunction with SEAFDEC fisheries <i>refugia</i> that require bilateral, multilateral, and regional management collaboration	(2 person months x 9,000 (2009)) + (1 regional meeting x 15,000 (2009)) + (1 person month x 9,000 (2010) + (1 regional meeting x 15,000 (2010)) = 57,000		33,000	24,000				57,000
		1.2.2 Support and guide National Fisheries Departments in establishing coastal fisheries management systems in priority fisheries <i>refugia</i>	(3 person months x 9,000 x 3 years (2008-2011)) + (6 NFP co-ordinating x 5,000/yr (2009-2010)) + (3 regional meetings x 15,000 (2009-11) + (National Co-ordination costs) = 213,000 + NC	27,000	72,000	72,000	42,000			213,000
		1.2.3 Select 2 <i>refugia</i> in each country to trial the use of rights-based and co-management approaches to fisheries <i>refugia</i> management	(2 pilot activities x 6 countries x 60,000/activity) = 720,000		180,000	180,000	180,000	180,000		720,000
		1.2.4 Select 1 <i>refugia</i> in each country in which to identify and trial the use of fishing gear and practices that reduce the capture of (a) juveniles and pre-recruits, and (b) fish in spawning condition	(1 pilot activities x 6 countries x 60,000/activity) = 360,000			120,000	120,000	120,000		360,000
		1.2.5 Select 1 site in each country in which to identify and trial approaches to reducing the effects of trawl/push net fishing on seagrass communities	(1 pilot activities x 6 countries x 60,000/activity) = 360,000			120,000	120,000	120,000		360,000
		1.2.6 Develop national plans for improved management of the effects of fishing on critical habitats within fisheries <i>refugia</i>	(1 plan per country x 30,000/plan (including publication and national consultations) = 180,000			60,000	60,000	60,000		180,000
Sub-Total				312,000	347,000	698,000	605,000	542,000	2,504,000	

Table 21 *cont.* Proposed Regional Actions for the Fisheries Component of the Regional Strategic Action Programme.

Components	Sub-Components	Regional Activities	ESTIMATED COST (US\$)						
			Basis for estimated Costs	2008	2009	2010	2011	2012	TOTAL
2. Establishing Training and Public Awareness Programmes for a Regional System of Fisheries Refugia	2.1 Developing Human Resource Capacity for the Identification and Management of Fisheries Refugia	2.1.1 Organise annual regional training workshops on fisheries <i>refugia</i> management	(5 x regional training workshops (21 participants) on the management of fisheries <i>refugia</i> x 45,000) = 225,000	45,000	45,000	45,000	45,000	45,000	225,000
		2.1.2 Organise annual regional training workshops on larval fish identification and fish early life history science	(5 x regional training workshops (21 participants) on fish egg and larvae identification x 50,000) = 250,000	50,000	50,000	50,000	50,000	50,000	250,000
	2.2 Improving Information Management and Dissemination	2.2.1 Establish in conjunction with SEAFDEC an Information and Education Campaign (IEC) for small-scale fishing communities on the critical links between fish stocks and their habitats	(2 person months x 2 yrs (2010&2011) x 9,000) + (2 x regional meetings (2010&1011) x 15,000) + (preparation and publication of local language IEC material * 6 countries * 6000 (2011)) = 102,000			33,000	69,000		102,000
		2.2.2 Generate English language guidelines for translation into local languages on how to empower communities to enforce agreed management rules in fisheries <i>refugia</i>	(2 person months (2010&2011) x 9,000) + (2 x regional meetings (2010&1011) x 15,000) + edition/publication of English language guidelines * 6,000 = 102,000			33,000	39,000		72,000
		2.2.3 Develop indicators to monitor the effectiveness of coastal fisheries management systems established in priority fisheries <i>refugia</i>	(4 person months x 9,000) + (2 x regional meetings (2009&2010) x 15,000) + (1 case study x 6 countries x 6000) = 102,000			33,000	69,000		102,000
		2.2.4 Establish in conjunction with SEAFDEC a regional programme for the compilation of standardized fisheries statistics in support of the identification and management of fisheries <i>refugia</i>	(4 person months x 9,000) + (2 x regional meetings (2009&2010) x 15,000) = 66,000			33,000	33,000		66,000
		2.2.5 Develop the online Fisheries <i>Refugia</i> Information Portal < http://refugia.unepscs.org > as (a) a tool for enhancing regional communication and the sharing of information regarding the development of the regional <i>refugia</i> system, and (b) a regional online education and public awareness centre for the compilation and dissemination of information regarding the effects of fishing on coastal habitats and biodiversity	(2 person months x 9,000 x 5 years) + (website hosting and back-up x 1,000/yr) = 90,000	19,000	19,000	19,000	19,000	19,000	90,000
	Sub-Total			114,000	114,000	246,000	324,000	114,000	907,000

Table 21 *cont.* Proposed Regional Actions for the Fisheries Component of the Regional Strategic Action Programme.

Components	Sub-Components	Regional Activities	ESTIMATED COST (US\$)						
			Basis for estimated Costs	2008	2009	2010	2011	2012	TOTAL
3. Development of Regional Activities to Assist in the Management of Fisheries <i>Refugia</i> at the National Level	3.1 Promotion of Regional Fisheries Management Arrangements	3.1.1 Promote in appropriate regional fora and media the role of the regional system of fisheries <i>refugia</i> in harmonizing fisheries and environmental management in order to achieve sustainable fisheries in the South China Sea and Gulf of Thailand	(Representation in 5 regional meetings/year x 2000/meeting x 5 years) + (Preparation of 4 popular articles/year x 1000 x 5 years) = 90,000	14,000	14,000	14,000	14,000	14,000	90,000
		3.1.2 Establish in conjunction with SEAFDEC a regional collaborative network of experts to guide the scientific, policy, and legal arrangements for the management of fisheries <i>refugia</i> in National waters	(2 person months x 9,000 (2008)) + (1 regional meeting x 30,000 (2008)) + (2 person months x 9,000 (2009)) + (3 regional meeting x 15,000 (2009-2012)) = 141,000	48,000	48,000	15,000	15,000	15,000	141,000
		3.1.3 Plan and establish in conjunction with SEAFDEC joint fisheries management frameworks between and among countries which share the use of critical habitat areas for fish stocks of transboundary importance and rare and endangered species	(4 person months x 9,000) + (3 x regional meetings (2009-2011) x 30,000) + (6 case studies x 10,000) = 186,000			48,000	78,000	60,000	186,000
	3.2 Generation and Uptake of Good Coastal Fisheries Management Practices at the National Level	3.2.1 Generate English language guidelines on managing the effects of fishing on coastal habitats and biodiversity for translation into local languages	(2 person months (2010&2011) x 9,000) + (2 x regional meetings (2010&1011) x 15,000) + edition/publication of English language guidelines * 6,000 102,000			33,000	39,000		72,000
		3.2.2 Develop in conjunction with SEAFDEC cost estimates for a programme of action for future improvements to the management of the effects of fishing on critical habitats within fisheries <i>refugia</i> and on biodiversity (2013-2017)	(6 person months x 9,000) + (3 x regional meetings (2009-2011) x 20,000) = 122,000			38,000	38,000	38,000	122,000
Sub-Total			62,000	62,000	148,000	184,000	127,000	611,000	
TOTAL			488,000	523,000	1,092,000	1,113,000	783,000	4,022,000	

REGIONAL ACTIONS TO SUPPORT MANAGEMENT OF LAND-BASED POLLUTION LOADINGS IN THE SOUTH CHINA SEA MARINE BASIN

The ultimate causes of land-based pollution in the South China Sea include increases in coastal population density, increased food production in the agricultural sector, and increasing industrialisation. The proximate causes include inadequate waste-water treatment whilst intermediate causes include inadequate standards and lack of capacity to monitor, regulate and control pollution discharge. A major contributing factor is the lack of financial resources to invest in actions addressing the causes at all levels. In analysing national information it was apparent that sources of waste ranked as follows: domestic, agricultural, industrial, poor land-use practices, and urban solid waste.

Excessive nutrient loads and suspended solids are among the most common problems in coastal waters of countries bordering the South China Sea. High concentrations of suspended solids largely result from poor land-use practices, including logging activities and conversion of forests in upland areas. On the other hand, high nutrient loads mainly result from untreated domestic wastes that are directly discharged into the receiving water bodies. Both contaminants impact the ecological functioning of coastal ecosystems. In addition, heavy metals such mercury (Hg), Arsenic (As) and lead (Pb) have tended to increase in both biota and sediments in coastal waters of the South China Sea during the last decade. These heavy metals have potential negative impact on the health of marine living resources and human who consume seafood products.

A total of 17 pollution hot spots were characterised using the ranking system agreed at the 2nd Meeting of the Regional Working Group (Figure 1). Present pollutant and contaminant discharges may have transboundary consequences in some of the identified “hot spots” and sensitive areas in terms of increasing the rate of habitat degradation in those coastal ecosystems.

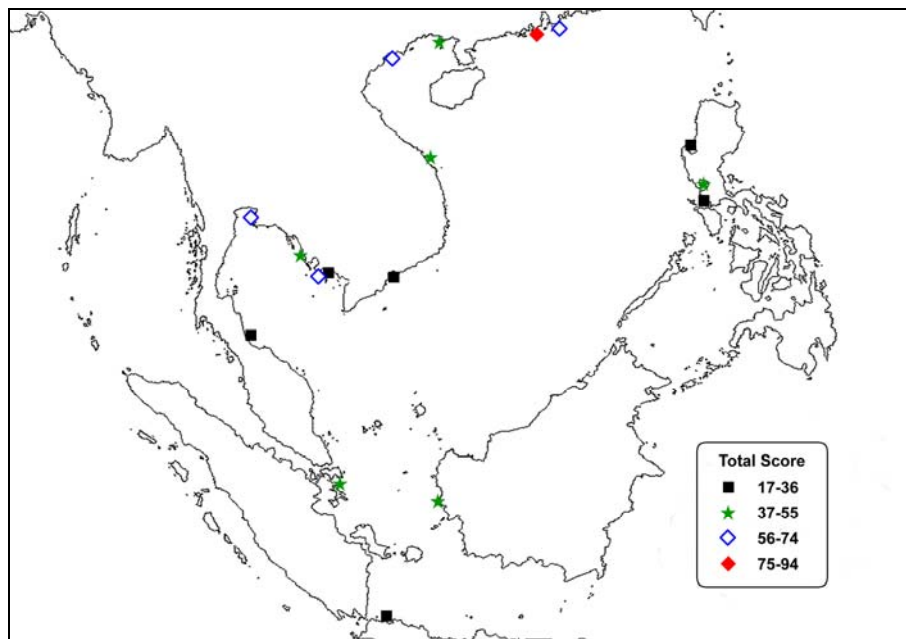


Figure 1 Pollution hotspots in the South China Sea characterised and ranked on the basis of a combination of ASEAN and China contaminant criteria adopted for the purpose in the project.

The contents of the National Action Plans indicate that the main contaminants include nutrients, suspended solids, and heavy metals in sediments and biota, derived from sewage, agricultural runoff, shrimp farming and industrial sources resulting in impacts such as eutrophication, sedimentation, living resource and ecosystem degradation and potential impacts on human health and food quality of export products.

CURRENT MANAGEMENT OF LAND-BASED POLLUTION AND CHALLENGES TO FUTURE MANAGEMENT

Most countries have environmental laws or acts under which environmental standards are in place with mechanisms for approved enforcement procedures to ensure compliance. In order to meet with standards and regulations stipulated under the law, structural facilities like waste water treatment plants are one way to treat waste water before discharging it to the environment. In addition to enforcement of existing laws and regulations only and building treatment facilities, environment planning, a part of the development process may prevent and mitigate potential impacts. In line with this, most countries in the region have Environmental Impact Assessment (EIA) prior to development. Countries are also working on environmental awareness, communication and education to enhance public understanding of pollution problem and practices at the individual level that may reduce contaminant loads to the environment. In addition, monitoring of pollution sites and water quality is currently undertaken by all countries while some countries include monitoring programmes for sediment quality and bio-parameters as well.

Although these management practices are in place in most countries, there are many problems in their implementation. Some countries lack the capacity to enforce the Environmental Acts due to limited budgets and lack of collaboration with waste producers. The waste producers, are not equipped with the necessary treatment facilities or have limited facilities resulting in low levels of compliance with regard to the standards stipulated under the law. Although environment assessment is incorporated into development planning in most countries, the effectiveness of the plans is questionable. Monitoring programmes for some countries although extensive as regards the number of sites, and the data collected, are not used effectively in pollution management. The data is often only used for the publication and dissemination of annual and environment quality reports. In some countries, the data obtained from the monitoring programmes are not reliable for decision making.

The following regional challenges were identified from the available National Action Plans and discussions of the Regional Working Group:

- High population pressure and industrialization causing increased contaminant load;
- Lack of treatment facilities;
- Lack of cooperation and coordination among related sectors at the national level and weak linkage between central and lower levels of the governments;
- Lack of appropriate legislation and weak law enforcement;
- Low public awareness and lack of (responsible) committed of citizens;
- Lack of government commitment in balancing economic growth and environmental protection and low priority given to environment protection;
- Lack of research and monitoring resources (man power, facilities);
- Lack of regionally comparable monitoring and analytical methodology; and
- Lack of criteria for sediment quality.

GOAL AND TARGETS

The main goal of the land-based pollution component is to foster regional co-operation in the identification of sensitive ecosystems, land-based contamination problems, evaluation of their significance and development of standards for national level adoption within a regional context in order to develop an appropriate precautionary approach to discharges to the South China Sea marine basin. The targets for the land-based pollution component are to set and periodically review region-wide water quality standards and water quality objectives which will assist in maintaining health of the coastal ecosystems. The specific targets for Land-based Pollution management are:

1. By the year 2012, estimate total contaminant loading to the South China Sea.
2. By the year 2012, agree and adopt regional criteria for contaminants in sediment and biota.
3. By the year 2012, characterise and prioritise all hot spots surrounding the South China Sea.
4. By the year 2012, review and prepare recommendations for application in amending national/provincial, legislation/regulations in support of all Land-based Pollution targets of the SAP.
5. By the year 2017, to meet ASEAN seawater quality (14 parameters) criteria (except pollutants from scientifically identified natural sources, if any) for:
 - 90% of monitoring stations in the 17 hot spots characterised by the RWG-LbP between 2002 – 2004;

- 80% of other monitoring stations (more than 400 at present) in coastal waters of the South China Sea.

The present monitoring stations and pollution hot spots in the participating countries, and potential targets to be included in the SAP are presented in Table 22.

Table 22 Monitoring Stations and Pollution Hot Spots in the Participating Countries, and Potential Targets to be Included in the SAP.

	Cambodia	China	Indonesia	Malaysia	Philippines	Thailand	Viet Nam
Monitoring stations	PRESENT						
Water	8	102	100	128	9 (Manila Bay)	170	22
Sediment	3	>9	n/a	n/a	15 (Manila Bay)	50	22
Biota	3	No routine monitoring	n/a	n/a	3	15 (fish/shellfish)	22
Hot Spots	3	3	3	n/a	3	2	3
TARGETS 2012							
Total contaminant loads to SCS be estimated	All countries						
Criteria for contaminants in sediment and biota be adopted in the region	All countries						
All hot spots in SCS Sea be characterised and prioritised	All countries						
National legislation in support of targets be reviewed and amended	All countries						
TARGETS 2017							
90% of hot spots meet water quality criteria	3	3	3	n/a	3	2	3
80% of water monitoring stns meet water quality criteria	6	80	80	104	7	136	17

n/a = not available.

REGIONAL ACTIONS AND COST ESTIMATES

The proposed regional activities to promote sustainable management of Land-based Pollution are categorised into three main components and together with the cost estimates are presented in Table 23.

COMPONENT 1. BUILDING CAPACITY TO ENSURE SUSTAINABLE USE OF COASTAL WATERS

Activities under the component are arranged in two sub-components and are designed to improve mechanisms for information exchange and support the development, improvement and dissemination of regional public awareness and educational materials.

COMPONENT 2. ENHANCE POLLUTION CONTROL AND MANAGEMENT

This component focuses on preparation of marine environment quality guidelines and tools for dissemination and adoption in the region; and the development of common methodologies that will generate comparable data among participating countries.

COMPONENT 3. INSTITUTIONAL ARRANGEMENTS AND COORDINATION

The purpose of activities under this component is to support integration of regional science with policy making in the management of Land-based Pollution and to enhance international and regional cooperation.

Table 23 Proposed Regional Actions and cost estimates in support of the management of Land-based Pollution.

Components, Sub-component and Actions	Description	Cost Estimation (USD)						
		2008	2009	2010	2011	2012	Total	
Component 1 - Building Capacity to Ensure Sustainable Use of Coastal Waters								
<i>Sub-component 1.1 Mechanisms for information exchange</i>								
1.1.1	Conduct workshop/conferences to review and to transfer clean technologies for cost-effective waste management in the region	2 workshops, 3 days * 21pers.; Consultancy, 1 pers. * 1 month * 2times; Printing and distribution, 210 copies, 2 times		31,680		31,680		63,360
1.1.2	Conduct workshops for exchange and adoption of existing successful management models developed by the countries bordering the South China Sea	2 workshops, 3 days*21pers.; Consultancy, 1 pers. * 1 month * 2times, Printing and distribution, 210 copies, 2 times		31,680		31,680		63,360
1.1.3	Conduct regional workshops to share experiences and technologies in establishing integrated waste treatment facilities	1 workshop, 3 days * 35 pers.; Consultancy, 1 pers. * 1 month			41,550			41,550
1.1.4	Organise seminar/workshops for sharing experiences in law enforcement and cross-cutting issues related to land-based pollution control.	1 workshop, 3days * 35pers.; Consultancy, 1 per. * 1 month		41,550				41,550
1.1.5	Organise seminar/workshops for sharing and dissemination of experiences and lessons learned on community participation/empowerment in managing Land-based Pollution	2 seminars, 3days * 35 pers.; Consultancy, 1 per. * 1 month * 2 times			41,550		41,550	83,100
<i>Sub-component 1.2 Development, Improvement, and Dissemination of Awareness Materials</i>								
1.2.1	Identify and engage non-government organisations to encourage community participation on marine pollution awareness/advocacy	1 seminar, 3days* 21pers. * 310; Consultancy, 1 per. * 1 month		28,530				28,530
1.2.2	Develop public awareness materials for different target groups (3 video sets, 3 flyers, 3 types brochures & 1 type of poster for use at the national level)	Consultancy for designation & material preparation, 3pers.* 1 month; Support for participating countries in printing and distribution of materials		21,000	55,515			76,515
1.2.3	Develop programmes on Land-based Pollution for journalists and broadcasters for dissemination	Consultancy for review & preparation of materials, 2 pers. 1 month; Seminar, 2days * 35pers.		37,700				37,700
Component 2 - Enhance Pollution Control and Management								
<i>Sub-component 2.1 Develop marine environmental quality guidelines and tools for dissemination and adoption in the region</i>								
2.1.1	Develop guidelines or criteria for sediment and biological quality for the region (7 parameters: Hg, Cd, Pb, Cu, Cr, As, Zn)	Consultancy, 2 * 8month; 1st regional workshop/training, 5days, 6pers*7countries; National workshops, 3 days*7 countries, 8000USD/countries;Sediment toxicity testing, 7 parameters * 41,000USD/3 species; 2nd regional workshop/training, 5days, 6pers*7countries; Printing and distribution, 210 copies		300,600	179,500	104,250	36,000	620,350
2.1.2	Develop guidelines for spatial planning of coastal land-use and marine zoning	Consultancy, 1 per. * 4 months; Workshop, 3days, 21pers.; Printing and distribution, 210 copies			58,680			58,680
2.1.3	Harmonize Standard Operating Procedures (SOPs) for pollution control and management	Consultancy, 1 per. * 3 months; Workshop, 3days, 21pers.		46,530				46,530
2.1.4	Review and synthesise EIA practices from the countries bordering the South China Sea	Consultancy, 1 per. * 2 months; Workshop, 3days, 21pers.		37,530				37,530
2.1.5	Transfer knowledge on simple waste treatment techniques (man-made wetlands and communal septic tanks) for small scale management of pollution.	Study tour for local officials from 6 countries to Batam (2 sites, 2days, 2pers.)		14,880				14,880

Table 23 cont. Proposed Regional Actions and cost estimates in support of the management of Land-based Pollution.

Components, Sub-component and Actions	Description	Cost Estimation (USD)					Total	
		2008	2009	2010	2011	2012		
Sub-component 2.2 Develop common methodologies that will generate comparable data among participating countries								
2.2.1	Select and adopt key water quality parameters (among the 14 - DO, NO ₃ , NO ₂ , PO ₄ , NH ₃ , FCB, Hg, Cd, Pb, Cu, Cr, As, Zn, Phenol) to optimise monitoring programmes in the region	Consultancy, 1 per. * 1 month	9,000					9,000
2.2.2	Estimate total contaminant loading and carrying capacity of the South China Sea basin using quantitative modelling and GIS (7heavy metals)	Consultancy, 1 per. * 12 months; 2 workshop, 3days, 21pers.	73,530	73,530				147,060
Component 3 - Policy, and Institutional Arrangements and Coordination								
Sub-component 3.1 Integration of Research Programme with Management and Policy Making								
3.1.1	Review of marine sediment and biota quality guideline/criteria for possible adoption in the region	Meeting of stakeholders, 2 days * 21pers.				8,680		8,680
3.1.2	Review, synthesis and dissemination of community based practices in management of wastes from aquaculture and settlement	Meeting of stakeholders, 2 days * 21pers.; Workshop, 3days, 21pers.; Printing and distribution, 210 copies		35,700				35,700
3.1.3	Creation of award programme for local governments for best practices in pollution management every two years	7 awards* 2 times* 2000USD; 2 ceremonies, 1day, 21pers.		20,510		20,510		41,020
3.1.4	Update and maintain roster of experts that can review and improve legislation as required	Free of charge						
3.1.5	Periodic (each five year) evaluation of SAP and NAPs implementation to be conducted by independent experts	Consultancy, 2 * 1 month				18,000		18,000
Sub-component 3.2 International and Regional Cooperation								
3.2.1	Establishment of Regional Land-based Pollution Funding mechanism	2 days' workshop of Int'l organisations, donors, government, NGOs (7 countries * 2pers.)	8,680	8,680				
3.2.2	Establishment of institutional network for exchange of information and technical support.	Free of charge			x			
3.2.3	Maintenance of coordinating framework developed by the SCS Project to ensure SAP implementation	Annual meetings, 3 days, 10pers., 4 years	9,300	9,300	9,300	9,300		37,200
3.2.4	Organisation of a forum for cooperation between and among national and international agencies/ institutions such as GPA LBA, IMO, IOC, ASEAN, COBSEA	Cost for participants from developing countries, 7 countries* 3 pers.*2 days; Administrative cost		17,670				17,670
Total:			8,680	683,510	533,505	176,910	134,040	1,536,645

REGIONAL ECONOMIC VALUES AND COST/BENEFIT ANALYSIS OF SAP ACTIONS

ECONOMIC VALUATION

Today's society uses and is heavily dependent on the environment as a source of a range of services and resources, that is, natural capital. At the same time, society uses (or abuses) and depends heavily upon the environment as a "sink" or repository for its pollution and waste. The source and sink services are in scarce supply and are continually being degraded and limited by economic activities. This requires the adoption of more conservative patterns of use that will increase the base of environmental assets over time, which is related to sustainability of the environments capacity to provide continued goods and services.

Economic valuation is defined as the attempt to assign quantitative or monetary values to the goods and services provided by environmental resources, whether or not market prices are available to assist in the process (Barbier²³ and Aylward, 1996; Bateman²⁴ *et al.*, 2002). The National Research Council²⁵ (1995) defines economic valuation as an attempt to provide an empirical account of the value of the services and amenities or of the benefits and costs of proposed action (project or policies) that would modify the flow of services and amenities. Both definitions are in agreement regarding the quantification of goods and services that provide information about the environmental resources.

Valuation forms a key exercise in economic analysis and provides important information for the sustainable use of any habitat. The basic aim of valuation is to determine people's preferences – how much they are willing to pay for, and how much better or worse off they would consider themselves to be as a result of changes in the supply of different goods and services. Valuation provides a means of quantifying the benefits that people receive from habitats, the costs associated with their loss, and the relative profitability of land and resource uses which are compatible with habitat conservation *vis-à-vis* those economic activities that contribute to habitat degradation. Valuation helps to predict and understand the consequences of economic decisions and economic activities which impact on the integrity and status of habitats.

Valuation in the context of habitat management is generally used to indicate the overall economic efficiency of the various competing uses of habitats and resources. That is, the underlying assumption is that habitat resources should be allocated to those uses that yield an overall net gain to society, as measured through valuation in terms of the economic benefits of each use, less its' costs. However, the valuation should be based on reasonably well-founded methodology and speculative assumptions will not contribute to decision-making (Munasinghe, 1995²⁶).

"Valuing" an ecosystem is essentially valuing the characteristics of a system. Costanza²⁷ *et al.* (1997) have made a comprehensive list of ecosystem functions and services and defined ecosystem services as "flows of materials, energy and information from natural capital stocks which combine with manufactured and human capital services to produce human welfare".

The concept of Total Economic Value (TEV) provides a framework for valuing natural systems and is used to identify and estimate the monetary value of all economic benefits that a society derives from a particular ecosystem. In some countries this method has been used to improve forest policy, planning, and management decisions by accounting for all short- and long-term benefits to society from forests, including alternative options. TEV accounts for a wide variety of market and non-market functions and services provided by the habitat.

²³ Barbier, E.B. and Aylward, B. (1996). *Capturing the pharmaceutical value of biodiversity in a developing country. Environmental and Resource Economics.* (8), pp.157-181.

²⁴ Bateman, I.J., Carson, R.T., Day, B., Haneman, M., Hanley, N., Hett, T., Lee, M.J., Loomes, G., Mourato, S., Ozdemiroghu, E., Pearce, D.W., Sugden, R., and Swanson, J. (2002). *Economic valuation with stated preferences techniques - A manual.* Cheltenham, UK: Edward Elgar.

²⁵ National Research Council. (1995). *Wetlands characteristics and boundaries.* National Academy Press, Washington D.C.

²⁶ Munasinghe, M. (1995). *Applicability of techniques of cost-benefit analysis to climate change. In global climate change, economic and policy issues.* Edited by Mohan Munasinghe. World Bank Environment Paper Number 12. The World Bank, Washington D.C.

²⁷ Costanza, R., d'Arge, R. de Groot, R., Farber, S., Grasso, M., Hannon, B. Limburg, K., Naeem, S., O'Neill, R.B., Paruelo, J., Raskin, R.G., Sutton, P. and van den Belt, M. (1997). *The Value of the world's ecosystem services and natural capital. Nature* 387 (6630) 253-260

The Regional Task Force on Economic Valuation (RTF-E) developed a procedure and related methods to derive regional values of the goods and services from coastal habitats bordering the South China Sea. Values derived at sites in any particular year are standardised using 2005 as the base year. The Consumer Price Index (CPI) for 2005 in each country is used as the basis for conversion of the data for other years and all nominal values have been converted to real values using the CPI. This conversion is effected using the following equation:

In local currency

$$\text{STANDARD VALUE 2005 (SV}_{2005}) = \frac{(\text{RAW VALUE DATA} * \text{CPI OF 2005})}{\text{CPI YEAR OF VALUATION}}$$

For comparability all standard values are converted into US dollars as follows:

In US dollars

$$\text{Standard US\$ Value 2005 (}^{\text{US\$}}\text{SV}_{2005}) = (\text{SV}_{2005}) * (\text{US dollar exchange rate for 2005})$$

At the national level, where several differing values for the same resource or service are available from one country, a weighted mean national value has been derived based on the economic values related to the stock at each location, using the following equation:

$$\text{WEIGHTED MEAN NATIONAL VALUE (}^{\text{US\$}}\text{MV}_{2005}) = \frac{\sum (^{\text{US\$}}\text{SV}_{i,2005} * \text{S}_i)}{\sum (\text{S}_i)}$$

where $^{\text{US\$}}\text{SV}_{i,2005}$ = Standard US\$ Value of 2005 at Location i
 S_i = Stock at location i
 i = 1..... N
 N = Number of values (locations) from the country concerned.

The total economic value in one country is thus the product of the stocks and the weighted mean national value, i.e.,

$$\text{TEV} = \sum (\text{S}_i) * ^{\text{US\$}}\text{MV}_{2005}$$

The regional total economic value is derived in a similar manner to the weighted mean national value²⁸ and in instances where the volume (or weight) of the total stock is not available for all countries then a surrogate, namely the area of the habitat in each country, has been used to weight the mean national values in the following equation:

Weighted Mean Regional Value of Resource or Service A_1 is:

$$\text{R}_V\text{A}_1^{-\text{Kg}} = \frac{[(\text{S}_{\text{Ca}} * \text{MV}_{\text{Ca}}) + (\text{S}_{\text{Chi}} * \text{MV}_{\text{Chi}}) + (\text{S}_{\text{In}} * \text{MV}_{\text{In}}) + (\text{S}_{\text{Ma}} * \text{MV}_{\text{Ma}}) + (\text{S}_{\text{Ph}} * \text{MV}_{\text{Ph}}) + (\text{S}_{\text{Th}} * \text{MV}_{\text{Th}}) + (\text{S}_{\text{Vi}} * \text{MV}_{\text{Vi}})]}{(\text{S}_{\text{Ca}} + \text{S}_{\text{Chi}} + \text{S}_{\text{In}} + \text{S}_{\text{Ma}} + \text{S}_{\text{Ph}} + \text{S}_{\text{Th}} + \text{S}_{\text{Vi}})}$$

Where S = The Stock
 MV = Weighted Mean National Value for countries (in US\$):
 Ca = Cambodia; Chi = China; In = Indonesia; Ma = Malaysia; Ph = Philippines;
 Th = Thailand; Vi = Viet Nam.

Thus, the regional total economic value of the stock of the resource is measured by the product of the total stock with the weighted mean regional value i.e.,

$$(\text{S}_{\text{Ca}} + \text{S}_{\text{Chi}} + \text{S}_{\text{In}} + \text{S}_{\text{Ma}} + \text{S}_{\text{Ph}} + \text{S}_{\text{Th}} + \text{S}_{\text{Vi}}) * \text{R}_V\text{A}_1^{-\text{Kg}}$$

²⁸ UNEP/GEF/SCS/RTF-E.5/6 "Derivation of Regional Values of the Goods and Services from Coastal Habitats".

In deriving the regional total economic values the following items should be included in the guidelines for valuation by resource categories for each ecosystem:

1. Value of Resource i per hectare, $i = 1 \dots n$ at site j [\$/ha]
2. Total Value of Resource i for the country: $\sum [1 \times \text{acreage at site } j]$ over all sites [\\$]
3. Calculate the Weighted Value of the Resource i for the country per hectare: $[2 \div \text{total country acreage}]$ [\$/ha]
4. Total Value of Resource i for the region: $\sum [2]$ over all countries [\\$]
5. Calculate the Weighted Regional Value of the Resource i per hectare: $[4 \div \text{total regional acreage}]$ [\$/ha]
6. Calculate the Regional Total Value of all resources: $\sum [4]$ over all resources [\\$]
7. Calculate the Weighted Regional Total Value per hectare: $[6 \div \text{total acreage for the region}]$ [\$/ha]

The regional total economic values are used in the cost benefit analysis of actions versus non-action as contained in the revised SAP.

COST AND BENEFIT ANALYSIS

Financial analysis is usually the first step in assessing the monetary costs and benefits of projects or management options. A financial analysis is taken from the perspective of private investors who are typically interested in the actual money costs and returns on their projects. It therefore measures private profits accruing to households or firms based on market prices. While financial analysis can be invaluable in illustrating the motivations of the private sector, it does not ask whether market price is the "proper" price and reflects true economic value.

An economic analysis goes beyond a financial analysis to perceive a project's economic costs and benefits on the welfare of society. It examines all of a project's impacts, including its environmental consequences. An economic analysis usually requires various adjustments to financial prices to correct for market imperfections, policy distortions and distributional inequities.

The economic cost-benefit analysis is said to provide a better framework for assessing the holistic profitability of project alternatives by incorporating the environmental costs and benefits of use and non-use activities. This economic analysis approach departs from the financial analysis because the latter only accounts for direct transacted cost and benefit elements. The financial values are inadequate to capture all environmental effects and are inadequate representations of the welfare of society. Environmental effects increase or decrease welfare even though they may not be traded in the market with monetary prices. In financial analysis, environmental effects are considered only when they directly affect revenue streams or cost outlays of the project concerned.

Cost-Benefit Analysis of Action Versus Non-action in the Strategic Action Programme

The benefits derived from action as outlined in the SAP reflect in reality the anticipated change (decline) in the rate of loss or degradation of the habitat. Each regional working group provided up-to-date estimates of the rates of loss and degradation of important coastal habitats in order that the costs of non-action could be estimated. These are then compared with the costs of the actions proposed in the SAP and a measure of the cost effectiveness of acting derived. The data and information used include:

- 1) Time series data of the rates of habitat loss and degradation;
- 2) Estimated rates of loss and degradation in high-pressure (non-action scenario) and low-pressured scenarios (action scenario); and
- 3) Investments and costs needed to undertake the actions and achieve the targets included in the SAP.

Tables in the preceding chapters of the SAP present a summary of the costs of regional actions proposed by the regional working groups for inclusion in the SAP. It should be noted that in the case of the wetlands some attempt was made to cost national level actions and these have been discounted from the present analysis.

In broad terms the total costs over five years are quite modest when compared with the value of annual production from each habitat:

- Mangroves 2.99 million US dollars compared with 5.1 billion US dollars of annual production;
- Coral reefs 1.67 million US dollars compared with 1.1 billion US dollars of annual production;
- Seagrass 1.58 million US dollars compared with 87.2 million US dollars of annual production;
- Wetlands 1.82 million US dollars compared with 1.2 billion dollars of annual production.

Costs and Benefits of Mangrove Interventions

The value of the annual production of goods and services by mangrove habitats bordering the South China Sea has been established as US\$2,872.25 per hectare, giving a total value of US\$5,196,296,711 per annum.

The targets in the SAP are of four types:

1. Areas to be transferred from various categories of use to protected area status.
2. Areas to be transferred from status defined as "conversion" to sustainable use.
3. Areas in which management is to be improved.
4. Areas of deforested mangrove land to be replanted.
5. Areas of degraded mangrove to be subject to enrichment planting to increase the species diversity.

1. In the first case the rate of mangrove loss in the region over the preceding decade of 1.61% per annum is used to ascertain the proportion of the mangrove currently not accorded protection status that will be saved by achieving this target. It is further assumed that the proportion accorded protection status is equally spread across the first five years of the SAP implementation. The cumulative benefit is therefore the value of the annual production saved through such a change in designated status.

2. In the second case it is assumed that mangrove forest designated for conversion to alternate uses will have a change in designation to sustainable use (including sustainable timber extraction) and that such change in designation will impact areas in equal proportion over the first five years of the SAP implementation. The cumulative benefit is therefore the value of the annual production saved.

3. In the third case a modest 5% per annum improvement in annual production is projected over the first five years of the SAP implementation.

4. In the case of areas of degraded mangrove forest that are replanted, no cumulative benefits are anticipated over the first four years and the first year in which a return is likely to be seen is in year five. In this year the annual production of the area planted in the first year is assumed to reach one sixth of the Total Economic Value. This proportion was decided upon based on the harvest cycle of mangroves under sustainable forestry management, namely a thirty year rotation in the only known example of sustainable forest management of mangroves at Matang, Malaysia.

5. As in the case of the fourth target it is assumed that no benefit accrues until the final year of the first phase of SAP implementation. Benefit is calculated in a similar manner to that calculated for the fourth target.

The costs of the actions contained in the SAP were determined by the Regional Working Group for mangroves on the basis of experience in implementing the first phase of the UNEP/GEF project entitled *"Reversing Environmental Degradation trends in the South china Sea and Gulf of Thailand"* and are expressed as 2006 costs.

It is important to recognise that the actions costed in the Strategic Action Programme are only those actions undertaken at a regional level to ensure co-ordination of national actions and the sharing of experience and expertise across national boundaries. The Regional Task Force on Economic Valuation is of the opinion that national level management costs might be expected to reach between 15 and 20% and that correspondingly regional management and administrative costs might be

expected to reach a maximum of 1% of the total value of the interventions. Using these figures it is possible to extrapolate that the costs of national level actions might reach as much 300 million US\$ if the targets of the regional SAP are to be met.

Table 24 presents the costs and benefits with respect to mangroves, over the first five years of SAP implementation, whilst Table 25 presents a summary of the costs and benefits. From Table 25 it can be seen that the costs represent 0.2% of the estimated net benefits amortised over the five years.

Table 24 Summary of the Regional Costs and Benefits of Achieving the Mangrove Targets Defined in the Strategic Action Programme.

YEARS	Values in US\$ ha ⁻¹	2008	2009	2010	2011	2012	TOTAL
Target 1 Area of mangrove saved Benefit increased i.e. rate of loss avoided – 1.61 % per annum		185	369	554	739	924	
i. Value of Mangrove Goods	1,585	292,748	585,496	878,243	1,170,991	1,463,739	
ii. Value of Mangrove Services	1,287	237,764	475,527	713,291	951,055	1,188,819	
iii. Total	2,872	530,512	1,061,023	1,591,535	2,122,046	2,652,558	
Target 2 Non-conversion of mangrove, sustainable use		33,320	66,640	99,960	133,280	166,600	
i. Mangrove goods	1,585	52,811,200	105,622,401	158,433,601	211,244,802	264,056,002	
ii. Mangrove services	1,287	42,892,170	85,784,339	128,676,509	171,568,678	214,460,848	
iii. Total	2,872	95,703,370	191,406,740	287,110,110	382,813,480	478,516,850	
Target 3. Improved management relating to sustainable use	0	120,554	241,109	361,663	482,218	602,772	
i. Mangrove goods	1,585	9,553,755	19,107,511	28,661,266	38,215,021	47,768,777	
ii. Mangrove services	1,287	7,759,363	15,518,727	23,278,090	31,037,454	38,796,817	
iii. Total	2,872	17,313,119	34,626,238	51,939,356	69,252,475	86,565,594	
Target 4. Replanting of deforested mangrove land		4,200	8,400	12,600	16,800	21,000	
i. Mangrove goods	1,585	0	0	0	0	1,109,479	
ii. Mangrove services	1,287	0	0	0	0	901,096	
iii. Total	2,872	0	0	0	0	2,010,575	
Target 5. Enrichment planting to increase mangrove biodiversity		2,240	4,480	6,720	8,960	11,200	
i. Mangrove goods	1,585	0	0	0	0	591,722	
ii. Mangrove services	1,287	0	0	0	0	480,585	
iii. Total	2,872	0	0	0	0	1,072,307	
Total for goods	1,585	62,657,704	125,315,407	187,973,111	250,630,814	314,989,719	
total for services	1,287	50,889,297	101,778,593	152,667,890	203,557,187	255,828,164	
Grand total	2,872	113,547,000	227,094,001	340,641,001	454,188,001	570,817,883	1,706,287,886
SUMMARY							
COSTS at 2006 prices		765,000	827,600	655,000	710,500	369,500	
Discount factor NPV for 2006 i=4%		0.9246	0.8890	0.8548	0.8219	0.7903	
Costs 2006 value		707,286	735,733	559,897	583,979	292,021	2,878,916
Compound factor NPV for 2007 i=4%		1.0400	1.0400	1.0400	1.0400	1.0400	
Costs 2007 values		735,577	765,163	582,293	607,338	303,702	2,994,073
BENEFITS at 2005 prices		113,547,000	227,094,001	340,641,001	454,188,001	570,817,883	
Discount factor for NPV 2005 i=4%		0.8890	0.8548	0.8219	0.7903	0.7599	
Benefits 2005 values		100,942,870	194,120,903	279,982,072	358,951,375	433,774,677	
Compound factor for NPV 2007 i=4%		1.0816	1.0816	1.0816	1.0816	1.0816	
Benefits 2007 values		109,179,808	209,961,169	302,828,609	388,241,807	469,170,691	1,479,382,085
Net Benefits		108,444,231	209,196,006	302,246,317	387,634,469	468,866,989	1,476,388,012

Table 25 Summary of Benefits in Terms of Cumulative National Production over the First Five Years of SAP Implementation and Costs of Executing the Mangrove Component of the Strategic Action Programme.

Total benefit	1,479,382,085
Total cost	2,994,073
Total Net benefit	1,476,388,012
Benefit-Cost ratio	494
Costs as percentage of benefits	0.2 %

Costs and Benefits of Coral Reef Interventions

The total area of coral reefs bordering the South China Sea is estimated at 750,307 hectares of which the present area under management at 82 identified locations is around 102,105 hectares. The total value of annual production is estimated at 1,157,393,566 US dollars.

The targets for the coral reef component of the Strategic Action Programme are of two types:

- 1 Placing additional identified areas under sustainable management regimes bringing the total management area to 152,057 hectares.
- 2 At a regional scale reducing the decadal rate of loss of live coral cover from 16 to 5%.

In the case of the first target it is assumed that the areas are brought progressively under sustainable management of the first five years and consequently the cumulative benefit is represented by a reduction in the present decadal rate of coral cover from 16 to 0 percent as the areas are brought under sustainable management.

For the second target the area under consideration is the total coral reef of the region (750,307) of which 647,195 hectares are currently unmanaged and the cumulative benefits are derived from reducing the decadal rate of decline from 16% of live coral cover to 5% by 2015. This equals a reduction in the rate of decline to 1.375% per annum

Table 26 provides details of the costs and benefits to be derived from implementing the coral reef actions outlined in the SAP as in the case of mangroves it should be noted that the costs do not include national level costs. Table 27 presents a summary with the benefits for management, i.e. the first target separated from those for the second target and for the two targets combined (all benefits). It can be seen that placing a further 50,000 hectares of coral reefs under sustainable management is not as cost effective as successful achievement of the target to reduce the regional rate of degradation. The costs expressed as a percentage of benefits are somewhat high which is likely explained by the low valuation for coral reef goods and services determined during the present study.

Table 26 Summary of the Costs and Benefits of successful implementation of the Coral Reef Activities in the SAP to meet the Coral Reef Targets.

	2008	2009	2010	2011	2012	2013	2014	2015	Total
Total accumulated new area under management (ha)	6,244	12,488	18,732	24,976	31,220	37,464	43,708	49,952	
Coral reef value 1,542.56 US\$ per hectare 2005 prices adjusted 4% per annum	1,735	1,805	1,877	1,952	2,030	2,111	2,196	2,283	
Benefit expected from coral reef management if value increased by 16% under management	173,333	360,653	562,559	780,050	1,014,026	1,265,384	1,535,724	1,824,647	
Costs (at 2006 prices) costs for the last three years estimated at 5% increase per annum on 2012 costs.	135,449	242,916	175,785	295,259	321,335	229,915	94,250	177,310	
Discount factor (NPV for 2006) i=4%	0.9246	0.889	0.8548	0.8219	0.7903	0.7599	0.7307	0.7026	
Costs 2006 value	125,236	215,952	150,261	242,673	253,951	174,712	68,868	124,578	1,356,233
Compound factor (NPV for 2007) i=4%	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	
Costs 2007 values	130,246	224,590	156,271	252,380	264,109	181,701	71,623	129,561	1,410,482
Benefits at 2005 prices 16% of total value saved	173,333	360,653	562,559	780,050	1,014,026	1,265,384	1,535,724	1,824,647	
Discount factor for NPV 2005 (i=4%)	0.889	0.8548	0.82193	0.79031	0.75992	0.73069	0.70259	0.67556	
Benefits 2005 values	154,093	308,287	462,384	616,482	770,578	924,603	1,078,985	1,232,658	5,548,071
Compound factor for NPV 2007 (i=4%)	1.0816	1.0816	1.0816	1.0816	1.0816	1.0816	1.0816	1.0816	
Benefits 2007 values	166,667	333,443	500,115	666,787	833,458	1,000,051	1,167,030	1,333,243	6,000,793
Cumulative benefits at 2005 prices of reducing the decadal rate of decline from 16% of live coral cover to 5% by 2015. Equals decline in loss of 1.375% per annum	15,314,711	15,777,627	16,245,834	16,727,386	17,221,510	17,727,434	18,252,696	18,779,815	
Discount factor for NPV 2005 (i=4%)	0.889	0.8548	0.82193	0.79031	0.75992	0.73069	0.70259	0.67556	
Benefits 2005 values	13,614,778	13,486,715	13,352,938	13,219,820	13,086,970	12,953,259	12,824,162	12,686,892	
Compound factor for NPV 2007 (i=4%)	1.0816	1.0816	1.0816	1.0816	1.0816	1.0816	1.0816	1.0816	
Benefits 2007 values	14,725,744	14,587,231	14,442,538	14,298,558	14,154,867	14,010,245	13,870,614	13,722,142	113,811,938
Total Benefits	14,892,411	14,920,674	14,942,653	14,965,344	14,988,324	15,010,296	15,037,643	15,055,386	119,812,731
Net Benefits	14,762,165	14,696,084	14,786,382	14,712,964	14,724,215	14,828,595	14,966,020	14,925,825	118,402,249

Table 27 Summary of Costs and Benefits of Coral reef Interventions.

	Management	All Benefits
Present Value of Benefits	6,000,793	119,812,731
Present Value of Costs	1,410,482	1,410,482
NPV	4,590,311	118,402,249
Benefit-Cost Ratio	4.254	84.94
Cost as percentage of Benefit	23.5	1.18

Costs and Benefits of Seagrass Interventions

Addressing problems regarding the loss and degradation of seagrass habitats in the South China Sea poses problems unlike those faced in the case of the other coastal habitat types. These include the absence of good data regarding the actual distribution and abundance of seagrass meadows in the region; a lack of data regarding the rates of loss and degradation and inadequate understanding of the economic significance of these habitats as nursery areas for fish and crustaceans of subsistence and commercial importance. Only 73,769 hectares of seagrass are sufficiently well documented to be included in the estimations and the value of annual production is estimated at US\$1,181.59 per hectare giving a total value for the region of only US\$87,164,402 per annum. This is significantly smaller than the estimates for coral reef and mangroves which reach 1.1 and 11.6 billion US dollars respectively.

Costs of action have been estimated by the Regional Working Group on Seagrass in 2006 at 2006 prices, and encompass actions over the first five years of implementation of the Strategic Action Programme. These costs represent the costs of regional actions and not the cost of the national actions required to achieve the national targets established within the National Action Plans and reflected in the SAP. The values used are based on the Total Economic Value of seagrass habitats derived from the values for goods and services as calculated by the Regional Task Force on Economic Valuation and are standardised to 2005 prices.

In calculating the benefits of the Strategic Action Programme an average annual loss of seagrass habitat of 3.5 percent of total area per annum has been assumed. Hence the avoided loss represents 3.5% of the habitat area placed under sustainable management over the five year period. Net benefits and the cost benefit ratio have been calculated using net present (2007) values

Table 28 presents an analysis of the costs and benefits of the regional actions to address seagrass degradation in the South China Sea, whilst Table 29 presents a summary of these costs and benefits which suggests that the costs represent greater than 50% of the benefits over the five years of SAP Implementation. This almost certainly reflects the gross undervaluation of the seagrass habitat, particularly with respect to its nursery function for commercial and subsistence fisheries.

Table 28 Costs and Benefits of the Regional Actions to Address Seagrass Loss.

YEARS	2008	2009	2010	2011	2012	Total
Cumulative Target Areas to be Managed (ha) 2008 onwards	18,151	23,374	28,598	33,821	39,044	142,988
Cumulate benefit in terms of area saved	183	366	548	731	914	
Value of Benefits at 2005 prices	216,009	432,018	648,026	864,035	1,080,044	3,240,132
Discount factor for NPV 2005 (i=4%)	0.89	0.85	0.82	0.79	0.76	
Benefits 2005 values	192,031	369,291	532,631	682,860	820,745	2,597,557
Compound factor for NPV 2007 (i=4%)	1.08	1.08	1.08	1.08	1.08	
Benefits 2007 values	207,701	398,834	575,241	737,488	886,404	2,805,668
Costs at 2006 prices	239,650	118,920	124,670	96,600	144,650	724,490
Discount factor (NPV for 2006) i=4%	0.92	0.89	0.85	0.82	0.79	
Costs 2006 value	221,570	105,719	106,568	79,398	114,319	627,575
Compound factor (NPV for 2007) i=4%	1.04	1.04	1.04	1.04	1.04	
Costs 2007 values	230,433	109,948	110,831	82,574	118,892	652,678
Net Benefits	-22,732	288,886	464,410	654,914	767,513	2,152,990

Table 29 Summary of Costs and Benefits of Seagrass Interventions.

Total Benefit	2,805,668
Total Cost	652,678
Total Net Benefit	2,152,990
Benefit-Cost ratio	4.30
Cost as percentage of benefit	23%

Costs and Benefits of Wetland Interventions

As in the case of seagrass some difficulties arise in the case of the information assembled by the Regional Working Group on Wetlands. Initially this group was to have focussed on coastal lagoons, estuaries and inter-tidal mudflats. Subsequently coastal freshwater, peat and non-peat swamp forests were added to the range of habitats under consideration. Unfortunately the range of data available for the economic values of goods and services from these habitats was far less extensive than for the other habitats resulting in a regional value for annual production of US\$295.15 per hectare, which is absurdly low. This results in a total value of US\$1.2 billion for the estimated 4,201,145 hectares of these habitats bordering the South China Sea. Further work is needed to refine and improve the estimates of value.

Table 30 provides an analysis of the costs and benefits of the actions proposed in the wetlands component of the SAP whilst Table 31 provides a summary of the costs and benefits. These tables suggest that less economic benefit is derived from investing in coastal wetlands than in coral reefs and mangroves and approximately the same benefit as in the case of seagrass.

Table 30 Costs and Benefits of the Wetlands interventions in the SAP.

Years	2008	2009	2010	2011	2012	Total
Total costs of proposed actions (USD\$)	248,000	616,000	506,000	298,000	153,000	1,821,000
Discount factor (NPV for 2006) i=4%	0.92	0.89	0.85	0.82	0.79	1
Costs 2006 value	229,290	547,622	432,531	244,934	120,918	1,575,295
Compound factor (NPV for 2007) i=4%	1.04	1.04	1.04	1.04	1.04	
Costs 2007 values	238,462	569,527	449,832	254,732	125,755	1,638,307
Total value per hectare of annual production of wetland goods and services 2005 values	295 US dollars					
Total area to be brought under sustainable management within five years	938,261 hectares					
Total benefits derived from avoiding the annual losses(USD\$) 2005 values	830,783	534,694	802,041	1,069,393	1,336,740	4,573,651
Discount Factor	0.889	0.855	0.822	0.790	0.760	
Benefits 2005 values discounted	738,563	457,059	659,219	845,157	1,015,813	3,715,810
Compound factor (NPV for 2007) i=4%	1.082	1.082	1.082	1.082	1.082	
Benefits 2007 values (Compound factor i=4%)	798,830	494,355	713,012	914,122	1,098,703	4,019,020
Benefit-Cost (USD\$)	560,368	-75,172	263,179	659,390	972,948	2,380,714
Rate of loss assumed as 30% per century = 0.3% per annum or 0.003 per annum	2,815	5,630	8,444	11,259	14,074	42,222
Costs as percentage of benefits	41%					

Table 31 Summary of Costs and Benefits of Wetland Interventions.

Total Benefits	4,019,020
Total Costs	1,638,307
Total Net Benefits	2,380,714
Benefit-Cost Ratio	2.45
Costs as percentage of Benefits	40.76

REGIONAL CO-OPERATION

RATIONALE

The environment of the South China Sea continues to degrade despite actions taken at the national, sub-regional and regional levels. Part of the problem stems from the transboundary marine problems in the region and their impact on the ecosystems and resources of the South China Sea. This provides the ecological impetus for co-operation that is also based on the fact that the region is a large marine ecosystem with intrinsic integrity and inter-connections between all trophic levels. Fish and other migratory species do not recognise national boundaries, and the loss of endangered species in one area has not only regional but global significance. Due to the inherent conflict between the boundaries of the ecological system and man-made, national boundaries, countries must co-operate to meet the challenges to managing and sustainably using the shared ecological system.

These ecological issues are compounded by gaps in regional co-operation, which existed despite the ratification of many international conventions, which contain the legal basis for regional collaboration. Moreover, the present instruments and mechanisms for regional co-operation in the management of the marine and coastal environment of the South China Sea area are neither extensive nor well developed. While a number of sub-regional agreements or soft laws have been developed and numerous bi-lateral agreements have been entered into by, all governments individually and severally, there exists no overarching regional agreement governing the management of the marine environmental in the South China Sea.

The necessity for co-operation is reinforced by the need to prevent wastage of scarce financial resources that result from duplication of actions by countries in the region and the need to ensure that regional efforts are co-ordinated and effective. This in turn depends on the efficacy of related national actions which form the foundations of regional action and co-operation.

OBSTACLES TO REGIONAL CO-OPERATION AND PROPOSED SOLUTIONS

Despite the widespread recognition of the necessity to promote formal inter-governmental regional co-operation, there exist some common obstacles to strengthening existing mechanisms or forging new ones for regional co-operation. These identified obstacles include:

- Financial constraints; continued long-term financing;
- Lack of understanding of the root causes of regional marine environmental problems;
- Lack of consideration of long-term impacts;
- Inability to predict the impacts of future threats;
- Lack of a regional and global perspective;
- Lack of respect and recognition of regional expertise among some high-level decision-makers;
- Lack of a regional political consensus;
- Lack of a regional network and mechanism for action; and,
- Lack of understanding of the benefits of regional co-operation.

In identifying ways to overcome the obstacles the Regional Task Force on Legal Matters (RTF-L) conducted a number of reviews including: a review of states obligations to co-operate regionally under existing multi-lateral environmental agreements; a comparative review of national legislation relating to coastal habitats and pollution; a review of existing regional and sub-regional legal agreements in the field of marine environmental management.

In addition the RTF-L commissioned a study by a regional consultant, of instruments and mechanisms used elsewhere for strengthening and enhancing regional co-operation in the management of the marine environment. As part of this study a questionnaire was administered to various regional entities around the world regarding the effectiveness or otherwise of their existing instruments and mechanisms, the responses suggest that:

- Regional legal agreements are the most influential instruments, in strengthening regional co-operation and fostering regional stability and confidence building among the countries;
- The ecological effectiveness and economic efficiency of regional co-operation are necessary to avoid the waste of scarce financial resources;
- A process-oriented focus to improving the effectiveness of actions and implementation is appropriate for regional cooperation;

- A strong, proactive institutional mechanism empowered to act effectively, results in the most effective regional co-operation: and lastly;
- That regional co-operation may take many forms, but it must be appropriate to the regional ethos and culture.

The RTF-L also conducted a survey and carried out consultations at national level to gauge views among government and non-government organisations on the level and effectiveness of co-operation in the South China and whether an alternative mechanism is needed to enhance co-operation in marine environment management in the region. The results of the surveys and a comparative analysis of national views is given in Annex 5 “Comparative Analysis of Countries Perspectives from informal National Consultations” of the Report of the Fifth Meeting of the RTF-L.

Based on the results of the review and national consultation, and notwithstanding the outcomes of the commissioned study the RTF-L was of the opinion that the optimum way forward in this region at the present time was the preparation of a non-legally binding framework.

A PROPOSED FRAMEWORK FOR CO-OPERATION IN THE MANAGEMENT OF THE MARINE ENVIRONMENT OF THE SOUTH CHINA SEA AND GULF OF THAILAND

GOALS AND OBJECTIVES

The overall goals of this framework are: to create an environment at the regional level, in which collaboration and partnership in addressing environmental problems of the South China Sea, between all stakeholders, and at all levels is fostered and encouraged; and to enhance the capacity of the participating governments to integrate environmental considerations into national development planning.

The medium term objective of the framework is to implement and execute the actions defined in the Strategic Action Programme (SAP, this document) that encompass specific, targeted and costed actions for the longer-term, to address the priority issues and concerns. More specifically the proposed activities are designed to assist countries in executing the existing national action plans and meeting the environmental targets specified in the SAP.

The recommended framework must be functional and effective in resolving environmental problems and fostering strong regional cooperation and coordination of appropriate cost-effective actions. The framework must include, *inter alia*:

- Sound science. The use of sound science must be incorporated into policy-making processes and underpin decisions to foster ecological and economic soundness.
- Ecologically effective actions. It is increasingly recognised that many laws, policies and actions are ineffective in terms of ecological improvements. Ecological ineffectiveness also results in waste of scarce financial resources. Ecologically effective actions must be based on sound science and not on perceptions.
- Cost effective actions.
- Economic valuation. Economic valuation of environmental goods and services as a tool for sound development planning.
- Knowledge-based decision-making. This entails gathering all relevant information for the purpose of making effective decisions. Studies indicate that working toward a consensual knowledge-base for decision-making purposes improves the effectiveness of decisions and it also improves cooperation.
- Consensual knowledge-base. Promoting and building a consensual knowledge base (a base of information that the parties agree is applicable) facilitates cooperation and decision-making processes. This is particularly true where progress on regional cooperation is stalled or slowed due to complexities or uncertainty surrounding the issue.
- Communication. The lack of effective vertical and horizontal communication has been identified as a serious impediment to effective cooperation.

- Periodic assessment and review and revision of instruments or actions as required. Significant amounts of money and valuable resources are wasted due to the failure to assess or review laws, policies, mechanisms and measures to ensure they are effective or even implemented. Where assessments indicate problems, it is imperative that revisions are undertaken.
- Adaptive management. This provides a flexible approach that allows for the inclusion of new information.

AREAS FOR CO-OPERATION

The areas for co-operation to be covered by the framework include:

1. Establishment and management of regional database

2. To identify and collect data & information in the areas of:

- Marine and coastal legislation, regulation and institutional arrangement and coordination related to the analyse of the contents of the Draft National Action Plan from the Perspective of the Regional Strategic Action Programme.
- Ratified international and regional conventions and agreements on marine and coastal issues to find out the similarities and differences of all countries involved for Regional Cooperation perspectives.
- Scientific and technical data and information, including monitoring data, economic data related to marine and coastal environment.
- Experts and institutions in the region.
- Experience of each country, including pilot projects that can serve as models.

3. Exchange of data, information and experience

4. Regional prioritisation of environmental issues

The coastal States should cooperate on a sub-regional or regional basis to identify and prioritize regional and transboundary environmental issues. States should co-operate with each other in addressing the prioritized marine environmental issues in the South China Sea.

Each Party should mobilize necessary resources, capacities and services, as well as develop legal, financial and economic arrangements, including the adoption of a strategic plan for the management and conservation of coastal and marine resource to reach the targets stated in the South China Sea SAP.

5. Public Awareness and Education

Public awareness should be raised through countries' education systems, campaigns and other activities at the regional, national, and local community levels, especially those living along the coastlines, on the following issues:

- Ecological unity of the South China Sea and Gulf of Thailand;
- Social, economic and environmental benefits arising from the proper exploitation, management and conservation of marine resources of the South China Sea and Gulf of Thailand;
- Social, economic and environmental adverse impacts possibly arising from the degradation of the ecosystems of the South China Sea and Gulf of Thailand; and
- Necessity of regional cooperation on the exploitation, management and conservation of the marine resources of the South China Sea and Gulf of Thailand.

MECHANISMS

A management framework that:

- Restricts the membership of the policy/decision making body to government representatives only;
- The policy/decision making body may invite a limited number of observers from regional and international agencies and institutions as deemed appropriate;
- Includes a high level scientific and technical body that serves: a) as a forum for reconciling both sectorial and national interests and priorities; and, b) as the source of independent scientific and technical advice to the policy making body;
- Ensures and maintains a separation between discussions of scientific and technical matters from discussions dealing with policy and principles at both the national and regional levels;
- Facilitates and ensures the incorporation of sound scientific and technical advice and information into politically based decision-making;
- Emphasises the use of experts and consultants from the participating countries, having regional knowledge and perspectives;
- Fosters the establishment of epistemic communities within the region and utilises effectively their advice and experience;
- Permits and encourages networking and interactions among and between specialist epistemic communities;
- Emphasises and fosters networking at all levels and amongst all stakeholders;
- Fosters and strengthens both “horizontal” (inter-country) and “vertical” (intra-country) interactions and networking between individuals at all levels of SAP implementation and execution;
- Encourages adaptive management, which is subject to periodic review in line with the reviews of the SAP;
- Is developed through a process of detailed planning and consultation that ensures consensus regarding the final, agreed management framework; and,
- Is managed and operated by committed, experienced, independent, and full-time professionals, guided by and responsible to the policy/decision making body.

COMPONENTS

The proposed framework should contain the following components:

Memorandum of Understanding adopted at the ministerial level

The MoU serves as the political instrument for the implementation of the entire Strategic Action Programme.

Regional Strategic Action Programme

The regional Strategic Action Programme will be the operational arm of the Memorandum of Understanding and outlines the actions that need to be taken to address environmental degradation in the South China Sea and Gulf of Thailand. The first draft of the regional SAP was adopted in 1999 and has been revised and replaced by the present document which will form the basis for action over the next five years.

Sub-regional and bi-lateral Agreements

Countries are encouraged to enter into sub-regional and bi-lateral agreements to address issues relating to the implementation of the SAP. The Memorandum of Understanding will form the umbrella under which these sub-regional and bilateral agreements are negotiated and implemented.

Existing National Action Plans

During the course of the UNEP/GEF project entitled “Reversing Environmental Degradation in the South China Sea and the Gulf of Thailand”, participating countries have prepared National Action Plans (NAPs) for habitats, fisheries and land-based pollution. The existing NAPs will form the national basis for action in implementation of the SAP.

ANNEX 5

Final Text of Memorandum of Understanding among the Countries Bordering the South China Sea Concerning Co-ordination of Actions Undertaken to Implement the Strategic Action Programme for the South China Sea

1 PREAMBLE. The South China Sea, which includes the Gulf of Thailand, is a semi-enclosed sea that supports a number of unique habitats and ecosystems, which are amongst the most biologically diverse shallow water marine ecosystems globally. The countries surrounding the South China Sea have undergone very rapid economic development and rapid population increase in coastal areas over the past two decades resulting in degradation and loss of coastal habitats and resources.

The degradation of the environment of the South China Sea provided the ecological impetus for co-operation amongst the seven countries that participated in the UNEP/GEF project entitled "*Reversing environmental degradation in the South China Sea and Gulf of Thailand*". The benefits derived from that co-operation have demonstrated the need for implementation of the Strategic Action Programme for the South China Sea.

2. PARTIES. This Memorandum of Understanding is entered into by the Ministries responsible for environmental affairs in each country bordering the South China Sea;

3. BACKGROUND. Recognising that all states aspire to achieve sustainable development as expressed in the 1992 Rio Declaration; the Millennium Development Goals adopted by the United Nations General Assembly in September 2000; and the Plan of Implementation to achieve those goals adopted during the World Summit on Sustainable Development held in Johannesburg in 2002;

Recognising further that the states bordering the South China Sea have entered into various bilateral and sub-regional agreements concerning diverse aspects of the sound management of the marine environment and its resources;

Recognising further that the provisions of the United Nations Convention on the Law of the Sea (UNCLOS) 1995, relating to the protection and preservation of the marine environment, and regional co-operation are widely accepted

Reaffirming, as recognised in the United Nations Convention on Biological Diversity (CBD) that biological diversity is a common concern of humankind;

Reaffirming also the global consensus on the importance of marine and coastal biological diversity as expressed through the "Jakarta Mandate on Marine and Coastal Biological Diversity" and the Jakarta Ministerial Statement (1995) regarding the critical need to address the conservation and sustainable use of marine and coastal biological diversity, and the commitment of the Government of the Republic of Indonesia to play a major role in facilitating such implementation at the global and regional level;

Reaffirming also that states have obligations under a variety of Multi-lateral Environmental Agreements to:

- Conserve the environment and sustainably use natural resources;
- Co-operate with neighbouring states and other actors to conserve the regional environment and manage activities impacting the environment.

The Ministries responsible for environmental affairs have agreed to enter into this Memorandum of Understanding.

4. PURPOSE. The purpose of this Memorandum of Understanding is to facilitate co-operation among the parties to implement the Strategic Action Programme for the South China Sea.

5. TASKS BY THE PARTIES.

The Parties undertake to:

- i. Act as the National Focal Point within each country for the implementation of the Strategic Action Programme
- ii. Encourage the implementation of National Action Plans in support of the Strategic Action Programme.
- iii. Facilitate inter ministry dialogue concerning the implementation of the Strategic Action Programme.
- iv. Co-operate with each other in implementing the Strategic Action Programme at the regional level.

ANNEX 6

Expenditure Report for 2007, Draft Report for 2008 and Budget Allocations for 2009

BACKGROUND

Each year the expenditure report for the project is presented to the Project Steering Committee with the most up-to-date figures available. Subsequently the actual expenditures are adjusted as outstanding obligations from the preceding year are liquidated and the final expenditures for the current year become finalised.

A summary of expenditures by budget component is presented in Table 1 based on the anticipated expenditures to December 31st 2008. The expenditures presented in Table 2 represent the final expenditures for the years 2002, 2003, 2004, 2005, 2006 and the year 2007. In addition, anticipated expenditures to December 31st 2008 are included. The anticipated balance of \$609,109 is therefore available to meet commitments in 2009.

Table 1 Summary of anticipated expenditures during 2008 by budget component.

Component	Budget allocation	Anticipated Expenditures to December 31 st	Balance	Percentage under (+) and Over (-) expenditure
1000	604,000.00	604,226.78	-226.78	-0.4%
2000	2,026,802.59	1,921,440.39	105,362.20	+5.1%
3000	1,147,274.00	671,653.82	475,620.18	+41%
4000	33,049.00	33,765.07	-716.07	-2.1%
5000	183,312.37	154,242.93	29,069.44	+15.8%
Total	3,994,438	3,385,329	609,109	+8.7%

Within the personnel component (1000 budget line) the overall variance is insignificant since the early departure of the Fund Management Officer balances the increase in the post adjustment and under-budgeting of allowances for other staff members.

The under-expenditure in the sub-contracts component (2000 budget lines) reflects the downwards adjustment of allocations following budget revisions in the first quarter of 2008.

In the case of the training and meetings component (3000) the under-expenditure (41%) reflects real savings in terms of reduced cost of some of the meetings and training courses and in part the fact that no requests for individual training, exchanges programmes or study tours have been received by the PCU.

Over-expenditures in the 4000 budget line, equipment and premises represent an increase in rental charges by UN-ESCAP for Office space, and provision of services, whilst the under-expenditure in component 5000 reflects the fact that the costs of meeting and other reports have been lower than originally budgeted.

Table 3 presents the proposed budget to project closure on January 31st 2008 based on the anticipated expenditures to that date.

DISCUSSION

The Project Director drew to the attention of the Committee likely areas of under-expenditure and provided an estimate of the total amount that is likely to remain following cessation of the planned activities.

The committee accepted the expenditure report and draft project budget as contained in this annex.

Table 2 cont. Final expenditures to December 2007, approved budget, anticipated expenditures and anticipated unspent balance as of December 2008.

		2002	2003	2004	2005	2006	2007	2008		
		Total	Total	Total	Total	Total	Total	PSC-7 Approve	Anticipated status as of December 2008	
		Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Budget 2008	Expenditure	Unspent Balance
1211	Prepare draft regional water quality objectives and water quality and effluent standards for consideration by RWG-Lb-P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1212	Prepare guidelines for the development of national management plans, aimed at implementing the GPA/LBA (pollution)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1213	Develop a South China Sea strategic approach to mitigating priority regional hot spots for inclusion in the SAP for the SCS (pollution)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1214	Regional Scientific & Technical Advisors	12,172.50	25,000.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1215	Unassigned	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1216	Consultant in financial sustainability	0.00	50,000.00	6,895.55	0.00	0.00	0.00	0.00	0.00	0.00
1217	Environmental legal specialists	0.00	0.00	0.00	19,503.09	0.00	0.00	0.00	0.00	0.00
1218	Environmental Economics & Resource valuation	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1219	Editorial specialists	0.00	0.00	0.00	3,200.00	0.00	7,340.83	0.00	0.00	0.00
1220	Fund and Admin.	0.00	0.00	0.00	0.00	0.00	0.00	27,000.00	36,485.86	-9,485.86
1221	Consultant in facilitating NAP project development	0.00	0.00	0.00	0.00	0.00	0.00	20,000.00	29,143.65	-9,143.65
1299	Total	12,172.50	75,000.00	14,095.55	22,703.09	0.00	7,340.83	47,000.00	65,629.51	-18,629.51
1300	Administrative support w/m (Show title/grade)									
1301	Associate admin. Officer (L2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1302	Programme Assistant	16,952.58	23,759.61	28,566.43	31,208.15	35,094.49	42,759.36	46,000.00	51,026.99	-5,026.99
1303	Secretary (G4)	0.00	5,602.86	11,908.67	14,223.20	12,741.96	17,235.31	18,000.00	21,123.43	-3,123.43
1399	Total	16,952.58	29,362.47	40,475.10	45,431.35	47,836.45	59,994.67	64,000.00	72,150.42	-8,150.42
1400	Volunteers w/m									
1401		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1499	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1600	Travel on official business									
1601	Staff Travel (regional)	43,414.97	44,662.93	22,135.81	36,279.87	51,788.35	45,415.13	50,000.00	40,032.70	9,967.30
1602	Staff Travel (global)	0.00	3,632.38	6,167.74	7,260.20	0.00	0.00	0.00	0.00	0.00
1603	Staff Travel (country visits)	0.00	0.00	4,910.91	0.00	1,985.60	600.01	15,000.00	2,533.47	12,466.53
1699	Total	43,414.97	48,295.31	33,214.46	43,540.07	53,773.95	46,015.14	65,000.00	42,566.17	22,433.83
1999	Component Total	439,674.13	580,786.44	586,635.04	778,935.32	725,392.35	673,228.88	604,000.00	604,226.78	-226.78

Table 2 cont. Final expenditures to December 2007, approved budget, anticipated expenditures and anticipated unspent balance as of December 2008.

		2002	2003	2004	2005	2006	2007	2008		
		Total	Total	Total	Total	Total	Total	PSC-7 Approve	Anticipated status as of December 2008	
		Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Budget 2008	Expenditure	Unspent Balance
2000	SUB-CONTRACT COMPONENT									
2100	Sub-contracts (MoU's/LA's for UN cooperating agencies)									
2101		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2199	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2200	Sub-contracts (MoU's/LA's for non-profit SOs)									
2201	MoU IMC Cambodia	15,580.00	7,390.00	19,461.00	10,479.00	6,440.00	9,406.00	100,000.00	100,000.00	0.00
2202	MoU Mangrove & Wetland Cambodia	57,000.00	92,140.00	13,807.00	28,400.00	4,650.00	1,000.00	0.00	0.00	0.00
2203	MoU Coral Reefs & Seagrass, Cambodia	70,785.00	46,178.37	15,090.78	0.00	0.00	3,960.11	0.00	0.00	0.00
2204	MoU Fisheries Cambodia	13,966.80	18,778.20	18,585.00	2,859.79	5,457.83	4,291.33	43,000.84	11,824.51	31,176.33
2205	MoU Pollution Cambodia	37,930.00	26,800.00	15,840.00	6,270.00	4,327.50	2,482.50	0.00	0.00	0.00
2206	MoU IMC China	8,140.00	0.00	0.00	0.00	0.00	60,410.00	0.00	0.00	0.00
2207	MoU Mangrove China	73,030.00	54,955.00	12,315.00	11,000.00	3,800.00	850.00	0.00	0.00	0.00
2208	MoU Seagrass China	41,000.00	80,000.00	0.00	9,750.00	4,700.00	1,200.00	0.00	0.00	0.00
2209	MoU Wetlands China	30,600.00	23,450.00	11,950.00	8,000.00	6,050.00	1,600.00	0.00	0.00	0.00
2210	MoU Pollution China	44,000.00	27,150.00	6,850.00	0.00	0.00	0.00	15,650.00	15,650.00	0.00
2211	MoU IMC Indonesia	8,140.00	0.00	8,140.00	17,298.00	0.00	0.00	5,076.83	5,076.83	0.00
2212	MoU Mangrove Indonesia	75,860.00	54,092.00	13,248.00	6,600.00	5,550.00	600.00	0.00	0.00	0.00
2213	MoU Corals Indonesia	44,170.00	9,000.00	27,160.00	8,000.00	5,550.00	2,100.00	0.00	0.00	0.00
2214	MoU Seagrass Indonesia	78,051.00	27,414.00	12,500.00	5,850.00	5,000.00	2,400.00	0.00	0.00	0.00
2215	MoU Wetlands Indonesia	31,465.00	0.00	13,654.00	0.00	0.00	0.00	0.00	0.00	0.00
2216	MoU Fisheries Indonesia	14,000.00	4,600.00	0.00	0.00	11,671.33	0.00	40,000.00	11,333.34	28,666.66
2217	MoU Pollution Indonesia	44,000.00	19,000.00	15,000.00	8,300.00	0.00	0.00	7,350.00	7,350.00	0.00
2218	MoU IMC Malaysia	8,140.00	0.00	0.00	0.00	0.00	0.00	0.00	-248.00	248.00
2219	MoU Mangrove Malaysia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2220	MoU Corals Malaysia	17,000.00	0.00	0.00	0.00	0.00	0.00	0.00	-2,000.00	2,000.00
2221	MoU Seagrass Malaysia	41,000.00	0.00	0.00	0.00	0.00	0.00	4,211.23	0.00	4,211.23
2222	MoU Wetlands Malaysia	0.00	44,000.00	0.00	0.00	0.00	0.00	-13,098.00	-14,515.24	1,417.24
2223	MoU Fisheries Malaysia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2224	MoU Pollution Malaysia	24,000.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2225	MoU IMC Philippines	8,140.00	0.00	18,104.25	3,159.13	0.00	0.00	7,500.00	9,059.58	-1,559.58
2226	MoU Mangrove Philippines	43,000.00	0.00	2,588.16	0.00	0.00	0.00	0.00	-5,500.00	5,500.00
2227	MoU Corals Philippines	44,170.00	12,098.00	18,782.00	5,600.00	5,050.00	2,058.96	41.04	41.04	0.00
2228	MoU Seagrass Philippines	80,000.00	0.00	30,016.00	5,600.00	3,950.00	3,200.00	0.00	3,324.68	-3,324.68
2229	MoU Wetlands Philippines	19,000.00	20,360.13	22,834.29	4,326.60	5,374.18	0.00	5,949.32	28,548.38	-22,599.06
2230	MoU Fisheries Philippines	14,000.00	3,403.74	32,595.78	6,104.83	7,239.02	7,257.77	48,306.15	7,205.57	41,100.58
2231	MoU Pollution Philippines	44,000.00	0.00	-33,961.27	-5.00	0.00	0.00	8,623.00	0.00	8,623.00
2232	MoU IMC Thailand	16,280.00	16,280.00	8,140.00	14,491.96	5,703.95	12,660.01	0.00	0.00	0.00

Table 2 *cont.* Final expenditures to December 2007, approved budget, anticipated expenditures and anticipated unspent balance as of December 2008.

		2002	2003	2004	2005	2006	2007	2008		
		Total	Total	Total	Total	Total	Total	PSC-7 Approve	Anticipated status as of December 2008	
		Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Budget 2008	Expenditure	Unspent Balance
2252	Preparation, translation into local languages and dissemination of public awareness materials (fishery)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2253	Pilot demonstration activities in improved water quality management (pollution)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2253a	China Case Study	0.00	0.00	0.00	0.00	18,000.00	0.00	-18,000.00	15,900.00	-33,900.00
2253b	Indonesia Case Study	0.00	0.00	0.00	41,635.00	0.00	38,787.00	19,578.00	19,578.00	0.00
2253c	Thailand Case Study	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2253d	Regional estimation of carrying capacity	0.00	0.00	0.00	38,050.00	0.00	0.00	0.00	0.00	0.00
2254	Testing of prototype blast fishing detection system (fishery)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2255	Contract unspecified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2256	MoU SEA START RC	0.00	193.50	4,478.50	0.00	0.00	0.00	0.00	0.00	0.00
2257	MoU China Legal	0.00	0.00	0.00	4,900.00	0.00	0.00	0.00	4,900.00	-4,900.00
2258	MoU Cambodia Legal	0.00	0.00	0.00	2,900.00	4,806.00	0.00	0.00	0.00	0.00
2259	MoU Indonesia Legal	0.00	0.00	0.00	5,110.00	7,890.00	0.00	0.00	0.00	0.00
2260	MoU Malaysia Legal	0.00	0.00	0.00	4,000.00	0.00	6,878.00	0.00	-450.00	450.00
2261	MoU Philippines Legal	0.00	0.00	0.00	6,500.00	2,187.31	0.00	0.00	2,314.19	-2,314.19
2262	MoU Thailand Legal	0.00	0.00	0.00	4,900.00	8,100.00	0.00	-6,937.19	-6,937.19	0.00
2263	MoU Viet Nam Legal	0.00	0.00	0.00	5,200.00	0.00	15,300.00	0.00	0.00	0.00
2264	MoU China Economic	0.00	0.00	0.00	7,288.00	5,662.00	3,510.00	7,970.00	4,030.00	3,940.00
2265	MoU Cambodia Economic	0.00	0.00	0.00	4,600.00	5,190.00	7,495.00	7,720.00	2,135.00	5,585.00
2267	MoU Indonesia Economic	0.00	0.00	0.00	3,460.00	8,873.00	0.00	0.00	2,892.00	-2,892.00
2268	MoU Malaysia Economic	0.00	0.00	0.00	13,000.00	0.00	7,121.00	0.00	-3,590.00	3,590.00
2269	MoU Philippines Economic	0.00	0.00	0.00	0.00	8,164.00	0.00	0.00	-4,924.64	4,924.64
2270	MoU Thailand Economic	0.00	0.00	0.00	3,000.00	10,000.00	8,277.67	11,709.90	3,462.63	8,247.27
2271	MoU Viet Nam Economic	0.00	0.00	0.00	7,208.00	5,792.00	0.00	12,500.00	1,225.00	11,275.00
2272	SCS-SGP small grants	0.00	0.00	0.00	0.00	0.00	0.00	636,000.00	720,000.00	-84,000.00
2299	Total	1,545,767.80	915,904.48	577,175.96	678,753.65	1,427,539.41	1,270,864.31	2,026,802.59	1,921,440.39	105,362.20
2300	Sub-contracts (commercial purposes)									
2301		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2399	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2999	Component Total	1,545,767.80	915,904.48	577,175.96	678,753.65	1,427,539.41	1,270,864.31	2,026,802.59	1,921,440.39	105,362.20

Table 2 cont. Final expenditures to December 2007, approved budget, anticipated expenditures and anticipated unspent balance as of December 2008.

		2002	2003	2004	2005	2006	2007	2008		
		Total	Total	Total	Total	Total	Total	PSC-7 Approve	Anticipated status as of December 2008	
		Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Budget 2008	Expenditure	Unspent Balance
3000	TRAINING COMPONENT									
3100	Fellowships (total stipend/fees, travel, costs, etc)									
3101	Support for young scientists working in demonstration site (mangrove)	0.00	0.00	0.00	0.00	0.00	0.00	5,000.00	0.00	5,000.00
3102	Support for young scientists working in demonstration site (coral)	0.00	0.00	0.00	0.00	0.00	0.00	5,000.00	0.00	5,000.00
3103	Support for young scientists working in demonstration site (seagrass)	0.00	0.00	0.00	0.00	0.00	0.00	5,000.00	0.00	5,000.00
3104	Support for young professionals in project management and implementation	0.00	29,681.61	10,240.19	18,341.81	22,414.37	4,500.00	25,000.00	0.00	25,000.00
3105	Support for young scientists working in demonstration site (wetlands)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3199	Total	0.00	29,681.61	10,240.19	18,341.81	22,414.37	4,500.00	40,000.00	0.00	40,000.00
3200	Group training (study tours, field trips, workshops, seminars, etc)									
3201	Study tours to demonstration sites (mangrove)	0.00	0.00	0.00	0.00	0.00	0.00	50,000.00	25,000.00	25,000.00
3202	Study tours to demonstration sites (coral)	0.00	0.00	0.00	0.00	0.00	0.00	50,000.00	25,000.00	25,000.00
3203	Study tours to demonstration sites (seagrass)	0.00	0.00	0.00	0.00	0.00	20,768.00	50,000.00	49,200.00	800.00
3204	Study tours to pilot sites (pollution)	0.00	0.00	0.00	0.00	0.00	0.00	45,000.00	20,000.00	25,000.00
3205	Training courses workshops mangroves	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3206	Training courses workshops on coral reefs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3207	Training courses workshops on seagrasses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3208	Training workshop on wetland management	0.00	0.00	0.00	0.00	0.00	40,447.58	20,365.00	2,341.80	18,023.20
3210	Training workshop on blast fishing detection system (fishery)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3211	Regional workshops to promote the Code of Conduct for Responsible Fisheries	0.00	0.00	6,141.43	-378.50	0.00	0.00	0.00	0.00	0.00
3212	Training courses, workshops on water quality management and pollution control	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3213	Training courses, workshops on resource evaluation and environmental economics	0.00	0.00	0.00	0.00	0.00	16,070.00	31,393.00	25,499.73	5,893.27

Table 2 *cont.* Final expenditures to December 2007, approved budget, anticipated expenditures and anticipated unspent balance as of December 2008.

		2002	2003	2004	2005	2006	2007	2008		
		Total	Total	Total	Total	Total	Total	PSC-7 Approve	Anticipated status as of December 2008	
		Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Budget 2008	Expenditure	Unspent Balance
3311	Consideration of regional priority actions, targets and approaches for inclusion in the SAP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3312	Convene two regional scientific meetings in conjunction with partnership conferences for presentation of the SAP and priority actions portfolios	0.00	30,000.00	28,122.87	108,010.90	-3,524.47	141,331.66	40,000.00	-7,199.85	47,199.85
3313	6 workshops to: review national legislation; discuss modes of harmonisation; & current obligations of countries under Global Conventions.	12,130.66	5,818.97	7,285.17	6,066.39	14,898.71	5,167.23	0.00	5,707.19	-5,707.19
3314	Review possible approaches to meeting the common objectives of the countries in the SAP	0.00	0.00	0.00	0.00	0.00	0.00	30,000.00	0.00	30,000.00
3315	Meeting unspecified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3316	GIS, Data & Information workshops	0.00	0.00	0.00	0.00	0.00	0.00	30,000.00	0.00	30,000.00
3317	Economic valuation	0.00	7,217.88	9,440.61	7,259.66	18,690.82	18,805.11	16,000.00	16,505.61	-505.61
3318	Ad hoc facilitation meetings	0.00	0.00	7,360.14	4,085.47	3,324.57	0.00	20,000.00	16,566.03	3,433.97
3319	Mayors and Demo Site Managers Round Table	0.00	0.00	0.00	0.00	42,439.44	68,283.61	90,000.00	84,609.93	5,390.07
3320	Support to National Workshops for project priorities	0.00	0.00	0.00	0.00	0.00	0.00	52,500.00	30,000.00	22,500.00
3321	Regional Forum for NAP project Development and Donor Forum	0.00	0.00	0.00	0.00	0.00	0.00	70,000.00	70,000.00	0.00
3399	Total	169,795.28	174,670.76	175,629.66	202,951.27	189,492.45	311,846.18	504,500.00	308,124.15	196,375.85
3999	Component Total	169,795.28	204,352.37	192,011.28	220,914.58	227,423.57	663,389.80	1,147,274.00	671,653.82	475,620.18

Table 2 cont. Final expenditures to December 2007, approved budget, anticipated expenditures and anticipated unspent balance as of December 2008.

		2002	2003	2004	2005	2006	2007	2008		
		Total	Total	Total	Total	Total	Total	PSC-7 Approve	Anticipated status as of December 2008	
		Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Budget 2008	Expenditure	Unspent Balance
4000	EQUIPMENT & PREMISES COMPONENT									
4100	Expendable equipment (items under \$1,500 each, for example)									
4101	Office supplies	3,375.64	3,035.44	3,920.16	4,537.60	4,334.94	2,530.51	12,000.00	3,621.07	8,378.93
4102	Library acquisitions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4103	Computer Software	3,042.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4199	Total	6,417.75	3,035.44	3,920.16	4,537.60	4,334.94	2,530.51	12,000.00	3,621.07	8,378.93
4200	Non-expendable equipment (computers, office equip, etc)									
4201	Computers	11,068.25	5,879.02	4,852.67	-941.89	3,832.03	1,002.33	0.00	0.00	0.00
4202	Printers	11,087.05	0.00	730.77	0.00	0.00	0.00	325.00	0.00	325.00
4203	Copy machine	0.00	0.00	2,007.34	0.00	0.00	0.00	0.00	0.00	0.00
4204	PowerPoint OHP	3,583.82	0.00	0.00	0.00	-127.80	0.00	0.00	0.00	0.00
4205	Equipment unspecified	1,314.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4299	Total	27,053.13	5,879.02	7,590.78	-941.89	3,704.23	1,002.33	325.00	0.00	325.00
4300	Premises (office rent, maintenance, of premises, etc)									
4301	Office rent	451.56	16,000.00	16,000.00	18,840.00	20,724.00	20,724.00	20,724.00	30,144.00	-9,420.00
4302	Furniture	4,910.33	0.00	0.00	46.13	0.00	0.00	0.00	0.00	0.00
4303	unspecified costs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4399	Total	5,361.89	16,000.00	16,000.00	18,886.13	20,724.00	20,724.00	20,724.00	30,144.00	-9,420.00
4999	Component Total	38,832.77	24,914.46	27,510.94	22,481.84	28,763.17	24,256.84	33,049.00	33,765.07	-716.07

Table 2 cont. Final expenditures to December 2007, approved budget, anticipated expenditures and anticipated unspent balance as of December 2008.

		2002	2003	2004	2005	2006	2007	2008		
		Total	Total	Total	Total	Total	Total	PSC-7 Approve	Anticipated status as of December 2008	
		Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Budget 2008	Expenditure	Unspent Balance
5000	MISCELLANEOUS COMPONENT									
5100	Operation and maintenance of equip.									
5101	Rental & maint. of computer equip.	0.00	0.00	0.00	0.00	54.75	0.00	150.00	100.00	50.00
5102	Rental & maint. of copiers	0.00	453.82	1,107.96	753.47	1,437.95	895.56	1,800.00	900.00	900.00
5103	Repair & maint. of vehicles & insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5104	Rental & maint. of other office equip	0.00	197.75	0.00	0.00	59.91	0.00	66.84	0.00	66.84
5105	Rental of meeting rooms & equip.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5199	Total	0.00	651.57	1,107.96	753.47	1,552.61	895.56	2,016.84	1,000.00	1,016.84
5200	Reporting costs (publications, maps, newsletters, printing, etc)									
5201	Reporting	9,518.42	29,565.25	4,984.60	27,730.74	51,208.36	35,482.91	45,000.00	38,267.04	6,732.96
5202	Publication (other than reports)	5,467.68	0.00	0.00	1,382.46	1,101.78	32,031.06	26,995.53	0.00	26,995.53
5203	Webpage design and updating	4,547.37	0.00	0.00	8.15	0.00	0.00	0.00	0.00	0.00
5204	Newsletter	0.00	0.00	0.00	0.00	0.00	0.00	1,000.00	0.00	1,000.00
5299	Total	19,533.47	29,565.25	4,984.60	29,121.35	52,310.14	67,513.97	72,995.53	38,267.04	34,728.49
5300	Sundry (communications, postage, freight, clearance charges, etc)									
5301	Communication	7,786.12	6,226.10	6,891.40	6,979.47	6,183.93	10,986.75	4,000.00	9,778.10	-5,778.10
5302	postage/freight	4,386.04	10,297.44	3,977.00	4,063.07	4,877.79	6,278.54	3,000.00	3,897.79	-897.79
5303	Medical charge	0.00	0.00	0.00	565.71	486.23	0.00	300.00	300.00	0.00
5399	Total	12,172.16	16,523.54	10,868.40	11,608.25	11,547.95	17,265.29	7,300.00	13,975.89	-6,675.89
5400	Hospitality and entertainment									
5401	Hospitality and entertainment	1,000.00	0.00	-432.57	-119.43	0.00	0.00	1,000.00	1,000.00	0.00
5499	Total	1,000.00	0.00	-432.57	-119.43	0.00	0.00	1,000.00	1,000.00	0.00
5500	Evaluation (consultants fees/travel/DSA, admin support, etc.)									
5501	Evaluation (consultants fees/travel/DSA)	0.00	0.00	0.00	0.00	0.00	0.00	100,000.00	100,000.00	0.00
5599	Total	0.00	0.00	0.00	0.00	0.00	0.00	100,000.00	100,000.00	0.00
5999	Component Total	32,705.63	46,740.36	16,528.39	41,363.64	65,410.70	85,674.82	183,312.37	154,242.93	29,069.44
	Project Total	2,226,775.61	1,772,698	1,399,861	1,742,449	2,474,529	2,717,415	3,994,438	3,385,329	609,109

Table 3 Draft Operational Budget 2009 subject to finalisation of 2008 expenditures.

		2002	2003	2004	2005	2006		2008		2008	2009			
		Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Jan-Jun	Jul-Dec	Total Commitment	Commitment	Present Estimated Total	PSC Approved December 2007	Difference
1000	PROJECT PERSONNEL COMPONENT													
1100	Project Personnel w/m (Show title/grade)													
1101	Project Director (L6) Pernetta	126,102.56	163,720.32	167,243.53	175,814.17	202,556.53	193,210.55	109,693.58	104,484.89	214,178.47	63,000.00	1,305,826.13	1,253,511.76	52,314.37
1102	1/2 Senior Expert (L5) Tuan half-time	61,093.84	71,397.98	66,927.94	157,729.04	75,270.99	85,658.00	14,801.09	0.00	14,801.09	0.00	532,878.88	539,174.97	-6,296.09
1103	Expert (L4) discontinued January 2003	101,022.32	1,435.85	-10,039.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	92,419.09	92,419.09	0.00
1104	Expert (L3) Paterson	78,915.36	114,012.23	133,671.85	130,422.06	80,676.44	98,768.91	48,794.73	62,446.63	111,241.36	36,500.00	784,208.21	753,968.69	30,239.52
1105	Junior Expert (L2) Chen	0.00	55,399.13	67,450.68	69,650.34	96,161.35	-13,902.78	0.00	0.00	0.00	0.00	274,758.72	288,661.50	-13,902.78
1106	Junior Expert (L2) Sour	0.00	1,340.88	0.00	55,200.52	82,859.38	99,560.27	0.00	12,887.78	12,887.78	0.00	251,848.83	250,243.42	1,605.41
1107	Junior Expert (L2) Nita	0.00	20,822.27	73,595.01	78,444.68	86,257.26	96,583.29	51,876.60	18,895.38	70,771.98	0.00	426,474.49	474,861.93	-48,387.44
1199	Total	367,134.08	428,128.66	498,849.93	667,260.81	623,781.95	559,878.24	225,166.00	198,714.68	423,880.68	99,500.00	3,668,414.35	3,652,841.36	15,572.99
1200	Consultants w/m (Give description of activity/service)													
1201	Drafting and finalisation of metadata fields & evaluation guidelines, mangroves.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1202	Develop criteria and elements of a national action plans to maintain regionally important mangroves areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1203	Develop regional criteria and SAP elements for mangroves	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1204	Develop regional framework for metadata and linkages for national data systems	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1205	Draft the criteria, guidelines for national management plans and for economic evaluation (coral)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1206	Development of regional priority actions for inclusion in the SAP (coral)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1207	Develop the criteria, guidelines for national management plans and for economic evaluation (seagrass)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1208	Development of regional priority actions for inclusion in the SAP to maintain regionally significant seagrass meadows (seagrass)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1209	Prepare a regional review of wetlands projects, management & use; draft criteria for prioritisation; guidelines for the national management plans and for economic evaluation (wetland)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1210	Develop awareness materials for use among small and artisanal fishing communities in the priority areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1211	Prepare draft regional water quality objectives and water quality and effluent standards for consideration by RWG-Lb-P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1212	Prepare guidelines for the development of national management plans, aimed at implementing the GPA/LBA (pollution)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1213	Develop a South China Sea strategic approach to mitigating priority regional hot spots for inclusion in the SAP for the SCS (pollution)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1214	Regional Scientific & Technical Advisors	12,172.50	25,000.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42,372.50	42,372.50	0.00

Table 3 cont. Draft Operational Budget 2009 subject to finalisation of 2008 expenditures.

		2002	2003	2004	2005	2006	2008	2008	2009						
		Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Jan-Jun	Jul-Dec	Total Commitment	Commitment	Present Estimated Total	PSC Approved December 2007	Difference
2220	MoU Corals Malaysia	17,000.00	0.00	0.00	0.00	0.00	0.00	-2,000.00	0.00	-2,000.00	0.00	15,000.00	17,000.00	-2,000.00	
2221	MoU Seagrass Malaysia	41,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	41,000.00	45,211.23	-4,211.23	
2222	MoU Wetlands Malaysia	0.00	44,000.00	0.00	0.00	0.00	0.00	-11,575.17	-2,940.07	-14,515.24	0.00	29,484.76	30,902.00	-1,417.24	
2223	MoU Fisheries Malaysia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2224	MoU Pollution Malaysia	24,000.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33,000.00	33,000.00	0.00	
2225	MoU IMC Philippines	8,140.00	0.00	18,104.25	3,159.13	0.00	0.00	9,059.58	0.00	9,059.58	0.00	38,462.96	36,903.38	1,559.58	
2226	MoU Mangrove Philippines	43,000.00	0.00	2,588.16	0.00	0.00	0.00	-5,500.00	0.00	-5,500.00	0.00	40,088.16	45,640.87	-5,552.71	
2227	MoU Corals Philippines	44,170.00	12,098.00	18,782.00	5,600.00	5,050.00	2,058.96	41.04	0.00	41.04	0.00	87,800.00	87,800.00	0.00	
2228	MoU Seagrass Philippines	80,000.00	0.00	30,016.00	5,600.00	3,950.00	3,200.00	0.00	0.00	0.00	0.00	122,766.00	122,766.00	0.00	
2229	MoU Wetlands Philippines	19,000.00	20,360.13	22,834.29	4,326.60	5,374.18	0.00	3,324.68	0.00	3,324.68	0.00	75,219.88	77,844.52	-2,624.64	
2230	MoU Fisheries Philippines	14,000.00	3,403.74	32,595.78	6,104.83	7,239.02	7,257.77	28,548.38	0.00	28,548.38	0.00	99,149.52	111,649.52	-12,500.00	
2231	MoU Pollution Philippines	44,000.00	0.00	-33,961.27	-5.00	0.00	0.00	7,205.57	0.00	7,205.57	0.00	17,239.30	18,656.73	-1,417.43	
2232	MoU IMC Thailand	16,280.00	16,280.00	8,140.00	14,491.96	5,703.95	12,660.01	0.00	0.00	0.00	0.00	73,555.92	73,555.92	0.00	
2233	MoU Mangrove Thailand	43,000.00	54,320.00	38,173.37	0.00	0.00	0.00	-1,540.00	-9,228.59	-10,768.59	0.00	124,724.78	135,493.37	-10,768.59	
2234	MoU Corals Thailand	41,740.00	30,370.00	12,870.00	2,400.00	5,042.44	3,557.56	0.00	0.00	0.00	0.00	95,980.00	95,980.00	0.00	
2235	MoU Seagrass Thailand	80,000.00	2,102.00	32,298.00	3,563.00	7,290.00	1,897.00	0.00	0.00	0.00	0.00	127,150.00	127,150.00	0.00	
2236	MoU Wetlands Thailand	33,000.00	19,685.00	14,515.00	5,972.25	5,853.83	2,623.92	0.00	0.00	0.00	0.00	81,650.00	81,650.00	0.00	
2237	MoU Fisheries Thailand	14,000.00	1,027.23	21,341.38	0.00	0.00	0.00	-6,741.72	0.00	-6,741.72	0.00	29,626.89	76,368.61	-46,741.72	
2238	MoU Pollution Thailand	31,370.00	26,968.26	11,540.19	7,393.72	15,502.83	235.91	0.00	0.00	0.00	0.00	93,010.91	93,010.91	0.00	
2239	MoU IMC Vietnam	8,140.00	10,160.00	22,246.00	12,329.00	0.00	8,175.00	0.00	0.00	0.00	0.00	61,050.00	68,550.00	-7,500.00	
2240	MoU Mangrove Vietnam	75,860.00	40,860.00	23,580.00	9,350.00	3,696.76	2,603.24	0.00	0.00	0.00	0.00	155,950.00	155,950.00	0.00	
2241	MoU Corals Vietnam	17,000.00	39,630.00	22,505.49	9,084.31	4,167.64	3,592.56	39,960.00	0.00	39,960.00	0.00	135,940.00	135,980.00	-40.00	
2242	MoU Seagrass Vietnam	80,000.00	15,704.00	25,296.00	4,602.13	6,442.46	4,605.41	0.00	0.00	0.00	0.00	136,650.00	136,650.00	0.00	
2243	MoU Wetlands Vietnam	14,000.00	41,795.05	10,204.95	11,215.93	3,833.93	600.14	0.00	0.00	0.00	0.00	81,650.00	81,650.00	0.00	
2244	MoU Fisheries Vietnam	14,000.00	17,000.00	21,427.09	5,570.00	5,070.00	5,769.90	3,939.50	0.00	3,939.50	0.00	72,776.49	111,177.09	-38,400.60	
2245	MoU Pollution Vietnam	44,000.00	29,000.00	5,000.00	8,750.00	5,447.00	1,453.00	0.00	0.00	0.00	0.00	93,650.00	93,650.00	0.00	
2246	Country MoUs unassigned	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50,000.00	-50,000.00	
2247	Implementation of demonstration activities (3, mangroves)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2247a	Trat Province	0.00	0.00	0.00	42,700.00	0.00	0.00	130,264.00	0.00	130,264.00	0.00	172,964.00	209,379.09	-36,415.09	
2247b	Batu Ampur West Kalimantan	0.00	0.00	0.00	0.00	103,988.00	160,097.78	173,426.46	0.00	173,426.46	0.00	437,512.24	437,546.00	-33.76	
2247c	Fanchenggang City	0.00	0.00	0.00	102,727.00	149,742.00	100,402.87	151,620.13	0.00	151,620.13	0.00	504,492.00	504,492.00	0.00	
2247d	Co-management Thailand/Cambodia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2247e	Cambodia mangrove and wetlands Koh Kapit	0.00	0.00	0.00	0.00	77,669.00	113,137.00	108,411.00	2,500.00	110,911.00	0.00	301,717.00	249,217.00	52,500.00	
2248	Implementation of demonstration activities (3, coral reefs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2248a	Mu Koh Chang	0.00	0.00	0.00	14,758.00	188,851.02	143,458.32	96,520.66	0.00	96,520.66	0.00	443,588.00	443,588.00	0.00	
2248b	Belitung	0.00	0.00	0.00	0.00	113,000.00	173,366.60	58,563.40	0.00	58,563.40	0.00	344,930.00	344,930.00	0.00	
2248c	Masinloc	0.00	0.00	0.00	20,900.00	63,050.00	19,359.26	14,690.74	0.00	14,690.74	0.00	118,000.00	118,000.00	0.00	
2248d	Tun Mustapha Park, Sabah	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2248e	Cambodia - seagrass	0.00	0.00	0.00	0.00	67,818.00	69,676.13	65,652.87	0.00	65,652.87	0.00	203,147.00	163,147.00	40,000.00	
2249	Implementation of demonstration activities (3, seagrass)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2249a	Hepu China	0.00	0.00	0.00	52,950.00	178,962.00	110,963.00	98,475.00	0.00	98,475.00	0.00	441,350.00	441,350.00	0.00	
2249b	Cape Bolinao	0.00	0.00	0.00	25,870.00	68,400.00	40,500.00	0.00	0.00	0.00	0.00	134,770.00	134,770.00	0.00	
2249c	Bai Bon Phu Quoc Island	0.00	0.00	0.00	24,783.00	178,534.38	101,944.36	59,738.26	0.00	59,738.26	0.00	365,000.00	365,000.00	0.00	

Table 3 cont. Draft Operational Budget 2009 subject to finalisation of 2008 expenditures.

		2002	2003	2004	2005	2006	2008	2008	2009					
		Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Jan-Jun	Jul-Dec	Total Commitment	Commitment	Present Estimated Total	PSC Approved December 2007	Difference
	2249d	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2249e	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2250	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2251	3,210.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,210.00	3,210.00	0.00
	2252	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2253	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2253a	0.00	0.00	0.00	0.00	18,000.00	0.00	0.00	15,900.00	15,900.00	0.00	33,900.00	0.00	33,900.00
	2253b	0.00	0.00	0.00	41,635.00	0.00	38,787.00	19,578.00	0.00	19,578.00	0.00	100,000.00	100,000.00	0.00
	2253c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2253d	0.00	0.00	0.00	38,050.00	0.00	0.00	0.00	0.00	0.00	0.00	38,050.00	38,050.00	0.00
	2254	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2255	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2256	0.00	193.50	4,478.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,672.00	4,672.00	0.00
	2257	0.00	0.00	0.00	4,900.00	0.00	0.00	4,900.00	0.00	4,900.00	0.00	9,800.00	4,900.00	4,900.00
	2258	0.00	0.00	0.00	2,900.00	4,806.00	0.00	0.00	0.00	0.00	0.00	7,706.00	7,706.00	0.00
	2259	0.00	0.00	0.00	5,110.00	7,890.00	6,878.00	0.00	0.00	0.00	0.00	19,878.00	19,878.00	0.00
	2260	0.00	0.00	0.00	4,000.00	0.00	0.00	0.00	-450.00	-450.00	0.00	3,550.00	4,000.00	-450.00
	2261	0.00	0.00	0.00	6,500.00	2,187.31	0.00	2,314.19	0.00	2,314.19	0.00	11,001.50	8,687.31	2,314.19
	2262	0.00	0.00	0.00	4,900.00	8,100.00	0.00	0.00	-6,937.19	-6,937.19	0.00	6,062.81	6,062.81	0.00
	2263	0.00	0.00	0.00	5,200.00	0.00	15,300.00	0.00	0.00	0.00	0.00	20,500.00	20,500.00	0.00
	2264	0.00	0.00	0.00	7,288.00	5,662.00	3,510.00	4,030.00	0.00	4,030.00	0.00	20,490.00	24,430.00	-3,940.00
	2265	0.00	0.00	0.00	4,600.00	5,190.00	7,495.00	2,135.00	0.00	2,135.00	0.00	19,420.00	19,420.00	0.00
	2267	0.00	0.00	0.00	3,460.00	8,873.00	0.00	2,892.00	0.00	2,892.00	0.00	15,225.00	12,333.00	2,892.00
	2268	0.00	0.00	0.00	13,000.00	0.00	7,121.00	-3,590.00	0.00	-3,590.00	0.00	16,531.00	20,121.00	-3,590.00
	2269	0.00	0.00	0.00	0.00	8,164.00	0.00	-4,924.64	0.00	-4,924.64	0.00	3,239.36	8,164.00	-4,924.64
	2270	0.00	0.00	0.00	3,000.00	10,000.00	8,277.67	3,462.63	0.00	3,462.63	0.00	24,740.30	27,714.57	-2,974.27
	2271	0.00	0.00	0.00	7,208.00	5,792.00	0.00	1,225.00	0.00	1,225.00	0.00	14,225.00	25,500.00	-11,275.00
	2272	0.00	0.00	0.00	0.00	0.00	0.00	0.00	720,000.00	720,000.00	0.00	720,000.00	636,000.00	84,000.00
	2299	1,545,767.80	915,904.48	577,175.96	678,753.65	1,427,539.41	1,270,864.31	1,189,443.24	734,494.15	1,923,937.39	0.00	8,339,943.00	8,424,745.14	-84,802.14
	2300	Sub-contracts (commercial purposes)												
	2301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2399	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2999	1,545,767.80	915,904.48	577,175.96	678,753.65	1,427,539.41	1,270,864.31	1,189,443.24	734,494.15	1,923,937.39	0.00	8,339,943.00	8,424,745.14	-84,802.14
3000	TRAINING COMPONENT													
	3100	Fellowships (total stipend/fees, travel, costs, etc)												
	3101	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,000.00	-5,000.00
	3102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,000.00	-5,000.00

Table 3 cont. Draft Operational Budget 2009 subject to finalisation of 2008 expenditures.

			2002	2003	2004	2005	2006		2008		2008	2009			
			Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Jan-Jun	Jul-Dec	Total Commitment	Commitment	Present Estimated Total	PSC Approved December 2007	Difference
3103	Support for young scientists working in demonstration site (seagrass)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,000.00	-5,000.00
3104	Support for young professionals in project management and implementation		0.00	29,681.61	10,240.19	18,341.81	22,414.37	4,500.00	0.00	0.00	0.00	0.00	85,177.98	110,177.98	-25,000.00
3105	Support for young scientists working in demonstration site (wetlands)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3199	Total		0.00	29,681.61	10,240.19	18,341.81	22,414.37	4,500.00	0.00	0.00	0.00	0.00	85,177.98	125,177.98	-40,000.00
3200	Group training (study tours, field trips, workshops, seminars, etc)												85177.980		
3201	Study tours to demonstration sites (mangrove)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	25,000.00	25,000.00	0.00	25,000.00	50,000.00	-25,000.00
3202	Study tours to demonstration sites (coral)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	25,000.00	25,000.00	0.00	25,000.00	50,000.00	-25,000.00
3203	Study tours to demonstration sites (seagrass)		0.00	0.00	0.00	0.00	0.00	20,768.00	24,200.00	25,000.00	49,200.00	0.00	69,968.00	70,768.00	-800.00
3204	Study tours to pilot sites (pollution)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	20,000.00	20,000.00	0.00	20,000.00	45,000.00	-25,000.00
3205	Training courses workshops wetlands		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3206	Training courses workshops on coral reefs		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3207	Training courses workshops on seagrasses		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3208	Training workshop on wetland management		0.00	0.00	0.00	0.00	0.00	40,447.58	2,341.80	0.00	2,341.80	0.00	42,789.38	60,854.72	-18,065.34
3210	Training workshop on blast fishing detection system (fishery)		0.00	0.00	0.00	0.00	0.00	0.00	34,525.00	-34,525.00	0.00	0.00	0.00	0.00	0.00
3211	Regional workshops to promote the Code of Conduct for Responsible Fisheries		0.00	0.00	6,141.43	-378.50	0.00	0.00	0.00	0.00	0.00	0.00	5,762.93	5,762.93	0.00
3212	Training courses, workshops on water quality management and pollution control		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3213	Training courses, workshops on resource evaluation and environmental economics		0.00	0.00	0.00	0.00	0.00	16,070.00	10,199.87	15,299.86	25,499.73	0.00	41,569.73	31,393.00	10,176.73
3214	Group training unspecified		0.00	0.00	0.00	0.00	0.00	0.00	3,292.02	-3,292.02	0.00	0.00	0.00	65,000.00	-65,000.00
3215	Support to PEMSEA Congress		0.00	0.00	0.00	0.00	15,516.75	22.41	0.00	0.00	0.00	0.00	15,539.16	15,539.16	0.00
3216	Management Models & Strategies for Coral Reef and Seagrass Ecosystems		0.00	0.00	0.00	0.00	0.00	32,460.00	24,861.02	0.00	24,861.02	0.00	57,321.02	63,785.00	-6,463.98
3217	Mechanisms for Sustainable Production & Use of Mangroves and Other Wetlands		0.00	0.00	0.00	0.00	0.00	73,770.65	0.00	0.00	0.00	0.00	73,770.65	73,770.65	0.00
3218	Community based Resource Management		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	55,000.00	-55,000.00
3219	Larval Fish Identification and Fish early Life History Science		0.00	0.00	0.00	0.00	0.00	42,428.98	0.00	0.00	0.00	0.00	42,428.98	42,428.98	0.00
3220	Establishing and Managing Fisheries <i>refugia</i>		0.00	0.00	0.00	0.00	0.00	30,309.00	0.00	0.00	0.00	0.00	30,309.00	37,540.00	-7,231.00
3221	Project Design, Planning and Financial Management.		0.00	0.00	0.00	0.00	0.00	0.00	0.00	60,000.00	60,000.00	0.00	60,000.00	60,000.00	0.00
3222	National Echo seminars (amounts to be allocated to SEAs as required)		0.00	0.00	0.00	0.00	0.00	90,767.00	85,774.47	0.00	85,774.47	0.00	176,541.47	150,569.00	25,972.47
3223	Advanced Larval Fish identification and fish early life history Science				0.00	0.00	0.00	0.00	0.00	34,525.00	34,525.00	0.00	34,525.00	45,000.00	-10,475.00
3224	Support to Wetland Conference		0.00	0.00	0.00	0.00	0.00	0.00	8,003.10	32.53	8,035.63	0.00	8,035.63	25,000.00	-16,964.37
3225	Support to Ocean Conference		0.00	0.00	0.00	0.00	0.00	0.00	3,292.02	3,292.02	3,292.02	0.00	3,292.02	0.00	3,292.02
3299	Total		0.00	0.00	6,141.43	-378.50	15,516.75	347,043.62	193,197.28	170,332.39	363,529.67	0.00	731,852.97	947,411.44	-215,558.47
3300	Meetings/conferences (give title)												731852.970		
3301	Project Steering Committee meetings		16,002.25	0.00	32,026.52	8,770.82	10,917.78	9,933.85	-206.86	12,122.67	11,915.81	0.00	89,567.03	99,446.77	-9,879.74
3302	Regional Scientific & Technical Committee		29,035.69	14,804.11	34,020.00	13,520.40	21,378.44	15,174.38	-209.36	40,000.00	39,790.64	0.00	167,723.66	158,211.74	9,511.92
3303	Regional Working Group Mangroves (RWG-M)		18,606.38	25,488.61	8,016.76	7,175.28	11,827.49	7,825.52	19,670.03	0.00	19,670.03	0.00	98,610.07	96,940.04	1,670.03
3304	Regional Working Group Corals (RWG-C)		15,030.82	21,635.33	1,473.96	7,545.90	8,939.03	6,879.88	11,691.44	-89.06	11,602.38	0.00	73,107.30	79,504.92	-6,397.62

Table 3 cont. Draft Operational Budget 2009 subject to finalisation of 2008 expenditures.

		2002	2003	2004	2005	2006	2008	2008	2008	2009				
		Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Total Expenditure	Jan-Jun	Jul-Dec	Total Commitment	Commitment	Present Estimated Total	PSC Approved December 2007	Difference
3305	Regional Working Group Seagrass (RWG-S)	20,444.21	26,372.95	17,384.06	9,947.32	14,065.22	6,952.42	9,721.79	0.00	9,721.79	0.00	104,887.97	113,338.55	-8,450.58
3306	Regional Working Group Wetlands (RWG-W)	21,901.17	25,689.47	6,211.04	6,803.71	7,168.47	10,259.18	10,570.31	-503.11	10,067.20	0.00	88,100.24	97,226.21	-9,125.97
3307	Regional Working Group Fisheries (RWG-F)	14,951.81	7,194.58	1,369.59	13,819.54	28,786.94	11,818.66	11,013.86	-218.87	10,794.99	0.00	88,736.11	96,824.60	-8,088.49
3308	Regional Working Group Pollution (RWG-LbP)	21,692.29	10,448.86	22,918.94	9,945.88	10,580.01	9,414.68	10.11	0.00	10.11	0.00	85,010.77	102,997.56	-17,986.79
3309	Develop regional management plans for a regional system of <i>refugia</i> for transboundary fish stocks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3310	Agree on priority regional hot spots for inclusion in the SAP for the SCS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3311	Consideration of regional priority actions, targets and approaches for inclusion in the SAP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3312	Convene two regional scientific meetings in conjunction with partnership conferences for presentation of the SAP and priority actions portfolios	0.00	30,000.00	28,122.87	108,010.90	-3,524.47	141,331.66	-1,258.25	-5,941.60	-7,199.85	0.00	296,741.11	283,315.32	13,425.79
3313	6 workshops to: review national legislation; discuss modes of armonization; & current obligations of countries under Global Conventions (RTF-L)	12,130.66	5,818.97	7,285.17	6,066.39	14,898.71	5,167.23	5,719.84	-12.65	5,707.19	0.00	57,074.32	53,294.29	3,780.03
3314	Review possible approaches to meeting the common objectives of the countries in the SAP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30,000.00	-30,000.00
3315	Meeting unspecified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3316	GIS, Data & Information workshops	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30,000.00	-30,000.00
3317	Economic valuation (RTF-E)	0.00	7,217.88	9,440.61	7,259.66	18,690.82	18,805.11	18,687.61	-2,182.00	16,505.61	0.00	77,919.69	77,936.08	-16.39
3318	Ad hoc facilitation meetings	0.00	0.00	7,360.14	4,085.47	3,324.57	0.00	6,566.03	10,000.00	16,566.03	0.00	31,336.21	34,770.18	-3,433.97
3319	Mayors and Demo Site Managers Round Table	0.00	0.00	0.00	0.00	42,439.44	68,283.61	-1,890.59	96,500.52	94,609.93	0.00	205,332.98	218,625.30	-13,292.32
3320	Support to National Workshops for project priorities			0.00	0.00	0.00	0.00	30,000.00	0.00	30,000.00	0.00	30,000.00	52,500.00	-22,500.00
3321	Regional Forum for NAP project Development and Donor Forum			0.00	0.00	0.00	0.00	0.00	70,000.00	70,000.00	0.00	70,000.00	70,000.00	0.00
3399	Total	169,795.28	174,670.76	175,629.66	202,951.27	189,492.45	311,846.18	120,085.96	219,675.90	339,761.86	0.00	1,564,147.46	1,694,931.56	-130,784.10
3999	Component Total	169,795.28	204,352.37	192,011.28	220,914.58	227,423.57	663,389.80	313,283.24	390,008.29	703,291.53	0.00	2,381,178.41	2,767,520.98	-386,342.57
4000	EQUIPMENT & PREMISES COMPONENT											2,381,178.41		
4100	Expendable equipment (items under \$1,500 each, for example)													
4101	Office supplies	3,375.64	3,035.44	3,920.16	4,537.60	4,334.94	2,530.51	1,621.07	2,000.00	3,621.07	6,000.00	31,355.36	40,109.31	-8,753.95
4102	Library acquisitions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4103	Computer Software	3,042.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,042.11	3,042.11	0.00
4199	Total	6,417.75	3,035.44	3,920.16	4,537.60	4,334.94	2,530.51	1,621.07	2,000.00	3,621.07	6,000.00	34,397.47	43,151.42	-8,753.95
4200	Non-expendable equipment (computers, office equip, etc)													
4201	Computers	11,068.25	5,879.02	4,852.67	-941.89	3,832.03	1,002.33	0.00	0.00	0.00	0.00	25,692.41	25,692.41	0.00
4202	Printers	11,087.05	0.00	730.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11,817.81	12,142.81	-325.00
4203	Copy machine	0.00	0.00	2,007.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,007.34	2,007.34	0.00
4204	PowerPoint OHP	3,583.82	0.00	0.00	0.00	-127.80	0.00	0.00	0.00	0.00	0.00	3,456.02	3,456.02	0.00
4205	Equipment unspecified	1,314.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,314.01	1,314.01	0.00
4299	Total	27,053.13	5,879.02	7,590.77	-941.89	3,704.23	1,002.33	0.00	0.00	0.00	0.00	44,287.59	44,612.59	-325.00
4300	Premises (office rent, maintenance, of premises, etc)													
4301	Office rent	451.56	16,000.00	16,000.00	18,840.00	20,724.00	20,724.00	15,072.00	15,072.00	30,144.00	30,144.00	153,027.56	119,463.56	33,564.00
4302	Furniture	4,910.33	0.00	0.00	46.13	0.00	0.00	0.00	0.00	0.00	0.00	4,956.46	4,956.46	0.00
4303	unspecified costs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4399	Total	5,361.89	16,000.00	16,000.00	18,886.13	20,724.00	20,724.00	15,072.00	15,072.00	30,144.00	30,144.00	157,984.02	124,420.02	33,564.00
4999	Component Total	38,832.77	24,914.46	27,510.93	22,481.84	28,763.17	24,256.84	16,693.07	17,072.00	33,765.07	36,144.00	236,669.08	212,184.03	24,485.05

Table 3 cont. Draft Operational Budget 2009 subject to finalisation of 2008 expenditures.

		2002	2003	2004	2005	2006	Total	2008	2008	2008	2009	Present	PSC Approved	Difference
		Total	Total	Total	Total	Total	Total	Jan-Jun	Jul-Dec	Total	Commitment	Estimated Total	December 2007	
		Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure			Commitment				
5000	MISCELLANEOUS COMPONENT											236,669.08		
5100	Operation and maintenance of equip.													
5101	Rental & maint. Of computer equip.	0.00	0.00	0.00	0.00	54.75	0.00	0.00	100.00	100.00	100.00	254.75	304.75	-50.00
5102	Rental & maint. Of copiers	0.00	453.82	1,107.96	753.47	1,437.95	895.56	0.00	900.00	900.00	900.00	6,448.76	7,346.79	-898.03
5103	Repair & maint. Of vehicles & insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5104	Rental & maint. Of other office equip	0.00	197.75	0.00	0.00	59.91	0.00	0.00	0.00	0.00	0.00	257.66	324.50	-66.84
5105	Rental of meeting rooms & equip.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5199	Total	0.00	651.57	1,107.96	753.47	1,552.61	895.56	0.00	1,000.00	1,000.00	1,000.00	6,961.17	7,976.04	-1,014.87
5200	Reporting costs (publications, maps, newsletters, printing, etc)													
5201	Reporting	9,518.42	29,565.25	4,984.60	27,730.74	51,208.36	35,482.91	23,380.56	14,886.48	38,267.04	15,000.00	211,757.32	221,634.23	-9,876.91
5202	Publication (other than mtg reports)	5,467.68	0.00	0.00	1,382.46	1,101.78	32,031.06	0.00	25,000.00	25,000.00	0.00	64,982.98	67,053.03	-2,070.05
5203	Webpage design and updating	4,547.37	0.00	0.00	8.15	0.00	0.00	0.00	0.00	0.00	0.00	4,555.52	4,555.52	0.00
5204	Newsletter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,000.00	-1,000.00
5299	Total	19,533.47	29,565.25	4,984.60	29,121.35	52,310.14	67,513.97	23,380.56	39,886.48	63,267.04	15,000.00	281,295.82	294,242.78	-12,946.96
5300	Sundry (communications, postage, freight, clearance charges, etc)													
5301	Communication	7,786.12	6,226.10	6,891.40	6,979.47	6,183.93	10,986.75	5,700.52	4,077.58	9,778.10	2,000.00	56,831.87	50,415.69	6,416.18
5302	Postage/freight	4,386.04	10,297.44	3,977.00	4,063.07	4,877.79	6,278.54	1,767.89	7,500.00	9,267.89	1,000.00	44,147.77	38,086.41	6,061.36
5303	Medical charge	0.00	0.00	0.00	565.71	486.23	0.00	0.00	300.00	300.00	0.00	1,351.94	1,851.94	-500.00
5399	Total	12,172.16	16,523.54	10,868.40	11,608.25	11,547.95	17,265.29	7,468.41	11,877.58	19,345.99	3,000.00	102,331.58	90,354.04	11,977.54
5400	Hospitality and entertainment													
5401	Hospitality and entertainment	1,000.00	0.00	-432.57	-119.43	0.00	0.00	0.00	1,000.00	1,000.00	0.00	1,448.00	1,448.00	0.00
5499	Total	1,000.00	0.00	-432.57	-119.43	0.00	0.00	0.00	1,000.00	1,000.00	0.00	1,448.00	1,448.00	0.00
5500	Evaluation (consultants fees/travel/DSA, admin support, etc.)													
5501	Evaluation (consultants fees/travel/DSA)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100,000.00	100,000.00	0.00	100,000.00	100,000.00	0.00
5599	Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100,000.00	100,000.00	0.00	100,000.00	100,000.00	0.00
5999	Component Total	32,705.63	46,740.36	16,528.39	41,363.64	65,410.70	85,674.82	30,848.97	153,764.06	184,613.03	19,000.00	492,036.57	494,020.86	-1,984.29
												492,036.57		
9999	Project Total	2,226,775.61	1,772,698.11	1,399,861.60	1,742,449.03	2,474,529.20	2,717,414.65	1,899,545.00	1,547,755.33	3,447,300.33	178,144.00	15,959,172.53	16,414,000.00	-454,827.47
		2,226,775.61	1,772,698.11	1,399,861.60	1,742,449.03	2,474,529.20	2,689,248.49			3,994,437.96	114,000.00	15,959,172.53		454,827.47

