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

REPORT

**Sixth Meeting of the Regional Working Group for
the Fisheries Component**

Sabah, Malaysia, 5th – 8th September 2005



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Cover Photo: Commercial fishing vessels, Ang Sila, Chonburi Province, Thailand, by Mr. Christopher Paterson.

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Table of Contents

1. OPENING OF THE MEETING.....	1
1.1 WELCOME ADDRESS	1
1.2 INTRODUCTION OF MEMBERS.....	1
2. ORGANISATION OF THE MEETING	1
2.1 ELECTION OF OFFICERS	1
2.2 DOCUMENTATION AND ADMINISTRATIVE ARRANGEMENTS	2
2.3 ORGANISATION OF WORK	2
3. ADOPTION OF THE MEETING AGENDA	2
4. REPORTS REGARDING OVERALL PROGRESS TO DATE.....	2
4.1 STATUS OF THE ADMINISTRATIVE REPORTS FOR 2004 AND 1 ST HALF 2005: PROGRESS REPORTS; EXPENDITURE REPORTS; AUDIT REPORTS; AND MoU AMENDMENTS	2
5. STATUS OF NATIONAL SUBSTANTIVE REPORTS.....	3
5.1 STATUS OF NATIONAL REPORTS: ENGLISH EDITING AND PCU PREPARATION FOR PUBLICATION	3
5.2 STATUS OF THE PUBLICATION OF NATIONAL REPORTS AND AWARENESS MATERIALS IN NATIONAL LANGUAGES.....	3
6. UPDATE OF NATIONAL DATA FOR THE REGIONAL SOUTH CHINA SEA GIS DATABASE AND META-DATABASE FOR THE FISHERIES COMPONENT	4
7. TRAINING NEEDS ANALYSIS AND THE DEVELOPMENT OF A TRAINING PROGRAMME DURING THE OPERATIONAL PHASE OF THE PROJECT	5
8. STATUS OF THE PROPOSAL FOR THE TRIAL OF A BLAST FISHING DETECTION DEVICE.....	6
9. A SYSTEM OF REFUGIA FOR FISH STOCKS OF TRANSBOUNDARY SIGNIFICANCE IN THE GULF OF THAILAND.....	8
10. PROMOTION OF THE GUIDELINES FOR RESPONSIBLE FISHERIES.....	9
11. CURRENT STATUS OF DEMONSTRATION SITE PROPOSALS FROM THE HABITAT COMPONENT.....	11
12. REVISION OF THE REGIONAL STRATEGIC ACTION PROGRAMME	12
13. PREPARATION OF INPUTS FROM THE REGIONAL WORKING GROUP ON FISHERIES TO THE SECOND REGIONAL SCIENTIFIC CONFERENCE.....	12
14. REVISION OF THE WORK PLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON FISHERIES	13
15. DATE AND PLACE OF THE SEVENTH MEETING OF THE REGIONAL WORKING GROUP ON FISHERIES	14
16. ANY OTHER BUSINESS	14
17. ADOPTION OF THE REPORT OF THE MEETING.....	14
18. CLOSURE OF THE MEETING.....	14

List of Annexes

- ANNEX 1 List of Participants**
- ANNEX 2 List of Documents**
- ANNEX 3 Agenda**
- ANNEX 4 Capacity Building and Training Needs Assessment**
- ANNEX 5 Strategic Approach to the Establishment of a System of Fisheries *Refugia* for the South China Sea and Gulf of Thailand**
- ANNEX 6 Work Plan (2004-2007) and Schedule of Meetings for 2006**

Report of the Meeting

1. OPENING OF THE MEETING

1.1 Welcome Address

1.1.1 Dr. John Pernetta, Project Director opened the meeting, at 08.30 am on 5th September 2005, and welcomed participants on behalf of the Executive Director of UNEP, Dr. Klaus Töpfer; and the Assistant Executive Director, and Director of the UNEP Division of Global Environment Facility Co-ordination, Dr. Ahmed Djoghlaf.

1.1.2 Dr. Pernetta noted that the agenda was very full and contained a number of important items requiring discussion and decision during the meeting. Of these he noted that he had been working with Dr. George Woodman and Professor Ridzwan Bin Abdul Rahman to further elaborate the Memorandum of Understanding regarding the execution of the blast fishing trials in the Tun Mustapha Park and this was an important item for discussion by the group. In this connection he noted that representatives of the Sabah Parks and Department of Fisheries would participate in this section of the meeting.

1.1.3 Dr. Pernetta noted that an important matter before the group was a consideration of the further elaboration and implementation of the system of *refugia* for transboundary fish stocks which constituted an important action item during the operational phase of the project.

1.1.4 In conclusion, Dr. Pernetta expressed the hope that the working group would be able to complete the business of the meeting and that although the meeting would involve hard work on the part of the participants it would still be an enjoyable experience. Dr. Pernetta invited Professor Ridzwan to say a few words on behalf of the hosts, including the Universiti Malaysia Sabah and the Sabah Parks and Department of Fisheries.

1.1.5 Professor Ridzwan welcomed participants to Kudat, Sabah on behalf of the Sabah State authorities and the Universiti Malaysia, Sabah, and expressed his pleasure at the opportunity of hosting this meeting. He noted that the Sabah authorities were pleased that the Regional Working Group had decided to convene the meeting in Sabah since they had great interest in the conduct of blast fishing trials planned for execution in the Tun Mustapha Park. He wished the members well in their deliberations.

1.2 Introduction of Members

1.2.1 The Project Director welcomed Ir. Parlin Tambunan, Director of Fisheries Resources, and fisheries focal point for Indonesia to his first meeting of the RWG-F and noted with pleasure that once again SEAFDEC was well represented in the meeting. He invited members to introduce themselves to the meeting and the list of participants is attached as Annex 1 to this report.

2. ORGANISATION OF THE MEETING

2.1 Election of Officers

2.1.1 Members recalled that at the fifth meeting of the Regional Working Group for the Fisheries Component (RWG-F) held on Phu Quoc Island, 11-14 October 2004, Mr. Noel Barut, Focal Point from Philippines, Dr. Dao Manh Son, Focal Point from Viet Nam, and Mr. Pirochana Saikliang, Focal Point from Thailand were elected as, Chairperson, Vice-Chairperson and Rapporteur respectively.

2.1.2 Members recalled further that the Rules of Procedure state that, the Regional Working Group shall elect, from amongst the members, a Chairperson, Vice-Chairperson and Rapporteur to serve for one year. The rules state further that, officers shall be eligible for re-election no more than once. The working group noted that since Mr. Noel Barut and Dr. Dao Manh Son have served the Regional Working Group for more than one year and have been re-elected once, they were ineligible for re-election to the same office.

2.1.3 Mr. Pirochana Saikliang, nominated Ir. Parlin as Chairperson. Ir. Parlin declined on the grounds that this was his first meeting but expressed his willingness to serve as Vice-Chairperson. Dr. Son proposed Mr. Pirochana as Chairperson and Ir Parlin as Vice-Chairperson and there being no further nominations these officers were elected by acclamation. Dr. Dao Manh Son, was nominated and elected as Rapporteur for the meeting.

2.2 Documentation and Administrative Arrangements

2.2.1 The Chairperson invited the Secretariat to introduce the documentation available to the meeting and Mr. Christopher Paterson reviewed the documents listed in document UNEP/GEF/SCS/RWG-F.6/Inf.2, noting that these had been lodged on the project website. Members were invited to table any additional documents including copies of new national publications if any. The list of documents available to the meeting is contained in Annex 2 of this report.

2.3 Organisation of Work

2.3.1 Mr. Pirochana invited the Secretariat to introduce the draft programme for the conduct of business contained in document UNEP/GEF/SCS/RWG-F.6/Inf.3. Mr. Paterson noted that the agenda was very full and would require intensive work to ensure it was completed in the time available. He noted that administratively there were a number of complications due to the number of items, which necessitated a full schedule without the opportunity for the PCU to complete and duplicate the meeting report in advance of agenda item 17.

2.3.2 Mr. Paterson noted that the field visit to the Tun Mustapha Park was scheduled for the morning of the 7th September and the representatives of the Department of Fisheries, Sabah, and Sabah Parks would be present during the afternoon session of that day for discussion of the agenda item dealing with the blast fishing trials. This would necessitate moving agenda item 8 from the afternoon of the 6th to the afternoon of the 7th September.

2.3.3 Dr. Yasuhisa Kato noted that regrettably the representatives from SEAFDEC would have to leave on the evening of the 7th to participate in another meeting in Kota Kinabalu the following day and expressed the hope that it might be possible to re-schedule agenda item 10 at an earlier time. It was suggested and agreed that agenda item 8 be re-scheduled to the afternoon of 7th September and agenda item 10 be rescheduled to the afternoon of the 6th September.

3. ADOPTION OF THE MEETING AGENDA

3.1 The Chairperson introduced the Provisional Agenda prepared for the meeting as document UNEP/GEF/SCS/RWG-F.6/1, and the Annotated Provisional Agenda, document UNEP/GEF/SCS RWG-F.6/2 and invited the members to propose any amendments or additional items for discussion.

3.2 No additional items were proposed for inclusion on the agenda and since no amendments were suggested the agenda was adopted as it appears in Annex 3 of this report.

4. REPORTS REGARDING OVERALL PROGRESS TO DATE

4.1 Status of the Administrative Reports for 2004 and 1st half 2005: Progress Reports; Expenditure Reports; Audit Reports; and MoU Amendments

4.1.1 The Chairperson invited Mr. Paterson to introduce document UNEP/GEF/SCS/RWG-F.6/4, “*Current status of budgets and reports from the Specialised Executing Agencies in the participating countries*” and draw to the attention of the meeting any outstanding issues or matters requiring the attention of the RWG-F.

4.1.2 Mr. Paterson noted that the submission of progress and expenditure reports continued to be a problem with substantial delays on the part of some focal points. He noted that audit reports for 2004 remained outstanding from Cambodia and Thailand and that the six-month reports for the period June to December 2004 had all been received after the due date. In the case of the reports for the period January to June 2005 only Cambodia and Viet Nam had submitted reports and Mr. Paterson sought clarification from the group concerning when the outstanding reports could be expected.

4.1.3 Mr. Paterson drew the attention of members to Table 4 in the document regarding co-finance realised to date and noted that even though the figures for the first half of 2005 were incomplete the total, actual co-financing was very close (96%) to the estimated total.

4.1.4 Ir. Parlin noted that no funds had been received from UNEP during 2005 but his reports for 2004 had been submitted. During subsequent discussion it was noted that the 2004 progress report was incomplete hence the PCU had been unable to release the next cash advance. Mr. Barut noted that he had some difficulty in following the new format for the reports and in determining what co-financing should be recorded in the 6 month progress reports.

4.1.5 The Project Director provided clarification stating that he was aware that some focal points had received cash from supporting organisations for the convening of meetings hence space was now provided to include this in the reports. He noted that personnel costs associated with participation in national level meetings had been calculated in the past on the basis of the number of days and the numbers of people participating in each meeting. These calculations would continue to be made in this way and the only change was the provision of space for reporting additional co-financing if any.

4.1.6 There followed a review of the co-financing estimates that had been approved by the Project Steering Committee for the second phase of the project. Following some clarification the Regional Working Group agreed that these seemed reasonable in the light of the tasks detailed in the amended MoU.

5. STATUS OF NATIONAL SUBSTANTIVE REPORTS

5.1 Status of National Reports: English Editing and PCU Preparation for Publication

5.1.1 The Chairperson invited the PCU member to introduce document UNEP/GEF/SCS/RWG-F.6/5, "*Status of the substantive reports and other outputs from the Specialised Executing Agencies defined in the work plan for the fisheries component in the participating countries*" and to draw to the attention of the meeting the status of the National Reports, including the English language editing and preparation by the PCU for publication.

5.1.2 Mr. Paterson noted that the English versions of the national reports had all been edited and reviewed at the national level and were now being formatted and finalised by the PCU for publication. He noted further that no new national language publications or outputs had been received by the PCU since the last meeting.

5.2 Status of the Publication of National Reports and Awareness Materials in National Languages

5.2.1 The members noted that public awareness materials had been presented by Cambodia, Thailand and Viet Nam during the previous meeting and the Chairperson invited the focal points to brief the meeting on recent developments with respect to the publication of national reports and development of public awareness materials.

5.2.2 Mr. Barut outlined developments in the case of Philippines and presented an A4 version of a flip chart intended for use in all coastal municipalities as a teaching aid, regarding important coastal habitats and systems, their use and threats to their sustainability. This had been produced in both English and Philipino and would be distributed to all coastal municipalities. He noted that 15 posters (3 x 7 feet) had been produced for display in markets and landing ports, together with stickers and 1,000 T-shirts for community fishers. He informed the RWG-F that he planned to produce a calendar in 2006, which was presently being printed. He noted further that the SCS project was presented in all fisheries related meetings in the Philippines and would be presented in a Philippines regional level scientific conference later this month.

5.2.3 In the case of Indonesia it was noted that although no public awareness materials had been developed to date, money remained in the budget for this purpose. Mr. Pirochana noted that the national report was currently in press in Thai and that, CDs had been reproduced and were available for distribution, he noted that some budget for producing such materials remained and would be used during 2006.

5.2.4 Dr. Son noted that no further public awareness materials had been developed in Viet Nam, subsequent to those presented during the previous meeting.

5.2.5 There followed a discussion of the regional dissemination of these materials during which it was agreed that following publication of the national reports in English the full text would be loaded on the project website; that the reports in national language would be placed on the websites of the SEAs and that the Project website would carry an image of the national reports with a link to the appropriate SEA website.

5.2.6 It was agreed that the public awareness materials should also be loaded to the SEA and project websites and members recalled that during the previous meetings focal points had agreed to provide English translations of the text of these materials in order to determine whether they might be more widely used than merely in the country of origin. The Project Director noted that no such translations had been received to date.

5.2.7 Dr. Kato noted that a number of the national reports were extremely lengthy and that perhaps it would be worthwhile considering the production of a short summary for wide dissemination. There followed an extensive and detailed discussion regarding the purpose of such summaries, the target audience and the potential value.

5.2.8 The Regional Working Group agreed that short (10 page) summaries should be produced, highlighting the issues of importance to each country. These short summary papers should be based on the table of contents of the national reports and pinpoint the significant contents of each section. It was further agreed that the text of these reports would be provided to the PCU by the 15th October so that they could be formatted and printed for distribution during the Regional Scientific Conference in mid-November.

6. UPDATE OF NATIONAL DATA FOR THE REGIONAL SOUTH CHINA SEA GIS DATABASE AND META-DATABASE FOR THE FISHERIES COMPONENT

6.1 The Chairperson invited Mr. Paterson to review the present status of the South China Sea Regional GIS database and the existing fisheries GIS and metadata sets. Mr. Paterson highlighted the information contained in document UNEP/GEF/SCS/RWG-CR.6/6 "*Development of the Regional South China Sea GIS Database and Metadata for the Fisheries Component*". He reminded Focal Points that it is their responsibility under the Memoranda of Understanding, to ensure that they present new fisheries related GIS and metadata sets to the PCU as they become available at the national level.

6.2 Mr. Paterson noted that the PCU was working closely with the SEA START RC in the development of regional databases based on submissions from the focal points. He noted further that the data sets were being reconciled and that actions were being taken to enable the national focal points to up-date the databases directly. The intention was to provide a regional GIS database that could be searched and summarised in table or map form by members and others having interests in the environmental state of the South China Sea.

6.3 The Focal Points were invited to comment on the completeness of the national level GIS and metadata sets being used in the South China Sea GIS and meta-database, and highlight any fisheries data sets that are emerging at the national level that may be available for use in the regional databases.

6.4 During discussion clarification was provided regarding the format for submissions and the meta-data and GIS database forms were briefly reviewed. Mr. Barut noted that in the case of the Philippines meta-data, more recent datasets exist and he had hard copies with him but would provide electronic files to the PCU next week, he noted also that there was no change to the GIS data. In the case of Indonesia it was noted that no data were yet filed with the PCU and Ir. Parlin indicated that he needed copies of the formats and would ensure that his staff commenced work on this matter as soon as practical and that he envisaged making submissions by the end of October.

6.5 Dr. Kato noted that SEAFDEC was working with FAO to streamline the process of data submission by the governments including definition of parameters and minimum requirements. He

noted that SEAFDEC would be convening a workshop in mid-October regarding fisheries statistics data and suggested that the project may wish to participate in that meeting. He suggested further that the issues of fisheries data and GIS-data represented a potentially fruitful area for future co-operation and suggested that Mr. Paterson contact SEAFDEC with a view to establishing linkages between the South China Sea and SEAFDEC GIS databases.

6.6 Dr. Son noted that Viet Nam had new GIS data base files available which he had brought in electronic format to the meeting and that he would be submitting additional meta-data information by the end of the month. Copies were lodged with the meeting Secretary for inclusion in the regional databases. Mr. Pirochana noted that he had up-dated GIS data for Thailand that would be submitted to the PCU by the end of October.

6.7 There followed a discussion of the potential uses and value of the regional database in terms of the types of information that could be used by the focal points at a national level. Mr. Pirochana indicated that information relating to spawning and nursery areas, feeding and fishing grounds should be included in the system and proposed that where maps of such information existed at the national level these should be digitised and entered into the regional GIS database.

6.8 In this connection Dr. Kato noted that following the discussions of the fourth Regional Working Group meeting in Manila regarding the issue of fisheries *refugia* and noting the importance of spawning and nursery grounds, SEAFDEC now routinely included the collection of information regarding juvenile fish distribution during their oceanographic cruises that might be useful in this context. It was noted during discussion however that, identifying spawning and nursery areas was far from easy on the basis of limited cruise samples.

6.9 It was noted during the final discussion that there might be value in collecting and collating data for commercially endangered species such as swordfish; or data relating to destructive gear distribution; or indicators. Dr. Kato noted in this connection that it was extremely difficult to obtain data for most endangered species and that he would welcome the opportunity of exploring further the possibility of including the SEAFDEC indicators amongst the data being collected.

7. TRAINING NEEDS ANALYSIS AND THE DEVELOPMENT OF A TRAINING PROGRAMME DURING THE OPERATIONAL PHASE OF THE PROJECT

7.1 Mr. Pirochana invited the PCU Member to introduce document UNEP/GEF/SCS/RWG-F6/7 concerning the development of the training and capacity building programme to be operated during the operational phase of the project. Mr. Paterson reminded members that during the preparatory phase of the project each SEA had been responsible for a set of activities, which had been undertaken either from within the resources of the SEA itself or, through partnerships with other organisations and institutions in each country. During the operational phase of the project new and additional tasks had been added to the MoU, and the questionnaire developed by the PCU was designed to ascertain the extent to which capacity had already been strengthened in the SEAs and the areas where further capacity building was required.

7.2 Mr. Paterson proceeded to review the questionnaire and provided information regarding the required responses from the focal points. There followed some discussion and it was agreed that all members would complete the questionnaire overnight and the PCU would collate the responses for further discussion by the Working Group.

7.3 The responses were subsequently combined into single tables that were duplicated and distributed to members for their consideration and discussion. These were amended slightly and the finally agreed outcomes are presented in Annex 4 of this report.

7.4 Dr. Pernetta noted that training opportunities in the framework of the project could be of three types: individual training primarily focussed on the individuals working at the demonstrations sites of 2 to 6 months duration; or group training in terms of short periods for whole groups of people; and thirdly more formal group training through workshops and courses.

7.5 Dr. Pernetta noted for example that the mangrove working group was recommending that the Trat Province mangrove demonstration site would be the base for groups of community leaders to

learn from the Trat communities their experiences in the community based management of mangroves. He noted that perhaps the group might wish to consider a training course in blast fishing detection or a seminar/workshop on the development of fisheries refugia in 2007.

7.6 Mr. Barut noted that the Philippines would be extremely interested in some form of training regarding blast fishing detection, based on the outcome of the pilot activity planned for the Tun Mustapha Park. Mr. Parlin indicated that he felt a critical need was for training of fisheries officers in habitat maintenance in support of fisheries.

7.7 Dr. Son and Mr. Pirochana noted the urgent need for training in community based management of fisheries habitats and resources. Dr. Worawit felt that there were few, good examples of community based or co-management of fisheries in the region. He felt that once the regional "Guidelines for using group user rights in co-management of small-scale fisheries in the ASEAN member countries" were finalised these would form a solid basis for the development of training in community based management of fisheries.

7.8 Mr. Pirochana noted that study visits for groups of community leaders to areas or sites with successful community based management would be very useful and Mr. Somsak noted that there was an ASEAN SEAFDEC project on community based management operated jointly by Malaysia and Thailand, while Mr. Barut noted some successes in the Visayas and Bicol in the Philippines in community based management of fisheries. He noted that in the case of Bicol Bay considerable time had been spent in persuading the Mayors to jointly manage the fisheries resources of the Bay. Another example of a success was in the case of whale hunters who had been supported in developing tourist activities focussing on whale watching with the result that the family incomes had been improved.

7.9 Mr. Paterson noted that perhaps the group should consider study tours in 2007 to the demonstration sites to examine first hand the successes of different types of fisheries management approaches, or workshops focussing on the spatial zoning and other aspects of the fisheries *refugia*.

8. STATUS OF THE PROPOSAL FOR THE TRIAL OF A BLAST FISHING DETECTION DEVICE

8.1 In opening this agenda item the Project Director welcomed the representatives of the Sabah State authorities and Blast Fishing Committee members to the meeting of the Regional Working Group on Fisheries. He explained that the Regional Working Group on Fisheries was established by the participating countries to review aspects of fisheries management in the region, and in particular to develop a regional system of fisheries *refugia*. He noted that at the time of approval of the entire South China Sea project, which encompassed six sub-components in seven countries, the proposed testing of a blast fishing detection device had been included in the project document which was endorsed by the GEF Operational Focal Point for Malaysia, the Ministry of Science, Technology, and Environment on behalf of the Government, on 25 March, 1999.

8.2 Dr. Pernetta noted that during previous meetings, the RWG-F had discussed the draft proposal for the trial of a blast fishing detection device in the Tun Mustapha Park and the purpose of this session was to review the proposed work plan for the activities. The Memorandum of Understanding between the Teng Hoi Conservation Organisation, the Department of Fisheries, Sabah, and the SCS Project on behalf of UNEP was under finalisation and it was hoped that activities would commence next year.

8.3 Mr. Pirochana invited Professor Ridzwan to introduce the members of the Blast fishing Committee and the list of the members is included in Annex 1 of this report. Professor Ridzwan invited Mr. Daim Basrun Deputy Director of the Fisheries Department of Sabah, to say a few words on behalf of the State Government authorities, Mr. Basrun welcomed the RWG-F participants to Sabah and noted the interest and support of the Sabah authorities for this pilot activity. He expressed interest in learning more regarding the management and execution of this important activity.

8.4 Dr. George Woodman reviewed the previous work on the detection device and outlined the technical elements of the present proposal including the development of buoys and the use of three such buoys to triangulate the position of bomb blasts. He noted that during the present trial, buoys

would be deployed daily and retrieved for downloading data and that remote communication between the buoys and the boats would not be direct. He noted that the task for Teng Hoi would be to develop and construct the three buoys including the development of the software required to run the system. He noted that the State authorities with scientific support from the Universiti Malaysia Sabah would undertake site assessment and identify suitable areas for deployment of the system; undertake a review of the legal instruments; a review of various aspects of the economics of blast fishing and its' detection; and a public awareness programme.

8.5 He expressed the hope that the project would result in: the demonstration of the functionality of the equipment; trained staff in Sabah; improved awareness of the legal requirements for successful prosecution; improved enforcement of existing regulations banning blast fishing; and improved public awareness. Professor Ridzwan indicated that the Park encompasses some 50 islands, and that blast fishing used to be common in areas adjacent to the main islands, but that now it was apparently more common further away. He noted that the intention was to locate areas during the site assessment, in which significant bombing was continuing in order to conduct the trials.

8.6 Professor Ridzwan and Dr. Woodman outlined the work plan of activities over the next two years following signature of the MoU. These would commence with a project briefing of all stakeholders in Sabah, following which the Universiti Malaysia Sabah, would conduct activities under the guidance of the Blast Fishing Detection Committee and the State Security Committee. The Fisheries Department would liaise with the federal authorities. It was noted that activities included legal, economic and public awareness activities between January to June 2006 and that the Regional Task Force on Economics and the Regional Task Force on Legal Matters of the South China Sea project might assist in these aspects of the work plan.

8.7 During 2006 the procurement and development of the software and hardware (submersible Buoys) should be completed prior to October 2006 with field trials and training (one month) being undertaken in 2007. The trials would assist in making the device more user friendly on the basis of experience during the trials. The timing of the trials is constrained by the bad weather period hence commencement of field trials is likely to be at the end of the first quarter of 2007. Human listeners will keep logs of noise events for comparison with the electronic records, noise filtering will be added during the second set of trials, reducing the volumes of data stored in the system.

8.8 Mr. Basrun queried whether the activity would result in an operational system or a proto-type and in response Dr. Woodman noted that by the end of the activity the system would be operational in the sense that it would be possible to locate bomb blasts to within 30 metres, but it would not be operational in real time since this would necessitate the development of the filtering software which would be developed under the activity and the development of communications software and hardware that would enable the signals from the detection device to be read in real time.

8.9 A number of queries were raised regarding the ownership of the activity and it was noted that the activity was a partnership between UNEP, the GEF, the Teng Hoi Conservation Organisation, and the Sabah Government. At the end of the project the Sabah Government would have the equipment, the executable software files and trained personnel while Teng Hoi remained the owner of the intellectual property represented by the software programmes.

8.10 Various technical issues were raised including the area of coverage of the system; whether the magnitude of the individual blasts could be determined; whether the device could be on board ship or permanently anchored; and the length of life of the batteries. In response it was noted that the range of detection was of the order of 30 kilometers resulting in a detection area of around 900 km²; that the magnitude of the blast could not be determined; that the system could be permanently moored in suitable locations where protection was afforded by activities such as the seaweed farming, but it could not be placed on board ship; and the battery life was designed to be in excess of 24 hours.

8.11 It was noted during discussion that the use of three detection arrays meant that triangulation and pin-pointing the blast location would be more accurate but that in the absence of real time communication with the boat, the device would be of little practical use for enforcement. In response Dr. Woodman noted that if surveillance vessels could be deployed in the area where blasts were occurring it might be possible to pin-point the location and use the blast detection evidence as

supporting evidence in a prosecution case. Following completion of these trials it would be possible to up-grade the system such that the buoys could communicate with a remote station and provide data regarding bomb blasts in real time. This required however additional investment in communications technology and the requisite software.

9. A SYSTEM OF *REFUGIA* FOR FISH STOCKS OF TRANSBOUNDARY SIGNIFICANCE IN THE GULF OF THAILAND

9.1 The Chairperson invited the PCU Member to introduce document UNEP/GEF/SCS/RWG-F.6/8 concerning the development of a strategy for the establishment of a system of fisheries *refugia* for the Gulf of Thailand.

9.2 Members noted that the document referred specifically to the development of a system of *refugia* in the Gulf of Thailand and noted further that this did not preclude countries outside the Gulf of Thailand from developing *refugia* thus contributing to the development of a broader regional system of *refugia*. The Project Director noted that the South China Sea project has as an objective the development of a system of *refugia* for the Gulf of Thailand as a consequence of several factors including the non-participation of China in this component of the overall project.

9.3 Dr. Somsak noted that the availability of information for the Gulf of Thailand was perhaps better than for some other areas in the South China Sea, hence it might be easier to use the Gulf of Thailand as a "pilot" activity in the development of a regional system of *refugia*. Dr. Kato noted that such a pilot could be expanded as the opportunity arose and that all countries should promote the concept and hence the regional system could be built from national contributions.

9.4 There followed a lengthy discussion of the nature of *refugia* and the types of *refugia* that may relate to species of transboundary significance in the Gulf of Thailand during which it was agreed that three scenarios were applicable:

1. A large population with seasonal or ontogenetic (spawning) migrations between fishing grounds and reproductive *refugia*.
2. A metapopulation (series of sub-populations) with some local populations located in fishing grounds and others in *refugia*. Populations located in unexploited areas provide larval subsidies to the exploited populations.
3. *In situ* behavioural *refugia* (behaviour determines the seasonal unavailability of part of the stock in the fishing ground). This type of *refugia* is probably the most familiar to fisheries scientists because catchability and fishing gear selectivity has been a key fisheries research area.

9.5 During discussion it was noted that detailed data were not available concerning the life-cycles and movements of many fish stocks, nevertheless development of a system of *refugia* should proceed, during the course of which the lack of data would become apparent and would identify future areas for fisheries research. Dr. Kato noted that SEAFDEC was attempting to address this problem through the inclusion of fish larval sampling in their cruises although there were many difficulties associated with this work including problems of identification of larvae. He noted also that SEAFDEC was involved in a programme of DNA analysis of round scad and mackerel to determine the population characteristics.

9.6 The Regional Working Group noted that despite the lack of detailed data the national reports contained clear information regarding the location of spawning and nursery areas for many species, which could serve as the starting point for development of a system of *refugia*. It was agreed that the PCU member would extract this information and prepare a summary of potential *refugia* sites for review by the working group.

9.7 The working group proceeded to consider the draft framework for the development of the regional system of *refugia* and agreed that overall this provided a reasonable starting point for the development of both the strategy and the system itself. Concerning the goals, objectives, guiding principles and expected outcomes for the regional Fisheries *Refugia* Strategy there was agreement that the overall goal was to improve the use of spatial approaches in fisheries management in order to make the exploitation of fish stocks more sustainable and to maintain habitat integrity. Specific

objectives might include: the protection of spawning and nursery areas; integrating fisheries management into protected area management, that would necessitate coordination between fisheries and environmental agencies; preventing degradation of habitats and consequent loss of important species; and wider use of zoning within fisheries management measures.

9.8 There followed a discussion of the priorities, problems, challenges and performance indicators for a regional *refugia* system. The working group recognised that the concept of *refugia* was not well understood by fisheries managers in the countries and there was a need to disseminate the concept more widely. In this connection Mr. Paterson suggested that he draft an article on behalf of the Working Group for publication in the SEAFDEC magazine regarding the concept and its development by the working group. He proposed to prepare a draft for circulation to all members who could then comment and add to the draft as appropriate. Dr. Kato not only indicated his interest in supporting this idea but further suggested that the PCU should draft a short concept note that could be provided through SEAFDEC to the ASEAN working group dealing with the Code of Conduct for Responsible Fisheries.

9.9 The priorities, problems, challenges, and performance indicators were discussed and agreed and are presented in Table 2 of Annex 5 of this report. Table 3 of Annex 5 presents the outcome of discussions regarding the procedures and processes that would need to be undertaken in order to establish *refugia* at the national level. Whilst three steps were identified for the further elaboration of the regional system the processes at the national level were discussed in more detail based on the experiences of the Philippines who have now included the concept in their national fisheries management plan and were in the process of formally establishing a number of such *refugia*.

9.10 During discussion it was noted by Dr. Kato that there might be a need to develop a national policy regarding the establishment of *refugia* and in this connection it was noted that in the Philippines the principle had been incorporated into the national fisheries management plans without the need for a separate policy paper. It was suggested that the mechanisms for establishing *refugia* would be different in each country, reflecting differences in the fisheries laws and regulations and their relationships to the laws and regulations governing marine protected areas.

9.11 Dr. Kato highlighted the need for the community to be directly involved in management of the *refugia* and the need for monitoring the outcome of the establishment of the *refugia*. Monitoring was essential if the benefits of the system were to be widely appreciated both inside and outside the fisheries management community. Mr. Somsak noted that the monitoring needed to cover not merely the fish stocks but also the use of gear and changes in technology over time.

9.12 The Regional Working Group agreed that all countries should further promote the concept and Mr. Paterson agreed to further develop the strategy in close consultation with the members of the regional working group. He requested that those members who had not already done so, provide any notes and suggestions on the matters discussed that he could then incorporate into a revision of the strategy by the end of October.

10. PROMOTION OF THE GUIDELINES FOR RESPONSIBLE FISHERIES

10.1 The Chairperson invited Mr. Paterson to introduce this agenda item. Mr. Paterson noted that a feature of the South China Sea project was the integration of fisheries management into habitat management, the key issues being how to manage habitats for the benefit of fisheries and how to manage fisheries to minimise habitat impacts. Mr. Paterson suggested, and the Chairperson agreed that, each focal point briefly outline their actions at the national level to promote the code of conduct.

10.2 Mr. Barut noted that there were several activities ongoing in the Philippines in collaboration with SEAFDEC, including improvement of fisheries statistics, development of indicators, and catch per unit of effort, designed to improve the ability of the Philippine fisheries authorities to promote the code of conduct. Mr. Parlin noted that the guidelines had been translated and the principles of the CCRF had been incorporated in the new Fisheries Law, workshops conducted in many provinces and districts to familiarise stakeholders with the code. In terms of implementing the code, he noted that Indonesia was now in the process of developing three pilot areas for implementation of the code.

10.3 Dr. Son noted that in Viet Nam, the guidelines for responsible fisheries were being promoted through workshops with fishing communities and other stakeholders, and considerable efforts were being directed towards public education and awareness concerning the protection of marine resources and environment. In the case of Thailand, Mr. Pirochana noted that there were many activities promoting the regional guidelines, and a recent focus was the anchovy fishery in Pattani Province where zoning had been adopted as a conflict resolution mechanism. He noted that Thailand was collaborating with SEAFDEC in activities similar to those being conducted in the Philippines and with FAO in organising a series of seminars focussing on a reduction in fishing capacity particularly trawlers and push nets. Each Seminar involves 30 representatives from the fishing community and twenty from the Government Fisheries Department and other organisations. The outcome of these seminars would result in concrete proposals for high-level government consideration by the middle of next year.

10.4 Mr. Paterson noted that: the habitat demonstration sites provide an opportunity to integrate fisheries management into the site based activities; many of the demonstration sites identify key threats from fisheries; and he requested guidance from the group regarding how the RWG-F could assist in addressing these threats. Dr. Kato noted that the majority of the fishing related threats were in fact covered by the Code and that the easiest starting point would be to extract the relevant portions of the regional guidelines and promote these amongst stakeholders.

10.5 During discussion it was noted that the South China Sea Project had financially supported the participation of the Thai focal points for the habitat sub-components in "The National Workshop on Human Resource Development for Coastal Fisheries Management", a SEAFDEC meeting, convened in August 2005 in Koh Chang to encourage discussion between fisheries managers and environmental managers.

10.6 Dr. Kato outlined the process for the development of the Code of Conduct for Responsible Fisheries and the Regional Guidelines for Responsible Fisheries, and the roles that SEAFDEC and ASEAN have played in this to date. He noted that one major fisheries issue in this region that is not covered in the Code of Conduct for Responsible Fisheries is the management of small scale fisheries. He stated that ASEAN and SEAFDEC are working together to develop guidelines for responsible small scale fisheries that are designed to assist member countries in improving the use of co-management, collection of fisheries statistics and fisheries indicators. Guidelines on each of these topics are now being prepared and it is intended that they will become part of the regional guidelines for the Code of Conduct for Responsible Fisheries. He noted further that FAO was also intending to prepare guidance on the management of small-scale fisheries and that it was the intention of ASEAN and SEAFDEC that the regional guidelines be used by FAO.

10.7 Dr. Kato proposed that guidelines for fisheries *refugia* be added as an additional set of guidelines, based on, the fisheries *refugia* document tabled during the meeting, and associated discussions. He suggested that the PCU member prepare an overview of the fisheries *refugia* activity of the South China Sea Project, and send this to him during October for review. He stated that if the PCU member prepares this overview for inclusion in the guidelines, that the South China Sea Project logo could be added to the document.

10.8 Mr. Somsak asked whether SEAFDEC or the countries fund the translation of the Code of Conduct for Responsible Fisheries and the regional guidelines and Dr. Kato responded that both SEAFDEC and the countries share the costs. He noted however that simple translation of the code and guidelines did not address fully the member countries needs and that there was a need to prepare materials in a more appropriate format for use by fishermen and other stakeholders. He was particularly interested in the flip chart approach developed under the South China Sea Project in the Philippines, as a suitable model for the development of materials on the code of conduct for use with stakeholders.

10.9 Dr. Worawit outlined the Human Resource Development and Code of Conduct for Responsible Fisheries components of the SIDA-SEAFDEC Project. He explained that one of the key activities was the design of materials for extending the guidelines at both national and regional levels, and highlighted the difficulties of preparing materials that met the needs of the intended audience. He informed the working group that a CD-ROM had been prepared by SEAFDEC for promotion of the Guidelines for Responsible Fisheries at the regional level. Dr. Worawit noted that SEAFDEC was

currently implementing a pilot activity in four countries in the region regarding the wider dissemination of the Code of Conduct and noted with appreciation the support of the SCS project to the Koh Chang workshop. He concluded that it was the intention of SEAFDEC, following the completion of the Human Resource Development Programme to share the outcome with other countries regionally. It was suggested that perhaps the South China Sea Project could financially support the extension of this project to other countries in the region.

10.10 Mr. Somsak noted that the South China Sea Project had supported the participation of a number of members of the RWG-F in an FAO workshop in Viet Nam on low value fish, which had been very useful but that he was concerned at the lack of follow-up at the national level from such activities. There followed a discussion concerning the use of juvenile fish and low value exclusion devices in use in the trawl industry and it was noted that the Philippines was participating in another GEF funded project implemented by SEAFDEC, looking at the application of such devices. It was further noted that trawling had major impacts on habitats such as seagrass and algal beds and on fish stocks due to the generally unselective nature of the gear, thus if trawling cannot be eliminated then fishermen should be encouraged to use more selective gear.

11. CURRENT STATUS OF DEMONSTRATION SITE PROPOSALS FROM THE HABITAT COMPONENT

11.1 The Project Director briefed the meeting on the current status of activities at the demonstration sites under the habitat component of the project. He noted that the majority of these were currently operational and that the remainder would become operational before the Regional Scientific Conference in November. Operational activities included two in China (Fangchenggang, mangroves; Hepu, seagrass) one in Philippines (Masinloc, coral reefs) two in Thailand (Trat mangrove; and Koh Chang coral reefs) and one in Viet Nam (Phu Quoc, seagrass and coral reefs). The two Indonesian sites were near final as were one site in Philippines and two sites in Cambodia. In addition, two Medium sized projects had been submitted to the GEF Secretariat for initial review (Thale Noi wetlands, East Bintan seagrass) and it was anticipated that these would become operational in the first quarter of 2006.

11.2 Mr. Barut noted that, the staff of his office were members of the habitat committees in the Philippines and there had been good discussion with mangroves and wetlands, some discussion with coral reefs, but no discussion with the seagrass focal point to date. The intention of fisheries was to operate mini-fisheries management activities at each Philippines demonstration site.

11.3 Mr. Parlin, noted that some meetings of the Indonesian NTWG had been held but that co-operation between the fisheries and habitat components needed to be strengthened. Following discussion it was agreed that the PCU would write to the National Focal Point and habitat focal points to urge that greater co-operation between the fisheries focal points and the demonstration sites be fostered. In this connection it was noted that Dr. Son would like to organise a public meeting in the Viet Nam coral reef and seagrass site of Phu Quoc, in November/December 2005, to promote the guidelines for the Code of Conduct on Responsible Fisheries and to raise public awareness of fisheries issues. The Project Director would write to the Phu Quoc demonstration site manager proposing that such a meeting take place.

11.4 Mr. Pirochana noted that in Thailand many meetings had been held between the focal points for the components and that the NTWG met between three and four times per year. He noted that the demonstration site proposals had been developed through the NTWG so that there had been a good exchange of information and collaboration between the project components at the national level.

11.5 Mr. Somsak supported the idea of strengthening co-operation between the habitat and fisheries related agencies and individuals and noted the importance of establishing personal linkages as the basis for strengthening institutional co-operation. He also noted the importance of involving the private sector in fisheries management. It was noted that the focal points from the habitat sub-components were invited to participate in fisheries stakeholder meetings convened in the Philippines and Thailand.

11.6 Dr. Worawit noted that the need for co-operation was two directional requiring involvement of fisheries focal points in the habitat demonstration sites and inputs from the habitat sub-components in the further development of the regional system of *refugia*.

12. REVISION OF THE REGIONAL STRATEGIC ACTION PROGRAMME

12.1 Members recalled that a lengthy discussion had been held during the Fourth Meeting of the RWG-F regarding the revision and updating of the regional Strategic Action Programme (SAP), goals, targets, and activities. The summary of these discussions is contained in paragraphs 10.2 to 10.8 of the report of the meeting, (UNEP/GEF/SCS/RWG-F.4/3) and was reproduced for distribution to members.

12.2 The Project Director noted that the Regional Scientific and Technical Committee during its fifth meeting had reviewed the revised goals and targets proposed by the working groups and had directed that the two milestone dates be adjusted to 2012 and 2017 such that they were uniform throughout the Strategic Action Programme. He noted further that the RSTC had requested the RWG-F to define: the relationships between *refugia* and Marine Protected Areas and to consider how the latter could be used as *refugia*; to define "chosen areas", and "appropriate sustainable management systems".

12.3 There was unanimous agreement that the target dates should be changed from 2010 to 2012 and the working group agreed that perhaps the wording of the second target was unclear, what was intended by "chosen areas" was in fact the *refugia* themselves.

12.4 The working group discussed what was intended by the term "appropriate sustainable management systems" and Mr. Parlin indicated that for him, and he suspected, other fisheries managers the term meant simply production that does not exceed the sustainable yield of a particular stock. Several alternative forms of wording were discussed and it was finally agreed that the following represented the best possible wording at the present time:

By 2012 to have prepared and implemented fisheries management systems in the identified refugia based on, and consistent with, the guidelines for the implementation of Code of Conduct for Responsible Fisheries.

12.5 Regarding the first revised target Dr. Worawit pointed out that, what was being discussed were transboundary species regardless of whether or not they were fished commercially or, via the small-scale fisheries sector, whilst Mr. Pirochana and Mr. Somsak expressed reservations regarding other aspects of the wording. Noting that the RWG-F had identified the key transboundary species and their priority during the second meeting, it was agreed that the first target would be revised to read as follows:

By 2012 to have established a regional system of refugia for the management of priority, transboundary, fish stocks¹ and endangered species

12.6 During discussion it was noted that neither of these targets were "hard" in a quantitative sense since they did not enumerate how many *refugia* involving what size of area were to be included in the system. It was noted that this was difficult at the present time since the actual areas of the *refugia* both in terms of location and extent had not been defined. It was agreed therefore that these targets would be reviewed in the light of the subsequent development of the strategy for development of the regional system of *refugia*.

12.7 Mr. Somsak sought clarification of what was meant by the third regional activity concerning identification of fish stocks and areas requiring bilateral, multi-lateral or regional management collaboration. It was noted that in fact the stocks had already been identified and hence only areas should be included and in terms of the work of the group these corresponded at least in part to the *refugia*.

13. PREPARATION OF INPUTS FROM THE REGIONAL WORKING GROUP ON FISHERIES TO THE SECOND REGIONAL SCIENTIFIC CONFERENCE

13.1 The Project Director briefly reviewed the outcome of the second meeting of the Executive Committee of the RSTC regarding the proposed programme for the Regional Scientific Conference to be held 14 – 16 November 2005. He noted that day one would be devoted to issues relating to the demonstration sites; day two would focus on science for management with the morning devoted to

¹ Priority transboundary stocks are identified in Annex 4 of the report of the second meeting of the RWG-F.

natural sciences and the afternoon to social sciences; day three would focus on partnerships and meetings of the Regional Working Groups and Regional Task Forces.

13.2 In response to a query from the working group the Project Director indicated that the letter of invitation would be sent out in the next two weeks and would include a short questionnaire for completion concerning display space requirements of the focal points.

13.3 The RWG-F proposed to prepare a presentation for day one that highlights the fisheries related issues and threats at the demonstration sites and how the guidelines for the code of conduct for responsible fisheries could be applied to their resolution. This would require the finalisation of the background paper for inclusion in the documentation for the conference and the development of a presentation.

13.4 It was agreed that the final deadline for completion of the background document would be the same as that for the preparation of the National Report summaries, namely 15th October. It was further agreed that Mr. Paterson would prepare the draft by 23rd September and circulate to the RWG-F for comments by 30th September. Following receipt of comments Mr. Paterson would revise the document and circulate the final draft by 7th October for clearance on a no objections basis by 14th October, following which the document would be formatted and reproduced for the conference. It was also agreed that the Chairperson would make this presentation on behalf of working group. The presentation would be completed and cleared by the end of October.

13.5 There followed a discussion of a possible presentation in the scientific session and it was agreed that a paper on fisheries *refugia* should be prepared covering *inter alia* the scientific basis for defining *refugia*, the work of the RWG-F and the experiences of the Philippines in incorporating the concept into fisheries management plans. Mr. Barut agreed to draft the Philippines section by 27th September and Mr. Paterson would further develop the remainder by the same date. Mr. Barut, Mr. Paterson, Mr. Somsak and Mr. Pirochana would meet on the evening of 27th to discuss these materials prior to their dispatch to the RWG-F on 30th September for comments by 7th October and finalisation by Mr. Paterson for distribution on 10th October for final clearance by 14th October. Mr. Barut will make the presentation on behalf of the group.

13.6 The working group discussed possible modes of fostering interaction with the habitat working groups and following an examination of various modes of managing such interactions it was agreed that the group would split and that individual members would participate in the first part of each of the habitat working group meetings in order to discuss and reinforce the contents of the presentation from day one and to try to secure agreement on actions to be undertaken at the demonstration sites. The PCU would communicate with the regional working groups and adjust the programme accordingly. It was agreed that Mr. Parlin would participate in the RWG-M, Mr. Pirochana in the RWG-CR, Dr. Son in the RWG-SG and Mr. Barut in the wetlands meeting.

14. REVISION OF THE WORK PLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON FISHERIES

14.1 The Chairperson invited Mr. Paterson to introduce this agenda item and based on the discussion and agreements reached under the previous agenda items, and document UNEP/GEF/SCS/RWG-F.6/9 "Draft work plan and timetable for the Regional Working Group on Fisheries 2005 to 2007" the Regional Working Group considered its work plan for the period 2006 – 2007.

14.2 Particular attention was given to the delivery of national level inputs to the working group materials for the Regional Scientific Conference and it was noted that this conference would provide an opportunity for working group discussion of the *refugia* documents and actions required as a follow-up during 2006.

14.3 The work plan was reviewed in detail, amended, and agreed as it appears in Annex 6 of this report.

15. DATE AND PLACE OF THE SEVENTH MEETING OF THE REGIONAL WORKING GROUP ON FISHERIES

15.1 The Project Director reminded members that, according to the decision of the Project Steering Committee, all regional working group meetings would be convened at one of the demonstration sites.

15.2 The Chairperson opened the agenda item and recalled that previous meetings had been held in Thailand, Cambodia, Philippines, and Viet Nam, and invited members to propose a suitable venue. Mr. Parlin invited the working group to meet in Indonesia and proposed that the meeting be held in Tanjung Pandan, Bangka Belitung Province, which is a fishing port near to the coral reef demonstration site.

15.3 The working group gratefully accepted this invitation and agreed to convene the meeting from 27-30th June 2006 since it was likely that developments with regard to the regional system of *refugia* would necessitate a meeting earlier rather than later in 2006.

16. ANY OTHER BUSINESS

16.1 Members of the RWG-F were invited by the Chairman to raise any other matters requiring consideration by the RWG-F at this time. No further items of business were proposed.

17. ADOPTION OF THE REPORT OF THE MEETING

17.1 The Rapporteur, Dr. Son presented the draft report of the meeting, which was considered, amended, and adopted as it appears in this document.

18. CLOSURE OF THE MEETING

18.1 The Chairperson thanked all members for their hard word and sharing of ideas and recommendations, which are of value to everyone's work in the future. He noted that co-operation between all focal points should be encouraged in the country and the region.

18.2 He invited members to make any closing comments and Dr Son thanked the secretary for preparing the report and Mr. Somsak reiterated his thanks to the Secretariat for their hard work before and during the meeting and expressed his appreciation for the opportunity to participate in the meeting. The Chairperson formally closed the meeting at 15:30 on 8th September 2005.

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ANNEX 2

List of Documents

Discussion documents

UNEP/GEF/SCS/RWG-F.6/1	Agenda.
UNEP/GEF/SCS/RWG-F.6/2	Annotated Agenda.
UNEP/GEF/SCS/RWG-F.6/3	Report of the Meeting.
UNEP/GEF/SCS/RWG-F.6/4	Current Status of Budgets and Reports from the Specialised Executing Agencies in the Participating countries.
UNEP/GEF/SCS/RWG-F.6/5	Status of the Substantive Reports and Other Outputs from the Specialised Executing Agency Activities Defined in the Work Plan for the Fisheries Component in the Participating Countries.
UNEP/GEF/SCS/RWG-F.6/6	Development of the Regional South China Sea GIS Database and Metadata for the Fisheries Component.
UNEP/GEF/SCS/RWG-F.6/7	Training Needs in the Framework of the Project Entitled: <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> .
UNEP/GEF/SCS/RWG-F.6/8	Strategic Approach to the Development of a System of Fisheries <i>refugia</i> for the Gulf of Thailand.
UNEP/GEF/SCS/RWG-F.6/9	Draft Work Plan and Timetable for the Regional Working Group on Mangroves 2005 to 2007.

Information documents

UNEP/GEF/SCS/RWG-F.6/Inf.1	List of Participants
UNEP/GEF/SCS/RWG-F.6/Inf.2	List of Documents
UNEP/GEF/SCS/RWG-F.6/Inf.3	Programme
UNEP/GEF/SCS/RWG-F.6/Inf.4	Framework for Regional Co-ordination, Dissemination of Experiences, and Personnel Exchange between Sites. [ANNEX 8 of document UNEP/GEF/SCS/PSC.3/3]
UNEP/GEF/SCS/RSTC/ExComm.2/3	Second Meeting of the Executive Committee of the Regional Scientific and Technical Committee. Report of the Meeting. Bangkok, Thailand 21 st – 22 nd February 2005 UNEP/GEF/SCS/RSTC/ExComm.2/3.

The following documents are supplied in published form.

UNEP/GEF/SCS/RWG-SG.5/3	Fifth Meeting of the Regional Working Group on the Seagrass Sub-component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Bintan, Indonesia, 24 th – 27 th August 2004 UNEP/GEF/SCS/RWG-SG.5/3.
UNEP/GEF/SCS/RWG-CR.5/3	Fifth Meeting of the Regional Working Group on the Coral Reefs Sub-component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Koh Chang, Thailand, 13 th – 16 th September 2004 UNEP/GEF/SCS/RWG-CR.5/3.
UNEP/GEF/SCS/RWG-M.5/3	Fifth Meeting of the Regional Working Group on the Mangroves Sub-component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Trat Province, Thailand, 26 th – 30 th September 2004 UNEP/GEF/SCS/RWG-M.5/3.

UNEP/GEF/SCS/RWG-W.5/3

Fifth Meeting of the Regional Working Group on the Wetland Sub-component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Ha Long City, Viet Nam, 5th – 8th October 2004 UNEP/GEF/SCS/RWG-W.5/3.

UNEP/GEF/SCS/RWG-F.5/3

Fifth Meeting of the Regional Working Group on the Fisheries Component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Phu Quoc Island, Viet Nam, 11th – 14th October 2004 UNEP/GEF/SCS/RWG-F.5/3.

UNEP/GEF/SCS/RWG-LbP.5/3

Fifth Meeting of the Regional Working Group on the Land-based Pollution Component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Shenzhen, China, 24th – 27th November 2004 UNEP/GEF/SCS/RWG-LbP.5/3.

UNEP/GEF/SCS/RSTC.5/3

Fifth Meeting of the 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. Pattaya, Thailand, 9th – 11th December 2004 UNEP/GEF/SCS/RSTC.5/3.

UNEP/GEF/SCS/PSC.4/3

Fourth Meeting of the 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. Guilin, China, 13th – 15th December 2004 UNEP/GEF/SCS/PSC.4/3.

UNEP/GEF/SCS/RTF-L.3/3

Third Meeting of the Regional Task Force on Legal Matters for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Alongpo City, Philippines, 28th February – 3rd March 2005 UNEP/GEF/SCS/RTF-L.3/3.

UNEP/GEF/SCS/RTF-E.3/3

Third Meeting of the Regional Task Force on Economic Valuation for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Fangchenggang, China, 18th – 21st April 2005 UNEP/GEF/SCS/RTF-E.3/3.

Document received during the Sixth RWG-Fisheries meeting.

- Philippines:**
1. Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand “**Executive Summary of the National Report – Philippines**” (*Fisheries Component*), Manila, Philippines, December 2004. 22pp. hard copy 6 copies.
 2. Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand “**Metadata Reference Collection –Fisheries Component**” *National Meta-database*, Manila, Philippines, December 2004. 117pp. hard copy 6 copies.
 3. “**General Information on Coastal Resource Management**” UNEP GEF Project: Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand – Fisheries Component (original flip chart for RSC) 65pp. hard copy
 4. Three stickers difference styles 3 each.
 5. Small Poster 3 difference styles 1 set.
 6. T-shirt with logo’s UNEP, SCS, GEF, NFRDI-BFAR (distributed to participants)

Thailand

CD in Thai พื้นที่กิจกรรมไทย

ANNEX 3

Agenda

- 1. OPENING OF THE MEETING**
 - 1.1 Welcome Address
 - 1.2 Introduction of Members
- 2. ORGANISATION OF THE MEETING**
 - 2.1 Election of Officers
 - 2.2 Documentation and Administrative Arrangements
 - 2.3 Organisation of Work
- 3. ADOPTION OF THE MEETING AGENDA**
- 4. REPORTS REGARDING OVERALL PROGRESS TO DATE**
 - 4.1 Status of the Administrative Reports for 2004 and 1st half 2005: Progress Reports; Expenditure Reports; Audit Reports; and MoU Amendments
- 5. STATUS OF THE NATIONAL SUBSTANTIVE REPORTS**
 - 5.1 Status of National Reports: English Editing and PCU Preparation for Publication
 - 5.2 Status of the Publication of National Reports and Awareness Materials in National Languages
- 6. UPDATE OF NATIONAL DATA FOR THE REGIONAL SOUTH CHINA SEA GIS DATABASE AND METADATA FOR THE FISHERIES COMPONENT**
- 7. TRAINING NEEDS ANALYSIS AND THE DEVELOPMENT OF A TRAINING PROGRAMME DURING THE OPERATIONAL PHASE OF THE PROJECT**
- 8. STATUS OF THE PROPOSAL FOR THE TRIAL OF A BLAST FISHING DETECTION DEVICE**
- 9. A SYSTEM OF REFUGIA FOR FISH STOCKS OF TRANSBOUNDARY SIGNIFICANCE IN THE GULF OF THAILAND**
- 10. PROMOTION OF THE GUIDELINES FOR RESPONSIBLE FISHERIES**
- 11. CURRENT STATUS OF DEMONSTRATION SITE PROPOSALS FROM THE HABITAT COMPONENT**
- 12. REVISION OF THE REGIONAL STRATEGIC ACTION PROGRAMME**
- 13. PREPARATION OF INPUTS FROM THE REGIONAL WORKING GROUP ON FISHERIES TO THE SECOND REGIONAL SCIENTIFIC CONFERENCE**
- 14. REVISION OF THE WORK PLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON FISHERIES**
- 15. DATE AND PLACE OF THE SEVENTH MEETING OF THE REGIONAL WORKING GROUP ON FISHERIES**
- 16. ANY OTHER BUSINESS**
- 17. ADOPTION OF THE REPORT OF THE MEETING**
- 18. CLOSURE OF THE MEETING**

ANNEX 4

Training and Capacity Building Needs Assessment

BACKGROUND

Training and capacity building were originally envisaged, by the Project Brief of the UNEP/GEF South China Sea Project, as an important part of the project. Part of the overall goals of the project is "to enhance the capacity of the participating governments to integrate environmental considerations into national development planning."² Therefore, funds were allocated to a variety of activities designed to build capacity and effect the training required to achieve the goals and objectives of the project.

The training and capacity building activities were originally conceived as being undertaken within each component and sub-component of the project, and in support of the substantive activities. Regarding demonstration sites, training and capacity building have been always foreseen as being integrated into the operation of the demonstration site and pilot activities. It was originally envisaged that the demonstration sites would have become operational early in 2004, however it became apparent in late 2003 and early 2004 that the capacity within the Specialised Executing Agencies with respect to budgeting and financial planning was limited. Consequently, considerable effort has been expended by, the limited staff of the PCU in working individually with project proponents in developing budgets and financial plans that are sufficiently rigorous and accurate to be acceptable within the framework of the project. Since it is envisaged that all demonstration sites will become operational prior to the second regional scientific conference in November 2005, it is also envisaged that the training and capacity building activities should commence simultaneously.

To ensure maximum benefits achieved with limited funding for capacity building in this region, the PCU designed a questionnaire to assess the situation and needs of training and capacity building related to the needs of managing the project activities, and marine environmental management in general for this region.

THE QUESTIONNAIRE

The purpose of the questionnaire survey was to elicit the opinions of Regional Working Group members individually and collectively regarding:

- ***The key areas*** in which:
 - (a) Capacity development has occurred at the national and regional level through the participation of Specialised Executing Agencies (SEAs) (and partner organisations) in the Project,
 - (b) Needs for capacity development exist in terms of fulfilling project objectives and outcomes, and which
 - (c) SEAs are most dependent on stakeholder involvement (or sub-contracting of partner organisations) to complete project tasks.
- ***The types of tasks*** that:
 - (a) SEAs are most capable of performing,
 - (b) SEAs can most readily obtain support from other organisations at the national level to assist in the successful completion of, and that,
 - (c) SEAs are most capable of assisting other SEAs/organisations at both the national and regional level complete.
- ***The main outcomes*** which have been achieved by the project to date, and which of the lessons learned merit reinforcing at both national and regional levels; and
- ***How the available training allocation can be used*** in developing a training programme that will best assist in fulfilling project objectives and outcomes, which include successful execution of the demonstration sites, completion of the National Action Plans and regional Strategic Action Programme, and developing the longer-term sustainability of the project;
- ***How the experiences of the demonstration projects and pilot activities can be best disseminated*** throughout the region in order to foster best-practice in habitat management.

² UNEP. 2001. Project Brief for the UNEP/GEF Project entitled: Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. pp. 4.

The questionnaire included fourteen questions. Based on the tasks included in the original MOU and amendments to the MOU, questions 1-3 attempted to seek information regarding capacity needs to carry out activities in the original MOU, including 1) capacity built, 2) capacity needs, 3) partnerships. Questions 4-6 were aimed at assessing institutional capacity for the completion of activities included in the amended MOU. Questions 7-14 were designed to assess SEAs' views regarding the: 7) value of the use of memorandum of understanding, 8) site selection process, 9) national benefits from the project management framework, 10) regional outcomes from the project management framework, 11) long-term sustainability needs, 12) use of the training budget, 13) fisheries capacity building needs, and 14) existing capacity building/training initiatives.

RESULTS OF THE QUESTIONNAIRE

The questionnaire was distributed to members of the RWG-F prior to the Sixth Meeting of the Regional Working Group on Fisheries. Members were requested to fill in the questionnaire during the meeting. The results of the questionnaire are included in Table 1-14 in this annex.

Table 1 Tasks in the Original Memoranda of Understanding for which Capacity has been Built.

	Indonesia		Philippines		Thailand		Viet Nam		Regional	
	Capacity Built	Rank	No Countries	Total						
Chair and convene National Fisheries Committee (NFC)	Yes	1	Yes	9	Yes	10	Yes	10	4	30
Serve as a member of the National Technical Working Group	Yes	2	Yes	8	Yes	6	Yes	8	4	24
Act as member of the Regional Working Group	Yes	3	Yes	7	Yes	3	Yes	7	4	20
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the NTWG (to PSC)	Yes	4	Yes	5	Yes	5	Yes	6	4	20
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the RWG (to RSTC)	Yes	6	Yes	4	Yes	4	Yes	2	4	16
Provide data and information to the RWG and/or the RSTC	Yes	9	Yes		Yes	7	Yes	5	4	21
Review and update existing information relating to the component	Yes	8	Yes	10	Yes	9	Yes	9	4	36
Assemble a national meta-database	Yes	5	Yes	6	No		Yes		3	11
Summarise all existing national legislation	Yes	7	Yes	3	No		Yes	1	3	11
Review criteria in use for decision making with respect to future uses	Yes		No		No		No		1	0
Prepare criteria for use in site selection	Yes		No		No		No		1	0
Assist the RWG in preparing a regional synthesis of data and information, together with a review of threats	Yes	10	Yes	2	Yes	2	Yes		4	14
Develop a National Fisheries Action Plan	Yes		No		Yes	8	Yes	3	3	11
Guide IMC re SAP implementation	No		No		No		No		0	0
Promote the National Action Plan among stakeholders	Yes		No		No		Yes	4	2	4
Prepare and submit proposals for fisheries pilot projects	No		No		No		Yes		1	0

Table 2 Tasks in the Original Memoranda of Understanding for which Capacity was Needed from Outside the SEA.

	Indonesia		Philippines		Thailand		Viet Nam		Regional	
	Capacity Built	Rank	No Countries	Total						
Chair and convene National Fisheries Committee (NFC)	No		No		No		No		0	0
Serve as a member of the National Technical Working Group	No		No		No		Yes		1	0
Act as member of the Regional Working Group	No		No		No		Yes	2	1	2
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the NTWG (to PSC)	No		Yes	7	No		Yes	9	2	16
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the RWG (to RSTC)	No		Yes	6	No		Yes		2	6
Provide data and information to the RWG and/or the RSTC	No		Yes	3	Yes	8	Yes	7	3	18
Review and update existing information relating to the component	No		Yes	4	Yes	9	Yes	3	3	16
Assemble a national meta-database	No		No		Yes	3	Yes	4	2	7
Summarise all existing national legislation	No		Yes	8	Yes	6	No	1	2	15
Review criteria in use for decision making with respect to future uses	No		Yes	9	Yes	5	Yes	10	3	24
Prepare criteria for use in site selection	No		Yes	5	No		Yes	8	2	13
Assist the RWG in preparing a regional synthesis of data and information, together with a review of threats	No		Yes	2	Yes	4	Yes	6	3	12
Develop a National Fisheries Action Plan	No		Yes	10	Yes	10	Yes	5	3	25
Guide IMC re SAP implementation	No		N/A		No		No		0	0
Promote the National Action Plan among stakeholders	No		N/A		Yes	7	Yes		2	7
Prepare and submit proposals for fisheries pilot projects	No		N/A		No	6	Yes		1	6

Table 3 Tasks in the Original Memoranda of Understanding for which your SEA/Institution Depended upon a Network of National Level Partners.

	Indonesia		Philippines		Thailand		Viet Nam		Regional	
	Partner Dependent	Rank	No Countries	Total						
Chair and convene National Fisheries Committee (NFC)	No		No		No		No		0	0
Serve as a member of the National Technical Working Group	No		No		No		Yes		1	0
Act as member of the Regional Working Group	No		No		No		No		0	0
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the NTWG (to PSC)	No		Yes	8	No		Yes	9	2	17
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the RWG (to RSTC)	No		Yes	6	No		No		1	6
Provide data and information to the RWG and/or the RSTC	No		Yes	4	Yes	7	Yes	7	3	18
Review and update existing information relating to the component	Yes	10	Yes	10	Yes	10	No		3	30
Assemble a national meta-database	No		No		No		Yes	4	1	4
Summarise all existing national legislation	No		Yes	9	Yes	9	No		2	18
Review criteria in use for decision making with respect to future uses	No		Yes	7	No		No		1	7
Prepare criteria for use in site selection	No		N/A		No		Yes	10	1	10
Assist the RWG in preparing a regional synthesis of data and information, together with a review of threats	No		Yes	5	No		Yes	8	2	13
Develop a National Fisheries Action Plan	No		N/A		Yes	8	Yes	6	2	14
Guide IMC re SAP implementation	No		N/A		No		No		0	0
Promote the National Action Plan among stakeholders	No		N/A		Yes	6	Yes	5	2	11
Prepare and submit proposals for fisheries pilot projects	No		N/A		No		Yes	3	1	3

Table 4 Existing Capability of your SEA/Institution with Respect to Completing the Tasks in the Amended Memoranda of Understanding.
 (10 = greatest need)

	Indonesia		Philippines		Thailand		Viet Nam		Regional	
	Existing Capacity	Rank	Partner Dependent	Total						
Chair and convene National Fisheries Committee (NFC)	Yes		Yes		Yes		Yes		0	0
Serve as a member of the National Technical Working Group (NTWG)	Yes		Yes		Yes		Yes		0	0
Act as member of the Regional Working Group (RWG)	Yes		Yes		Yes		Yes		0	0
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the NTWG (to PSC)	Yes		Yes		Yes		Yes		0	0
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the RWG (to RSTC)	Yes		Yes		Yes		Yes		0	0
Provide data and information to the RWG and/or the RSTC	Yes		Yes		Yes		Yes		0	0
Maintain the national meta-database	Yes		Yes		No	7	Yes		1	7
Update criteria used for decision making with respect to future uses	Yes		No	7	Yes		Yes		1	7
Update data contained in the Regional GIS	Yes		Yes		No	8	No	9	2	17
Work with the Regional Task Force on Legal Matters regarding national legislation and the preparation of a regional directory of legislation and best practices	Yes		No	9	No	9	No	8	3	26
Work with the Regional Task Force on Economic Valuation regarding national level economic valuation	Yes		No	10	No	10	No	7	3	27
Advise SEAs regarding educational and awareness materials produced for the benefit of fisheries communities in demonstration sites	Yes		Yes		No	6	Yes		1	6
Further develop the preliminary National Fisheries Action Plans to establish a regional system of <i>refugia</i>	Yes		Yes		No	5	Yes		1	5
Critically review targets and goals set by the draft SAP and prepare concrete proposals concerning actions at the national level	No	10	No	8	No	4	Yes		3	22
Prepare and submit proposals to the competent national authorities for the establishment of <i>refugia</i>	Yes		N/A		No	2	No	6	2	8
Guide IMC re SAP implementation	Yes		N/A		No	3	No	5	2	8
Promote the NAP and SAP among stakeholders	Yes		Yes		Yes		Yes		0	0
Facilitate the process of formal government approval of the NAPs			Yes		Yes		Yes		0	0
Participate in oversight of the trials of a blast fishing detection device and advise national and local authorities on the practicality of its wider adoption	Yes		No	6			No	10	2	16
Assist through the RWG in the preparation of a regional synthesis of data and information	Yes		N/A				Yes		0	0
Complete the tasks, listed in articles 5.i to 5.xv of the original MoU, which have been delayed as a consequence of initial delays in fund transfer	Yes		N/A				Yes		0	0
Finalise translation, publication and distribution of 200 copies of the national reports in local language	Yes		Yes		No	1	Yes		1	1

Table 5 National Network's Capacity to Support your SEA/Institution with Respect to the Tasks in the Amended Memoranda of Understanding.

	Indonesia		Philippines		Thailand		Viet Nam		Regional	
	Partner-ship	Rank	Partner-ship	Rank	Partner-ship	Rank	Partner-ship	Rank	No Countries	Rank
Chair and convene National Fisheries Committee (NFC)	No		No		No		No			0
Serve as a member of the National Technical Working Group (NTWG)	No		No		No		Yes	2		2
Act as member of the Regional Working Group (RWG)	No		No		No		No			0
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the NTWG (to PSC)	No		No		No		Yes	3		3
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the RWG (to RSTC)	No		No		No		No			0
Provide data and information to the RWG and/or the RSTC	Yes	2	No		No		Yes	5		7
Maintain the national meta-database	No		No		No		Yes	4		4
Update criteria used for decision making with respect to future uses	Yes	9	Yes	8	No		Yes	1		18
Update data contained in the Regional GIS	Yes		No		Yes	8	Yes	6		14
Work with the Regional Task Force on Legal Matters regarding national legislation and the preparation of a regional directory of legislation and best practices	Yes		Yes	9	No		Yes	7		16
Work with the Regional Task Force on Economic Valuation regarding national level economic valuation	Yes	8	Yes	10	No		Yes	10		28
Advise SEAs regarding educational and awareness materials produced for the benefit of fisheries communities in demonstration sites	Yes	3	Yes	5	No		No			8
Further develop the preliminary National Fisheries Action Plans to establish a regional system of <i>refugia</i>	Yes	4	Yes	7	Yes	10	Yes			21
Critically review targets and goals set by the draft SAP and prepare concrete proposals concerning actions at the national level	Yes	10	N/A		No		Yes			10
Prepare and submit proposals to the competent national authorities for the establishment of <i>refugia</i>	No		N/A		Yes	9	Yes	9		18
Guide IMC re SAP implementation	Yes		N/A		No		Yes			0
Promote the NAP and SAP among stakeholders	Yes	7	N/A		No		Yes			7
Facilitate the process of formal government approval of the NAPs	No		N/A		No		Yes			0
Participate in oversight of the trials of a blast fishing detection device and advise national and local authorities on the practicality of its wider adoption	Yes	5	Yes	6			Yes	8		19
Assist through the RWG in the preparation of a regional synthesis of data and information	Yes	6	No		No		Yes			6
Complete the tasks, listed in articles 5.i to 5.xv of the original MoU, which have been delayed as a consequence of initial delays in fund transfer	Yes		No		No		No			0
Finalise translation, publication and distribution of 200 copies of the national reports in local language	Yes	1	No		No		No			1

Table 6 Capacity of your SEA/Institution to Assist Other SEAs/organisations at the National and Regional Level with Respect to the Tasks in the Amended Memoranda of Understanding.

	Indonesia		Philippines		Thailand		Viet Nam		Regional	
	Capability to assist	Rank	No Countries	Rank						
Chair and convene National Fisheries Committee (NFC)	Yes	10	Yes		Yes	3	Yes	10	3	23
Serve as a member of the National Technical Working Group (NTWG)	Yes	7	Yes		Yes	9	Yes		2	16
Act as member of the Regional Working Group (RWG)	Yes	8	Yes		Yes	5	Yes	9	3	22
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the NTWG (to PSC)	Yes	9	Yes	3	Yes	6	Yes		3	18
Ensure that the NFC serves as an effective source of Scientific and Technical advice to the RWG (to RSTC)	Yes	6	Yes	2	Yes		Yes	8	3	16
Provide data and information to the RWG and/or the RSTC	Yes	5	Yes	4	Yes		Yes	7	3	16
Maintain the national meta-database	Yes	3	Yes	10	No		No		2	13
Update criteria used for decision making with respect to future uses	Yes		Yes	1	Yes	4	Yes	5	3	10
Update data contained in the Regional GIS	Yes		Yes	9	No		No		1	9
Work with the Regional Task Force on Legal Matters regarding national legislation and the preparation of a regional directory of legislation and best practices	Yes	4	No		Yes	2	Yes	1	2	7
Work with the Regional Task Force on Economic Valuation regarding national level economic valuation	Yes	2	No		No		No		1	2
Advise SEAs regarding educational and awareness materials produced for the benefit of fisheries communities in demonstration sites	Yes		Yes	5	Yes	1	Yes	6	3	12
Further develop the preliminary National Fisheries Action Plans to establish a regional system of <i>refugia</i>	Yes		Yes	7	Yes	10	Yes	3	3	20
Critically review targets and goals set by the draft SAP and prepare concrete proposals concerning actions at the national level	Yes		N/A		Yes	8	Yes		1	8
Prepare and submit proposals to the competent national authorities for the establishment of <i>refugia</i>	Yes		N/A		Yes	7	Yes	2	2	9
Guide IMC re SAP implementation	Yes		N/A		No		No		0	0
Promote the NAP and SAP among stakeholders	Yes		Yes	8	No		Yes	4	2	12
Facilitate the process of formal government approval of the NAPs	Yes		Yes	6	No		No		1	6
Participate in oversight of the trials of a blast fishing detection device and advise national and local authorities on the practicality of its wider adoption	Yes		N/A		No		No		0	0
Assist through the RWG in the preparation of a regional synthesis of data and information	Yes	1	N/A		No		No		0	1
Complete the tasks, listed in articles 5.i to 5.xv of the original MOU, which have been delayed as a consequence of initial delays in fund transfer	Yes		N/A		No		No		0	0
Finalise translation, publication and distribution of 200 copies of the national reports in local language	Yes		Yes		No		No		0	0

Table 7 Outcomes Derived from Use of Memoranda of Understanding.

Table 8 Achievements Associated with the Site Selection Process Used.

	Indonesia		Philippines		Thailand		Viet Nam		Regional	
	YES/ NO	Rank	YES/ NO	Rank	YES/ NO	Rank	YES/ NO	Rank	No. Countries	Total
Establishment of a Scientifically Sound and Transparent Process for Site Selection	Yes	3	Yes	3	Yes	5	Yes	5	4	16
Sites determined were acceptable to the participating countries										
Regional Agreement on the Process for Determining Priorities objectively	Yes	4	Yes	2	Yes	1	Yes	4	4	11
Democratic process of determining demonstration sites was promoted										
Stakeholder Involvement in Decision-Making and Information Sharing	Yes	5	Yes	5	Yes	4	Yes	3	4	17
Their involvement is very important especially in attaining the success of the demonstration sites activities in particular and the overall success of the project in general										
Stakeholder Support of Outcomes and Selected Demonstration Sites	Yes	2	Yes	4	Yes	3	Yes	2	4	11
Very important to attain the objectives of the project										
Process suitable for application in other situations including national ranking	Yes	1	Yes	1	Yes	2	Yes	1	4	5

Table 9 Outcomes of the Management Framework at the National Level.

Table 10 Outcomes of the management framework at the regional level

Table 11 List of Long-term Sustainability Needs of the Project

Table 12 Use of the Training Budget.

	Indonesia		Philippines		Thailand		Vietnam		Regional	
	YES/ NO	Rank	YES/ NO	Rank	YES/ NO	Rank	YES/ NO	Rank	No. Countries	Total
Build Capacity to Preserve the Regional Consultative Mechanism	Yes	5	Yes	4	Yes	5	Yes	4		18
Disseminate project outcomes and experiences throughout the region	Yes	3	Yes	3	Yes	1	Yes	5		12
web page and hard copy										
Specific Group Training courses (please provide details)	Yes	2	Yes	5	Yes	3	Yes	3		13
Training on the content of the CCRF										
Trainers training on issues identification and preparation of proposals for submission to donors										
Individual Training (please provide details of who is to be trained and in what)	Yes	1	Yes	1	Yes	2				4
Training local government officers on appropriate livelihood activities										
Building Capacity within Demonstration Sites for Income Generation	Yes	4	Yes	2	Yes	4	Yes			10

Table 13 National and Regional Prioritisation of the Fisheries Pilot Project Activities Needed to Provide Examples of Best Practice in Fisheries and Habitat Management for the Region.

Fisheries pilot project activities needed to provide examples of best practice in fisheries and habitat management	National Priority	Regional Priority
Indonesia		
Implementation of CCRF in the Fisheries Management	5	4
Habitat Management of Fisheries	4	5
Strengthening of Coastal Community Development	3	1
The Need of data for Sustainable Development	2	2
Fisheries Management Plan	1	3
Philippines		
Community ownership of the project	5	3
Formation of a management group/team for projects bordered by several local communities to achieve habitat management and sustainable fisheries utilization	4	5
Collection of data/information needed in habitat and fisheries management by the local communities	3	4
Thailand		
Reduction of Fishing Capacity	4	5
Establishment and Monitoring <i>Refugia</i>	3	3
Establishment of Artificial reef	2	2
Prohibition and restrictions on certain types and size of fishing gear	5	4
Viet Nam		
Monitoring the CPUE of achovy fishing fleet in Phu Quoc areas (Kien Giang province, Viet Nam – Cambodia)	5	4
Tuna fishes tagging project in central part of South China Sea (Viet Nam, Philippine, China)	3	5
Monitoring and controlling the push net fishery in south west seawaters areas (Viet Nam)	4	3
Fish <i>refugia</i> pilot project in Con Dao Island (Vn)	2	2

Table 14 Existing Capacity Building and Training Initiatives for (a) Coral Reef Management (MM) and (b) General Coastal and Marine Resource Management (CMRM) at Both National and Regional Levels.

Indonesia

Capacity building/training initiative	Lead Organisation	Focus on CRM or CMRM	National (N) or Regional (R)
Improvement on Statistics	MMF	FM	N
Socialisation of the CCRF	Ministry of Marine & Fisheries	FM	N
CMRM	Ministry of Marine & Fisheries	CMRM	N
Monitoring, Control and Surveillance	Ministry of Marine & Fisheries	FM	N

Note: MMF=Ministry of Marine & Fisheries

Philippines

Capacity building/training initiative	Lead Organisation	Focus on CRM or CMRM	National (N) or Regional (R)
Community based fisheries law enforcement training	BFAR	FM and CMRM	N
Fisheries management	BFAR	FM and CMRM	N
Participatory coastal resources assessment	BFAR	FM and CMRM	N
Coastal Habitat enhancement training	BFAR	FM and CMRM	N
Training on feature writing on coastal fisheries management experience	BFAR	FM and CMRM	N

Note: BFAR=Bureau of Fisheries, Agriculture and Resources

Thailand

Capacity building/training initiative	Lead Organisation	Focus on CRM or CMRM	National (N) or Regional (R)
Fishery Resource Management	DOF	FM	N
General Procedure for Marine Fishery Research	DOF	FM	N
Basic Data Analysis in Marine Fishery Biology	DOF	CMRM	N
Resource Evaluation and Stock Assessment	DOF	FM	N
Negotiation Technique for Solving Fishery Related Conflicts	DOF	CMRM	N
Public Presentation Techniques for Effective Negotiation and Communication	DOF	CMRM	N
Fisheries Statistic Survey	DOF	CMRM	N
Locally Base Fishery Management	DOF/SEAFDEC	CMRM	N/R

Note: DOF=Department of Fisheries, Thailand; SEAFDEC=Southeast Asian Fisheries Development Center

Viet Nam

Capacity building/training initiative	Lead Organisation	Focus on CRM or CMRM	National (N) or Regional (R)
Improving the capacity for fishing boats management in Vietnam	MOFI	FM	N
Strengthening the research capacity of RIMF	RIMF	FM	N

MOFI=Ministry of Fisheries, Vietnam; RIMF=research Institute of Marine Fisheries, Vietnam

ANNEX 5

Strategic Approach to the Establishment of a System of Fisheries *Refugia* for the South China Sea and Gulf of Thailand

BACKGROUND

The Regional Working Group for the Fisheries Component (RWG-F) is responsible for developing sub-regional, and national management plans for the spawning and nursery areas of regional and transboundary significance in the Gulf of Thailand. Specifically, the RWG-F is responsible for:

- Development of criteria to determine the national, sub-regional and transboundary significance of spawning and nursery areas; and
- The application of these criteria to determine priorities for management action within the Gulf of Thailand.

These activities will result in the establishment of a system of *refugia* to maintain important transboundary fish stocks in the Gulf of Thailand. These *refugia* will be based on areas identified as critical habitats for fish stock conservation and protection.

The original Memoranda of Understanding (MoU) between the Specialised Executing Agencies (SEAs) for the fisheries component and UNEP included a number of tasks of relevance to the development of the system of fisheries *refugia*.

The key substantive output associated with the completion of these tasks has been the National Reports on “Fish Stocks and Habitats of Regional, Global and Transboundary Significance in the South China Sea”. These reports have consolidated national level information regarding:

- The fisheries sector, including community dependence,
- Species of regional, global and/or transboundary significance,
- The importance of species in terms of landings, value, status and food security,
- The biology and ecology of the priority species,
- Fishery status and threats,
- Habitats and areas of importance in the maintenance of exploited fish stocks, and
- Current management regimes.

The countries participating in the project now have a useful foundation for the identification and evaluation of approaches to fisheries management at both the national and regional level. The process has also built the institutional capacity of individual SEAs to contribute to the development of the REGIONAL system of *refugia* in the Gulf of Thailand, as well as to lead the necessary planning and administrative tasks required for the establishment of *refugia* in national waters.

The amended MoU covering the operational phase of the Project have clearly defined the responsibilities of SEAs for the Fisheries Component regarding the *refugia* activity. Specifically, SEAs are required by the MoU to: *Further develop the preliminary national fisheries action plans to establish a regional system of refugia, to meet the targets provisionally agreed in the regional SAP; based on agreed criteria and the recommendations of the National Reports produced during the Preparatory Phase of the project, prepare and submit proposal(s) to the competent national authorities for the establishment of refugia for fish stocks of transboundary and regional significance to be adopted by the governments; and facilitate the process of formal government approval of national action plans (i.e. action plans for the system of refugia).*

FISHERIES REFUGIA

Most common approaches to fisheries management have not effectively integrated spatial considerations. The success or failure of management has largely been determined by the ability of the management system to control fishing effort so as not to exceed predetermined catch limits that are based on biological and, to a lesser extent, economic attributes of fisheries.

Many fisheries management arrangements focus on achieving maximum sustainable exploitation of resources but often fail to address the complexity inherent in fisheries *systems*. Fisheries systems involve the interrelationships of such dynamics as environmental variability, multispecies interactions and unpredictable effects of fishing on fish stocks. Such complexity not only influences the effectiveness of policy intervention, but also the accuracy of indicators used to assess the effectiveness of such intervention.

It is also now clear that many of the data used in the assessment of fisheries resources and fisheries management measures contain errors, and that many common assessment models grossly simplify fisheries systems³. It is inevitable that fisheries management will continue to take place in situations where there is irreducible uncertainty due to the massive and difficult information problems associated with describing and understanding most multi-species fisheries. This is especially true in the case of the Gulf of Thailand, where fisheries management must balance the interests of multiple jurisdictions, coastal community dependence on fisheries for food security, the problem of overfishing, destructive fishing practices, and the inherently complex nature of the tropical multispecies fisheries in the region.

Numerous fisheries observers, including Walters⁴ and Caddy⁵, have recently reviewed natural *refugia* and their role in the sustainability of fisheries. It appears that in many cases the long-term success of fisheries is due to the existence of large-scale natural refuges for substantial segments of populations of fished species, and not the effectiveness of the assessment and management in use. Examples exist of fisheries governance systems using the "best" scientific information and management approaches that have failed to sustain fisheries, except in cases when natural *refugia* are present. It is well accepted that natural *refugia* constitute a mechanism of long-term resilience in exploited marine populations.

The activity of establishing a system of fisheries *refugia* for the Gulf of Thailand is based upon the emerging body of evidence that the existence of natural *refugia* is a basic element explaining the resilience of fishery stocks to exploitation. Gulf of Thailand fish stocks are subjected to high levels of fishing effort, such that stocks of most commercially important species are considered fully fished or overexploited. Maintenance of natural *refugia*, or creation of *refugia* in cases where natural *refugia* no longer exist, should be important priorities for the management of fisheries in this area, and may act as effective buffers against uncertainty and recruitment failure, of which the latter is especially relevant in terms of food security.

Natural *refugia* arise from the interaction of the spatial dynamics of the population, oceanographic features, fish behaviour, and fishing effort dynamics. Three general types of *refugia* scenarios are readily identifiable:

1. A large population with seasonal or ontogenetic (spawning) migrations between fishing grounds and reproductive *refugia*.
2. A metapopulation with some local populations located in fishing grounds and others in *refugia*. Populations located in unexploited areas provide larval subsidies to the exploited populations.
3. *In situ* behavioural *refugia* (behaviour determines the seasonal unavailability of part of the stock in the fishing ground). This type of *refugia* is probably the most familiar to fisheries scientists because fishing gear selectivity has been a key research area.

Fisheries *refugia* have often been used as a fisheries management tool when more conventional techniques, such as effort or gear restrictions, have failed to achieve the desired management objectives, particularly in regions where fisheries are subject to intense and unmanageable fishing pressure, such as in the Gulf of Thailand. In other cases, such as Australia's Great Barrier Reef Marine Park, fisheries *refugia* have been used to separate potentially conflicting uses of coral reef environments and their limited resources. However, the effectiveness of fisheries *refugia* in most instances largely depends on the selection and appropriate use of fisheries management measures

³ Ludwig, D., Hilborn, R. and Walters, C.J. (1993) *Uncertainty, Resource Exploitation, and Conservation: Lessons from History*. Science, 36: p.260.

⁴ Walters, C. (1998) *Designing fisheries management systems that do not depend on accurate stock assessment*. In *Reinventing Fisheries Management* (eds T.J. Pitcher, P.J.B. Hart and D. Pauly). Chapman and Hall, London, pp.279-288.

⁵ Caddy, J.F. (1999) *Fisheries management in the twenty-first century: will new paradigms apply?* Reviews in Fish Biology and Fisheries, 9: 1-43.

within the *refugia* area, and at the most general level, any Gulf of Thailand fisheries *refugia* strategy must consider the:

- Life-cycle of the species for which *refugia* are being developed,
- Type(s) of *refugia* scenario(s) that relate to the species for which *refugia* are being developed,
- Location of natural *refugia* and appropriate sites for the establishment of [artificial] *refugia*,
- National and regional level competencies in the use of fisheries management measures and spatial approaches to resource management and planning.

THE REGIONAL WORKING GROUP DEFINITION OF FISHERIES *REFUGIA*

During the Fifth Meeting of the Regional Working Group for the Fisheries Component, a definition and explanatory notes for the term *refugia* were prepared in the context of the UNEP/GEF Project Entitled “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”.

Refugia:

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

Explanatory Notes

- Should not be a “no take zone”.
- Have the objective of sustainable use for the benefit of present and future generations.
- Some areas within a *refugia* might be permanently closed due to their critical importance [essential contribution] to the life cycle of a species or group of species.
- Critical areas of importance in the life cycle include spawning, and nursery grounds, or areas of habitat required for the maintenance of broodstock.
- *Refugia* will have different characteristics according to their purpose and the species or species groups for which they are established and within which different management measures will apply.
- *Refugia* may be sub-divided reflecting the differing importance of sub-areas to the species or species group. A management plan for the *refugia* will reflect different measures for the subdivisions.

Management measures that may be applied would be drawn from the following [non-exhaustive] list:

- Exclusion of a fishing method (e.g. light fishing).
- Restricted gears (e.g. mesh size).
- Prohibited gears (e.g. push nets, bottom trawl).
- Vessel size /motorization.
- Seasonal closures during critical periods.
- Seasonal restrictions (specific gears that may trap larvae).
- Limit access.

During that meeting, members discussed their understanding of the concept of *refugia*. There was a general commonality of understanding that *refugia* related to specific areas of significance to the life-cycle of particular species. Discussion of the kinds of fisheries management approaches that could be applied in such areas included recognition of the importance of closing areas during critical periods of the life-cycle such as peak spawning periods, regulating the use of types of gear in sensitive habitats and/or nursery grounds and other classical fisheries management techniques.

The representative from IUCN noted that *refugia* could be defined in either space or time, and serve to protect spawning aggregations, nursery grounds and migratory routes. This participant highlighted that although *refugia* might not be recognised in legal terms, various fishery management techniques could be applied and responsibilities executed to achieve the objectives of the *refugia*. A review identified a lack of data, management, technical and financial resources, and poor enforcement as constraints to their use. It was concluded that clear goals need to be defined for *refugia* together with explanations of why they are to be located in a particular place and what benefits will be derived from their designation.

STRATEGIC APPROACHES TO ESTABLISHING A SYSTEM OF FISHERIES *REFUGIA* FOR THE GULF OF THAILAND

Possible directions for establishing and implementing a system of fisheries *refugia* involving the countries participating in this Project are suggested by the legislative, policy and administrative options and approaches taken by these countries for coastal and marine planning, including for instance the designation of areas closed to fishing and the establishment of marine protected areas. It is likely that there will be differences in the primary planning objectives, design and implementation (i.e. legislative, policy and administrative approaches) of spatial approaches to natural resource and environmental management.

It is likely that the countries will reflect differences in:

- Their strategic policy and planning objectives, including the:
 - * Type of planning (e.g. protection v. multiple use);
 - * Area of planning (e.g. administrative boundaries v. geo-ecological (coastal zone));
 - * Designated management agencies (e.g. environment v. resource agency).
- Establishment and administration of spatial management approaches, including:
 - * The spatial planning process (e.g. administrative steps involved);
 - * Identification of sites;
 - * Selection and prioritisation of sites;
 - * Socio-economic assessment of the impacts of management measures;
 - * Consultation, community participation.

These differences will need to be identified and reflected in a regional strategy for the establishment of a system of fisheries *refugia*. Figure 1 provides a framework of the strategic steps proposed for the establishment of such a system.

Nevertheless, there is a number of information needs for the development of the system of *refugia*. These relate to the:

- Life-cycle of the species for which *refugia* are being developed,
- Type(s) of *refugia* scenario(s) that relate to the species for which *refugia* are being developed,
- Location of natural *refugia* and appropriate sites for the establishment of [artificial] *refugia*,
- National and regional level competencies in the use of fisheries management measures and spatial approaches to resource management and planning that may be applied to the system,
- Goals, objectives, guiding principles and expected outcomes for the system of *refugia* from both national and regional perspectives,
- *Refugia* priorities, the actual fisheries problems that the *refugia* will assist in resolving, the anticipated challenges in the establishment of fisheries *refugia*, and complementary activities in the region,
- Criteria for *refugia* identification and selection, and
- The actions required at the national level to establish fisheries *refugia*, including identification of the differences in legislative, policy and administrative approaches between participating countries.

Figure 1 Proposed Framework for the Establishment of a Regional System of Fisheries Refugia.

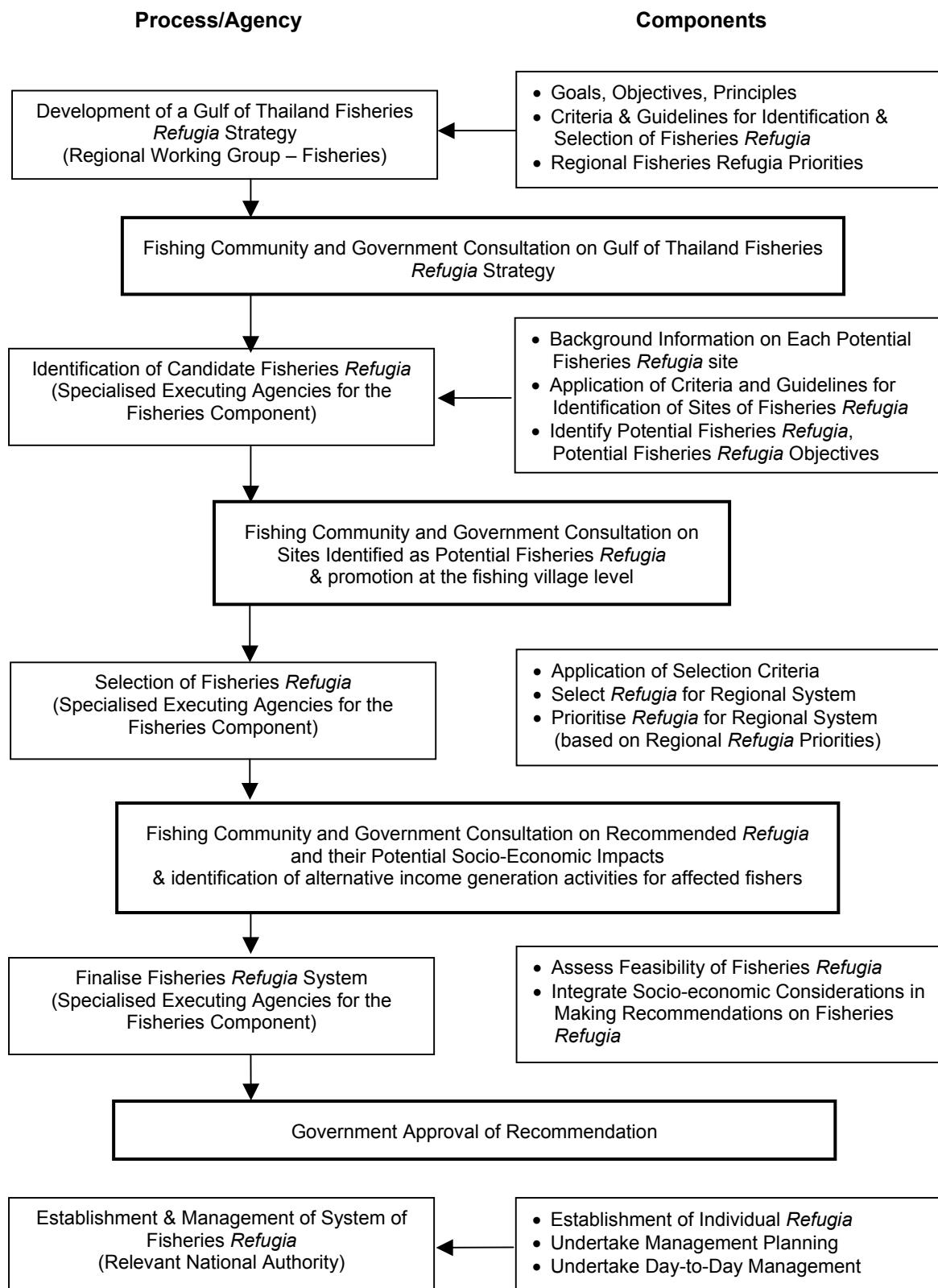


Table 1 Goals, Objectives, Guiding Principles and Expected Outcomes for the regional Fisheries *Refugia* Strategy.

Goals	Objectives	Guiding Principles	Expected Outcomes
Improved use of spatial approaches to fisheries management for sustainable use of fish stocks and maintenance of habitats	<ul style="list-style-type: none"> • Protecting spawning and nursery areas • Integrating fisheries management into protected area management (coordination between fisheries and environmental agencies) • Enhancing fisheries resources and their habitats • Prevent degradation of habitats and loss of important species • Wider use of zoning within fisheries management measures • Build awareness amongst fishers of the ecosystem-fisheries links • Identification of life history • Promote the role of sub-populations in stock resilience 	<ul style="list-style-type: none"> • Clear demarcation between different users of the water body • Ensure that socio-economic impacts of establishing <i>refugia</i> are addressed • Collaboration between relevant government agencies and other stakeholders • Ensure preservation of habitat integrity • Clarification of definitions with existing similar systems, such as MPA, closed seasons and areas etc • Local community must participate in management 	<ul style="list-style-type: none"> • Fisheries resources can continue to be used by current and future generations • Increase in size of fish populations • Provision of suitable locations for fish resource enhancement through re-stocking • Improved socio-economic conditions of fishing communities • Enhanced Food security

Table 2 Priorities, Problems, Challenges and Performance Indicators for a Regional *Refugia* System.

Refugia Priorities	Key fisheries problems the Refugia will assist in resolving	Anticipated challenges in the establishment of fisheries <i>refugia</i>	Indicators that can be used to measure the effectiveness of fisheries <i>refugia</i>
Refugia aimed at Protecting spawning stock/broodstock in spawning areas and at times of spawning	<ul style="list-style-type: none"> • The capture of juveniles • The capture of broodstock in areas (and at times) of spawning • The use of inappropriate fishing gear and practices • The poor management of fish habitats, particularly in spawning and nursery areas • Conflicts among resource users 	<ul style="list-style-type: none"> • Overcapacity • Resistance from fishers/fishing communities (stakeholders) • Lack of scientific data and experience • Difficulty and costs associated with research, data and information collection • Poor collaboration between the responsible national level agency and the local government • Encroachment during periods in which fishers are excluded • The size of the <i>refugia</i> • Enforcement of management measures and regulations prohibiting use of illegal or destructive fishing gear, in order to prevent the unnecessary capture of juveniles from the <i>refugia</i> areas inshore waters 	<ul style="list-style-type: none"> • Management responsibility delegated to the community • Enhancement of the ownership over the fish resources by the community • Acceptance of the <i>refugia</i> system at the regional level • Density of pelagic species eggs/larvae in the area of <i>refugia</i> at the time of spawning • Mean length at first maturity

CRITERIA FOR *REFUGIA* IDENTIFICATION AND SELECTION

Areas important to species with heavily depleted stocks

The use of the area as spawning, nursery or feeding grounds

STEPS REQUIRED TO ESTABLISH FISHERIES REFUGIA IN PARTICIPATING COUNTRIES

Table 3 Steps Required to Establish Fisheries Refugia in the Participating Countries.

Step-by-Step Actions
1. Develop regional strategy.
2. Develop national policy and action plan for fisheries <i>refugia</i> .
3. Collate and review fish, habitat and social information contained in the national reports and available at the national/regional level, including research.
PHILIPPINES (The following procedures are those adopted in the Philippines in developing refugia)
1. Conduct of a “multidisciplinary survey” to identify and evaluate candidate sites, if not feasible proceed to the next step.
2. Conduct desk study to determine the use/importance of the site/area to the life cycle of the resource.
3. Conduct of public meetings to present survey results, secure agreement to proceed with the establishment, and cultivate participatory mechanisms:
4. Detailed mapping of the proposed fisheries <i>refugia</i> showing potential size, resource attributes, and possible zone delineations, applying participatory techniques.
5. Conduct of community meetings and small workshops to initiate the formulation of management plans, including discussions on allowable resource uses, prohibitions, zoning system, user fees, administrative mechanisms, physical design and engineering, training requirements, enforcement procedures, IEC (information, education, communication) campaign, recommendations for supporting measures, and budgetary plans.
National Government
Responsible agency to come up with a Fisheries Management or Administrative Order for final review and government approval
"Establishment of an appropriate law for the establishment of the site"
Local Government
Concurrence/acceptance by the majority members of the communities shall be manifested through signatures on the proposal and formally endorsed to the local legislative body for consideration and approval by the Mayor.
Implementation of a management plan
6. Work shop for presentation of outcomes of desktop study attended by NGOs, academics
7. Community consultation, including presentation of results of study
8. Mapping of proposed area, showing potential sites
Zone delineation, including consultation with the community
SMALL COMMUNITY MEETINGS Conduct of community workshops to Formulate of management plans, aimed at obtaining fisher feedback on proposed plans

ANNEX 6

Work Plan (2004-2007) and Schedule of Meetings for 2006

Table 1 Work Plan and Time Table for the Fisheries Component to 2007⁶ as agreed during the 6th Regional Working Group meeting.

Quarter	2004				2005				2006				2007																
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
NATIONAL ACTIVITIES																													
National Committee meetings	X	X	X	X	X	X								X	X	X	X	X	X	X	X	X							
National Technical Working Group			X										X		X			X			X			X					
RWG-F meetings	X									X	X				X														
Provide information to RWG-F and RSTC																													
Maintain National Metadata base (Phi&Vie-complete)																													
Cambodia (not represented)														X															
Indonesia															X (15/10)														
Philippines (update)															X (27/9)														
Thailand															X (31/10)														
Vietnam (update metadata)															X (31/10)														
Regional Database																													
Publication of National Reports in local language																													
Philippines and Vietnam Completed																													
Cambodia (not represented)															X														
Indonesia															X (23/9)														
Thailand															X (15/10)														
Provide guidance to IMC on the fisheries component input to SAP																													
With stakeholders, review/review plan implement the Strategic Action Programme															Dependent on Strategic Action Programme Development														
Develop awareness materials for stakeholders with RWG-F																													
Philippines, Thailand and Vietnam completed																													
Cambodia (not represented)															X														
Indonesia															X (31/10)														
Develop and implement awareness programmes among fishing communities (all countries)																													
Translate into English the awareness raising materials, for information exchange with other countries																													
Philippines and Viet Nam completed																													
Cambodia (not represented)																													

⁶ Acronyms used in this table: Cam-Cambodia, Ind-Indonesia, Phi-Philippines, Tha-Thailand, Vie-Viet Nam.

Table 1 cont. Work Plan and Time Table for the Fisheries Component to 2007⁷ as agreed during the 6th Regional Working Group meeting.

Quarter	2004				2005				2006				2007					
	3		4		1		2		3		4		1		2		3	
	Month	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N
Indonesia																		
REGIONAL ACTIVITIES																		
Evaluation of a prototype blast fishing detection system																		
Promote guidelines for Code of Conduct for Responsible Fisheries																		
Provide to the PCU information on current status of promotion of guidelines for CCRF in each country																		
Provide information to site managers on fisheries regulations relevant to the CCRF issues in the habitat demonstration sites																		
Preparation of relevant information for promoting the CCRF in the habitat demonstration sites																		
Promote aspects of the CCRF relevant to the habitat demonstration sites																		
Develop national and regional action plans for a regional system of <i>refugia</i>																		
Collaboration with national institutions and stakeholders to determine mechanisms to establish <i>refugia</i>																		
Identify <i>refugia</i> (from habitat demonstration site proposals and/or other areas of significance)												X						
Extraction of information from National Reports and other sources (CP)												X						
Begin consultations with local fisheries community and other stakeholders to develop <i>refugia</i>																		
Contribute to education and awareness campaign in relation to fisheries issues in proposed sites (CCRF)																		
Identify possible alternative income generation activities for affected fishers in the <i>refugia</i>																		
Prepare and submit proposal(s) to the competent national authorities for the establishment of <i>refugia</i> for fish stocks of transboundary and regional significance to be adopted by the governments																		
Provide input to habitat demonstration site proposal finalisation (send initial comments to PCU, and attend meetings in country on demonstration site proposals)																		
Inputs to the Regional Scientific Conference																		
National Report Short Version sent to PCU												X (14/10)						
Fisheries threats; demonstration sites; CCRF (comments)												X (14/10)						
Fisheries <i>refugia</i> (comments)												X (14/10)						

⁷ Acronyms used in this table: Cam-Cambodia, Ind-Indonesia, Phi-Philippines, Tha-Thailand, Vie-Viet Nam.

Table 2 **Schedule of Meetings for 2006.** (RWG = Regional Working Group; -M = Mangroves; -CR = Coral reefs; -SG = Seagrass; -W = Wetlands; -F = Fisheries; LbP = Land-based Pollution; RTF-E = Regional Task Force on Economic Valuation; RTF-L = Regional Task Force on Legal Matters) (H = United Nations Holidays)