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Facility

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

REPORT

**Second Meeting of the Regional Working Group for
the Seagrass Sub-component**

Hue, Vietnam, 28 – 31 October 2002

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Report of the Meeting

1. OPENING OF THE MEETING

1.1 Welcome address

1.1.1 Dr. Hugh Kirkman, the Project Coordinating Unit Member of the Regional Working Group for Seagrass (RWG-SG), on behalf of Dr. Klaus Töpfer, the Executive Director of UNEP, Dr. Ahmed Djoghlaf, the Director, Division of GEF Co-ordination (UNEP/DGEF), and Dr. John Pernetta, Project Director of the South China Sea Project, thanked the participants for coming to Hue and welcomed them to this important meeting. He alerted the participants to the amount of work involved under each agenda item with only three days to do it in. He expressed the hope that they had come prepared, with all the reviews and reports required to achieve the objectives. Although he realised that the requirements for the seagrass sub-component were quite large and needed commitment and work to accomplish them, he expressed disappointment at the response and returns that have come to the Project Coordinating Unit. He reminded the focal points that they are committed by the terms of the Memoranda of Understanding (MoU) for the seagrass sub-component to spend 25% of their time on this project.

1.1.2 He expressed the desire that by the end of the meeting there would be some feasible and timely commitments to achieving the objectives so that the seagrass sub-component can keep up with the other components and sub-components and make wise and useful suggestions to the Regional Scientific and Technical Committee. He asked that they try to remember that this project is only as good as their input. It is designed to help the participating countries and had been designed by experts and representatives of their countries. The Project Coordinating Unit facilitates project management, but the Regional Working Groups are central to the success activities carried out within the project.

1.1.3 Dr. Kirkman referred to the many documents they had to review and asked participants to make summaries of any reports that they handed in at the meeting for inclusion as Annexes to the meeting report. He noted that preparing such inputs to the report would help the *rapporteur* prepare a correct report of the meeting and would lessen the time taken in adopting the report of the meeting. He said that each member of the RWG-SG must fully understand and agree with the outcome of each agenda item.

1.2 Introduction of new members

1.2.1 Dr. Malikusworo Hutomo the newly appointed Regional Expert member of the RWG-SG introduced himself and was welcomed by the meeting. A list of participants is contained in Annex 1 of this report.

2. ORGANISATION OF THE MEETING

2.1 Documents available to the meeting

2.1.1 Dr. Cabanban briefed participants on the documents available to the meeting, (UNEP/GEF/SCS/RWG-SG.2/INF.1) which included discussion documents, one of which was not available as a hard copy, (Short *et al.*, 2001). This would be projected for participants at the appropriate time. In addition, copies of the reports of the first meetings of each of the Regional Working Groups, the Project Steering Committee and the Regional Scientific and Technical Committee were made available to participants for information. The list of documents available to the meeting is attached as Annex 2 to this report.

2.2 Designation of officers

2.2.1 In accordance with the rules of procedure for the Project Steering Committee adopted by the RWG during their first meeting, the Chairperson, Vice-Chairperson and Rapporteur shall hold office for one year, such that, Professor Xiaoping Huang, Dr. Suvaluck Satumanatpan and Dr. Hugh Kirkman remained as Chairperson, Vice Chairperson and Rapporteur respectively for the second meeting of the

Regional Working Group on Seagrass. In the absence of Professor Xiaoping Huang on the first day, and in accordance with the rules of procedure, Dr. Suvaluck acted as Chairperson.

2.3 Organisation of work

2.3.1 It was noted that the meeting would be conducted in English and would work in plenary although it may be necessary to form small working groups for consideration of the detail of some agenda items, as had been done by the previous working group. The secretariat briefed the participants on the administrative arrangements for the conduct of the meeting, and the proposed programme of work (UNEP/GEF/SCS/RWG-SG.2/INF.3) was outlined. It was agreed that the meeting would follow this proposed programme, but that sessions would be extended at the discretion of the Chairperson and members.

3. ADOPTION OF THE MEETING AGENDA

3.1 Dr. Suvaluck, the acting Chairperson, introduced the provisional agenda, prepared by the Secretariat as document UNEP/GEF/SCS/RWG-SG.2/1, and invited participants to propose any amendments or additional items for consideration. The agenda was adopted without change by the meeting, and is attached as Annex 3 to this report.

4. REPORT OF THE SECRETARIAT CONCERNING THE MID-YEAR REVIEWS AND REPORTS FROM PARTICIPATING COUNTRIES

4.1 The Secretariat presented document UNEP/GEF/SCS/RWG-SG.2/4 containing a summary of the findings of the Project Coordinating Unit (PCU) following receipt of the six monthly progress reports, expenditure statements and cash advance requests from the Specialised Executing Agencies. The six monthly progress reports from the Focal Points of Cambodia, China, Indonesia, Philippines and Thailand are available as document UNEP/GEF/SCS/RWG-SG.2/5).

4.2 Members considered the issues and problems raised in this report. It was pointed out that a summary of local language national reports should be provided to the PCU in English. In response to a question on costs of publications, if they were produced in the first six months, a budget revision must be made as there is no allocation for publication in the first half of the year. Dr. Cabanban explained that in the next reporting period, not only expenditure and activity reports were expected. Funds would only be released after reports and reviews, agreed upon at this meeting, were submitted. The participants expressed their appreciation at being able to amend the workplan during Agenda item 9.

4.3 A question was raised that the workplan had changed the conditions of the MoU. Dr. Kirkman explained that if the changes in the MoU did not affect its intent, there would be no problem in carrying out the new activities.

4.4. Dr. Cabanban met with individual members to discuss specific requirements needed in the mid-year reports.

5. REPORTS FROM THE FOCAL POINTS ON INTER-SESSIONAL ACTIVITIES AT THE NATIONAL LEVEL

5.1 Review National reports

5.1.1 Annex 9 of the first meeting report (UNEP/GEF/SCS/RWG-SG.1/3) indicates that the following outputs were to be prepared by the Focal Points in advance of this meeting:

Review of past & on-going projects:	1 st draft June; final draft September 2002
Identification & characterisation of "sites"	1 st draft September, 2 nd draft December
Review National legislation	1 st draft September, Final draft December

5.1.2 Documentation was received by the Secretariat only from the Focal Point for Cambodia in advance of the meeting and this had been duplicated and distributed to all members as UNEP/GEF/SCS/RWG-SG.2/7.Cam.

5.1.3 Members were invited to make separate presentations under each of the sub-items of this agenda item, corresponding to the outputs agreed during the first Regional Working Group meeting. The Focal Points provided a report of the work of the National Committees with respect to activities conducted during the inter-sessional period in accordance with the agreed workplan and timetable. The revised lists of members of the National Seagrass Committees are contained in Annex 4 of this document.

5.1.4 Mr. Kim Sour focal point for seagrass from Cambodia informed the meeting that he would prefer to refer to the committee as a national working group in his country but agreed that it could remain designated as a committee for the project purposes. There are 16 members of the Working Group in Cambodia. The expertise is varied, including marine biology and ecology, community-based resources management, national park management, fishery management, and coral reef experts.

5.1.5 Mr. Kamarruddin bin Ibrahim, focal point for seagrass from Malaysia, said that due to the late start of his country in the project, little had been achieved but he assured the meeting that the Malaysian Seagrass Committee would soon be in operation and carrying out its obligations.

5.1.6 Dr. Suvaluck Satumanatpan, focal point for seagrass from Thailand, explained that her committee might need revision due to the rearrangement of government departments under the new ministry. She asked if committee membership could be changed. It was explained there was a suggested committee composition based on fields of interest in the Terms of Reference but that committee membership is up to the national SEA, subject to the approval of the National Focal Point for the project.

5.2 Review of past and on-going activities

5.2.1 The National Focal Points for Cambodia, China, Indonesia, Philippines, Thailand and Vietnam presented their draft national reviews of past and on-going projects. The meeting discussed these brief reports and paid attention to possible overlap or transboundary activities of relevance to the "sites" to be chosen in this Project.

5.2.2 To obtain a consistent report and details on the past on-going activities, it was decided that the headings for a table should be formalized and each project should be categorized under key words developed by the meeting. Summaries of the presentations are attached as Annex 5 to this report in the agreed format.

5.2.3 A survey was conducted to assess projects on seagrass beds in the participating countries using a questionnaire developed by the regional Working Group on Coral Reefs (Annex 6). The results of the survey showed that there were projects for the biodiversity assessment, socio-economic assessment, and management, protection, and conservation of seagrass habitats. These have been useful to increase public awareness, introduction of new legislation, and community involvement in seagrass management, among others but more work is needed in the distribution of seagrass to help address management issues.

5.3 Creation of national meta-database

5.3.1 Dr. Kirkman gave a lengthy explanation on the uses of metadata and assisted the participants in understanding the questionnaire for metadata entry. He used a real example to illustrate the use of the format. Only two countries had attempted to prepare metadata; none of the Focal Points presented metadata but much discussion followed and all participants agreed that they now understood metadata and would complete the metadata entry form for all data they knew of. They agreed that the metadata file identifier follow a common system, *i.e.*, the first three letters of the country, the code for the habitat, and the number of the file (for example, THA-SG-00001).

5.3.2 The meeting requested that slight modifications and corrections to the metadata entry format be made by SEA-START RC and requested that the comments for each field should have a corresponding number. They also requested a copy of the worked format for guidance.

6. DISCUSSION AND REPORTS ON ON-GOING ACTIVITIES REGARDING THE CHARACTERISATION OF NATIONAL SEAGRASS SITES AND THEIR REGIONAL PRIORITISATION

6.1 Identification and characterisation of “sites”

6.1.1 Dr. Kirkman explained that the countries would not, in fact, be asked to prioritise their seagrass bed sites at this stage but they would use the characterisation parameters developed in the first RWG-SG to list them.

6.1.2 The National Focal Points of Cambodia, China, Indonesia, Philippines, Thailand and Vietnam reported on the seagrass areas of regional and transboundary significance for discussion and later prioritisation by the Regional Working Group (Annex 7). The representative from Cambodia was congratulated by the meeting on the very rapid accumulation of seagrass information and identification of species and sites in the past four years.

6.1.3 The participant from Malaysia agreed to begin getting this data together. He showed pictures of seagrass from some sites in the Straits of Johor. He said that there was also seagrass around Tioman Island and Setil lagoon. He also mentioned the status of green turtle research in Malaysia and that tracked specimens may have migrated to large seagrass areas in Malaysia as yet undescribed in the Sulu Sea. Dr. Cabanban also added information on the presence of seagrass beds in the Tunku Abdul Rahman Park, off Kota Kinabalu and in North Borneo Islands (off Kudat District).

6.1.4 Dr. Suvaluck reported on large seagrass beds in the Gulf of Thailand and mentioned she has data for dugong deaths from the Phuket Marine Biological Center and from local people. Seahorses and holothurians were mentioned that would be found in the seagrass, even without a scientific study. Physical and chemical data show seagrasses are in good state. Red tides are known from one site but this would be compiled later.

6.2 Review of National Legislation

6.2.1 National Focal Points reviewed their National legislation. A brief summary of their presentations is provided in the following paragraphs.

6.2.2 The representative of Cambodia noted that, there was no specific national seagrass policy for Cambodia but there was much useful legislation, including Fishery Law to manage coastal living resources in Cambodia. The Fisheries Law is the only one that mentions seagrass. Many international conventions that concern marine issues have been signed and ratified by Cambodia.

6.2.3 Professor Huang reviewed environmental protection laws in China. There is no law specific to seagrass in China but the Convention on Biological Diversity and Marine Environment Protection Law are treated seriously. There are a number of laws that would protect seagrass in China.

6.2.4 Mr. Kuriandewa listed a large number of laws pertaining to seagrass but there was none that specifically mentioned seagrass. International conventions were signed and ratified by Indonesia. He told the meeting that most of the legislation was top down and not community-based.

6.2.5 The participant from Malaysia described legislation in his country including fisheries, marine parks, environmental protection and ship-based pollution. He emphasized there was a need for specific legislation on seagrass.

6.2.6 Dr. Fortes mentioned that a lawyer in the National Seagrass Committee would further review the legislation that pertains to seagrass conservation in the Philippines. The many laws and regulations

were categorized into levels of implementation. In the initial review, only one regulation was developed for the specific purpose of protecting seagrass beds. Details of his report are in Annex 8 of the report.

6.2.7 Dr. Suvaluck divided her report into three, first a national plan and second laws, and other legislation. Her third section was international legislation for marine protection. There is no legislation specifically for seagrass but seagrass may be declared as a protected area in Thailand.

6.2.8 Dr. Tien from Vietnam explained that there was no policy or legislation on seagrass. However, there was general policy on marine habitats including the biodiversity plan on conservation, conservation of marine habitats under the Ministry of Natural Resources and Environment and Ministry of Fisheries.

6.2.9 The meeting suggested the format be prepared in the form of a table to assemble information on national legislation pertaining to the management, use and conservation of seagrass ecosystems (Annex 9). Dr. Fortes suggested that lawyers be commissioned to review each nation's summary of legislation and policies in more detail. Each country could carry this out after the table was completed. He suggested that the review should focus more on legislation pertaining to seagrass, rather than general legislation concerning conservation or management of coastal ecosystems and resources. Examples of specific legislation are the Municipal Executive Order *Bantay/say* (Seagrass Watch) and those that prevent pushnets used on seagrass beds or the conservation of seagrass-dependent species, like dugong and turtles.

7. DISCUSSION ON AGREED ACTIVITIES TO BE UNDERTAKEN WITHIN THE NEXT INTERSESSIONAL PERIOD

7.1 Development of Regional Criteria

7.1.1 The National Focal Points discussed criteria for adoption by the Project Steering Committee for determining the global, regional and transboundary significance of seagrass areas bordering the South China Sea. Dr. Fortes gave a list of site selection criteria and spoke about the various considerations that participants should put on using the criteria. The criteria were:

1. Representativeness (of the locality, region, etc)
2. Ecological significance (species richness, habitat links)
3. Environmental significance (nature, degree of impact)
4. Scale (sizable bed)
5. Accessibility
6. Database support
7. Management significance
8. National/Regional/Global significance

7.1.2 There was extensive discussion regarding the difference between these criteria and those developed at the First RWG-SG for demonstration sites (Annex 6 UNEP/GEF/SCS/RWG-SG.1/3). Dr. Cabanban pointed out that a good selection of the many sites in each country could be prioritised. Dr. Fortes presented to the meeting the criteria, basically a set of questions (Annex 10), developed in the Philippines for the selection of sites for inclusion in the South China Sea Project. These set of questions may assist in the selection of demonstration sites in the region.

7.1.3 A sub-committee, composed of Mr. Kuriandewa and Dr. Fortes, and the regional experts, Dr. Hutomo, and Dr. Chittima, was established to draft regional criteria within three headings: Transboundary significance, Potential for a site to demonstrate management intervention, reverse degrading environmental trends, and Connectivity with other habitats. It was agreed that they would present the draft to the meeting for discussion and adoption.

7.1.4 The agreed regional criteria were discussed at length and it was decided that the participants should decide on a qualitative basis the significance of their sites using the criteria. If they decided on a site as of transboundary significance, they should be able to support their decision on the basis of qualitative or quantitative data at the relevant RWG-SG meeting where site recommendations would be

made. The criteria for consideration are for **Transboundary Significance**, source or sink of larvae/juveniles, carbon and nutrient transfer, transboundary human activities, migratory pathways, international trade of goods and transboundary protected area, e.g. transborder World Heritage Site, transboundary Biosphere reserve. For **Management Potential**, accessibility, area extent, existing management, local acceptance, and existing information. For **Connectivity**, presence of migratory species, heterogeneity of habitats, spawning grounds and nursery grounds. Finally, for **Biodiversity**, species biodiversity, density, species diversity of associated biota and presence of endangered species.

7.1.5 There was a question on the characterisation parameters in Annex 7 UNEP/GEF/SCS/RWG-SG.1/3 and how it related to the GIS questionnaire. It was explained that the questionnaire was based on the characterisation parameters developed at the first meeting of the RWG-SG. Dr. Cabanban also drew the attention of the meeting to Annex 4 of the Regional Scientific and Technical Committee (RSTC) Meeting (UNEP/GEF/SCS/RSTC.1/3) in which guidelines were given on deciding seagrass significance on a national, global, and international level.

7.2 Report on threats at site level

7.2.1 The National Focal Points reported on threats to seagrass ecosystems on a site basis.

7.2.2 Mr. Kim Sour reported that his information regarding threats was based on what he had heard or seen in Cambodia. Pushnet and trawling, which are not officially allowed by the Fishery Law are considered to be the main threats followed by sedimentation from erosion; seaweed farming; and water transportation with wakes and anchoring. He suggested that climate change may be a threat but little was known of this in Cambodia.

7.2.3 Professor Huang mentioned the effects of typhoons, shrimp culture, aquaculture cages, shellfish collection, explosive fishing methods, electric fishing and poisons, trawling, pollution, and digging for ports and channels were all threats in China.

7.2.4 In the case of Thailand threats were fishing with large trawlers and pushnets, wastewater from shrimp farming, mining and sedimentation from development. Dr. Suvaluck was asked about evidence for seagrass degradation and she explained that this was a field of her interest and that it was difficult to determine in the short term due to the lack of baseline data. Fishing pressure was increasing all the time but fisheries yields declining.

7.2.5 Dr. Fortes discussed threats at each of the ten sites along the western coast of the Philippines. Threats were natural or man-induced and he pointed out that seagrass species differed in their response to different disturbance. The threats included typhoons, man-made pollution, over harvesting, dynamite fishing, physical removal of seagrass beds, siltation and conversion for other purposes.

7.2.6 Dr. Fortes noted that, Fuga Islands and Escarpada Point had no man-induced threats. The threats at Cape Bolinao were sediment movement and silting. Sometimes seagrasses recovered. Pollution is a recent threat. Fish cages and over-harvesting using fine mesh nets or dynamite were the main threats. At Masinloc-Oyon Bay a coal-based electric plant dumped heated effluent in the seagrass bed and only *Enhalus acoroides* remained. There was some loss due to removal of seagrass for fishponds. Puerto Galera seagrass beds were impacted by domestic sewage generated from local people and tourism. At Malampaya Sound over-harvesting, siltation and conversion for other purposes were the main impacts. Bacuit Bay had physical removal with rakes and silt covered beds after rain that destroyed seagrass. At Ulugan Bay siltation and natural disturbance caused loss. In Puerto Princesa and Honda Bay siltation, over-harvesting, removal for other purposes and conversion to fish cages caused seagrass to decline. Bugsuk Island lost seagrass because conversion for seaweed production, removal of mangrove and effluent from shrimp farms destroyed it. Overall in Philippines, eutrophication was the main problem but this was not important at the above-mentioned selected sites.

7.2.7 The participant from Malaysia said that natural coastal erosion was the main disturbance along Malaysia's coastline. A 1985 study on the impact of erosion showed that 27% of the coast line was affected. Development projects (such as reclamations) and sand mining in the Straits of Johor are some

activities that potentially impact seagrasses. Land-based pollution from sewage, agriculture and sea-borne pollution also caused decline in seagrass.

7.2.8 Indonesia had similar threats to the Philippines but the most important threat is human-induced rather than natural. The types of disturbance were divided into three sections:

1. Physical degradation due to fishing boat movement, land reclamation, development, port construction and trawling. As an example Banten Bay, Grenyang Bay, Kuta Bay and Lampung Bay were described. Seagrass was also destroyed by removal of coral for building.
2. Pollution in Ambon Bay was cited as an example where siltation in the rainy season also caused degradation.
3. Exploitation and collection of resources from seagrass beds caused damage and the meeting was told that there were data from 1983 and 1994 on decreasing population of holothurians available in Kotania Bay.

7.2.9 Dr. Tien noted that, the threats in Vietnam were the same as other Asian countries. He used Ha Long Bay as an example where all five species of seagrasses were destroyed by fishing nets. Sedimentation was also a problem. Recently water turbidity caused by development and deforestation upstream had caused loss. Dynamite was used to catch fish. Overall 70% of the seagrass in Ha Long Bay was destroyed in the last 20 years.

7.2.10 Dr. Fortes asked whether the identification of threats in seagrass sites related to causal chain analysis. Dr. Fortes mentioned that a causal chain analysis was done for coastal habitats including seagrass beds in the South China Sea under the Global International Waters Assessment. Dr. Kirkman explained that at this stage in the project, the RWG-SG is preparing a causal chain analysis. This analysis will be done on the sites that the regional working group will choose later in order to identify points of intervention for management. Dr. Fortes stressed that in the identification of threats, Focal Points must differentiate the impacts of anthropogenic activities and natural causes, between short-term and long-term impacts, and that impacts are species-specific.

7.2.11 A preliminary list of threats by country was prepared and is found in Annex 11. This summary shows that many threats are common among the participating countries, such as physical damage due to destructive fishing methods (push-nets, trawling), sedimentation due to the clearing of mangrove forests and logging of perennial trees, and over-exploitation of seagrass resources.

7.3 Best Practise Guidelines for Sustainable Seagrass Management

7.3.1 The meeting discussed the development of widely applicable guidelines for best practices for sustainable seagrass management for adoption and application at national level. Dr. Fortes had provided the meeting with two articles concerning methods and best practices for seagrass management (Duarte, *et al.*, 1994 and Short *et al.*, 2001). He began by describing how different all the countries were in their use of methods. He advocated uniform standard methodology for assessment of seagrass management for comparability of data. He explained the SeagrassNet methods using examples from different studies. He related the history, goals, and usage of SeagrassNet.

7.3.2 Dr. Hutomo presented a document on management of seagrass and preventing the degrading effects of human disturbance. He offered to prepare a short document on how the guidelines for best management practices could be used for each of a number of threats.

7.3.3 The following preliminary list of items for inclusion in best practice guidelines was agreed for review between meetings. The Guidelines for Sustainable Management of Seagrass Resources are based on maintaining sustainable seagrass resources¹. They should

- build capacity and strengthen institutions
- be sustainable
- be interdisciplinary and intersectoral

¹ *Wise Practices Criteria, UNESCO-CSI 1998.*

- be participatory in process
- build consensus
- be effective and efficient communication process
- respect cultural norms
- be sensitive to gender and/or other issues
- strengthen local identities
- follow national legal policy
- have regional dimension
- document the effects of management

Guidelines for Sustainable Management of Seagrass Resources should also

- establish and strengthen existing legal and institutional framework
- map distribution for seagrass beds
- monitor changes of seagrass beds
- promote community participation
- ensure effective communication
- ensure political support

7.4 Economic valuation parameters

7.4.1 The meeting decided on the listing of parameters which require evaluation in the process of any economic valuation of seagrass resources as follows:

Uses of Seagrass Resources

Resources

- Fisheries
- Handicraft
- Tourism (dugong, turtles)
- Pharmaceuticals
- Fertilisers

Ecological function

- Sediment filter
- Nutrient filter
- Prevention of erosion
- Nursery

8. PRESENTATION AND REVIEW OF THE OUTCOME OF THE GIS WORKSHOP JOINTLY CONVENED BY THE PROJECT CO-ORDINATING UNIT AND SOUTHEAST ASIA START¹ REGIONAL CENTRE IN AUGUST 2002 (UNEP/GEF/SCS/EW.1/3)

8.1 Outcomes of the Workshop

8.1.1 The Secretariat presented the workshop proceedings and requested the meeting to review its content and discuss the data input for seagrass.

8.1.2 Participants reported to the meeting the outcome of in-country discussions with the designated GIS experts who participated in this workshop, China, Cambodia and Malaysia had not heard from their country's GIS expert. Thailand showed concern over her knowledge of the GIS workshop and requested some clarification. The secretariat explained how the parameter characterisation list was used to prepare the questionnaire and highlighted any issues or problems, which have been identified to date.

¹ START = the Global Change SysTem for Analysis, Research and Training.

8.1.3 Dr. Kirkman pointed out that the national characterisation questionnaire needed revision as the economic valuation criteria parameters had to be added. The questionnaire would be revised by the PCU and sent to the participants as soon as possible.

8.2 Site Characterisation Questionnaires Developed by the SEA START RC and workshop participants

8.2.1 Participants reviewed the questionnaires (UNEP/GEF/SCS/RWG-SG.2/10) developed by the SEA START RC on the basis of the data and information needs for seagrass compiled during the 1st Regional Working Group Meeting. Philippines, Thailand, Vietnam have begun filling in the fields of the questionnaires for some of the seagrass sites that they already identified.

9. REVISION OF THE WORKPLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON SEAGRASS

9.1 During the first meeting of the Regional Working Group on Seagrass a flow chart of activities and workplan and timetable were developed. The members revised the workplan and outputs and recommended a timely and realistic timetable. Changes were made to the list of National Activities and a new timetable was prepared. Dr. Kirkman reiterated that the deadline for all these data submission to the PCU was 9 August (the six week cut off date) in time for the fourth meeting of the RWG-SG. Any country that did not provide its data would not be considered for demonstration site selection.

9.2 Dr. Fortes suggested that in the selection of regional demonstration sites, at least one should demonstrate the nature of a "typical" seagrass bed. The participants agreed and discussed the possibility of recommending a demonstration site that connected with mangrove and/or coral reefs. The question was raised that if there were a connected demonstration site and the funding requirement consequently lower, what would happen to the excess funds? Alternatives were discussed including increasing activities within the demonstration site or developing another. The PCU was alerted to this possibility and will provide an answer at the next RWG-SG.

9.3 It was also agreed that a demonstration site of transboundary significance be recommended to the RSTC.

9.4 The meeting agreed that the workplan was acceptable and would keep to the deadlines. The revised workplan is attached as Annex 14. In the case of Malaysia, a separate timetable to the workplan was developed with the agreement that Malaysia would catch up by August, 2003.

10. DATES AND LOCATION OF THE THIRD AND FOURTH MEETINGS OF THE REGIONAL WORKING GROUP ON SEAGRASS

10.1 Members considered and agreed upon the next two meetings of the Regional Working Group for Seagrass to be in Malaysia and in southern China, respectively, on the dates specified in the schedule of meetings: 3^d RWG-SG 25-28 March, 2003 and 4^h RWG-SG 23-26 September, 2003 (Annex 15).

11. ANY OTHER BUSINESS

11.1 There was no other business.

12. ADOPTION OF THE REPORT OF THE MEETING

12.1 The Rapporteur, Dr. Kirkman, presented the draft report of the meeting, which was considered, amended and adopted as contained in this document. Mr. Kim Sour proposed and Mr. Kamarruddin seconded the motion for adoption of the report, which was passed unopposed.

13. CLOSURE OF THE MEETING

13.1 On behalf of the Executive Director of UNEP and in his personal capacity, Dr. Kirkman thanked the participants for their hard and constructive work during the meeting, which had been very productive and had been conducted in a friendly and pleasant atmosphere. Dr. Kirkman informed participants that he would no longer be with UNEP after February, 2003 but that a new PCU Member would be in regular contact with the Focal Points regarding the progress of the work.

13.2 Professor Huang, the Chairperson thanked the participants for their hard work and support during the course of the meeting. Dr. Cabanban, on behalf of the PCU, thanked the Regional Experts for their interest and assistance in this scientific meeting. The Chairperson declared the meeting closed at 1820hrs on the 31st October 2002.

ANNEX 1**List of Participants****Focal Points****Cambodia**

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ANNEX 2

List of Documents

Discussion documents

UNEP/GEF/SCS/RWG-SG.2/1	Provisional agenda
UNEP/GEF/SCS/RWG-SG.2/2	Provisional annotated agenda
UNEP/GEF/SCS/RWG-SG.2/3	Report of the meeting
UNEP/GEF/SCS/RWG-SG.2/4	Report of the Project Co-ordinating Unit concerning the mid-year reviews and reports from the Specialised Executing Agencies
UNEP/GEF/SCS/RWG-SG.2/5	Six-monthly progress reports from the participating countries
UNEP/GEF/SCS/RWG-SG.2/6	Members of the National Seagrass Committees and sub-committees in the participating countries
UNEP/GEF/SCS/RWG-SG.2/7.Cam	Review of Past and On-going Activities on Seagrass in Cambodia
UNEP/GEF/SCS/RWG-SG.2/7.Ind	Review of Past and On-going Activities on Seagrass in Indonesia
UNEP/GEF/SCS/RWG-SG.2/7.Phi	Review of Past and On-going Activities on Seagrass in Philippines - 2000-2002: Research and Monitoring, Workshops and Conferences, Publications
UNEP/GEF/SCS/RWG-SG.2/7.Vie	Review of Past and On-going Activities on Seagrass in Vietnam
UNEP/GEF/SCS/RWG-SG.2/8.Ind	Review of national data
UNEP/GEF/SCS/RWG-SG.2/8.Vie	Review of data and information on seagrasses in Vietnam Development of Seagrass Metadatabase for Vietnam
UNEP/GEF/SCS/RWG-SG.2/9.Ind	Legal aspects and institutional framework Policy and strategy of sustainable management of Indonesian Seagrass
UNEP/GEF/SCS/RWG-SG.2/9.Phi	Chronology of national and local legislation relevant to the concerns of the seagrass management in the Philippines
UNEP/GEF/SCS/RWG-SG.2/10	Questionnaires for data and information entry into the Regional GIS database of Seagrass sites
UNEP/GEF/SCS/RWG-SG.2/11	Metadata format for the metadatabase of Seagrass sites
UNEP/GEF/SCS/RWG-SG.2/12	Schedule of Meetings of the Regional Working Groups, Regional Scientific and Technical Committee, and the Project Steering Committee

Information documents

UNEP/GEF/SCS/RWG-SG.2/INF.1	Provisional list of documents
UNEP/GEF/SCS/RWG-SG.2/INF.2	Provisional list of participants
UNEP/GEF/SCS/RWG-SG.2/INF.3	Draft programme
Short, F. T., L. J. McKenzie, R. G. Coles, and K. P. Vidler. 2001. SeagrassNet Manual for Scientific Monitoring of Seagrass Habitat. (QDPI, QFS, Cairns). 56 pp.	
Duarte, C. M., N. Marba, N. Agawin., J. Cebrina, S. Enriquez, M. D. Fortes, M. E. Gallegos, M. Merino, B. Olesen, K. Sand-Jensen, J. Uri, and J. Vermaat. 1994. Reconstruction of seagrass dynamics: age determinations and associated tools for the seagrass ecologist.	

- UNEP/GEF/SCS/EW.1/3 UNEP/GEF/SCS and SEA START RC, GIS Workshop in support of the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”, *Report of the meeting*, UNEP/GEF/SCS/EW.1/3, Bangkok, Thailand, 7-9 August 2002.
- UNEP/GEF/SCS/PSC.1/3 First Meeting of the Project Steering Committee for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. *Report of the meeting*. UNEP/GEF/SCS/PSC.1/3. UNEP, Bangkok Thailand.
- UNEP/GEF/SCS/RSTC.1/3 First Meeting of the Regional Scientific and Technical Committee for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. *Report of the meeting*. UNEP/GEF/SCS/RSTC.1/3 Pattaya, Thailand, 14 - 16 March 2002.
- UNEP/GEF/SCS/RWG-LbP.1/3 First Meeting of the Regional Working Group for the Land-based Pollution Component of the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. *Report of the meeting*. UNEP/GEF/SCS/RWG-LbP.1/3 Bangkok, Thailand, 3 - 5 April 2002.
- UNEP/GEF/SCS/RWG-W.1/3 First Meeting of the Regional Working Group for the Wetland Sub-component of the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. *Report of the meeting*. UNEP/GEF/SCS/RWG-W.1/3 Phuket, Thailand, 24 - 26 April 2002.
- UNEP/GEF/SCS/RWG-M.1/3 First Meeting of the Regional Working Group for the Mangrove Component of the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. *Report of the meeting*. UNEP/GEF/SCS/RWG-M.1/3 Phuket, Thailand, 29 April - 1 May 2002.
- UNEP/GEF/SCS/RWG-SG.1/3 First Meeting of the Regional Working Group for the Seagrass Sub-component of the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. *Report of the meeting*. UNEP/GEF/SCS/RWG-SG.1/3 Bangkok, Thailand, 6 - 8 May 2002.
- UNEP/GEF/SCS/RWG-CR.1/3 First Meeting of the Regional Working Group for the Coral Reef Sub-component of the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. *Report of the meeting*. UNEP/GEF/SCS/RWG-CR.1/3 Bangkok, Thailand, 9 - 11 May 2002.
- UNEP/GEF/SCS/RWG-F.1/3 First Meeting of the Regional Working Group for the Fisheries Component of the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. *Report of the meeting*. UNEP/GEF/SCS/RWG-F.1/3 Bangkok, Thailand, 20 - 22 May 2002.

ANNEX 3

Agenda

- 1. OPENING OF THE MEETING**
 - 1.1 Welcome address**
 - 1.2 Introduction of new members**
- 2. ORGANISATION OF THE MEETING**
 - 2.1 Documents available to the meeting**
 - 2.2 Designation of officers**
 - 2.3 Organisation of work**
- 3. ADOPTION OF THE MEETING AGENDA**
- 4. REPORT OF THE SECRETARIAT CONCERNING THE MID-YEAR REVIEWS AND REPORTS FROM PARTICIPATING COUNTRIES**
- 5. REPORTS FROM THE FOCAL POINTS ON INTER-SESSIONAL ACTIVITIES AT THE NATIONAL LEVEL**
 - 5.1 Review National reports**
 - 5.2 Review of past and on-going activities**
 - 5.3 Creation of national meta-database**
- 6. DISCUSSION AND REPORTS ON ON-GOING ACTIVITIES REGARDING THE CHARACTERISATION OF NATIONAL SEAGRASS SITES AND THEIR REGIONAL PRIORITISATION**
 - 6.1 Identification and characterisation of "sites"**
 - 6.2 Review of National Legislation**
- 7. DISCUSSION ON AGREED ACTIVITIES TO BE UNDERTAKEN WITHIN THE NEXT INTERSESSIONAL PERIOD**
 - 7.1 Development of Regional Criteria**
 - 7.2 Report on threats at site level**
 - 7.3 Best Practise Guidelines for Sustainable Seagrass Management**
 - 7.4 Economic valuation parameters**
- 8. PRESENTATION AND REVIEW OF THE OUTCOME OF THE GIS WORKSHOP JOINTLY CONVENED BY THE PROJECT CO-ORDINATING UNIT AND SOUTHEAST ASIA START¹ REGIONAL CENTRE IN AUGUST 2002 (UNEP/GEF/SCS/EW.1/3)**
 - 8.1 Outcomes of the Workshop**
 - 8.2 Site Characterisation Questionnaires Developed by the SEA START RC and workshop participants**
- 9. REVISION OF THE WORKPLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON SEAGRASS**
- 10. DATES AND LOCATION OF THE THIRD AND FOURTH MEETINGS OF THE REGIONAL WORKING GROUP FOR SEAGRASS**
- 11. ANY OTHER BUSINESS**
- 12. ADOPTION OF THE REPORT OF THE MEETING**
- 13. CLOSURE OF THE MEETING**

¹ START = the Global Change SysTem for Analysis, Research and Trainig.

ANNEX 4**List of Members of the National Committee on Seagrasses
China**

NAME	EXPERTISE	OFFICE
Prof. Xiaoping Huang	Marine ecology	South China Institute of Oceanology Chinese Academy of Sciences
Prof. Zhengguang Huang	Environment	South China Environmental Institute State Environmental Protection Administration
Prof. Qiaoming Zhang	Marine Ecology	South China Institute of Oceanology Chinese Academy of Sciences
Mr. Gang Chen	Marine Ecology	Marine and Fishery Department Hainan Province Government
Mrs. Jianjun Song	Economics	Institute of Land Development and Regional Economic National Planning Committee B Tower
Mr. Terence Fong	Marine Ecology	Environment and Resources Management

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Dr. M. Hutomo	seagrass fish ecology	Research Centre for Oceanography-LIPI
Drs. Pramudji, M.Sc.	Mangrove-Seagrass Relationship	Research Centre for Oceanography-LIPI
Drs. Wawan Kiswara	Seagrass Function and Mapping	Yayasan Lamun Indonesia (LAMINA)
Drs. M. Husni Azkab	Seagrass Community Structure	Research Centre for Oceanography-LIPI
Priyadi Dwi Santoso, ST.	Database and Web and Web Developer	Research Centre for Oceanography-LIPI
Ir. Fredinan Yulianda, M.Sc.	Resource Economic Valuation	Bogor Agricultural University (IPB)
Dr. Sumitro	Dugong Ecology and Captivity	Sea World Indonesia
Dr. Ir. Nadrattuzaman Hosen	Socio Economic of Coastal Community	Bogor Agricultural University (IPB)
Dr. Subagjo	Coastal and Mangrove Management	Coral Reef Rehabilitation & Management Program (COREMAP)
Chairuddin Hasyim, M. Si., M. Km.	Environmental Legal Specialist	Ministry of Environment Office

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Ms. Ma. Salvacion Ferrer	Marine Scientist	Plant Section National Fisheries Research and Development Institute
Dr. Nemesio Marco Montano	Marine Scientist	Marine Science Institute College of Science University of the Philippines Diliman
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Dr. Jose Antonio Socrates	Provincial Health	Provincial Health Officer
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Dr. Aida Lapis	Researcher	ASEAN Regional Centre for Biodiversity
Ms. Cristy Abordo	Provincial Agriculture	Palawan Council for Sustainable Development
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**List of Members of the National Committee for Seagrasses
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Ms. Le Thi Thanh	Seagrass Expert	Haiphong Institute of Oceanology
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Dr. Truong Van Tuyen	Economist	Ministry of Planning & Investment
Dr. Vu Huy Thu	Marine Resources Protection	Department for Protecting Fishery Resources
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Ms. Do Trong Binh		Haiphong Institute of Oceanology
Dr. Nguyen Huy Yet		Haiphong Institute of Oceanology
Lang Van Ken		Haiphong Institute of Oceanology
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Chu The Cuong		Haiphong Institute of Oceanology
Ms. Tran Thu Ha		National Environment Agency (NEA)
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Ms. Le Thi Thanh		Haiphong Institute of Oceanology

ANNEX 5

Summary of Past and On-going Activities

Country: Cambodia

Year	Project Title	Funding Agency	Objectives	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
25 November-18 December 1998	Environmental Management in Coastal Zone-Cambodia (CZM) in Phase I (to develop a basic skills in CZM and long-term strategy for CZM) and II (Enhance government capacity, coordination, negotiation, and planning by provincial working groups, pilot projects in community-based resource management)	Danish International Development Agency (DANIDA)	<p>To investigate the socio-economic frameworks for the destructive fishing practices and coral reef collection;</p> <p>To investigate the ecological impact of the destructive fishing and coral collection;</p> <p>To suggest management strategy to stop or regulate the destruction of coral reefs.</p>	Sihanoukville working group (Dep. Environment, Dep. Of Rural Development, Dep. Of Tourism, and Sihanoukville Fisheries Office)	Sihanoukville (Koh Tang, Koh Thas, Koh Tres, Poy Independent, Poy Sokha, Poy Tamouk, Poy Ochheuteal)	<p>Phase 1:</p> <ol style="list-style-type: none"> 1. A Functional policy and inst. framework for CZM. 2. Planning and integrated Environmental management strategy at national and provincial levels including CZM action plans. 3. An approach for stakeholder participation in CZM process. 4. Information education and communication 5. standardized for collecting, analyzing and disseminating coastal inform. 6. Productive pilot projects with community-based management. 7. Pilot projects on waste management and monitoring 	Management and socio-economics	

						<p>Phase 2:</p> <ol style="list-style-type: none">1. Provincial working group coordinate, negotiate, plan and management.2. Incorporate into existing institutional framework.3. Physical framework plans for all four coastal provinces.4. Environ. report on baseline of the coastal area.5. Seagrass beds & coral reefs are mapped in the coastal provinces.6. Provincial staff is able to assess TOR for EIA.7. Improved livelihood perspectives for household in 5 pilot projects.8. Guideline for community-base management9. Admin. & human resource10. CZM website11. Awareness raising12. Personnel networking.		
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April 26- May 26, 2001		DANIDA	<p>1. To introduce a team of MoE staffs to identification and survey technique of coral reefs and sea grass species. This includes species identification, survey methodology, field data collection, data analysis and report writing;</p> <p>2. To have the staffs from the ministry expose to field surveying of coral reef and sea grass and make their own judgment for selection of additional Ramsar site;</p> <p>3. To identify at least one coastal or marine wetland area which is under-represented at both national and global level for designation for project and for listing as a wetland of International importance.</p>	Wetland International Program (Ramsar Convention), Team (from Ministry of Environment, Wetland International, Royal University of Agriculture)	Koh kong (Ampil Toch Island), Sihanoukville (Koh Rong Sanlem, Koh Tmey), Kompot and Kep (Prek Kdad, Chanhourn)		Management and socio-economics	
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			<p>1. The 1st phase is to determine the location of coral reefs and sea grasses bed;</p> <p>2. The 2nd phase is a monitoring program of coral reefs and sea grass. The program includes survey planning, sea grass investigation and sampling, coral reefs investigation, sampling handling and data reporting.</p>	<p>Kep's working team (3 researchers are Kep working group and 1 from MoE²)</p>	<p>Kep and Kampot (Koh Tonsay, Koh Po, Koh Makprang, Koh Ankrong, Koh Seut, Koh Achses, Koh Tbal, Koh Svay, Koh Mtes, Koh Kok, Koh Karang)</p>		<p>Management and socio-economics</p>	
			<p>DANIDA/ IDRC³</p>	<p>National Park (mangrove and coral reef): by focusing on sustainable livelihood and management issues via community-based natural resource management</p>	<p>PMMR⁴ (Phase I and II)</p>	<p>Peam Krosop (Koh Kong)</p>	<p>Improved skills and methods & increase their actual control of resources.</p>	<p>Management and socio-economics</p>
2001-2005		DANIDA	<p>To develop a coherent policy framework and management structure for sustainable use of the country's natural resources and protection of the environment.</p>	<p>Phase 3 (MoE/provincial working groups)</p>		<p>Integration of environmental concerns in the policy planning.</p>	<p>Management and socio-economics</p>	

² Ministry of Environment.

³ International Development Research Center, Canada.

⁴ Participatory Management of Mangrove Resources.

2000-2003	The assessment the marine biodiversity of the reef s off Koh Kong Province, Cambodia.	Singapore International Foundation, Youth Expeditions Project (SIF, YEP)	Assist local authorities to develop and maintain a monitoring program to track changes in specific habitats; Contribute to development of coastal management strategies.	National University of Singapore (NUS)			Ecology Management Socio-economics	Koh Kong Expedition 3 (KK3) is due in February 2003
1999-2000	Coastal resource survey in Cambodia	Asian Development Bank					Management	More information to be acquired from ADB

Keywords:**Biology (growth, reproduction)****Ecology (distribution, density)****Management****Socio-economics****Restoration****Environment Impacts****Economic valuation****Utilisation****Mappping and inventory**

Summary of Presentations: Tabulation of Past and On-going Projects on Seagrass

Country: China

Year	Project Title	Funding Agency	Objectives	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
1979			To protect <i>Zostera japonica</i> community		Lai Chi Wo, Hongkong	Data and information	Ecology, Management	
1986	Establishment of National Marine Nature Reserves	State Environment Protection Administration of the P. R. China	To protect dugongs, turtles, dolphins, seagrass, mangrove swamps, etc.	National Nature Reserves of He Pu Guangxi	He Pu Guangxi	Data and information	Ecology, management	The are of the nature reserve is 86.4km ² .
Dec 1990	The division of marine functional zonation in Guangxi province	Department of the division of marine functional zonation of Guangxi province	To protect Dugong dugong and their favorite seagrass Food (<i>Halophila</i> spp.)	National dugongs nature reserves of He Pu Guangxi	He Pu Guangxi	Data and information	Ecology, Management	120 km ² sea area in the south of Sha Tian He Pu Guangxi province
1996			To conduct research on seagrass bed (<i>Zostera Japonica</i>)		Yan Chau Tong, Marine Park Hong Kong			
1996		Department of Fishery Protection, Hong Kong	To protect seagrass communities			Environmental Impact Assessment Ordinance		
1996		Department of Fishery Protection, Hong Kong	To protect seagrass communities			Environmental Impact Assessment Ordinance		
1 April 1999			To classify marine reserves into 3 classes and 16 types; and ecosystems			National Standard for the "The classifying principle and type of marine reserves "		"seagrass bed " belongs to one of the 10 types of marine and coastal natural
April 2002		State Oceanic Administration of the P. R. China	1. to protect seagrass bed ecosystems and other coastal marine ecosystems. 2. the monitoring of "seagrass ecosystem": plants coverage; thickness; benthic biodiversity; community structure.			Monitoring techniques; Rules for Marine reserves – general provisions		
On-going	Research of ecology environment of reef swamps and seagrass.	State Oceanic Administration of the P. R. China			Hainan island	Data and information		

Tabulation of Past and On-going Projects on Seagrass

Country: Indonesia

Year	Project Title	Funding Agency	Objectives	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
	Biology and Inventory of Marine Resources		To collect data on seagrass diversity, distribution structure, density; To collect data on diversity and ecology of associated flora and fauna; Mapping using remotely-sensed data	LIPI	Taka Bone Rate, Podaido Islands, Riau Islands, East Kalimantan, Maluku, Kotania Bay, Ceram Island			
1986-1992	ASEAN-Australia Cooperative Program on Marine Science	ASEAN-Australia	To assess the status of coastal living resources			Data and information; Distribution; Database; Field Manual		
	Snellius II Expedition: Pelagic System; River Input into Marine System; Deep Sea Ventilation; Coral Reefs (including seagrass); Geology-Geophysics	Indonesia-Dutch government			Selayar Island, Taka Bone Rate Islands, Komodo Island, Sumbawa Island			
	Buginesia Project	Indonesia-Dutch government; Netherlands Foundation for the Advancement of Tropical Research on Seagrass					Biology (factors limiting growth and production)	
	<i>Indonesia Marine Biodiversity</i>	LIPI-Japan Society for the Promotion of Science		LIPI	Kuta Bay, South coast of Lombok	Field Guide to Lombok Island; Identification Guide to Marine		

						Organisms in Seagrass Beds in Lombok Island		
	Marine and Coastal Resource Planning/Integrated Coastal Zone Management	Indonesian government					Management	
1993-1998	Marine Resources Evaluation and Planning Project		To improve marine and coastal planning and mmanagement capability, To further develop and strengthen existing marine and coastal information system		10 Marine and Coastal Management Areas and 3 Species Marine Areas			
1996-2000	Coastal Resources Management Project or Indonesian Coastal Resources Project	USAID-Indonesian Government	To achieve measurable progress towards Natural Resources Management	National Development Planning Agency, Center for Coastal and Marine Resources Studies at the Bogor Institute of Agriculture			Management	
1998-2002	Coral Reef Rehabilitation and Management Program - Phase 1	World Bank and Asian Development Bank (ADB)			Taka Bone Rate, Senayang-Lingga, Podaido Islands	National Policy for Coral Reef Management	Management	
1998	Coastal Community Development and Fisheries Resource Management Project	ADB	To rationalise and regulate the use of coastal fisheries resources; To conserve fish habitats project areas; To wean coastal fishers away from fishing activities		Prigi of Trenggalla and Muncar, East Java; Lombok, West Nusa Tenggara; Tegal Sari, Central Java; Bengkalis Island, Riau		Management Socio-economics	Bengkalis Island has significant mangrove forest
	Marine and Coastal Resources Management Project	ADB	To strengthen local plan and manage coastal resources; To improve availability of and access to quality spatial and biodiversity data		15 provinces: North, West, and South Sumatra; Riau Province; Bengkulu; Lampung; East, West, Central, and South-west			

			and information; To improve legal and regulatory framework for resource management and compliance		Kalimantan; North, Central, and South Sulawesi; West Nusa Tenggara			
	Riau Coastal Land Use Management Project	United Nations Development Programme, United Nations Educational, Scientific, and Cultural Organisation	To improve the available information on coastal resources of Riau Province; To create, at the provincial level, a semi-permanent forum for interagency discussion and cooperation towards a coastal environment profile; To strengthen the environmental planning process for the coastal zone in Riau Province; To support the government in achieving wise and sustainable use of wetland sites	Directorate General of Regional Development, Indonesia				
	Banten Bay Integrated Coastal Zone Management Project (under the Land Ocean Interaction in the Coastal Zone)	Indonesia-Netherlands governments	To identify and understand the Banten Bay system; To gather data and information for developing database management structure for decision-making; To provide scientific foundation for planners and decision-makers in					

			management and sustainable use of coastal resources; To enhance interagency cooperation and to increase scientific capacity of agencies; To create and increase capabilities of human resources To conduct research on the function of Enhalus acoroides; To investigate the interactions of demersal fisheries with nearshore vegetated habitats (as nursery sites); To study the population dynamics of some selected species in Banten Bay					
	Development of Collaborative Management	Conservation International			Togean Island			Seagrass beds and dugong are found in channels

Keywords:

- Biology (growth, reproduction)**
- Ecology (distribution, density)**
- Management**
- Socio-economics**
- Restoration**
- Environment Impacts**
- Economic valuation**
- Utilisation**
- Mapping and inventory**

Summary of Presentation on Past and On-going Projects on Seagrass Beds in the Philippines

1. REVIEW OF PAST AND ON-GOING ACTIVITIES: 2000-2002

The past and on-going activities referred to in this report include those that fall within the following categories of activities: *Research and Monitoring*, *Workshops and Conferences*, and *Publications*. Some of the significant activities under each category are given below:

1.1 Research and Monitoring

At the Puerto Galera Biosphere Reserve, the following activities were undertaken. Although these were not fully under the ambit of the NCS, they have been implemented with the direct supervision of some of its members and their thrusts were directed to be in line with those of the Seagrass Component of the UNEP/GEF Project:

1. *SeagrassNet* – This is a part of a global project (Asia-pacific) funded by the Packard Foundation. At present being undertaken in 25 countries, it aims at detecting change in seagrass beds using a standardized methodology. The result of this project is being disseminated to the people of Puerto Galera as a means to train and educate them on the importance of seagrass beds to the improvement of the quality of life of the people and of their environment. This reporter will recommend that the Seagrass component of the UNEP/GEF establish formal ties with this project as the latter has made substantial progress in applying a standard methodology for assessing the health and importance of seagrass habitats in the Asia-Pacific, as well as the fact that it has developed an electronic network for the processing of technical and non-technical data. This network can accommodate the concerns of the Seagrass component in relation to its plan to develop a similar network and database support systems.
2. *BantayIsay* (SeagrassWatch) – Based on volunteerism, this is an activity to monitor the environmental conditions of the seagrass habitats in the Biosphere Reserve. The municipality sanctioned the activity by virtue of an Executive Order (E. O. 02-01) from the mayor's office and promulgated last January 2002. A 'first ever' in the history of seagrass science in the world, it was officially launched last 4 October 2002 in the presence of the Secretary-General of the UNESCO National Commission of the Philippines and the Officials of the Municipality of Puerto Galera Biosphere Reserve. The importance of *BantayIsay* lies in the fact that it is the rallying point for local constituents in gaining support in favor of the coastal environment in the reserve. The NSC is now tapping into this community-based set-up in preparation for its projected activities in the area.
3. Giant Clam Garden – This project is being adopted by the NSC to help the Marine Biological Society of the University of the Philippines in their outreach program in Puerto Galera Biosphere Reserve. The society is monitoring the growth of the clams with the intention to disseminate the information and help restock degraded reefs with the involvement of the people.

In Ulugan Bay, Puerto Princesa, Palawan, the initial fish-seagrass experimental pens have been revitalized with the help of the NSC. This is a part of the completed UNDP/UNESCO Project "Coastal Resources Assessment and Sustainable Management" (1998-2000). The primary aim was to link science to tourism management through involvement and participation of the communities and other stakeholders. As in Puerto Galera Biosphere Reserve, the Seagrass Component will tap the existing mechanisms e.g. community-based organizations, trained inhabitants in paralegal aspects of Integrated Coastal Area Management (ICAM), etc.

1.2 Workshops and Conferences

1. Ecotone IX: *“Wise Coastal Practices in Tourism Development in Biosphere Reserves”* (21-27 May 2000). Funded by Fund-In-Trust of the Government of Japan and the UNESCO Man and Biosphere Programme Jakarta Office, the workshop aimed at assessing the environmental conditions of the Biosphere Reserve and recommending integrated approaches to solve the problems. While the NSC was not yet formalized then, this was an initial activity of the original committee even before the UNEP/GEF Project became operational. The local government in their ecotourism development program now utilizes the results of the workshop.
2. Study Tour/Workshop *“Wise Practices in Coastal Resources Management: From Theory to Practice”* University of the Philippines Bolinao Marine Laboratory (UPBML) (Bolinao, Pangasinan, 20-23 March 2002). With the Sangguniang Bayan (Municipal Council, the highest governing body of the Municipality) members as the participants, the activity had the following aims:
 - a. To learn some basic and applied aspects of coastal resources management applicable to conditions in Puerto Galera;
 - b. To share and exchange information and experiences on wise coastal management practices;
 - c. To apply, where applicable, the learning in improving the coastal environmental conditions of Pto. Galera as these relate to ecotourism and livelihood development;
 - d. To draft an Action Plan supported by appropriate local regulations emanating from the gains from the workshop.
3. The *“Regional Action Plan to Enhance the Effectiveness of Marine Protected Areas in Southeast Asia (RAP)*, (Bangkok, Thailand, 8-11 May 2002)”. Funded by the World Commission on Protected Areas and the National Oceanic and Atmospheric Administration of the U.S., and implemented by the Nature Conservancy Indonesia, this planning workshop aimed at formulating action projects under specific priority topics of concern to MPAs in Southeast Asia. One significant output links directly with the UNEP/GEF Project as both activities deal with the same areal coverage in the region.
4. *“Outreach Marine: Puerto Galera Biosphere Reserve”* (1-5 October 2002). This was a workshop undertaken by the National Committee on Marine Sciences with the collaboration of the NSC. Following up on the activities the Committee undertook in 1997, it aimed:
 - a. To collate ‘rankings’ of the sites visited;
 - b. To share experiences;
 - c. To come up with a preliminary assessment of the progress the Biosphere Reserve made in the last 5 years;
 - d. To present the major findings in plenary to get the reaction of the Community.
5. The *“5th International Seagrass Biology Workshop (ISBW-5)”* (Ensenada, Mexico, 7-11 October 2002). The fifth in a series of workshops to assessment the state of the world’s seagrasses, the most significant aspect that related to the project was the potential linkage of the database and the methodology that the existing SeagrassNet/Seagrass Mon have with what the Seagrass component of the UNEP/GEF project plans. This reporter will request that this topic, among others of similar nature, be discussed in the meeting in Hue. This reporter has been elected President of the World Seagrass Association and to sit as such till 2004.
6. *“Workshop to Evaluate Methodologies in the Study of Biodiversity in Coastal Ecosystems of Southeast Asia”* (Langkawi, Malaysia, 21-25 October 2002). Funded by the Japan Society for the Promotion of Science, and implemented through the Universiti Pertanian Malaysia, Universiti Sains Malaysia, and Universiti Kebangsaan Malaysia, the workshop aimed at selecting the best methodology in the assessment of coastal and marine biodiversity. For seagrasses, the SeagrassNet method was presented by this reporter and it was agreed that it be adopted for the region. In the same spirit, this reporter will recommend to the UNEP/GEF Project management that the same be adopted in the project.

1.3 Publications

The following materials which are products of the efforts of some of the members of the NSC and which have direct relevance to Southeast Asia and the South China Sea have been published for the period 2000-2002:

Chapters in Books:

- Fortes, MD. 2001. *The effects of siltation on tropical coastal ecosystems* Chapt. 7, pp. 93-112 in: E. Wolanski (ed.) *Oceanographic Processes of Coral Reefs* CRC Press, Boca Raton 356 p.
- Coles, RG. and MD. Fortes. 2001. Protecting seagrass -approaches and methods Chapt. 23, pp. 445-463 in: F. Short and R.G.Coles (eds.) *Global Seagrass Research Methods*, Elsevier Science B.V., Amsterdam. 473 p.
- Fortes, MD, S. Fazi, M. Macasaet, O. Aymard, G. Gol-lod, T. Almonte, D. Cajillo, and R. Magbanua. 2001. *Seagrass-fish interaction: A community-based experimental fish farm in Ulugan Bay* Chapt. 3. pp. 91-109 in: L. David and S. Fazi (eds.), vol 111. *An integrated management model, Coastal Resources Management, Ulugan Bay, Palawan Island, the Philippines*, UNESCO-UNDP-Puerto Princesa City, 193 p.
- Fortes, MD and S. Fazi. 2001. *Introduction* pp. xiii-xxvi in: L. David and S. Fazi (eds.), vol 111. *An integrated management model, Coastal Resources Management, Ulugan Bay, Palawan Island, the Philippines*, UNESCO-UNDP -Puerto Princesa City, 193 p.
- Fortes, M.D. and S. Fazi. 2000. Ecology of Ulugan Bay, pp. 1-44 in: S.Fazi and P. Flewelling (eds.). *Coastal Resources Management Vol. 1. Ecology, Culture and Socioeconomics*. UNESCO-UNDP-Puerto Princesa City, 218 pp.

Journal articles:

- N.S.R. Agawin, C.M. Duarte, M.D. Fortes, J.S. Uri and J.E. Vermaat 2001. Temporal changes in the abundance, leaf growth and photosynthesis of three co-occurring Philippine seagrasses. *Journal of Experimental Marine Biology and Ecology*, 260 (2001):217-239.
- Duarte, C. M., J. Terrados, N. S. R. Agawin and M. D. Fortes. 2000. An experimental test of the occurrence of competitive interactions among SE Asian seagrasses. *Mar. Ecol. Prog. Ser.* 197: 231-240.
- Lacap, C. D. A., J. E. Vermaat, R. N. Rollon, H. E. Nacorda and M. D. Fortes. 2000. Implications of the short seed dispersal in the seagrass *Enhalus acoroides* (L. F.) Royle. In Pergent G., C. Pergent-Martini, M. C. Buia and M. C. Gambi (eds). *Biologia Marina Mediterranea. Proceedings fourth international seagrass biology workshop. 26 Sept. – 2 October 2000.* 7(2): 83-86.

Tabulation of Past and On-going Projects on Seagrass

Country: Thailand

Year	Project Title	Funding Agency	Objective	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
1986-1994	ASEAN – Australia Coastal Living Resources Project	Australian Government		Phuket Marine Biological Center (PMBC), Chulalongkorn University, Burapa University, Prince of Songkhla University	Andaman Sea, Gulf of Thailand	Species and distribution of seagrass in the Andaman Sea and Gulf of Thailand	Ecology	
1996-2000	Management on Seagrass Resources and conservation of Dugong	Department of Fisheries		PMBC	Andaman Sea		Management	
1997	ASEAN – Australia Coastal Living Resources Project	Australian Government		PMBC	Andaman Sea	Database for management in Phang-Nga Bay	Management	
2000-2001	Survey of Dugong along the Andaman Coast	Ocean Park, Hong Kong		PMBC	Andaman Sea, esp. at Talibong and Muk Island, Trang Province		Ecology	
2002	Study on Population and Biology of Dugong	Department of Fisheries		PMBC	Andaman Sea		Biology	
2002	Survey of Dugong in Phang-Nga Bay	Department of Fisheries		PMBC	Andaman Sea		Ecology	
1998-1999	Effects of Grazing and Disturbance by Dugongs and Turtles on Tropical Seagrass Ecosystems	Japanese Ministry of Education, Science and Culture, Monbusho, for Japan – Thailand Cooperative Researches		Kasetsart University	Had Chao Mai National Park, Trang Province	Publications on: 1. Physical and chemical environment 2. Structure and dynamics of seagrass communities and associated flora 3. Interaction between seagrasses and associated fauna 4. Effect of dugongs herbivory on seagrass and associated community	Ecology	
2000-2002	Screening of Seagrass Extracts for Biological Study	National Research Council of Thailand (NRCT)	To screen seagrass extracts for potential biomedicine	Kasetsart University	Collect seagrass around Thailand for bioactive compound test	Expected biomedicine form seagrass	Utilization	

Year	Project Title	Funding Agency	Objective	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
2001-2003	Conservation of Tropical Seagrass Beds with Special Reference to their Role on Function of Coastal Ecosystem	Japanese Ministry of Education, Science and Culture, Monbusho, for Japan – Thailand Cooperative researches	1. Quantitative evaluation of impact caused by terrestrial human activities on seagrass ecosystem in tropical regions 2. To provide scientific basis to propose desirable plan for maintaining healthy seagrass ecosystem in future	Kasetsart University	Andaman Sea esp. at Had Chao Mai Marine National Park, Trang Province		Ecology Management	
2002-ongoing	Approach for Applying Space Technology in Identifying Seagrass Beds	NRCT Kasetsart University Research Development Institute (KURDI)	1. Develop technique of remote sensing for defining seagrass beds 2. To assess rightness of remote sensing technique 3. Mapping species and distribution of seagrass	Kasetsart University	Andaman Sea Had Chao Mai Marine National Park, Trang Province and Kuraburi, Phang-Nga Province	Mapping on species and distribution of seagrass	Mapping and Inventory	Related to Plant Genetics Conservation Project under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirinthorn
2001-on-going	Survey on Seagrass in the Gulf of Thailand	Plant Genetics Conservation Project under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirinthorn	Survey on species and distribution of seagrass	Kasetsart University and Marine Science Institution, Burapa University	Gulf of Thailand Sattahip Islands, Chomporn Islands, Kud Islands	Species & Distribution	Ecology	
2002-ongoing	Diversity of Species and Distribution of Marine Organisms in Coral Reefs at Koh Kram Vicinity, Chonburi Province	NRCT	Survey on species and distribution of seagrass	Kasetsart University and Marine Science Institution, Burapa University	Gulf of Thailand	Species & Distribution	Ecology	Related to Plant Genetics Conservation Project under the Royal Initiative of Her Royal Highness Princess Maha Chakri Sirinthorn
2003-2008	Long – term Monitoring on Marine Environment and Marine Biodiversity at Sataheeb Islands, Chonburi Province	NRCT	Survey on species and distribution of seagrass	Kasetsart University and Marine Science Institution, Burapa University	Gulf of Thailand Sattahip Islands,	Species & Distribution	Ecology	Related to Plant Genetics Conservation Project under the Royal Initiative of Her Royal Highness Princess

Year	Project Title	Funding Agency	Objective	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
								Maha Chakri Sirinthorn
1990-on-going	Survey and Research on Population of Dugong and Seagrass Beds	Royal Forestry Department and Wildlife Conservation Society-Thailand		Marine National Park Division, Royal Forestry Department	Libong Island, Kao Bae Na, and Had Chao Mai National Park, Trang Province	1. Population of dugong 2. Behavior of Dugong	Biology	
2000-on-going	Study on Diversity and Distribution of Seagrass in Marine National Park	Royal Forestry Department		Marine National Park Division, Royal Forestry Department	<u>2000</u> 1. Had Nopparathara-Mu Koh Phi Phi Marine National Park, Krabi Province 2. Laemson Marine National Park, Ranong Province 3. Mu Koh Chumphon Marine National Park, Chumphon Province <u>2001</u> 1. Mu Koh Lanta Marine National Park, Krabi Province 2. Mu Koh Petra Marine National Park, Satun Province 3. Tarn Boke Koranee Marine National Park, Krabi Province <u>2002</u> 1. Tarutao Marine National Park, Satun Province 2. Mu Koh Payam Marine National Park, Ranong Province 3. Mu Ko Similan Marine National	1. Species and distribution of seagrass 2. Mapping of seagrass 3. Guidelines to mitigation for protection and reversing environmental degradation in the seagrass beds	Ecology	

Year	Project Title	Funding Agency	Objective	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
					Park, Phang Nga Province			
2000-2001	Designation of Seagrass Protected Areas and the Participation of Fisherfolk Communities on Sustainable Uses of Seagrass Protected Area, Trang Province	Australian Government	1. Promote a better capability of protecting the seagrass habitat and the Dugong 2. Promote a sustainable uses of seagrass ecosystem based on the cooperation between marine park officer and local communities, aiming at defense and rehabilitation of seagrass ecosystem	Marine National Park Division, Royal Forestry Department	Had Chao Mai Marine National Park, Trang Province	1. A better capability of protecting the seagrass habitat and the dugong. 2. A sustainable uses of seagrass ecosystem based on the cooperation between marine park officer and local communities, aiming at defense and rehabilitation of seagrass ecosystems.		
1996-1997	Preliminary Experiments on Seagrasses Tranplantation in Different Seasons	Marine Science Institution, Burapa University		Marine Science Institution, Burapa University	Makham Pom Bay, Gulf of Thailand	1. Relation of environmental factors seagrass coverage and biomass 2. Annual change of seagrass coverage and biomass	Restoration	
2001-2002	Effect of Environmental Factors on Coverage and Biomass of Seagrass	Marine Science Institution, Burapa University		Marine Science Institution, Burapa University	Makham Pom Bay, Gulf of Thailand		Environmental Impacts	
1997-1998	The Study of Seagrass Beds Classification Maps and Development Of National Management and Action Plan for Seagrass Beds Conservation	Government		OEPP	Andaman Sea and Gulf of Thailand	1. Mapping seagrass areas 2. Draft management plan	Management, Mapping, & Inventory	
1998 ongoing	Kung Krabane Bay Coastal Resources Management	Government	1. Study and develop sustainable coastal zone management 2. Center for training and education coastal zone management for government and private agencies 3. Improve standard of living and career of local people around	Kung Krabane Bay Royal Development Study Center (Kung Krabane Bay Fisheries Development Study Center)	Kung Krabane Bay, Gulf of Thailand	Conserve and manage seagrass in Kung Krabane Bay for nursery juvenile and larvae of marine organisms, and to be the area for absorbing excessive nutrients of shrimp farms around the bay	Management	

Year	Project Title	Funding Agency	Objective	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
			Kung Krabane Bay and vicinity 4. Develop fisheries and coastal aquaculture to increase national production and baseline for fishery development 5. Conserve environmental and natural resources					
2001-ongoing	Coastal Wetlands Policy and Conservation Awareness Project	WWF	Develop greater equitable and sustainable fishery policies and practice	Wildlife Fund Thailand	Andaman Sea and Gulf of Thailand	1. Strengthening the networking of capacity of fisherfolk and other community organizations 2. Develop and strengthen community organizations and leadership of small-scale fishermen to represent their interests 3. Improved enforcement of coastal conservation legislation in 4 target sites 4. Policy proposal for reform of national fisheries and forestry laws and policies to reflect interests of small fishermen 5. Reduction of push nets from the Pattani demonstration site 6. Increased awareness on impacts of destructive fishing gear and the need for policy reform for equitable and	Management	

Year	Project Title	Funding Agency	Objective	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
						sustainable fisheries management 7. Database on relevant laws, policies, research, developed for policy reform and awareness campaign		
Ongoing	Coastal Zone Management through Communities Organization and Network in Southern Project	DANCED	1. Reinforce strength of local fisheries organization to be able to manage itself 2. Local fishermen are able to participate in develop policy and their standard of living 3. Local fishermen participate in planning and manage coastal resources	Coastal Zone Management through Communities organization and network in Southern Project (under Sustainable Development Foundation)	Andaman Sea and Gulf of Thailand		Management	

Summary of Presentations: Tabulation of Past and On-going Projects on Seagrass

Country: Vietnam

Year	Project Title	Funding Agency	Objectives	Implementing Agencies	Study Sites	Outputs	Subject	Remarks
1989-1991	<i>Rational utilization of typical ecosystems: coral reefs, estuaries, lagoons - KT.03.11</i>	Vietnam government			Hai Phong Quang Ninh Coastal Zone	Data and information		4 species of seagrass: <i>Halophila ovalis</i> , <i>H. beccarii</i> , <i>Zostera japonica</i> , <i>Ruppica maritima</i>
	<i>Surveying sea product resources - KT.03.08</i>	Vietnam government	survey		Hai Phong Quang Ninh Coastal Zone	Data and information		
1994-1995	EAS-35	UNEP/EAS/RCU	To document impact of watershed activities on seagrass habitat			Data and information		10 species of seagrass: <i>Z. japonica</i> , <i>H. pinifolia</i> , <i>H. uninervis</i> , <i>H. ovalis</i> , <i>H. beccarii</i> , <i>Enhalus acoroides</i> , <i>Thalassia hemorichii</i> , <i>Cymodocea rotundata</i> , <i>C. serrulata</i> , <i>Ruppia maritima</i>
1996	<i>Rational exploitation of the Tam Giang-Cau Hau Lagoon, Thua Thien Hue Province - KT.DL.04-09</i>	Vietnam government			Tam Giang-Cau Hau Lagoon, Thua Thien Hue Province	Data and information		6 species of seagrass: <i>Z. japonica</i> , <i>H. pinifolia</i> , <i>H. ovalis</i> , <i>H. beccarii</i> , <i>T. hemprichii</i> , <i>R. maritima</i>
1996-1998	<i>Species composition and distribution of seagrasses in Con Dao Islands</i>				Con Dao Islands, Ba Ria - Vung Tau Province			8 species of seagrasses: <i>H. uninervis</i> , <i>Syringoidum</i>

								<i>isoetifolium, H. ovalis, Thalassodendron ciliatum, H. decipiesn, T. hemprichii, C. rotundata, C. serrulata E. acoroides, H. pinifolia,</i>
2002	Seagrasses of Vietnam					Publication		15 species of seagrasses throughout the country: <i>Z. japonica</i> <i>Z. marina</i> <i>H. Pinofrlia</i> <i>H. uninervis,</i> <i>H. ovalis</i> <i>H. beccarii, H. decipiens, H. mino,</i> <i>Enhalus acoroides,</i> <i>T. hemprichii,</i> <i>Thalassodendron ciliatum,</i> <i>Cymodocea rotundata, C. serrulata,</i> <i>Syringodium izoetifolium,</i> <i>Ruppia maritima</i>
2001-2005	<i>Marine Science and Technology Program and Program on Appropriate Use of Natural Resources and Environmental Protection</i>	Vietnam government						
	Includes the following projects: - establishment of marine meta-database; surveys of fish reserves; scientific							

	delineation of continental shelves; occurrence and prevention of soil erosion; surveys of coastal islands; surveys of marine organisms of pharmaceutical values; studies on interaction at coastal zones and estuaries; environmental monitoring programme; Investigation of measures for protecting and restoring disturbed seagrass and coral reef ecosystems; Additional surveys of Tonkin Gulf							
	Assessment of red tides and studies on poisonous algae in Vietnam's sea areas	WESTPAC						
	Environmental Standards and Pollution Monitoring	ASEAN-Canada						
	Living Coastal Resources Project: database and GIS technology	ASEAN-Australia						
	Vietnam-Canada Environment Programme	Vietnam - Canada			Da Nang			
	Marine Environment	Vietnam - Swedish International						

	Project: Pollution and Management of Marine Resources	Development Agency						
	Surveys and Assessment of sea fish and management of fisheries	Vietnam - Denmark						
	Coastal Management: Impact of Water Level Rise due to Green House Effect	Vietnam - Netherlands						
2002-2005	<i>Investigation of measures for protecting and restoring seagrass and coral ecosystems - KC-09-07:</i>	Vietnam	To determine scientific bases for restoration of seagrass meadows; To develop methods and techniques for transplantation and restoration of seagrass meadows					

Keywords:

Biology (growth, reproduction)

Ecology (distribution, density)

Management

Socio-economics

Restoration

Environment Impacts

Economic valuation

Utilisation

Mapping and inventory

ANNEX 6

**An Overview of the Past and On-Going Projects
in Participating Countries: Questionnaire and Results**

COUNTRY:

1. What are the objectives of the seagrass projects in your country?
 - Biodiversity assessment
 - Socio-economic evaluation
 - Management / Protection
 - ICZM Planning
 - Others (specify:.....)

2. Do you know where the seagrass are located (distributed) in your country?
 - Yes, for most areas
 - Yes, for some areas
 - No, only in very small areas

3. Percentage (estimate) of the seagrass that has already been surveyed for any of the objectives in question no.1:
 - <25%
 - 25-50%
 - 50-75%
 - 75-100%

4. Is there enough information to address SG management issues in your country?
 - Yes, for most of the SGs (>75%)
 - Yes, for 50-75% of the SGs
 - Yes, for 25-50% of the SGs
 - Yes, for less than 25% of the SGs

5. Information gaps in addressing management issues:

	Percentage of SGs			
	<25%	25-50%	50-75%	>75%
• Biodiversity and ecology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Geo-physical parameters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Socio-economic importance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Users conflicts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Threats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
•	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Why are there gaps in the above information?
 - Lack of trained personnel to collect information
 - Lack of fund or financial support
 - Remote areas with inadequate logistical support
 -
 -
 -

7. What are the outputs & outcomes of the SG projects in your country so far?

- Increase in number of reports and publications
- Create public awareness of the status of the SG resources
- Knowledge of threats to the SGs
- Establishment of new MPAs
- Identification of new dive sites for the tourism industry
- Increase number of tourists visiting your SGs
- Introduction of new legislations to protect SGs
- Better fishery management
- Improve the socio-economic condition of the community
- Attract more scientists to conduct SG research
- Public and community involvement in SG management

Summary of Questionnaire Results: General Overview of the Past and On-Going Projects on Seagrass in Participating Countries

	Cambodia	China	Indonesia	Malaysia	Philippines	Thailand	Vietnam
1. The objectives of country's seagrass projects:							
• Biodiversity assessment							
• Socio-economic assessment							
• Management/protection/conservation							
• ICZM planning							
• Others (research, education, awareness)							
• restoration							
2. Knowledge of the distribution of seagrass							
• Yes, for most areas							
• Yes, for some areas							
• No, only in very small areas							
3. Estimate of SGs already surveyed							
• <25%							
• 25-50%							
• 50-75%							
• >75%							
4. Adequacy of info. to address mgmt. issues							
• Yes, for >75% of the SGs							
• Yes, for 50-75% of the SGs							
• Yes, for 25-50% of the SGs							
• Yes, for <25% of the SGs							
5. Info. Gaps in addressing mgmt. issues							
• Biodiversity and ecology	>75%	25-50%	25-50%	>75%	25-50%	25-50%	25-50%
• Physico-chemical parameters	>75 %	25-50%	25-50%	>75%	<25%	<25%	25-50%
• Socio-economic benefits	>75 %	50-75%	>75%	>75%	<25%	0	25-50%
• User conflict	50-75%	50-75%	>75%	>75%	<25%	<25%	<25%
• Threats	50-75%	<25%	25-50%	25-50%	25-50%	<25%	25-50%

6. Why are there information gaps?							
• Lack of trained personnel to collect info.							
• Lack of fund or financial support							
• Inadequate logistical support							
• Disinterest							
• Not in National agenda							
• Low awareness on seagrass							
7. Outputs & outcomes of the SG projects							
• Increase in number of reports and publication							
• Create public awareness of the SG resources							
• Knowledge of threats to SGs							
• Establishment of new MPAs							
• Increase in number of tourists visiting your SGs							
• Introd.'n of new legislations to protect SGs							
• Better fishery management							
• Improve socio-econ. condition of community							
• Attract scientists to conduct SG research							
• Community involvement in SG mgmt.							
• Integrate SG science into mgmt.							

ANNEX 7

Compilation of Seagrass Sites Identified and Characterised in the Participating Countries

Country	Location	Coordinates	Characterisation		Remarks
			Annex 7	GIS form	
Cambodia					
	Sihanoukville:				For all Cambodian seagrass sites identified, data and information are very limited to the distribution of sites along the coast and the information on possible species of seagrass in each site.
	Koh Tang				The information on the distribution will be entered in the appropriate GIS forms.
	<i>Koh Tas</i>				
	<i>Koh Tres</i>				
	<i>Poy Independent</i>				
	<i>Poy Sokha</i>				
	<i>Poy Tamouk</i>				
	<i>Poy Ocheuteul</i>				
	Koh Kong Province				
	Kompot Province				
	Kep Province				
China					
	Lian Gulf, Hainan	18°25', 110°03'			Secondary data and information are being gathered for seagrass sites.
	Xincun Gulf, Hainan	18°24', 109°58'			Secondary data and information are being gathered for seagrass sites.
	Beimu Guangxi	21°35', 109°40'			Secondary data and information are being gathered for seagrass sites.
	Yingluo Bay, Guangxi	21°27', 109°45'			Secondary data and information are being gathered for seagrass sites.
	Dianzhousha, Guangxi	21°28', 109°42'			Secondary data and information are being gathered for seagrass sites.
	Danshuikou, Guangxi	21°28', 109°40'			Secondary data and information are being gathered for seagrass sites.
	Liusha Bay, Guangdong	20°26', 109°57'			Secondary data and information are being gathered for seagrass sites.

Indonesia					
	Senayang Linga, Riau Province				These are the islands with seagrass beds and within the "South China Sea", as defined by the National Technical Working Group for Indonesia.
	Bintang Islands				
	Natuna Islands				The formats for the characterisation of the sites have been presented to the National Committee for Seagrass.
Malaysia					
	Peninsula Malaysia				Data and information on these sites in Peninsular Malaysia are available from governmental reports and research articles. These will be gathered and presented in the appropriate forms.
	Johor Strait				
	<i>Setil Lagoon, Tioman Island</i>				
	East Malaysia				In East Sabah, most of the data and information are in theses and a few articles on taxonomic descriptions. A national study on seagrass is currently being conducted from Sabah on the seagrass distribution, dugong distribution, and fisheries on seagrass.
	Tunku Abdul Rahman Park				
	<i>Mantanani Islands</i>				
	<i>North Borneo Islands</i>				
Philippines					
	Fuga Island	18.83,121.33			NA-G ⁵
	Escarpada Point	18.56,122.2			NA-G
	Cape Bolinao	16.4,119.89			Selected for seagrass subcomponent of the South China Sea Project.
	Masinloc-Oyon Bay	15.5,119.91			Selected for seagrass subcomponent of the South China Sea Project. Data and information are being entered in the appropriate formats.
	Puerto Galera	13.5,121.02			Selected for seagrass subcomponent of the South China Sea Project.
	Malampaya Sound	11.16,119.36			NA-G
	Bacuit Bay	10.8,119.43			Selected for seagrass subcomponent of the South China Sea Project. Data and information are being entered in the appropriate formats.

⁵ NA-G - Not Available but can be generated.

	Ulugan Bay	10.11,118.8			Selected for seagrass subcomponent of the South China Sea Project.
	Honda Bay, Puerto Princesa	9.87,118.91			Selected for seagrass subcomponent of the South China Sea Project. Data and information are being entered in the appropriate formats.
	Bugsuk Island	8.23,117.41			NA-G
Thailand					
	Kuta Bay				Data and information are being input into GIS and appropriate form.
	Suratthani Bay				Data and information are being input into GIS and appropriate form.
	Patani Bay				Data and information are being input into GIS and appropriate form.
	Panga Bay				Data and information are being input into GIS and appropriate form.
Vietnam					The distribution of the seagrass beds listed here have been input in GIS and mapped.
	Tam Giang - Cau Hai	16 ^o .14'-16 ^o .42'N, 107 ^o 22'-107 ^o 57'E			
	Cam Ranh Bay	12 ^o 07'-12 ^o 48'N, 109 ^o 06'-109 ^o 16'E			
	Con Dao (Ba Ria -Vung Tau)				
	Gia Luan - Cat Ba	20 ^o 51'02"N, 106 ^o 58'59"E			
	Gianh River	17 ^o 40'-17 ^o 47'N, 106 ^o 23'-106 ^o 30'E			
	Lang Co (Thua Thien-Hue)	16 ^o 13'00"- 16 ^o 15'30"N, 108 ^o 2'00"- 108 ^o 5'30"E			
	Phu Quy Island	10 ^o 29'-10 ^o 33'N, 108 ^o 55'-108 ^o 58'E			
	Phu Quoc	10 ^o 00'-10 ^o -30'N, 103 ^o 50'-104 ^o 05'E			
	Van Phong Bay	12o24'-12o48'N, 109 ^o 11'-109 ^o 26'E			

ANNEX 8

Chronology of National and Local Legislation Relevant to the Concerns of the Seagrass Habitat - An Example from the Philippines

Legislation	Title/Description
Republic Act No. 9003 (2001)	The Ecological Solid Waste Management Act
Republic Act No. 8550 (1998)	Fisheries Code, clarifies jurisdiction of municipalities and cities in the management of municipal waters to include functions pertaining to enforcement, legislation, regulation of fishing activities, conservation and planning
Republic Act No. 8435 (1997)	Agriculture and Fisheries Modernization Act, provides extension services to municipalities and provides for agriculture and fisheries zoning plan irrespective of political boundaries
Republic Act 8371 (1997)	Indigenous Peoples Right Act (IPRA)
Executive Order No. 6 (1996)	Institutionalized the multi-sectoral committee on coastal development plan
Executive Order No. 240 (1995)	Creation of Fisheries and Aquatic Resources Management Committees (FARMCs) in coastal barangays, cities and municipalities
Republic Act No. 7942 (1995)	The Philippine Mining Act
Republic Act No. 7881 (1994)	Amendments to RA 6657, Comprehensive Agrarian Reform Law, pertaining to coverage of fishponds
Executive Order No. 117 (1993)	Created the Inter-Agency Task Force on Coastal Environment Protection (IATFCEP)
Republic Act No. 7586 (1992)	National Integrated Protected Area Systems Act
Republic Act No. 7160 (1991)	Local Government Code
Republic Act No. 7061 (1991)	The People's Small –Scale Mining Act
Republic Act No. 7161 (1991)	Amendments to National Internal Revenue Code of 1977, bans the cutting of all mangrove species
Republic Act No. 6969 (1990)	The Toxic Substances and Hazardous and Nuclear Wastes Control Act
Executive Order No. 192 (1986)	Establishes the jurisdiction of DENR in the use of all public lands including foreshore areas
Presidential Decree No. 1151 (1986?)	Philippine Environment Policy declares it a policy of the State to create, develop, maintain, and improve conditions under which man and nature can thrive in productive and enjoyable harmony with each other; fulfill the social, economic, and other requirements of present and future generations of Filipinos, and ensure the attainment of an environmental quality conducive to life and well-being. It also laid the basis for requiring Environmental Impact Statement (EIS) for all projects and programs that affect environmental quality.
Presidential Proclamation No. 2146 (1981)	Identifies environmentally critical projects, heavy industries, resource extractive industries and infrastructure projects. Also defines environmentally critical areas including all declared protected areas, critical habitats of wildlife, prime agricultural lands, mangrove areas and coral reefs, areas of significant historical, cultural or aesthetic values and areas often hit by natural calamities.
Presidential Proclamation No. 1801 (1978)	Puerto Galera Biosphere Reserve
UNESCO's Man and Biosphere Programme (1977)	
Presidential Decree No. 354 (1973)	
Presidential Decree No. 1067 (1976)	Water Code of the Philippines, establishes recreation/easement zones in banks of rivers and streams and shores of seas and lakes
Presidential Decree No. 1586 (1976)	The Environmental Impact Statement System
Presidential Decree No. 984 (1976)	The National Pollution Control Law
Presidential Decree No. 979 (1976)	The Marine Pollution Decree
Commonwealth Act No. 141 (1936)	The Public Land Act
	a policy document that provides general guidelines for air quality management, water management, land use management, and natural resources management and conservation. The water quality management provisions are concerned mainly with freshwater resources, but the management of these resources is also of concern to fisheries management since a number of freshwater rivers and lakes form part of the inland fisheries resources
Republic Act No. 9147	The Wildlife Resources Conservation and Protection Act
Republic Act No. 7611	The Strategic Environmental Plan for Palawan Act, creating a special environmental management regime for the island-province of Palawan and sets up the multi-sectoral Palawan Council for Sustainable Development as the administering authority
Presidential Decree No. 474	The Maritime Industry Development Decree
Presidential Decree No. 825	Penalizes the improper disposal of garbage and other forms of

	uncleanliness
Presidential Decree No. 857	Sharing of port management between the Philippine Ports Authority and the local government units (LGUs)
Presidential Decree No. 1152	Philippine Environment Code, prescribes environmental quality standards for air, water, land, fisheries and aquatic resources, wildlife, soil, etc.
Presidential Decree No. 1198	Requires the rehabilitation of damaged foreshore areas to their original condition
Executive Order 114	Created the Presidential Committee on Illegal Fishing and Marine Conservation
Executive Order No. 263	Establishes the community-based forest management
Executive Order No. 247	Bioprospecting law
Commonwealth Act No. 383	Prohibits the dumping into any river of any refuse, waste, matter or substances of any kind whatsoever that may bring about the rise or filling of river beds or cause artificial alluvial formations
National Marine Policy	Adopts the archipelagic nature of the Philippines in development planning, implementation of UNCLOS and all maritime and coastal concerns
Philippine Agenda 21	The national agenda for sustainable development for the 21 st century
Medium-Term Philippine Development Plan (MTPDP)	The blueprint that spells out the development strategy to boost, among others industry, trade and tourism

1. LAWS DECLARING MARINE PROTECTED AREAS IN THE SOUTH CHINA SEA SIDE OF THE PHILIPPINES UNDER NIPAS

Legislation	Title	Location
Republic Act No. 8991 (amending PP No. 335) (2001)	Batanes Protected Landscape & Seascape	Batanes
Presidential Proclamation No. 277 (2000)	Agoo-Damortis Protected Landscape & Seascape	Agoo, Sto. Tomas & Rosarion, La Union
Presidential Proclamation No. 342 (2000)	Malampaya Sound Protected Landscape & Seascape	Taytay & San Vicente
Presidential Proclamation No. 212 (1999)	Puerto Princesa Subteranean Natural Park	Puerto Princesa, Palawan
Presidential Proclamation No. 32 (1998)	El Nido Managed Resource Reserve	El Nido, Palawan
Presidential Proclamation No. 868 (1996)	Apo Reef Natural Park	Sablayan, Mindoro Occidental
Presidential Proclamation No. 447 (1994)	Palaui Island Natural Reserve	Sta. Ana, Cagayan
Presidential Proclamation No. 231 (1993)	Masinloc & Oyon Bays Marine Reserve	Masinloc & Oyon, Zambales

2. MAJOR POLICIES THAT INFLUENCED DENR'S ROLE IN COASTAL AREA MANAGEMENT

Legislation	Title/Description
DENR Administrative Order No. 8 (2002)	Strengthening of the CEP by establishing the Coastal and Marine Management Office
Republic Act NO. 7942 (1995)	The Philippine Mining Act is approved
DENR Administrative Order No. 19 (1993)	Establishes the CEP
DENR Administrative Order No. 30 (1992)	Defines scope of devolved DENR functions to LGUs
Republic Act No. 7586 (1992)	NIPAS Law declares eight categories of protected areas, including protected seascapes under the administration of DENR-PAWB
Republic Act No. 7076 (1991)	A People's Small-Scale Mining Program is established and placed under the supervision of the DENR
Republic Act No. 6969 (1990)	Toxic Substances and Hazardous and Nuclear Waste Control Act
Executive Order No. 292 (1987)	Mandates DENR to exercise responsibility for the exploration and development of natural resources, including fisheries
Executive Order No. 967 (1984)	BFAR is transferred from the Ministry of Natural Resources to the Ministry of Agriculture and Food. However, jurisdictional authority over management of marine environment, including coral reefs and other marine habitats, remains with the Ministry of Natural Resources
Presidential Decree No. 1586 (1978)	The Philippine Environmental Impact Assessment System is established under the administration of DENR
Presidential Decree No. 979 (1976)	The marine pollution decree vests on DENR-Environmental Management Bureau (EMB) the authority to promulgate laws governing marine pollution
Presidential Decree No. 705 (1975)	Releases to BFAR mangrove areas suitable for fishpond development; establishes mangrove areas needed for forest purposes
Presidential Decree No. 825 (1975)	Penalizes improper disposal of garbage
Joint DA - DENR MOA No. 1	Delineates and defines functions and responsibilities of the DA -BFAR and DENR in the implementation of the Fisheries Code
DENR Administrative Order No. 17	Guidelines for the delineation and delimitation of municipal waters

3. KEY LEGISLATION THAT INFLUENCED BFAR'S ROLE IN FISHERIES MANAGEMENT IN THE LAST 40 YEARS

Legislation	Title/Description
Republic Act No. 8435 (1997)	Agriculture and Fisheries Modernization Act
Republic Act No. 7160 (1991)	Local Government Code, devolves specific fishery management functions (regulatory and enforcement)
Executive Order No. 292 (1987)	Assigns to both DA and DENR fisheries-related functions
Presidential Decree No. 704 (1975)	BFAR's mandates include development and management of the country's fisheries
Republic Act No. No. 3512 (1963)	Created the Philippine Fisheries Commission

4. LAWS PROVIDING OTHER NATIONAL AGENCIES WITH SPECIFIC AND IMPLIED MANDATES FOR CRM

Legislation	Title/Description
Republic Act No. 6975	Reorganizing the Department of Interior and Local Government (DILG), creating the Local Government Sector and the Interior or Public Safety Sector Also created the Philippine National Commission-Maritime Command (PNP-MARICOM), which has been vested with the authority to perform all police functions over Philippine territorial waters and rivers, coastal areas from the shore line to one mile inland to include ports and harbors and small islands of two miles in length or diameter with less than 1000 population
Republic Act No. 5173	Mandates the Philippine Coast Guard (PCG) to enforce coastal management
Executive Order No. 125	Mandates the Department of Transportation and Communication (DOTC), through MARINA, PPA and PCG, as the primary policy, planning, programming, coordinating, implementing, regulating and administrative entity of the executive branch of government in the promotion, development, and regulation of dependable and coordinated networks of transportation and communication systems
Executive Order No. 128	Turns over the Philippine Council for Aquatic and Marine Research and Development (PCAMRD) to the Department of Science and Technology as one of its sectoral planning councils

5. SELECTED ADMINISTRATIVE ISSUANCES RELATED TO POLLUTION

Legislation	Title/Description
DENR Administrative Order No. 34 (2001)	Implementing rules and regulations on the Ecological Solid Waste Management Act
DENR Administrative Order No. 29 (2001)	Institutionalizing Integrated Water Resources Management in DENR programs and projects
DENR Administrative Order No. 82 (2000)	Integrated Air Quality Improvement Framework and Air Quality Control Action Plan
DENR Administrative Order No. 05 (2000)	Revising DENR Administrative Order (DAO) No. 94-11, supplementing DAO No. 96-37 and providing for Programmatic Compliance Procedures within the Environmental Impact Statement (EIS) System
DENR Administrative Order No. 03 (2000)	Interim implementing rules and regulations of Republic Act No. 8749, "The Philippine Clean Air Act of 1999
DENR Administrative Order No. 101 (2000)	Amendments to the Rules and Regulations of the National Pollution Control Commission (1978) incorporating permit regulations governing mine wastes and mill tailings storage structures
PPA MC No. 10, s. 2000	Nationwide Implementation of PPA Solid Waste Management System (PPA Memorandum Circular No. 35-2000)
DOE Circular No. 98-02-003	Amending Department Circular No. 95-10-008, Directing All Operators of Oil Rigs or Platforms, Power Plants, Oil tankers and Barges carrying, producing, or utilizing Crude Oil-Based Products to Report All Oil Spills or Environmental Incidents to the Department of Energy
DENR Administrative Order No. 63 (1998)	Guidelines for the designation of DENR recognized environmental laboratories
DENR Administrative Order No. 50 (1998)	Adopting the Landfill Site Identification and Screening Criteria for municipal solid waste disposal facilities
DENR Administrative Order No. 49 (1998)	Technical guidelines for municipal solid waste disposal
DENR Administrative Order No. 47 (1998)	Implementing rules and regulations (IRR) for mandating the phase-out of leaded gasoline as one of the means of solving air pollution
DENR Administrative Order No. 46 (1998)	1998 revised rules and regulations for the prevention, control and abatement of air pollution from motor vehicles
DENR Administrative Order No. 39 (1997)	Chemical Control Order for cyanide and cyanide compounds

Legislation	Title/Description
DENR Administrative Order No. 23 (1997)	Updating Departments Administrative Order No. 34, Series of 1990 otherwise known as the Revised Water Usage Classification/Water Quality Criteria amending Section Nos. 68 and 69, Chapter III of the 1978 NPCC rules and regulations
DENR Administrative Order No. 34 DENR Administrative Order No. 97-23	Water quality criteria for conventional pollutants and toxic substances for coastal and marine waters
DENR Administrative Order No. 37-96	Revising DENR Administrative Order No. 21, Series of 1992, to further strengthen the implementation of the Environmental Impact Statement (EIS) System
PPA AO No. 15-95	Rules and Regulations on the Prevention / Control of Oil, Garbage and Sewage Waste through the Use of Reception Facilities / collection of Vessel Refuse
DOE Circular No. 95-10-008	Directing All Operators of Oil Rigs or Platforms, Power Plants, Oil tankers and Barges carrying, producing, or utilizing Crude Oil-Based Products to Report All Oil Spills or Environmental Incidents to the Department of Energy
PPA MC No. 7-95	Anti-Pollution Measures within the port zones
DENR Administrative Order No. 51 (1993)	Adoption of the Industrial ECOWATCH System and providing for implementing guidelines thereof
DENR Administrative Order No. 30 (1992)	Guidelines for the transfer and implementation of DENR functions devolved to the Local Government Units
DENR Administrative Order No. 35	Effluent standards for conventional pollutants and toxic substances for protected coastal and marine wastes
DA Administrative Order No. 201	Mandates the formation of a Monitoring, Control and Surveillance System to combat illegal fishing
MARINA MC No. 128	Revised Guidelines for Tankers and Barges Carrying Oil and Petroleum Products

6. SELECTED ADMINISTRATIVE ISSUANCES RELATED TO PROTECTED AREAS

Legislation	Title/Description
DA-BFAR Fisheries Administrative Order No. 185	Ban on the taking or catching, sale, purchase, possession, and transport of dolphins
DA-BFAR Fisheries Administrative Order No. 185-1	Ban on the taking or catching, sale, purchase, possession, and transport of whales and porpoises
DA-BFAR Fisheries Administrative Order No. 193	Ban on the taking or catching, sale, purchase, possession, and transport of whale sharks and manta rays
DA-BFAR Fisheries Administrative Order No. 208	Conservation of rare, threatened, and endangered fisheries species
DA-BFAR Fisheries Administrative Order No. 202	Ban on coral exploitation and exportation
DENR Administrative Order No. 17-01	Guidelines for delineating/delimiting municipal waters
DENR Administrative Order No. 51-00	Guidelines and principles in determining fees for access to and sustainable use of resources in protected areas
DENR Administrative Order No. 50-00	Rules and regulations governing sanitation cutting on pest-infested forests
DENR Administrative Order No. 46-00	Guidelines on the establishment of Regional Wildlife Rescue Center
DENR Administrative Order No. 44-00	Amending certain provisions of DAO 96-29 and providing specific guidelines for the establishment and management of community-based projects within protected areas
DENR Administrative Order No. 13-00	Guidelines on the implementation of the Biodiversity Monitoring System (BMS) in protected areas
DENR Administrative Order No. 49-99	Guidelines in the identification, development and implementation of livelihood activities and opportunities for qualified protected area occupants
DENR Administrative Order No. 41-98	Guidelines on the establishment and management of Community-Based Forest Management (CBFM) projects within watershed reservations
DENR Administrative Order No. 33-97	Guidelines on the issuance of permit for the collection and transport of biological specimens from protected areas for use by DENR Biodiversity Conservation Programs/Projects
DENR Administrative Order No. 17-97	Establishing the disposition program for confiscated and donated wildlife in the custody of DENR Wildlife Rescue Centers and similar DENR facilities and providing guidelines therefore
DENR Administrative Order No. 28-96	Requirements for the deputation of Barangay Volunteers and members of tribal communities as Field Officers within protected areas
DENR Administrative Order No. 15-95	Revised general guidelines in the implementation of the sub-classification of forestlands and other inalienable lands of the public domain
DENR Administrative Order No. 2-93	Rules and regulations for the identification, delineation of ancestral land and domain claims
DENR Administrative Order No. 19 (1993)	Creates the Coastal Environment Program (CEP)

Legislation	Title/Description
DENR Administrative Order No. 30-92	Guidelines for the Transfer and Implementation of DENR Functions Devolved to the Local Government Units
DENR Administrative Order No. 28-92	Guidelines in the issuance of special permits for pebble picking along beaches
DENR Administrative Order No. 25-92	National Integrated Protected Areas System (NIPAS) implementing rules and regulations
DENR Administrative Order No. 14 (1991)	El Nido-Taytay Managed Resource and Protected Area/El Nido Marine Reserve, El Nido, Taytay, Palawan (90,321 has. 60% coastal)

7. SELECTED ADMINISTRATIVE ISSUANCES RELATED TO MANGROVES

Legislation	Title/Description
DA-DENR Joint Memorandum Order No. 1 (2000)	Identifying/defining areas of cooperation and collaboration between the DA and DENR in the implementation of RA 8550, the Philippine Fisheries Code.
DA-DENR General Memorandum Order No. 3 (1991)	Guidelines for cancellation and reversion of FLAs into mangrove forestlands
DA-BFAR Fisheries Administrative Order No. 214	Code of practice for aquaculture
DA-BFAR Fisheries Administrative Order No. 197	Rules and regulations governing the lease of public lands for fishpond development
DENR Administrative Order No. 83-00	Guidelines for the management and development of small islands, including its coastal areas
DENR Administrative Order No. 57-00	Guidelines governing the implementation and management of mangrove sub-projects under the Forestry Sector Project
DENR Administrative Order No. 50-00	Rules and regulations governing sanitation cutting on pest-infested forests
DENR Administrative Order No. 35-99	Revised guidelines in the implementation of the resource use permit in Community-Based Forest Management Program
DENR Administrative Order No. 29-96	Rules and regulations for the implementation of Executive Order 263, otherwise known as the Community-Based Forest Management Strategy (CBFMS)
DENR Administrative Order No. 10-98	Guidelines on the establishment and management of Community-Based Forest Management (CBFM) Projects within mangrove areas
DENR Administrative Order No. 19-93	Establishing the Coastal Environment Program (CEP) and providing funds thereof
DENR Administrative Order No. 16-93	Guidelines for implementation of the Forestry Sector Project
DENR Administrative Order No. 17-92	Delineation of functions and implementation of the Integrated Social Forestry Program after the devolution of functions to the Local Government Units (LGUs)
DENR Administrative Order No. 03-91	Policy and guidelines for the award and administration of the Mangrove Stewardship Agreement
DENR Administrative Order No. 34 (1991)	Guidelines for issuance of environmental compliance certificates (ECCs) for fishpond development
DENR Administrative Order No. 15 (1990)	Regulations governing management of mangroves
DENR Administrative Order No. 7 (1989)	Suspends acceptance of prospecting permits in reservations
DENR Administrative Order No. 76 (1987)	Establishes buffer zones in coastal and estuarine mangrove areas
MNR Administrative Order No. 42 (1986)	Expands mangrove buffer zones in typhoon prone areas

8. SELECTED ADMINISTRATIVE ISSUANCES RELATED TO FORESHORE

Legislation	Title/Description
DENR Administrative Order No. 34 (1999)	Rules and regulations governing the administration, management and development of foreshore areas, marshy lands and other lands bordering bodies of water
DENR Administrative Order No. 05-97	Procedures in the retention of areas within certain distances along the banks of rivers, streams, and shores of seas, lakes and oceans for environmental protection
DENR BL Office Circular 70-4, s. 1986	Implementing Lands Administrative Order No. 47 dated 13 December 1984 governing the share of government in the sub-leasing of improvements of lands covered by leases
DENR BL Office Circular No. 70, s. 1979	Rules and Regulations governing the Management of Government Lands covered by subsisting leases and the Management and Disposition of Lands covered by expired leases and of existing improvements thereon
DENR BL Circular No. 51, s. 1978	Additional Condition in Lease Contracts Involving Foreshore Areas
DENR BL General Circular No. 36, s. 1978	Supreme Court Doctrines on Foreshore Lease Applications as Enunciated in Santulan vs. Executive Secretary (G.R. No. L-28021), December 23, 1977

9. SELECTED ADMINISTRATIVE ISSUANCES RELATED TO FISHERIES

Legislation	Title/Description
DA-BFAR Fisheries Administrative Order No. 218	Yearly report on aquaculture projects
DA-BFAR Fisheries Administrative Order No. 217	Obstruction to defined migration paths
DA-BFAR Fisheries Administrative Order No. 216	Obstruction to navigation in streams, rivers, lakes and bays
DA-BFAR Fisheries Administrative Order No. 215	
DA-BFAR Fisheries Administrative Order No. 214	
DA-BFAR Fisheries Administrative Order No. 212	Guidelines on the Hazard Analysis Critical Control Point system
DA-BFAR Fisheries Administrative Order No. 211	Requirements for pre-processing and processing plants and Standard Sanitary Operating Procedures thereof and the processing and quality requirements of shellfish
DA-BFAR Fisheries Administrative Order No. 210	Rules and regulations on the exportation of fresh, chilled and frozen fish and fishery/aquatic products
DA-BFAR Fisheries Administrative Order No. 209	Guidelines on the production, harvesting, handling and transportation of shellfish for implementation of the local government
DA-BFAR Fisheries Administrative Order No. 208	Conservation of rare, threatened, and endangered species
DA-BFAR Fisheries Administrative Order No. 207	Prohibiting the importation and culture of imported live shrimp and prawn of all stages
DA-BFAR Fisheries Administrative Order No. 206	Disposal of confiscated fish and other items in fishing through explosives and noxious or poisonous substances
DA-BFAR Fisheries Administrative Order No. 204	Restricting the use of superlights in fishing
DA-BFAR Fisheries Administrative Order No. 203	Ban on fishing by means of muro-ami and the like destructive to coral reefs and other marine habitat
DA-BFAR Fisheries Administrative Order No. 202	Ban on coral exploitation and exportation
DA-BFAR Fisheries Administrative Order No. 201	Ban on fishing with active gear
DA-BFAR Fisheries Administrative Order No. 200	Guidelines in implementing Sec. 87 (Poaching in Philippine waters) of the Philippine Fisheries Code of 1998
DA-BFAR Fisheries Administrative Order No. 199	Guidelines on fish transshipment
DA-BFAR Fisheries Administrative Order No. 198	Rules and regulations on commercial fishing
DA-BFAR Fisheries Administrative Order No. 197	Rules and regulations governing the lease of public lands for fishpond development
DA-BFAR Fisheries Administrative Order No. 196	Guidelines on the creation and implementation of Fisheries and Aquatic Resource Management Councils
DA-BFAR Fisheries Administrative Order No. 193	Prohibits the capture, sale, purchase, possession, transport and export of whale sharks and manta rays
DA-BFAR Fisheries Administrative Order No. 190	Regulation of pa-aling fishing in Philippine waters, and prohibits pa-aling in municipal waters
DA-BFAR Fisheries Administrative Order No. 185	Bans the capture, sale, possession, transport and purchase of dolphins
DA-BFAR Fisheries Administrative Order No. 168-2 DA-BFAR Fisheries Administrative Order No. 168 DA-BFAR Fisheries Administrative Order No. 158	Prohibits the collection of marine mollusks
DAR-DA Joint Administrative Order No. 18 (1991)	Rules and guidelines governing the distribution of cancelled or expired Fishpond Lease Agreements (FLAs) under EO 407 as amended by EO 448

10. Administrative Issuances Related to Coastal Tourism

Legislation	Title/Description
DENR BL General Circular No. 81 (1981)	Rules and regulations governing the acceptance, processing and disposition of public land applications inside tourist zones and marine reserves
DOT, 26 Aug 1992	Rules and regulations to govern the accreditation of hotels, tourist inns, motels, apartelles, resorts, pension houses and similar establishments
DOT, 20 Apr 1992	Rules and regulations to govern the accreditation of tourist establishments
DOT, 1 Mar 1989	Rules and regulations to govern the business and operations of resorts
DOT, 1 Mar 1989	Rules and regulations to govern the business of tourist transport operations
Phil. Commission on Sports Scuba Diving, 15 May 1992	Rules and regulations governing the business of Sports Scuba Diving in the Philippines

11. SELECTED ADMINISTRATIVE ISSUANCES RELATED TO THE ROLE OF LOCAL GOVERNMENT UNITS

Legislation	Title/Description
DA-DILG Joint Administrative Order No. 3 (1996)	Rules on preferential treatment of small fisherfolk
DA-DILG-DENR-DOJ Joint Memorandum Order No. 2 (1996)	Guidelines on implementation of EO 240
DA-DILG Joint Administrative Order No. 4 (1996)	Regulation on the utilization of superlights for fishing purposes
DA-DILG Joint Memorandum Order (1994)	Devolves more fishery functions to the LGUs
DENR Administrative Order No. 30 (1994)	Guidelines for NGO-assisted community-based mangrove forest management
DENR Administrative Order No. 30 (1992)	Guidelines for the transfer and implementation of DENR functions devolved to LGUs
DENR Administrative Order No. 15 (1990)	Guidelines for the establishment and management of mangrove plantations
MNR Administrative Order No. 3 (1982)	Lands suitable for fishponds to be placed under the administration of the BFAR

11.1 Selected Municipal Ordinances

Ordinance	Title/Description
Municipal Ordinance No. 66 (2000)	An ordinance on proper garbage disposal within the municipality of Masinloc, Province of Zambales
Municipal Ordinance No. 07 (2000)	The Coastal Fisheries and Aquatic Resources Management Code of Claveria, Cagayan
Municipal Ordinance No. 1 (1999)	Carot Fish Sanctuary, Anda, Pangasinan (13.3 has)
Municipal Ordinance No. 2 (1998)	Balingasay Marine Protected Replacement Area, Balingasay, Pangasinan (14.77 has)
Municipal Ordinance No. 7 (1997)	Port Barton Marine Park, San Vicente, Palawan
Municipal Ordinance No. 51 (1995)	An ordinance regulating fishing and/or fishing privileges in the Municipality of Masinloc, Province of Zambales
Municipal Ordinance No. 3 (1995)	Requires all fishing operators engaged in live fish trade to accredit with the community fisheries board or its duly authorized representative in the municipality of Coron
Municipal Ordinance No. 6 (1995)	Makes it unlawful for any person to construct houses and other human structures for the purpose of dwelling within 10m from high water level of mangroves, swamps, lakes and other seaside areas unless intended for development such as market, ports, tourism-related establishments and the like
Resolution No. 20 (1995)	Municipality of Coron adopted the Guidelines of the Environmental Critical Network contained in RA 7611
Municipal Ordinance No. 4 (1994)	Requires the registration of compressors used for fishing and other underwater activities operating in municipal waters
Municipal Ordinance No. 7 (1994)	Banning hulbot-hulbot, lintig/baby muro-ami, norway, and other deleterious destructive methods of fishing activities within the municipal waters of Coron, Palawan
Municipal Ordinance No. 5 (1993)	Prohibits the throwing of garbage in canals, vacant lots and into the sea and empowers the PCG, PNP and PPA including all barangay officials to implement the ordinance
Municipal Ordinance No. 11 (1992) Municipal Ordinance No. 9 (1991) Municipal Ordinance No. 8 (1990)	Arthur's Rock Fish Sanctuary, Mabini, Batangas
Municipal Ordinance No. 11 (1992) Municipal Ordinance No. 9 (1991) Municipal Ordinance No. 8 (1990)	Cathedral Rock Fish Sanctuary, Mabini, Batangas
Municipal Ordinance No. 11 (1992) Municipal Ordinance No. 9 (1991) Municipal Ordinance No. 8 (1990)	Twin Rocks Fish Sanctuary, Mabini, Batangas (15 has)
Municipal Ordinance No. 30 (1989)	San Salvador Marine Sanctuary and Reservation Area, Masinloc, Zambales, 127 has.
Executive Order 01-02	"Bantaylsay" (Seagrass Watch), PGBR, Jan. 20, 2001

11.2 Pending Legislative Proposals on Pollution

Proposal	Title/Description
House Bill No. 80	An Act providing for the implementation of the provisions of the 1992 International Convention on Civil Liability for Oil Pollution Damage and the 1992 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, providing penalties for violation thereof, and for other purposes
House Bill No. 135	An Act amending certain sections of Presidential Decree Numbered Six Hundred, otherwise known as The Marine Pollution Decree of 1974.
House Bill No. 373	An Act to grant municipal governments the exclusive authority to issue Environmental Compliance Certificate (ECC) for the establishment and operation of a poultry or piggery business.
House Bill No. 522	An Act penalizing any person, organization, or company which pollute creeks, lakes and rivers

House Bill No. 722
House Bill No. 215 and 1025
House Bill No. 994 and 1132
House Bill No. 2988

11.3 Pending Legislative Proposals

Proposal
House Bill No. 1547
House Bill No. 203 and 733
House Bill No. 234
House Bill No. 4249
House Bill No. 739

11.4 Pending Legislative Proposals

Proposal	
House Bill No. 727	
House Bill No. 737, 2434, and 4359	for other purposes here and

11.5 Pending Legislative Proposals on Fisheries

Proposal	Title/Description
House Bill No. 363	An Act amending Section 18, Article 1 of Republic Act No. 8550, entitled "An Act providing for the development, management, and conservation of the fisheries and aquatic resources, integrating all laws pertinent thereto, and for other purposes
House Bill No. 1127	An Act banning fish culture pens in lakes throughout the country
House Bill No. 1384	An Act creating the Department of Fisheries and Oceans, providing for the transfer of powers and functions of the Department of Agriculture on fishery matters to said Department and for other purposes
House Bill No. 2477	An Act creating the Department of Fisheries and Oceans and for other purposes
House Bill No. 1234 and 1337	An Act creating the Department of Fisheries and Aquatic Resources, providing for its powers and functions, and for other purposes

11.6 Pending Legislative Proposals on Tourism

Proposal	Title/Description
House Bill No. 107 and 1059	An Act providing for a National Ecotourism Policy, establishing a framework for its institutionalization, creating a mechanism for its implementation and for other purposes
House Bill No.26 and 249	An Act establishing a National Tourism Policy and appropriating funds therefore
House Bill No. 3190	An Act requiring certain tourism-oriented business establishments to secure accreditation from the Department of Tourism as a prerequisite to the issuance of license or permit to operate by local government units.
House Bill No. 3867	An Act allocating twenty -five percent of Travel Tax collections in the country to the development and promotion of tourism industry in the twenty depressed provinces
House Bill No. 4495	An Act institutionalizing the position of Tourism Officer with the rank of Head of Office or Department, mandating the establishment of a Tourism Department/Office in all local government units, and for this purpose, amending the Local Government Code of 1991
House Bill No. 4592	An Act elevating the position of Tourism Officer as a Department Head in every province, city or municipality as may be appropriate

House Bill No. 4616	An Act mandating HB 80, An Act providing for the implementation of the provisions of the 1992 International Convention on Civil Liability for Oil Pollution Damage and the 1992 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, providing penalties for violation thereof, and for other purposes
House Bill No. 135	An Act amending certain sections of Presidential Decree Numbered Six Hundred, otherwise known as The Marine Pollution Decree of 1974
House Bill No. 373	An Act to grant municipal governments the exclusive authority to issue Environmental Compliance Certificate (ECC) for the establishment and operation of a poultry or piggery business
House Bill No. 522	An Act penalizing any person, organization, or company which pollute creeks, lakes and rivers
House Bill No. 722	An Act to protect and promote the health of the people through the prevention, control, and abatement of air pollution caused by smoke-belching vehicles, amending for the purpose Presidential Decree No. 1181, and for other purposes.
House Bill No. 215 and 1025	An Act providing for a Comprehensive Water Pollution Control Policy and for other purposes.
House Bill No. 994 and 1132	An Act prohibiting smoking in public transportation and buildings, and providing penalties therefor
House Bill No. 2988	An Act increasing the penalty imposed against polluters of navigable waters by amending Section 7 of Presidential Decree No. 979 providing for the revision of Presidential Decree No. 600 governing marine pollution.the Department of Tourism to provide at least one Tourism Office in every municipality and city and for other purposes
House Bill No. 472	An Act providing for the position of Tourism Officer for every province, city, and municipality in the Philippines, amending for the purpose Republic Act No. 7160, otherwise known as the Local Government Code of 1991, and for other purposes.
House Bill No. 4776	An Act creating the position of Tourism Officer in all Provinces , Class "A" Municipalities and Cities, or municipalities and cities where tourism is considered a major local industry, and defining their qualifications, powers, and functions.

**refer to the Coral Reef Component for complete listing.*

12. REFERENCES

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Talaue-McManus, L. 2000. Transboundary Diagnostic Analysis for the South China Sea. EAS/RCU Technical Report Series No. 14. UNEP, Bangkok, Thailand.

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ANNEX 9

Format for the Tabulation of National Legislation in the Participating Countries

Legislation (Year)	Title	Description	Level of Implementation (national, provincial, district, local, traditional)/ Implementing Agency	Target (ecosystem, seagrass ecosystem)	Constraints	Remarks⁶

⁶ Remarks on the status, e.g., Draft, pending, under review, etc.

ANNEX 10

Suggested Guide for the Selection of the Nature of Regional Seagrass Demonstration Sites (RSDS)

- I. Guide questions
 - A. WHAT is/are there to demonstrate? (OBJECTIVES)
 - B. FOR WHOM is/are they made? (CLIENTELE)
 - C. HOW is the site selected? (GUIDELINES)
- II. WHAT is/are there to demonstrate? (OBJECTIVES)
 - A. That with the proper management interventions, environmental degradation trends can be substantially reversed, hence,
 - a. Some management structure and interventions exist, e.g. legal and institutional framework, plans, maps, research and monitoring, community participation, communication, documentation, capacity building, livelihood improvement, restoration or rehabilitation, government and private support,
 - b. Demonstrable positive environmental change and benefits to beneficiaries
 - B. That a better understanding of the nature of the transboundary characters of the habitat can benefit parties concerned, and issues and conflicts properly addressed, hence,
 - a. Source and/or sink of larvae
 - b. Transboundary human activities
 - c. Migratory pathways
 - d. International trade of goods
 - e. Common protected area e.g. Transborder Heritage site, Transboundary Biosphere Reserve
 - C. That inter-habitat connectivities among seagrass bed, coral reef, and mangroves exist, and they sustain ecosystem integrity which in turn sustains the livelihood base of coastal human populations, hence,
 - a. Presence of migratory species
 - b. Spawning ground
 - c. Nursery ground
 - d. Physical connection
 - e. Nutrient transport
 - f. Demonstrable human impact
 - D. Others?
- III. FOR WHOM is/are they made? (CLIENTELE: Those who need to be informed of the nature and value of seagrasses, the information to guide decisions and policies)
 - A. For the youth and students
 - B. For visitors (tourists and guests)
 - C. For policy makers
 - D. For the local stakeholders

IV. HOW is the site selected? (GUIDELINES)

- A. The site can aptly demonstrate at least one of the OBJECTIVES⁷
- B. It conforms to the conditions set out in Annex 6⁸
- C. There is agreement among member states, hence,
 - a. Acceptable in terms of the above conditions
 - b. A country/Countries is/are willing and able to host the demonstration
 - c. Within the budget allocation
 - d. Accessible
 - e. Secure

⁷ Please refer to the Annex X of this Report.

⁸ Report of First Meeting of the Regional Working Group for Seagrass (UNEP/GEF/SCS/RWG-SG.1/3).

ANNEX 11
Summary of Threats in Seagrass Sites in Participating Countries

THREATS	CAMBODIA	CHINA	INDONESIA	MALAYSIA	PHILIPPINES	THAILAND	VIETNAM
ANTHROPOGENIC DISTURBANCE							
<i>Physical disturbance</i>							
Land-reclamation							
Trawl-netting							
Beach seine							
Push-netting							
Dynamite-fishing							
Coral mining							
Sand-mining							
Seaweed farming							
<i>Over-exploitation of resources</i>							
Trawl-netting							
Electro-fishing							
Poison-fishing							
Shell-collecting							
<i>Land-based Sources of Pollution</i>							
Waste-water from aquaculture							
Heavy metal							
Suspended solid material							
Sedimentation ⁹							
<i>Beach erosion</i>							
NATURAL CAUSES							
Outbreak of sea urchins							
Storms/typhoons							

⁹ Caused by clearing of mangroves for aquaculture, for salt-making, by logging of forests; coastal development: port-building.

ANNEX 12

Revised Workplan and Timetable of Agreed National and Regional Activities in the Seagrass Sub-component: 2002-2003

Year	2002												2003											
	1 st			2 nd			3 rd			4 th			1 st			2 nd			3 rd			4 th		
	Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
National Committee meetings	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
NTWG Meetings						x					x													
Review National Reports																								
Review of Regional Database and Respond																								
NATIONAL ACTIVITIES																								
1 Review of past and on-going projects											1	2												
2 Complete questionnaire on status of data and information ¹⁰																						4		
3 Complete questionnaire on metadata																						6		
4 Review national criteria ¹¹																								
5 Review economic valuation criteria ¹²																								
6 Review threats at site level																								
7 Review national legislation																								
8 Review national level management regimes																								
9 Causal chain analysis list (for threats) ¹³																								
10 Identify priority points of intervention																								
11 Evaluate barriers to action and possible solutions																								
12 Preparation/revision of the NAP																								
REGIONAL ACTIVITIES																								
13 Regional criteria development																								
14 Development of Regional Priorities																								
15 Selection of demonstration sites																								
16 Finalisation of the Regional SAP																								
17 Regional GIS database tasks:																								
Step 1																								
Step 2																								
Step 3																								
2 nd , 3 rd & 4 th meetings RWG-CR																								
RSTC/PSC Meetings																								

¹⁰ Please refer to Annex 7 of the Report of the First Meeting of the RWG-SG for details on the parameters and corresponding requirements for data and information.

¹¹ Criteria for assigning conservation and/or management status and/or zoning and importance given to seagrass meadows in coastal zone management plans.

¹² see Annex 13 of this Report.

¹³ for all seagrass sites that were identified and characterised.

Notes on the Numbered Cells in the Revised Workplan and Timetable for the Regional Working Group for Seagrass

Number	Notes
1	First draft
2	Final draft to be submitted to PCU
3	27 January 2003 - Characterisation for 75-100 % of seagrass sites identified; Initial prioritisation will be conducted at the 3 rd Meeting of the Regional Working Group
4	1 August 2003 - Characterisation for any remaining seagrass sites identified; No characterisations will be accepted for selection of demonstration sites after this date
5	27 January 2003 - For 75-100 % sites identified and characterised
6	1 August 2003 - For remaining sites identified and characterised
7	Send review of economic valuation criteria to PCU by 27 January 2003
8	27 January 2003 - For 75-100 % sites identified and characterised
9	1 August 2003 - For 75-100 % sites identified and characterised
10	15 November 2002 - First Draft
11	Second Draft of Tabulation of existing laws and legislation; See format in Annex 9 of this Report
12	27 January 2003 - Characterisation for 75-100 % of seagrass sites identified; Initial prioritisation will be conducted at the 3 rd Meeting of the Regional Working Group
13	1 August 2003 - For remaining sites identified and characterised
14	National Seagrass Committee/Working Group prepare first draft for discussion with stakeholders
15	National Seagrass Committee/Working Group prepare second draft for discussion with stakeholders
16	First draft of regional criteria developed at the Second Meeting of the RWG-SG
17	Final draft of regional criteria will be circulated prior to the Third Meeting of the RWG-SG
18	Regional priorities for the selection of demonstration sites have been agreed upon at the Second Meeting of the RWG-SG.
19	Initial prioritisation will be conducted at the 3 rd Meeting of the Regional Working Group
20	Final decision on the 3 demonstration sites for seagrass
21	First draft of the SAP
22	Final draft of the SAP
23	6-8 May 2002, First Meeting of the RWG-SG, Bangkok, Thailand
24	28-31 October 2002, Second Meeting of the RWG-SG, Hue, Vietnam
25	25-28 March 2003, Third Meeting of the RWG-SG, Malaysia
26	22-26 September 2003, Fourth Meeting of the RWG-SG, Shanya, China

