



**United Nations
Environment Programme**

Distr. restricted
UNEP/GEF/SCS/RWG-LbP.1/3



Global Environment Facility

5th April 2002

Original: ENGLISH



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

REPORT

**First Meeting of the Regional Working Group for
the Land-based Pollution Component**

Bangkok, Thailand, 3 - 5 April 2002

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	DESIGNATION OF OFFICERS.....	1
2.2	ORGANISATION OF WORK.....	2
3.	ADOPTION OF THE MEETING AGENDA.....	2
4.	TERMS OF REFERENCE AND RULES OF PROCEDURE FOR THE REGIONAL WORKING GROUP FOR LAND-BASED POLLUTION (RWG-LbP)	2
4.1	TERMS OF REFERENCE FOR THE REGIONAL WORKING GROUP FOR LAND-BASED POLLUTION	2
4.2	MEMBERSHIP OF THE REGIONAL WORKING GROUP FOR LAND-BASED POLLUTION.....	3
4.3	RULES OF PROCEDURE.....	3
5.	MANAGEMENT AND OVERALL OBJECTIVES OF THE UNEP/GEF PROJECT	3
5.1	REPORTING RELATIONSHIPS AND RESPONSIBILITIES OF THE REGIONAL WORKING GROUP AND ITS ROLE IN ACHIEVING PROJECT OBJECTIVES.....	3
5.2	FISCAL RESPONSIBILITIES (RECORDING & REPORTING) OF THE NATIONAL FOCAL POINTS OF EACH SPECIALISED EXECUTING AGENCY	4
6.	OVERALL GOALS AND OBJECTIVES OF THE LAND-BASED POLLUTION COMPONENT.....	5
6.1	GENERAL DESCRIPTION OF ACTIVITIES CONTAINED IN THE PROJECT BRIEF.....	5
6.2	ANTICIPATED ACTIVITIES IN THE FRAMEWORK OF THE "REGIONAL PROGRAMME OF ACTION FOR THE PROTECTION OF THE MARINE ENVIRONMENT OF THE EAST ASIAN SEAS FROM THE EFFECTS OF LAND-BASED POLLUTION"	6
6.3	OTHER RELEVANT ACTIVITIES IN THE REGION, E.G. THE ASEAN REGIONAL WORKING GROUP ON COASTAL AND MARINE ENVIRONMENT.....	6
7.	IDENTIFICATION AND QUANTIFICATION OF THE IMPACTS OF LAND-BASED POLLUTION IN THE SOUTH CHINA SEA & GULF OF THAILAND.....	7
8.	ASSESSING SOURCES AND PATHWAYS, (I.E. ATMOSPHERIC, GROUNDWATER AND RIVER DISCHARGE), AND DISTRIBUTION OF CONTAMINATION AND POLLUTION IN THE SOUTH CHINA SEA MARINE BASIN.....	8
9.	DATA AND INFORMATION NEEDS FOR THE LAND-BASED POLLUTION COMPONENT	9
9.1	REVIEW OF THE LAND-BASED POLLUTION SECTIONS OF THE NATIONAL REPORTS AND THE TRANSBOUNDARY DIAGNOSTIC ANALYSIS, PRODUCED DURING THE PREPARATORY PHASE OF THE PROJECT	9
9.2	NATIONAL AND REGIONAL SOURCES OF DATA AND INFORMATION.....	10
10.	DISCUSSION AND ADOPTION OF THE WORKPLANS FOR THE NATIONAL COMMITTEES AND REGIONAL WORKING GROUP FOR 2002-2003.....	10
11.	ANY OTHER BUSINESS.....	11
12.	DATE AND PLACE OF THE NEXT MEETING OF THE REGIONAL WORKING GROUP FOR LAND-BASED POLLUTION	11
13.	ADOPTION OF THE REPORT OF THE MEETING	11
14.	CLOSURE OF THE MEETING.....	11

List of Annexes

Annex 1	List of Participants
Annex 2	List of Documents
Annex 3	Agenda
Annex 4	Financial Rules and Financial Reporting Requirements for National Focal Points Operating in the Framework of the UNEP/GEF Project entitled: “Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand”
Annex 5	ASEAN Working Group on Coastal and Marine Environment: Scope of Work and Activities
Annex 6	Flow Chart of Actions for the Land-Based Pollution Component of the UNEP GEF South China Sea Project
Annex 7	Initial guidance for the National Committees on Land-based Pollution regarding criteria, indicators data and information needs for the analysis of Hot Spots in the South China Sea and Gulf of Thailand
Annex 8	Analysis of Pollution Data Contained in the National Reports of Participating Countries
Annex 9	Schedule of Meetings and Workplan for 2002
Annex 10	Data and Information Requirements for Preparation of a Regional Synthesis and Overview of Land-based Pollution in the South China Sea Marine Basin

Report of the Meeting

1. OPENING OF THE MEETING

1.1 Welcome address

1.1.1 The Project Director, Dr. John Pernetta, opened the meeting on behalf of Dr. Klaus Töpfer, the Executive Director of UNEP and Dr. Ahmed Djoghlaif, the Director, Division of GEF Co-ordination. He welcomed participants to the first meeting of the Regional Working Group for Land-based Pollution (RWG-LbP) and noted the high importance accorded this project by UNEP and the GEF. He informed the meeting of the strong desire of the Executive Director that the project stimulate renewed interest in regional, co-operative management of the most biologically diverse shallow water area of the marine environment in the world.

1.1.2 Dr. Pernetta noted further that, the project was large and complex and that this Working Group was central to the regional level co-ordination and management of the national contributions to the Land-based pollution component. This initial meeting is vital in providing guidance to the National Focal Points and through them to the National Committees regarding the work to be undertaken and to ensure that the data and information assembled at the national level are comparable and compatible between all participating countries. It will be important to ensure that this scientific and technical guidance is collective, not only at the regional, but also equally importantly, at the national level.

1.1.3 On behalf of the Executive Director the Project Director reiterated the strong support of UNEP for this initiative and to assisting the countries of the region in developing more regionally co-ordinated approaches to addressing the problems of the marine environment. He noted that this project was viewed in many quarters as being both significant and well designed and expressed the hope that the meeting would be successful in providing the necessary scientific and technical guidance that would ensure a strong and well balanced initiation of activities in the Land-based component of the project that would complement other regional activities supported by UNEP in particular those envisaged in the framework of the Global Programme of Action to Protect the Marine Environment from Land-based Activities (GPA/LBA).

1.2 Introduction of members

1.2.1 The participants introduced themselves and provided the meeting with a brief outline of their expertise and experience and elaborated on their roles in the project. The list of participants is attached as Annex 1 to this report.

2. ORGANISATION OF THE MEETING

2.1 Designation of officers

2.1.1 In accordance with the rules of procedure for the Project Steering Committee participants were invited to nominate a Chairperson, Vice-Chairperson and Rapporteur for the meeting.

2.1.2 Mr. Vicente Diaz, National Focal Point for Land-based Pollution in the Philippines nominated Mr. Sudariyono, Focal Point for Land-based Pollution in Indonesia, as Chairperson of the meeting. Mr. Sudariyono was duly elected by acclamation.

2.1.3 Mr. Pak Sokharavuth Focal Point for Land-based Pollution in Cambodia nominated Dr. Pham Van Ninh, Focal Point for Land-based Pollution for Vietnam as Vice Chairperson of the meeting. Dr. Ninh was duly elected by acclamation.

2.1.4 Mr. Han Baoxin, Focal Point for Land-based Pollution in China, nominated, Ms. Pornsook Chongprasith, Focal Point for Land-based Pollution in Thailand, as Rapporteur of the meeting. Ms. Chongprasith was duly elected by acclamation.

2.2 Organisation of work

2.2.1 The Project Director introduced the document UNEP/GEF/SCS/RWG-LbP.1/INF.1, listing the discussion documents prepared by the Secretariat for the meeting together with additional information documents of relevance to the business before the RWG-LbP. He noted that some amendments to the documents prepared for the meeting had been made and that these would be highlighted during the presentation of each document under the appropriate agenda items. The list of documents available to the meeting is attached as Annex 2 to this report.

2.2.2 He further noted that the meeting would be conducted in English and in plenary as far as possible, although sessional working groups might need to be formed, given the volume of business before the RWG-LbP. He proposed, and the meeting agreed that, the meeting would commence at 08:30 in the morning and continue at the discretion of the Chairperson and members until such time as an appropriate point in the agenda was reached.

3. ADOPTION OF THE MEETING AGENDA

3.1 The Chairperson presented the draft agenda prepared by the Secretariat as document UNEP/GEF/SCS/RWG-LbP.1/1, and invited discussion and proposals for any amendments or additions that members might wish to make.

3.2 It was proposed, and the meeting agreed, to adopt the agenda as drafted by the Secretariat and contained in Annex 3 to this report.

4. TERMS OF REFERENCE AND RULES OF PROCEDURE FOR THE REGIONAL WORKING GROUP FOR LAND-BASED POLLUTION (RWG-LbP)

4.1 Terms of reference for the Regional Working Group for Land-based Pollution

4.1.1 The Chairperson invited the Secretariat to introduce document UNEP/GEF/SCS/PSC.1/3 and in particular the Terms of Reference for the Regional Working Group for Land-based Pollution for the project entitled *"Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand"* contained in Annex VIII of that document, and reproduced as document UNEP/GEF/SCS/RWG-LbP/INF.7. In introducing this document the Project Director noted that these Terms of Reference had been adopted and approved by the Project Steering Committee and that any proposals for amendment would need to be referred back to that committee.

4.1.2 The question was asked as to why four regional experts were proposed to be added as members of the RWG-LbP and how it was intended that the RWG-LbP should "provide a mechanism for exchange of information" as required under the rationale and purpose. The Project Director informed the meeting that the original intention to add four regional experts was based on a desire not to outnumber the national focal points but also to ensure the RWG-LbP contained an adequate balance and spread of expertise whilst at the same time remaining small enough to ensure that its business was conducted in an efficient manner. It was further noted that the RWG-LbP should have the opportunity to add additional members as the requirements of the business required.

4.1.3 In response to a query regarding the requirement for the RWG-LbP to develop guidelines for national legislation, the Senior Expert responded by pointing out the need for a regional perspective to be incorporated in national legislation and that the intention was that at a regional level the project should provide guidance to national governments on alternative instruments, both policy and legislative that could be used by countries within the region in controlling land-based pollution.

4.1.4 A question was raised regarding the mechanisms whereby the workplans and progress reports from the RWG-LbP would be transmitted to the RSTC. In response it was pointed out that the Chairperson of each Regional Working Group was an automatic member of the RSTC and hence they would be responsible for reporting to the meetings of the RSTC on the work of the Regional Working Group. In addition it was noted that the Project Co-ordinating Unit had a primary responsibility in ensuring that information coming from the RWGs was transmitted in a timely manner to both the members of the RSTC and the PSC.

4.1.5 Participants noted that a key responsibility for the RWG-LbP was to develop workplans and hence to decide what should be done, how to do it and when to do it, and that this was a key responsibility for the first meeting. It was suggested that clear guidance needs to be provided to the

National Committees on what were considered national and what regional level responsibilities and to provide some guidance on the manner in which the identified tasks should be carried out at the national level.

4.1.6 A query was raised concerning what was precisely intended by the term meta-data, and in response it was noted that the intention of the project was not to collect and assemble primary data sets, but rather to develop a directory of data sources indicating the nature of the data held, the limitations on its use and the manner of access.

4.1.7 An additional query was raised regarding whether or not pollution resulting from platform-based activities was to be included in a consideration of land base sources. In response it was suggested that where such sources are significant contributors to pollution at a particular hot spot they could not be ignored.

4.1.8 Following some discussion and requests for clarification from the members the terms of reference were accepted as detailed in Annex VIII of the 1st Project Steering Committee meeting report.

4.2 Membership of the Regional Working Group for Land-based Pollution

4.2.1 The meeting noted that the membership of the RWG-LbP as detailed in the Terms of Reference for the Regional Working Group for Land-based Pollution includes as full members, the Chairpersons of each of the National Committees for Land-based Pollution of the participating countries; one member of the Project Co-ordinating Unit and up to four regional experts nominated by the PCU in consultation with the National Technical Focal Points.

4.2.2 The Project Director informed the meeting that Mr. Yihang Jiang would serve as the Project Co-ordinating Unit nominated member of this RWG-LbP given his extensive experience in the fields of pollution and oceanographic modelling.

4.2.3 Participants noted that the PCU in consultation with the National Technical Focal Points shall nominate no more than four regional experts as members of the RWG-LbP. The meeting noted further that final nominations for these expert members positions would be made by the PCU prior to the next meeting of the RWG-LbP, but that in the interim Dr. Gullaya Wattayakorn had kindly agreed to participate in this meeting in her individual expert capacity, following her participation in the First Meeting of the Regional Scientific and Technical Committee.

4.2.4 The meeting noted that under Rule 6 of the Rules of Procedure for the Project Steering Committee the group had the right to co-opt additional experts as observers or advisors and that it had been agreed that the RWG-LbP might need to invite additional experts to participate in meetings to expand the range of expertise available.

4.3 Rules of procedure

4.3.1 The RWG-LbP noted that the Project Steering Committee had, at its first meeting in October 2001 adopted rules of procedure for the conduct of its meetings. The Rules of Procedure of the Project Steering Committee are contained in Annex XIII of document UNEP/GEF/SCS/PSC.1/3. The RWG-LbP noted further that the Regional Scientific & Technical Committee had agreed to adopt, *mutatis mutandis*¹ the Rules of Procedure for the PSC, as rules for the conduct of its business.

4.3.2 The issue was raised during discussion that rule 16 was not appropriate for the RWG-LbP since the group would hold two sessions between each meeting of the RSTC. It was proposed and agreed that the Chairperson, Vice-chairperson and Rapporteur of the RWG-LbP would serve for one calendar year in order to ensure proper representation of the RWG-LbP during the next meeting of the RSTC. The RWG-LbP agreed to adopt, (subject to the change to rule 16) *mutatis mutandis*, the Rules of Procedure for the PSC contained in sections IV, V, VI and VII as rules for the conduct of its sessions.

5. MANAGEMENT AND OVERALL OBJECTIVES OF THE UNEP/GEF PROJECT

5.1 Reporting relationships and responsibilities of the Regional Working Group and its role in achieving project objectives

5.1.1 The Project Director was invited to explain the relationship between the National Committees,

¹ Subject to any necessary changes including substitution of "Regional Working Group for Land-based Pollution" for the term "Project Steering Committee" throughout.

the Regional Working Groups and the Regional Scientific & Technical Committee as outlined in document UNEP/GEF/SCS/RSTC.1/INF.4.

5.1.2 The Project Director explained that the primary purpose of the RWG-LbP was to ensure that the National Committees for land-based pollution conducted their work in a comparable manner such that the outputs could be synthesized at a regional level. The RWG-LbP would therefore need to provide through the Technical Focal Points in each country, guidance regarding the data and information needs to the National Committees for Land-based Pollution. The RWG-LbP would also need to determine, the way in which this should be assembled and ultimately this group would determine the regional priorities for action, capacity needs and networking arrangements to ensure a co-ordinated approach to addressing issues of land-based pollution.

5.1.3 In addition, it was noted that the Chairperson of the RWG-LbP would serve as a member of the Regional Scientific and Technical Committee (RSTC) and would therefore be responsible for ensuring that the recommendations of the group were presented to the RSTC and that advice from the RSTC was transmitted to the RWG-LbP. The Chairperson would be assisted in this task, by the Project Director who was also a full member of the RSTC.

5.1.4 The meeting noted that the first meeting of the RSTC had taken place in Pattaya, Thailand from, 21-23rd March and that since all the RWGs had not met prior to this it had not been possible for the Chairpersons to be invited to that meeting. The meeting noted however, that Drs. Ninh, Wattayakorn, and Anond Sndivongs, together with Dr. Pernetta and Mr. Jiang from the PCU, had participated in the first meeting of the RSTC and that they would therefore be in a position to brief the RWG-LbP on the outcomes of that meeting.

5.1.5 The RWG-LbP discussed the presentation and the contents of the document and agreed that the responsibilities of the group in terms of reporting and the modalities for interaction at both the national and regional levels were clear.

5.2 Fiscal responsibilities (recording & reporting) of the National Focal Points of each Specialised Executing Agency

5.2.1 The Project Director was invited to introduce document UNEP/GEF/SCS/RSTC.1/INF.5 on financial rules and financial reporting requirements to secure anticipated cash flows in accordance with the budgets contained in the MoUs. This document is included as Annex 4 to this report.

5.2.2 The Project Director outlined the process of budget approval and fund disbursement and noted that the Project Steering Committee had overall responsibility for budget allocations and planning within the framework approved by the GEF Council in the Project Brief. He further noted that the responsibility for authorizing project expenditures and disbursements lay with the Project Co-ordinating Unit, operating under the guidance and decisions of the PSC. He noted that initially project activities had been approved by COBSEA and on the basis of these an estimated budget was prepared by UNEP, submitted and approved by the GEF Council, which determined the allocations by project component. The Project Steering Committee at its first meeting in Thailand, October 22-23rd 2001 had approved the overall framework budget for the five years of the project and the detailed budget including allocations to the Specialised Executing Agencies (SEAs) for the first two years.

5.2.3 Disbursement of funds by UNEP is facilitated by ESCAP under authorisation from the PCU and takes place in advance of the SEAs incurring expenditures in line with the budgets attached to the MoUs. These budgets clearly indicate the purpose for which the funds are provided by UNEP on behalf of the GEF to the Specialised Executing Agencies. The SEAs are authorised to spend the cash advances in accordance with the detailed budget, and the meeting noted that UNEP will not reimburse expenditures for items not detailed in the approved budget. It was noted further that during project execution there might be unplanned costs, over-expenditures and/or under-expenditures that would require revision of the budget. When unplanned expenditures, under-expenditures or over-expenditures are foreseen, the Focal Point in the SEA should contact the PCU to seek a budget revision.

5.2.4 In respect of reporting requirements every six-months the SEA is required to provide three documents to the PCU as follows: six monthly expenditure statement; cash advance request; and six monthly progress report. The six monthly expenditure statements should report the actual expenditures to 30th June and 31st December in the form provided. Supporting documentation for expenditures were outlined and it was noted that for items of equipment an original receipt is required; for consultancy contracts, a copy of the signed contract and copy of the original product; for a meeting, a copy of the

report of the meeting, plus any substantive outputs; for Travel by air, the original receipt from the Travel Agent. Each SEA should retain original documentation for each expenditure until the end of the project. The Six Monthly Progress Report in the form provided should contain details of the substantive activities and outputs of the SEA and National Committees. On the basis of this report and the substantive outputs UNEP judges whether the terms of the MoU have been met in a satisfactory manner.

6. OVERALL GOALS AND OBJECTIVES OF THE LAND-BASED POLLUTION COMPONENT

6.1 General description of activities contained in the Project Brief

6.1.1 The Senior Expert, Mr. Jiang presented an outline of the pollution related activities listed in the Project Brief and summarised in the discussion document UNEP/GEF/SCS/RWG-LbP.1/4, in the context of the overall goals and medium term objectives of the project, specifically the need to develop further the draft Strategic Action Programme encompassing specific targeted and costed actions for the longer-term, to address the priority issues and concerns.

6.1.2 He noted that at various points in the Project Brief specific actions or activities were mentioned which included *inter alia*²: an initial review of national standards and controls; harmonisation of such standards at a regional level; a review and assessment of existing knowledge of regional water quality; and the need to determine information gaps early in the process. Of a more substantive nature he noted the need to evaluate the “carrying capacity” of sub-regions and sensitive ecosystems with respect to pollution load; and to evaluate transboundary movements of contaminants; to produce guidelines/action programmes for implementation of the GPA at the national and regional level; to review national capacity to test, monitor, control and enforce water quality and effluent standards; prepare guidelines for the development of national management plans, including capacity building; legislation, and other appropriate components to achieve the agreed water quality objectives.

6.1.3 He noted further that a key initial set of activities involved consideration of pollution hot-spots in the South China Sea and Gulf of Thailand including their initial identification and quantification, determination of regional priorities for action, and an evaluation of the costs and benefits of alternative interventions.

6.1.4 The meeting noted the contents of document UNEP/GEF/SCS/RSTC.1/4, regarding the expectations of the GEF with respect to project execution, and reviewed the constraints and limitations imposed by the terms of the GEF grant in supporting activities in the different project components. Participants noted that in order to achieve the objectives described within the Land-based Pollution component of the project it will be necessary to review at the national and regional level, water quality standards and information regarding contamination, its transboundary movements and impacts on sensitive ecosystems.

² Amongst others.

6.2 Anticipated activities in the framework of the “Regional Programme of Action for the Protection of the Marine Environment of the East Asian Seas from the Effects of Land-based Pollution”

6.2.1 The Senior Expert, Mr. Jiang introduced document UNEP/GEF/SCS/RWG-LbP.1/5 and provided information on planned activities to be undertaken by UNEP in the framework of the “*Regional Programme of Action for the Protection of the Marine Environment of the East Asian Seas from the Effects of Land-based Pollution*”, which included initial identification of the regional problems of pollution from land-based activities, followed by establishment of regional priorities, the development and implementation of management approaches and processes, and development of pilot projects.

6.2.2 He noted that to date a workshop had been held and a regional project on hot spots developed with financial support from the United States of America. The workshop had discussed and agreed to prepare: Regional Guidelines for Treatment and Management of Sewage; Regional Guidelines for Innovative solutions for Sewage Control and Treatment; and Regional Guidelines for Building Partnerships in Sewage Control and Treatment.

6.2.3 The Regional Programme of Action (RPA) was designed as a source-specific approach, which aims to control contaminants/pollutants from different sources in order to protect the marine environment from pollution sources. A hot spot is defined in the context of the RPA as being:

“A limited and definable area in which there are major anthropogenic sources and/or human activities, or aggregations of such sources and/or activities, that adversely affect or threaten to adversely affect, human health, ecosystems, biodiversity, sustainability or have adverse economic effects such as the viability and marketability of living resources that would appear to warrant priority management attention”

6.2.4 The longer-term intent of the programme is to upgrade national capacity for managing pollution at the identified hot spots, to enhance availability of data and information for use in management of hot spots (A GIS information system will be developed for the region); and to enhance knowledge and experience of managing land-based pollution in the region.

6.2.5 Questions were raised regarding the relationship between the activities of the GPA Regional Programme of Action and activities under the South China Sea Project. In response it was noted that both activities were being co-ordinated by UNEP and in particular through the PCU and EAS/RCU, which were co-located in Bangkok, and are responsible for managing both activities. In addition the Regional Programme focussed on the “sources” of land-based pollution whilst the South China Sea project focuses on the “impacts” of the pollution.

6.3 Other relevant activities in the region, e.g. the ASEAN Regional Working Group on Coastal and Marine Environment

6.3.1 Dr. Chongprasith provided an over-view of the activities of the ASEAN Working Group on Coastal and Marine Environment, related to the pollution activities of the South China Sea project, which included the development of regional water quality criteria by ASEAN based on relevant toxicity testing undertaken within the region. At the ASEAN/UNEP Workshop on Coastal and Marine Environment in Southeast Asia: Status and Opportunities for Regional Cooperation, financially supported by UNEP, held in Thailand during 11-13th March 2002, 17 parameters were adopted to propose as ASEAN criteria for consideration at the Fourth Meeting of the ASEAN Working Group on Coastal and Marine Environment. These criteria values were developed by ASEAN experts based on relevant toxicity testing undertaken in the ASEAN region. The 17 parameters are ammonia, cadmium, hexavalent chromium, copper, temperature, cyanide, dissolved oxygen, lead, mercury, nitrate, nitrite, oil and grease, total phenol, phosphate, tributyltin and total suspended solid for aquatic life protection; and bacteria (faecal coliform and enterococci) for human health protection. A summary is attached as Annex 5 to this report.

6.3.2 It was noted by the RWG-LbP that the Land Ocean Interactions in the Coastal Zone (LOICZ) Core Project of the IGBP had undertaken a number of relevant activities within the region, in particular the nutrient and carbon budgeting project which involved an evaluation of coastal system changes consequent upon changes in nutrient flux. The second project co-sponsored by LOICZ was the Southeast Asian Regional Committee for START (SARCS), Netherlands Foundation for Tropical research (WOTRO), and LOICZ (SWOL) project which was focussed on economic valuation of coastal resources. The Project Director noted the need to develop coastal valuation methods applicable to the region for use by policy and decision makers and this need was supported by the Chairperson based on

his recent experiences in negotiation of insurance claims resulting from oil spill damage to natural environments in the region.

6.3.3 The activities of PEMSEA in developing models for integrated coastal zone management at a number of demonstration sites in the region were noted. The meeting noted further that PEMSEA focussed on local scale interventions whilst the primary focus of the present project was at a regional scale. It was also noted that during a recent meeting of PEMSEA the management of PEMSEA and the present project had made it clear to all participants that there was no overlap in the envisaged actions under each project but that on the contrary clear complementarity and hence possibilities for each project to build on the activities and experiences of the other existed. The meeting noted that two of the National Focal Points for Land Based Pollution in the South China Sea Project were also directly involved in PEMSEA and that provided a sound basis for ensuring transfer of information between the two separate activities.

6.3.4 The meeting also took note of the fact that GIWA region 55 (the South China Sea) outputs might be useful to the present project although it was noted that the policy level analysis envisaged in the later phases of GIWA might not be directly relevant to the regional and national objectives of the South China Sea Project.

6.3.5 The meeting noted that the South China Sea Informal Working Group, had provided initial funds to the SEA-START Regional Centre in Chulalongkorn University to commence digitisation of data relating to the South China Sea and that subsequently additional data sets had been added such that the system now formed the basis for a growing set of data overlays including population, geology and bathymetry amongst others. It was agreed that this data set would be made available to the members of the RWG-LbP and that the national committees would examine this with a view to providing ground truthing for remotely sensed data and additional data sets to widen and increase the coverage of this important regional resource.

7. IDENTIFICATION AND QUANTIFICATION OF THE IMPACTS OF LAND-BASED POLLUTION IN THE SOUTH CHINA SEA & GULF OF THAILAND

7.1 The Chairperson invited the PCU to introduce document UNEP/GEF/SCS/RWG-LbP.1/6 containing an initial discussion of the criteria, indicators, data and information required to achieve the goals and objectives of this component. The Senior Expert noted that the main goal of this component within the overall framework of the project is to assist the participating countries in identifying appropriate actions to reduce the impacts of land-based pollution in the marine environment. In order to achieve this goal the project must assemble appropriate quantitative data including economic valuation of the impacts, and those in the areas of: human health; water quality; food safety and living marine organisms.

7.2 Mr. Jiang drew the attention of the meeting to the guidance from the Regional Scientific and Technical Committee regarding the criteria, indicators, data and information requirements contained in Annex 5 of the RSTC meeting report. In addition he noted the definition of "pollution hot-spots" proposed for use within the framework of the UNEP/GEF project, which is as follows:

"A limited and definable area in which there are prevailing environmental conditions attributable to anthropogenic activities that adversely affect, or threaten to affect, human health, threaten ecosystem functioning, reduce biodiversity and/or compromise resources and amenities of economic importance in a manner that would appear to warrant priority management attention"

7.3 Mr. Jiang then drew the attention of the meeting to two documents presented in the meeting document folders which were not available for earlier distribution these were the document prepared by ACOPS entitled: *"Methodology for the Identification and Characterization of Environmental Hot Spots: Case Study for the Russian Arctic"* and discussion document UNEP/GEF/SCS/RWG-LbP.1/8, *"Flow Chart of Actions for the Land-based Pollution Component in the UNEP GEF South China Sea Project"*. He presented the contents of this latter document in detail and requested the RWG-LbP to consider whether or not the proposed set of actions were appropriate; and to further amplify exactly what the national committees needed to do in this context. The meeting agreed that overall the contents of the flow chart indicated a reasonable way of proceeding and the framework for the proposed actions is contained in Annex 6 of this report.

7.4 There followed an extensive discussion of criteria and indicators related to the various elements

of the flowchart, during which it became apparent that the understanding of members of the RWG-LbP regarding the nature of what constituted “criteria” and “indicators” differed. It was agreed that for the purposes of the project “criteria” would be used to indicate a class of observable phenomena, e.g. impacts on the environment, in contrast indicators would be used to describe the parameters that constituted the measurement of the criteria e.g. change in ambient water quality.

7.5 Some discussion of the two boxes contained in the ACOPS document regarding identification and ranking of hot spots followed, and queries were raised regarding the nature of the quantification in terms of semi-quantitative classes such as high, medium and low. It was agreed that where possible quantitative rather than semi-quantitative information should be assembled but that where quantitative data were missing some form of semi-quantitative measure might have to be agreed. A query was raised regarding the ACOPS category “extremely hazardous” and it was noted that extensive radioactive pollution was a problem in the Russian Arctic, which was unlikely to be encountered in the present work.

7.6 The ASEAN marine water quality criteria³ for two use types, human health and aquatic life including 17 key parameters were discussed and it was agreed that these parameters could be adopted for use as indicators of water quality within the framework of the hot spot analysis. It was noted that the People’s Republic of China was not a party to the work involved in agreeing these criteria but that it had its own set of water quality criteria by use, which would be provided to the PCU by the representative of China within one week of the end of the meeting. Mr. Han also agreed to review the two sets and indicate if they were likely to encounter any problems in following the ASEAN set for the purposes of this project.

7.7 In discussing the list of criteria and indicators produced during the RSTC, meeting participants agreed on the need to re-arrange the information in a form that reflected the agreement regarding what constituted criteria and what indicators. An initial tabulation was produced by the Secretariat and following discussion in plenary. It was agreed that this tabulation would be worked on by a small group and re-presented to the meeting for their consideration. A small group consisting of Drs. Ninh, Wattayakorn and Snidvongs, worked with the Secretariat to produce an initial tabulation. This tabulation was discussed in considerable detail, amended and revised as contained in Annex 7 of this report.

7.8 The Secretariat agreed that following receipt of the criteria used by the People’s Republic of China, the PCU would review these together with the ASEAN criteria and produce for review by the National Focal Points within a three week time frame, a list of “obligate” and “optional” parameters. Following receipt of comments from the NFPs a final list of obligate parameters would then be issued by the PCU for use by the National Committees in their descriptions of individual “hot spots”.

7.9 There followed a discussion of the nature of the data and information that should be assembled by the National Committees and it was agreed that the focus of the initial work should be on hot spots rather than the entire coastline. It was agreed however that the generalised information required at a regional scale was presented in the National Reports and TDA and that the national committees should review this material in order to identify gaps, weaknesses or data sets that were more recent than those included in the National Reports. Some indications from participants suggested that such a review would take between 2 and 4 weeks. Dr. Snidvongs kindly agreed to review the National Reports overnight and highlight for the meeting any areas of weakness.

8. ASSESSING SOURCES AND PATHWAYS, (I.E. ATMOSPHERIC, GROUNDWATER AND RIVER DISCHARGE), AND DISTRIBUTION OF CONTAMINATION AND POLLUTION IN THE SOUTH CHINA SEA MARINE BASIN

8.1 The Senior Expert introduced this agenda item. He indicated that in order to understand the nature of appropriate interventions to address land-based pollution issues in the South China Sea, there is a need for sound scientific data and information regarding the sources, pathways and distribution of contaminants impacting the marine environment. The nature of the contaminants needs to be identified, as does their mode of production, transport, deposition and overall loading within the South China Sea marine basin.

8.2 It was clarified that in order to complete the causal chain analysis in the later stages of the hot spot analysis, information is required on the sources, pathways and distribution of contaminants

³ *Developed under the ASEAN-Canada co-operative programme on marine science phase II and subsequently adopted during the ASEAN-UNEP Workshop on the Coastal and Marine Environments of Southeast Asia: Status and Opportunities for Regional Co-operation.*

covering the entire South China Sea region. It was noted that some information are already available in the national reports prepared during the preparatory phase of the project.

8.3 The discussion of the meeting first focused on the pathways of contaminant entry to the marine and coastal environments, which include river inputs, atmospheric deposition and groundwater discharge. The meeting recognised that an understanding of atmospheric deposition and groundwater discharge of contaminants will help the general understanding of land-based pollution in the South China Sea region. The meeting recognised that empirical data regarding groundwater and atmospheric inputs of contaminants were limited in geographic scope and this would cause some difficulties in assessing the comparative importance of these transport routes for some "hot spots".

8.4 The RWG-LbP agreed that in the initial stages the assessment of impacts of land-based pollution in the marine environment should focus on the river inputs. Those participating countries which have data and information on atmospheric deposition and groundwater discharge should include these data in the analysis of hot spots and provide information regarding the way in which these fluxes had been measured and/or estimated.

8.5 Extensive discussion followed which focused on some specific sources of contaminants to be included in the assessment of data and information in the project. Following careful consideration of the scale of impacts resulting from different sources of contaminants, the RWG-LbP agreed that:

- (i) Aquaculture should be included as a source of contaminants including fish farming in off-shore areas;
- (ii) Port and Harbour work should be included as a source of contaminants, but excluding ships within the harbour areas;
- (iii) Platforms in offshore areas are not directly linked with land based pollution, while relevant assessment on the impacts caused by the platforms on the marine environment is to be encouraged, platforms will not be considered as a land-based source of pollution. In cases of major impacts resulting from platforms in a pollution hot spot, the contribution of the platform to total contaminant loads will need to be assessed.

8.6 In order to obtain appropriate data and information on sources, pathways and distribution of land-based contaminants, the meeting agreed that the National Committees on Land-based Pollution should review the relevant data and information provided in the national reports, and provide additional information whenever deemed necessary.

9. DATA AND INFORMATION NEEDS FOR THE LAND-BASED POLLUTION COMPONENT

9.1 Review of the Land-based Pollution sections of the National Reports and the Transboundary Diagnostic Analysis, produced during the preparatory phase of the project

9.1.1 Dr. Snidvongs was invited to present the results of his analysis of the data contained in the national reports. This analysis included a review of the geographic units, the units of measurement and the years of coverage presented by the individual countries in the National Reports. He noted that compiling these data into a regional synthesis would be difficult since for example the size of the geographic units used ranged from 100 to 100,000 Km². Much of the data were presented as loading and it was possible that an initial synthesis of loading could be produced. He noted further that the countries might need to be asked for data relating to sources, which could subsequently be used in some form of Rapid Assessment of Pollution Sources (RAPS) to produce additional estimates of loading. He noted that some of the indicators discussed under agenda item could be used in a scaling up exercise to present a regional perspective. Finally he noted the general absence of "impact" data from all countries. The analysis of national data is attached as Annex 8 to this report.

9.1.2 The meeting extended its appreciation to Dr. Snidvongs for undertaking this rapid synthesis overnight and the Chairperson invited the meeting to comment or seek clarification. Mr. Sokharavuth noted that although only three geographic units had been used in the National Report Kep city had subsequently been separated as a new administrative unit.

9.1.3 Mr. Han noted the difficulty of collecting information from Hong Kong and Macao which was recognised as an overall problem for the project since both were located in the estuary of the Pearl River which constituted a major "pollution hot spot". The meeting noted that it would be important for the Inter-Ministry Committee in China discuss how to establish mechanisms to secure the required information. Mr. Han further noted that the existing report lacked data regarding water quality for freshwater, for near

shore waters, for off-shore sources, for groundwater and for atmospheric inputs and indicated that providing some of these data would not be a problem. For example there are 50 near shore monitoring stations for which data were collected 8 times a year, he noted further the existence of two coastal ocean systems, one operated inshore by SEPA and one further off-shore operated by SOA. He noted that he would pursue the possibility of including data from both systems.

9.1.4 Mr. Mohammad Jaafar noted the absence of impact related data in the present report and the limited discussion of pollution hot spots and assured the meeting that it would be possible to extend the existing data and information set.

9.1.5 Mr. Diaz noted that load related data were very limited in his country, he noted further that some of the data were rather out of date and that more recent and more extensive data were available from a number of sites in Western Luzon.

9.1.6 Dr. Chongprasith noted that some additional data were available in addition to those in the National report and noted that it would be possible to estimate loadings for a number of potential hot spots including loadings resulting from sources such as aquaculture.

9.1.7 Dr. Ninh noted that the national report was comprehensive in the sense that most of the available data had been included and that there were few other sources, which could be added to the existing set. He noted that for groundwater data were not generally available but noted that there were some limited data related to atmospheric inputs. He noted further the limited data available regarding "impacts" due to the difficulties of distinguishing between impacts resulting from habitat change and/or from pollution.

9.1.8 Mr. Sudariyono noted that most of the existing data in the report were confined to Jakarta and Java and felt that through the national committee it would be possible to extend the geographic coverage of the data from sources in Sumatra and that data relating to impacts in the ocean were also potentially available.

9.1.9 Dr. Snidvongs noted that following compilation of existing public datasets it might be necessary to approach the national committees for provision of some specific data and proposed that he would provide a minimal listing to the meeting at a later point during the meeting. He noted further that a logical unit for examining loadings would be river catchment rather than administrative unit and that data would be needed on population size, number of rice paddies, number and types of industry etc. in order to estimate pollution and contaminant loadings.

9.1.10 There followed a discussion of the time frames needed to establish trends and it was agreed that 10 years in the past and 10 years in the future would be a reasonable basis for determining trends.

9.2 National and regional sources of data and information

9.2.1 Participants noted that the issue of national sources of data and information had been considered under agenda Item 8 and that it had been agreed that the National Committees would review the data and information contained in the National Reports with a view to identifying new and additional sources of data that should be considered during the initial work of these committees.

9.2.2 Participants also noted that issues regarding regional sources of data had been dealt with under a number of other agenda items and that it had been agreed that a regional meta-database of land-based pollution data sources should be established for use in the project. It was agreed that the PCU would initiate these activities in collaboration with Dr. Snidvongs and Chulalongkorn University and would keep the members of the working group fully informed of progress in this regard.

10. DISCUSSION AND ADOPTION OF THE WORKPLANS FOR THE NATIONAL COMMITTEES AND REGIONAL WORKING GROUP FOR 2002-2003

10.1 The Project Director introduced the draft workplan of the National Committees and RWG-LbP for 2002 and the first quarter of 2003. A question was raised regarding the need for monthly meetings and in response the Project Director noted that the Project Steering Committee had agreed to monthly meetings of all National Committees and it was on this basis that the in-kind contribution of governments had been calculated and agreed. If meetings were held less frequently then the in-kind contributions of the country would be reduced proportionally. It was noted that if less frequent but longer meetings were held then this would not impact the in-kind contribution. The Project Director noted that bearing these factors in mind it was a matter for internal decision by the National Focal Point for Land-based Pollution with the National Focal Point and National Technical Focal Point.

10.2 Following extensive discussion of the time required to complete the various tasks listed, the workplan was agreed as contained in Annex 9 of this report.

11. ANY OTHER BUSINESS

11.1 Dr. Snidvongs presented a list of data and information requirements as requested under agenda item 7 that are required in order to prepare a regional synthesis and overview. This listing is presented as Annex 10. Discussion centred on the need for these minimal data sets and it was agreed that where these data were available, the National Committees would supply them to the PCU, for inclusion by Dr. Snidvongs in the regional data set.

12. DATE AND PLACE OF THE NEXT MEETING OF THE REGIONAL WORKING GROUP FOR LAND-BASED POLLUTION

12.1 It was noted that the dates of the next meeting had been agreed under agenda item 10 as 18-21st September. The project Director noted that the intention of the Project Steering Committee was that meetings of the regional Working Groups should not be held only in Thailand but that in later years they should be convened in proximity to the appropriate demonstration sites. However since this was the initiation of the project such sites had not been chosen hence it might be appropriate to follow the precedent of convening the next meeting of the RWG-LbP in the country of the Chairperson.

12.2 The Chairperson indicated his willingness to host the next meeting of the working group subject to the approval of the members. The members agreed to this proposal and the Chairperson agreed to work with the PCU in selecting a location within the budgetary limits.

13. ADOPTION OF THE REPORT OF THE MEETING

13.1 The Rapporteur, Dr. Chongprasith presented the draft report of the meeting, which was considered, amended, and adopted as contained in this document.

14. CLOSURE OF THE MEETING

14.1 The Project Director thanked the participants for their hard work, and constructive contributions to the business of the meeting and expressed the hope that the success of this meeting would lead to fruitful and productive collaboration over the next five years.

14.2 The Chairperson thanked the participants for the hard work and the Secretariat for their efficient meeting preparations and support to the work of the meeting.

14.3 The meeting was formally closed at 1615 hrs, 5th April 2002.

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

Mr. Pak SOKHARAVUTH, Chief Officer
 Department of Pollution Control
 Ministry of Environment
 48 Samdech Preah Sihanouk
 Tonle Bassac, Chamkarmon
 Phnom Penh, CAMBODIA

Tel: (855 23) 212 540; 855 12962103
 Fax: (855 23) 212 540
 E-mail: 012962103@mobitel.com.kh

Indonesia

Mr. SUDARIYONO
 Assistant to the Deputy Minister of Environment
 on Marine and Coastal Ecosystem Affairs
 Ministry of Environment
 IL D.I. Panjaitan, Kebon Nanas
 Jakarta 13410, INDONESIA

Tel: (62 21) 8590 5638; 0812 8080585
 Fax: (62 21) 8590 4929
 E-mail: pkepl@bapedal.go.id

Philippines

Mr. Vicente R. DIAZ
 Environmental Management Bureau (EMB)
 DENR Compound Visayas Avenue
 Dilman, Quezon City
 PHILIPPINES

Tel: (632) 426 4332; 426 4337
 Fax: (632) 426 4335
 E-mail: vicd@edsamail.com.ph;
 vr_diaz@hotmail.com

Viet Nam

Dr. Pham Van NINH, Director
 Center for Marine Environment Survey,
 Research and Consultation
 Institute of Mechanics, NCST
 264 Dai Can Street
 Hanoi, VIET NAM

Tel: (844) 832 6136; 832 6195
 Fax: (844) 832 7903
 E-mail: pvninh@im01.ac.vn

People's Republic of China

Mr. HAN Baoxin, Deputy Director
 South China Institute of Environmental Sciences,
 SEPA
 7 West Street, Yuancun
 Guangzhou, 510655
 Guangdong Province, CHINA

Tel: (86 20) 8552 5658; 86 13902408273
 Fax: (86 20) 8552 4439; 8553 8243
 E-mail: hbx@scies.com.cn; bxhan@21cn.com

Malaysia

Mr. Mohamad Bin JAAFAR
 Principal Assistant Director
 Department of Environment
 Level 3-7, Block C4, Parcel C
 Federal Government Administrative Centre
 62662 Putrajaya, MALAYSIA

Tel: (603) 8885 8200; 8885 8201
 Fax: (603) 8889 1975; 8888 9987
 E-mail: mj@jas.sains.my

Thailand

Dr. Pornsook CHONGPRASITH, Chief
 Marine Pollution Sub-division, Pollution Control
 Department
 Ministry of Science, Technology and Environment
 92 Soi Pahonyothin 7
 Sam Sen Nai, Phaya Thai
 Bangkok 10400, THAILAND

Tel: (66 2) 298 2241-2
 Fax: (66 2) 298 2240
 E-mail: pornsook.c@pcd.go.th
 pornsook_chongprasith@yahoo.com

Invited Regional Experts

Dr. Gullaya WATTAYAKORN
Marine Science Department
Chulalongkorn University
Phayathai Road
Bangkok 10330, THAILAND
Tel: (66 2) 218 5407; 218 5409
Fax: (66 2) 255 0780
E-mail: gullaya@chula.ac.th

Dr. Anond SNIDVONGS, Director,
Southeast Asia START Regional Centre
SWU Pathumwan 5 Building, 5th Floor
Henri Dunant Road
Bangkok 10330, THAILAND
Tel: (66 2) 218 9464-7
Fax: (66 2) 251 9416
E-mail: anond@start.or.th

Observer

Mr. Ekachai PRAEKULVANICH
Environmental Scientist
Marine Pollution Sub-division, Pollution Control
Department
Ministry of Science, Technology and Environment,
92 Soi Pahonyothin 7
Sam Sen Nai, Phaya Thai
Bangkok 10400, THAILAND
Tel: (66 2) 298 2241-2
Fax: (66 2) 298 2240
E-mail: marinepollution_pcd@yahoo.com

Ms. Sirimati NIMMANHEMINDA
Environmental Scientist
Marine Pollution Sub-division, Pollution Control
Department
Ministry of Science, Technology and Environment,
92 Soi Pahonyothin 7
Sam Sen Nai, Phaya Thai
Bangkok 10400, THAILAND
Tel: (66 2) 298 2246; 298 2253; 09 9254326
Fax: (66 2) 298 2240
E-mail: marinepollution_pcd@yahoo.com

Ms. Pattamaporn SANGWICHIT
Environmental Scientist
Marine Pollution Sub-division, Pollution Control
Department
Ministry of Science, Technology and Environment,
92 Soi Pahonyothin 7
Sam Sen Nai, Phaya Thai
Bangkok 10400, THAILAND
Tel: (66 2) 298 2246; 01 4967847
Fax: (66 2) 298 2240
E-mail: p_sangwichit@hotmail.com

Project Co-ordinating Unit

Dr. John PERNETTA, Project Director
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand
Tel: (66 2) 288 1886
Fax: (66 2) 281 2428
E-mail: pernetta@un.org

Mr. Yihang JIANG, Senior Expert
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand
Tel: (66 2) 288 2084
Fax: (66 2) 281 2428
E-mail: jiang.unescap@un.org

Ms. Charuvan KALYANGKURA
Administrative Assistant, EAS/RCU
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand
Tel: (66 2) 288 1894
Fax: (66 2) 281 2428
E-mail: kalyangkura@un.org

Ms. Unchalee KATTACHAN
Secretary, UNEP/GEF
United Nations Environment Programme
9th Floor, Block A, United Nations Building
Rajdamnern Avenue
Bangkok 10200, Thailand
Tel: (66 2) 288 1670
Fax: (66 2) 281 2428
E-mail: kattachan.unescap@un.org

ANNEX 2

List of Documents

Working documents

UNEP/GEF/SCS/RWG-LbP.1/1	Provisional agenda.
UNEP/GEF/SCS/RWG-LbP.1/2	Annotated provisional agenda.
UNEP/GEF/SCS/RWG-LbP.1/3	Draft report of the meeting (to be prepared during the meeting).
UNEP/GEF/SCS/RWG-LbP.1/4	Outline of Pollution Related Activities Described in the UNEP/GEF Project Brief and Project Document entitled: <i>"Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand"</i> .
UNEP/GEF/SCS/RWG-LbP.1/5	Anticipated Activities in the Framework of the <i>"Regional Programme of Action for the Protection of the Marine Environment of the East Asian Seas from the Effects of Land-based Pollution"</i> .
UNEP/GEF/SCS/RWG-LbP.1/6	Criteria, Indicators, Data and Information Requirements for Identifying and Quantifying Impacts of Land-based Pollution in the South China Sea and Gulf of Thailand.
UNEP/GEF/SCS/RWG-LbP.1/7	Workplan for calendar year 2002.
UNEP/GEF/SCS/RWG-LbP.1/8	Flow Chart of Actions for the Land-based Pollution Component in the UNEP GEF South China Sea Project.

Information documents

UNEP/GEF/SCS/RWG-LbP.1/INF.1	Provisional list of documents.
UNEP/GEF/SCS/RWG-LbP.1/INF.2	Provisional list of participants.
UNEP/GEF/SCS/RWG-LbP.1/INF.3	Draft programme.
UNEP/GEF/SCS/RWG-LbP.1/INF.4	Management Framework and Reporting Structures for the UNEP/GEF Project entitled: <i>"Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand"</i> .
UNEP/GEF/SCS/RWG-LbP.1/INF.5	Financial Rules and Financial Reporting Requirements for National Focal Points Operating in the Framework of the UNEP/GEF Project entitled: <i>"Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand"</i> .
UNEP/GEF/SCS/RWG-LbP.1/INF.6	Chapter 3 and 4 of: Regional Coordination for Integrated Protection and Management of Coastal and Marine Environments in ASEAN – A Working Document for the ASEAN/UNEP Workshop on the Coastal and Marine Environments of Southeast Asia: Status and Opportunities for Regional Cooperation, Bangkok, 11 – 13 March 2002.
UNEP/GEF/SCS/RWG-LbP.1/INF.7	Terms of Reference for the Regional Working Group on Land-based Pollution (as approved by the First project Steering Committee, Bangkok, Thailand, October 22-23 rd 2001).
UNEP/GEF/SCS/PSC.1/3	First Meeting of the Project Steering Committee for the UNEP/GEF Project <i>"Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand"</i> . Report of the First Meeting UNEP/GEF/SCS/PSC.1/3. UNEP, Bangkok Thailand, 2000.
UNEP/GEF/SCS/RSTC.1/3	First Meeting of the Regional Scientific & Technical Committee for the UNEP/GEF Project <i>"Reversing Environmental Degradation Trends in the South China Sea</i>

and Gulf of Thailand" Report of the First Meeting.
UNEP/GEF/SCS/RSTC.1/3 Pattaya, Thailand, 14-16
March 2002.

- UNEP Regional Programme of Action for the Protection of the Marine Environment of the East Asian Seas from the Effects of Land-based Activities. UNEP/GPA Co-ordination Office & EAS/RCU (2000). 24pp.
- UNEP/GEF/SCS/RSTC.1/4 Expectations of the Global Environment Facility (GEF) with Respect to Project Execution; Constraints and Opportunities.
- ACOPS Methodology for the Identification and Characterization of Environmental Hot Spots: Case Study for the Russian Arctic, London and Moscow, Sept. 2000.

~~The following documents are available to participants as both hard copies and on CD Rom~~

- Talaue-McManus, L. Transboundary Diagnostic Analysis for the South China Sea. **EAS/RCU Technical Report Series No. 14.** UNEP, Bangkok, Thailand, 2000.
- UNEP/EAS/RCU National report of Cambodia on the formulation of a Transboundary Diagnostic Analysis and preliminary Framework of a Strategic Action Programme for the South China Sea. UNEP. Bangkok, Thailand, 2001.
- UNEP/EAS/RCU National report of China on the formulation of a Transboundary Diagnostic Analysis and preliminary Framework of a Strategic Action Programme for the South China Sea. UNEP. Bangkok, Thailand, 2001.
- UNEP/EAS/RCU National report of Indonesia on the formulation of a Transboundary Diagnostic Analysis and preliminary Framework of a Strategic Action Programme for the South China Sea. UNEP. Bangkok, Thailand, 2001.
- UNEP/EAS/RCU National report of Malaysia on the formulation of a Transboundary Diagnostic Analysis and preliminary Framework of a Strategic Action Programme for the South China Sea. UNEP. Bangkok, Thailand, 2001.
- UNEP/EAS/RCU National report of the Philippines on the formulation of a Transboundary Diagnostic Analysis and preliminary Framework of a Strategic Action Programme for the South China Sea. UNEP. Bangkok, Thailand, 2001.
- UNEP/EAS/RCU National report of Thailand on the formulation of a Transboundary Diagnostic Analysis and preliminary Framework of a Strategic Action Programme for the South China Sea. UNEP. Bangkok, Thailand, 2001.
- UNEP/EAS/RCU National report of Viet Nam on the formulation of a Transboundary Diagnostic Analysis and preliminary Framework of a Strategic Action Programme for the South China Sea. UNEP. Bangkok, Thailand, 2001.

ANNEX 3

Agenda

- 1. OPENING OF THE MEETING**
 - 1.1 Welcome address**
 - 1.2 Introduction of members**
- 2. ORGANISATION OF THE MEETING**
 - 2.1 Designation of officers**
 - 2.2 Organisation of work**
- 3. ADOPTION OF THE MEETING AGENDA**
- 4. TERMS OF REFERENCE AND RULES OF PROCEDURE FOR THE REGIONAL WORKING GROUP FOR LAND-BASED POLLUTION (RWG-LbP)**
 - 4.1 Terms of reference for the Regional Working Group for Land-based Pollution**
 - 4.2 Membership of the Regional Working Group for Land-based Pollution**
 - 4.3 Rules of procedure**
- 5. MANAGEMENT AND OVERALL OBJECTIVES OF THE UNEP/GEF PROJECT**
 - 5.1 Reporting relationships and responsibilities of the Regional Working Group and its role in achieving project objectives**
 - 5.2 Fiscal responsibilities (recording & reporting) of the National Focal Points of each Specialised Executing Agency**
- 6. OVERALL GOALS AND OBJECTIVES OF THE LAND-BASED POLLUTION COMPONENT**
 - 6.1 General description of activities contained in the Project Brief**
 - 6.2 Anticipated activities in the framework of the "Regional Programme of Action for the Protection of the Marine Environment of the East Asian Seas from the Effects of Land-based Pollution"**
 - 6.3 Other relevant activities in the region, e.g. the ASEAN Working Group on Coastal and Marine Environment**
- 7. IDENTIFICATION AND QUANTIFICATION OF THE IMPACTS OF LAND-BASED POLLUTION IN THE SOUTH CHINA SEA AND GULF OF THAILAND**
- 8. ASSESSING SOURCES AND PATHWAYS, (I.E. ATMOSPHERIC, GROUNDWATER AND RIVER DISCHARGE), AND DISTRIBUTION OF CONTAMINATION AND POLLUTION IN THE SOUTH CHINA SEA MARINE BASIN**
- 9. DATA AND INFORMATION NEEDS FOR THE LAND-BASED POLLUTION COMPONENT**
 - 9.1 Review of the Land-based Pollution sections of the National Reports and the Transboundary Diagnostic Analysis, produced during the preparatory phase of the project**
 - 9.2 National and regional sources of data and information**
- 10. DISCUSSION AND ADOPTION OF THE WORKPLANS FOR THE NATIONAL COMMITTEES AND REGIONAL WORKING GROUP FOR 2002-2003**
- 11. ANY OTHER BUSINESS**
- 12. DATE AND PLACE OF THE NEXT MEETING OF THE REGIONAL WORKING GROUP FOR LAND-BASED POLLUTION**
- 13. ADOPTION OF THE REPORT OF THE MEETING**
- 14. CLOSURE OF THE MEETING**

ANNEX 4

Financial Rules and Financial Reporting Requirements for National Focal Points Operating in the Framework of the UNEP/GEF Project entitled: “Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand”

Background

During the first meeting of the Regional Scientific and Technical Committee held in Pattaya, March 22-25 2002 members requested that the Project Co-ordinating Unit provide some notes for guidance of the individuals in the Ministries and Specialised Executing Agencies regarding the management of the funds and reporting requirements. This document has been produced by the PCU in response to that request.

What follows therefore is a simple outline of the budgetary constraints and reporting requirements, rather than a full detailed listing of the United Nations financial rules and regulations.

Budget Planning and approval

The overall project budget was estimated by UNEP on the basis of planned activities approved by COBSEA and the participating Governments. These estimates were summarised in the Project Brief at the time of submission to the GEF Council for approval as total costs for each component and subcomponent of the Project. Hence variations in allocation between components of the Project can only be made with authority of the GEF Council.

Subsequently, during the appraisal phase from December 2000 to October 2001 extensive negotiations were undertaken between UNEP and the Focal Point Ministries in each participating country regarding the allocation of resources to activities within each component. The overall project budget, broken down by object of expenditure in UNEP format was approved by the first Project Steering Committee meeting, held in Bangkok, Thailand, October 22-23rd 2001. This meeting also approved the government commitments of in-kind contributions to the project.

Overall Budget Control

The body with over-riding authority with respect to the entire project budget is the Project Steering Committee, which approves on an annual basis the workplans and budgets for the project. In practical terms what this means is that, at the end of each year the Project Steering Committee decides how any unspent balance should be reallocated, and makes decisions regarding the budget allocations for demonstration sites. The Project Steering Committee must however operate within the framework budget presented in the Project Brief by component and approved by the Global Environment Facility Council at the time of submission of the Project Brief. Effectively this means that the Project Steering Committee has authority to move funds between activities in each component but not to transfer funds from one component to another.

For example: money approved by the GEF as grant support to activities in the coral reef component cannot be transferred to the mangrove component, for example.

The Project Steering Committee has approved the initial budgetary allocations to the Specialised Executing Agencies at National level for the first two years on the basis of which the first instalment of funds has been transferred to all Specialised Executing Agencies with which UNEP has signed Memoranda of Understanding.

Responsibilities of the Specialised Executing Agencies

The responsibilities of the Specialised Executing Agencies are detailed in each Memorandum of Understanding and include *inter alia* responsibility for Chairing and convening meetings of the National Committees, for producing the national inputs to the regional level activities and for advising at the national level, the National Technical Focal Point and National Technical Working Group of priorities activities which should be undertaken within the framework of the Project. In addition the Specialised Agencies are responsible for presenting the national perspective at the Regional Working Groups and providing to the Regional Working Groups and Regional Scientific and Technical Committee the data and information required to make decisions and recommendations at the regional level. The substantive needs will be more closely defined during the first sets of meetings of the Regional Working Groups.

Disbursement by UNEP to the SEAs

In order to undertake the substantive work described in the MoU's the GEF has provided grant funds for project execution. These monies will be disbursed by ESCAP on behalf of UNEP at six monthly intervals according to the terms given in the MoU. As noted above the first instalment of funds has been disbursed **as a cash advance** following joint signature by UNEP and each SEA, of the MoUs.

In terms of fiscal responsibility within the United Nations System the Project Director authorises financial expenditures including disbursement of funds to the SEAs, in accordance with the project document, and the workplans and budget approved by the Project Steering Committee. The Senior Expert certifies that adequate funds exist to support the payments authorised. These authorities are delegated from the Head of the United Nations Office at Nairobi (UNON), and UNEP headquarters, Nairobi.

Each MoU contains a budget in UNEP format, which indicates the purpose for which the funds are provided by UNEP to the Specialised Executing Agencies. Funds have been allocated in these budgets to the production of the required national level information, for the convening of meetings, for translation and for other purposes as indicated by the UNEP budget code; for example the extract below is taken from the budget table for a National Specialised Agency serving as the Focal Point for Land Based Pollution and represents the anticipated reporting costs. No expenditures on publications are foreseen during 2002 hence these funds will be transferred in 2003 in two separate allotments around January and June 2003.

Table 1. Example extract from the budget for a Specialised Executing Agency acting at National level as the Focal Point for the Land-based Pollution component of the Project (US\$ thousands)

		2002		2003		TOTAL
		1 st	2 nd	1 st	2 nd	
5200	Reporting costs - publications, maps, newsletters, printing.					
5216	Translation			2.00	2.00	4.00
5217	Publication of National Review of Water Quality data			3.00		3.00
5218	Publication of evaluation of costs and benefits of alternative courses of action and pre-feasibility studies				3.00	3.00
5299	Total	0.00	0.00	5.00	5.00	10.00

Expenditures by the SEAs

Each SEA is authorised under the terms of the MoUs to spend the cash advances in accordance with the detailed budget, which forms part of each MoU. Since the money in the budgets of the MoUs is provided to the SEAs by UNEP in advance of the SEAs incurring any expenditures, UNEP will not reimburse expenditures for items not detailed in the approved budget.

Unplanned costs

In undertaking the work agreed by the Regional Working Groups Specialised Executing Agency may

find that they need to spend money on items not currently listed in the budgets of the MoUs. Under such circumstances the Focal Point in the SEA must contact the Project Director to seek changes in the budget to accommodate these un-planned expenditures.

Over-expenditures

Where an item or an activity costs more than originally estimated then the Specialised Executing Agency would need to examine the budget and see whether cost savings can be achieved in other parts of the budget. Any such savings could then be transferred between lines to prevent an over-expenditure occurring. In cases where quotations are obtained which exceed the allocations the Focal Point should contact the PCU to arrange for a revision of the budget. Such a revision should be completed before the over-expenditure is incurred. Focal Points should note that reallocation of funds between lines, which fall into the same component (i.e. 5000 numbers) is generally accepted automatically, but reallocation of funds from 2000 to 3000 lines for example should only be done with the agreement in writing of the Project Director.

Under-expenditures

At the end of a six-month period the Specialised Executing Agency might find that the anticipated costs of a particular activity have been less than originally planned. For example in the Table presented above the SEA might find that only 1,800 US\$ had been spent on translation by June 30th 2003, hence 200 US\$ would remain unspent in budget line #5216. This money can be carried forward on the same budget line if for example it was expected that the costs of translating of the second publication would be more than the planned 2,000 US\$. Alternatively the unspent funds can be reallocated internally, for example to produce more copies of the publication, subject to the approval in writing of the Project Director. In this case the funds would be removed from budget line #5216 and reassigned to budget line #5217 or #5218 as appropriate.

Revising the budget

In the event that unplanned expenditures, under-expenditures or over-expenditures are foreseen the Focal Point in the Specialised Executing Agency is advised to contact the Project Co-ordinating Unit promptly to seek a budget revision, since as noted above UNEP cannot reimburse expenditures which are not part of the approved budget contained in the MoU.

Reporting requirements

At the end of each six-month period the SEA is required under the terms of the MoU to provide three documents to the Project Co-ordinating Unit as follows:

- Six Monthly expenditure statement
- Cash advance request.
- Six monthly progress report

Without these three documents the Project Co-ordinating Unit cannot authorise the cash advance for the next six months.

The six monthly expenditure statement should report the actual expenditures which have occurred up to the 30th June and 30th December in the form provided in an Annex to the MoU and reproduced here as Table 2. At this time any under expenditures will become apparent and a revision of the budget may be undertaken as necessary.

At the same time that the SEA reports the actual expenditures for the previous six months it completes **a cash advance request** in the form annexed to the MoUs and reproduced here as Table 3. This constitutes a request from the SEA to UNEP to advance monies against the expenditures anticipated in the next six months.

Supporting documentation for expenditures

If an item of equipment has been purchased, then the **original receipt for payment must** be dispatched with the six monthly expenditure statement, since until the time of completion of the project the equipment remains the property of the United Nations (Transfer to the partner institution is normally automatic on completion of the project)

If a consultancy contract has been issued for a specified piece of work then a **copy of the signed contract** should also be supplied with the expenditure statement, together with a **copy of the original product** produced by the consultant.

If expenditures are incurred in organising a meeting then a copy of the report of the meeting and any substantive outputs must be supplied to UNEP.

If travel by air has been paid for then an original receipt must be supplied with the expenditure statement.

Whilst UNEP does not require that original receipts for all expenditures be submitted at the time the expenditure report is dispatched **they must be retained by the Specialised Executing Agency** until such time as the external audit report of the organisation has been submitted to, and receipt acknowledged by, the PCU. Ideally receipts should be retained on file until completion of the project and financial closure of the MoU. In the event of an audit the Specialised Executing Agency **may be** required to produce the original receipts by the United Nations auditors.

It is strongly recommended therefore that each SEA retain original documentation demonstrating the nature of each expenditure until such time as the terms of the MoU have been fulfilled.

Substantive Reporting

One further report is required from each SEA on a six monthly basis. This is the Six Monthly Progress Report in the form as annexed to the MoUs and attached here as Table 3. In this report the substantive activities and outputs of the SEA and National Committees are detailed and it is on the basis of this report together with the substantive outputs (copies of which should be sent to the PCU) that UNEP judges whether or not the terms of the Memorandum have been met in a satisfactory manner.

Without the six monthly expenditure report, the six monthly progress report and cash advance request the PCU cannot authorise any subsequent cash advances. It is important therefore that the Focal Points adhere as closely as possible to the reporting requirements in order to ensure a steady flow of funds and smooth operation of the project.

Table 2
FORMAT OF SIX MONTHLY PROJECT EXPENDITURE ACCOUNTS FOR SUPPORTING ORGANIZATIONS
Project statement of allocation (budget), expenditure and balance (Expressed in US\$) covering the period
from.....to.....

Project No.:.....

Supporting organization.....

Project title:

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

Project commencing:..... (date)

Project ending:..... (date)

Object of expenditure in accordance with UNEP budget codes	Project budget allocation for the half year ending	Expenditure incurred for the half year ending	Unspent balance of budget for the half year ending
	Amount (1)	Amount (2)	Amount (1-2)
<p>1100 Project personnel 1101 1200 Consultants 1201 Consultants</p> <p>..... etc. etc. etc.</p> <p><i>(USE OBJECTS OF EXPENDITURE IN ACCORDANCE WITH THE SIGNED MEMORANDUM OF UNDERSTANDING)</i></p>			
99 GRAND TOTAL			

Signed _____

Designation: _____

Duly authorised official

NB: The expenditures should be reported in line with the specific object of expenditures as per project budget.

Table 3
CASH ADVANCE REQUEST

Statement of cash advance as at _____

And cash requirements for the six month period ending _____

Name of co-operating agency/
Supporting organization _____

Project No. _____

Project title: Reversing Environmental Degradation Trends in the South China Sea and Gulf of
Thailand

I Cash Statement:

1.	Opening Cash Balance as at _____	US\$ _____
2.	Add: cash advances received	
	Date: _____	US\$ _____
	Date: _____	US\$ _____
	Date: _____	US\$ _____
	Date: _____	US\$ _____
3.	Total cash advanced to date	US\$ _____
4.	Less: total cumulative expenditures incurred	US\$ _____
5.	Closing cash balance as at _____	US\$ _____

II Cash requirements forecast

6. Estimated disbursements for period ending
7. Less: closing cash balance (item 5, above)
8. Total cash requirements for the period ending

Prepared by _____ Request approved by: _____

Name: _____

Duly authorized official of
co-operating agency/supporting
organization

Table 4

**UNITED NATIONS ENVIRONMENT PROGRAMME
SIX MONTHLY PROGRESS REPORT**

SECTION 1 - BACKGROUND INFORMATION

- 1.1 Project Title: ~~Reversing Environmental degradation in the South China Sea and Gulf of Thailand.~~
- 1.2 MOU Number: _____
- 1.3 Responsible Office: ~~South China Sea Project Co-ordination Unit, Bangkok~~
- 1.4 Specialised Executing Agency (Supporting Organization):

- 1.5 Reporting Period: (the six months covered by this report) _____
- 1.6 Focal Point Name: _____

SECTION 2 - PROJECT STATUS

2.1 Status of the Implementation of the Activities and Outputs Listed Under the Workplan in the Memorandum of Understanding (check appropriate box)

- Project activities and outputs listed in the Project workplan for the reporting period have been material completed and the responsible Office is satisfied that the project will be fully completed on time (give reasons for minor variations as Section 3 below).
- Project activities and outputs listed in the Project Workplan for the reporting period have been altered (give reasons for alterations: lack of finance; project reformulated; project revisions; other at Section 3 below).
- Project activities and outputs listed in the Project Workplan for the reporting period have not been fully completed and delays in project delivery are expected (give reasons for variations in Section 3.1 and new completion date in Section 3.2 below).
- Insufficient detail provided in the Project Workplan.

2.2 List Actual Activities/Outputs Achieved in the Reporting period: (check appropriate box)

(a) MEETINGS (Duplicate this box for each meeting individually)

- Inter-Ministry mtg Expert Group Mtg. Training Seminar/Workshop Others

Title: _____

Venue and dates _____

Convened by _____ Organized by _____

Report issued as doc. No/Symbol _____ Languages _____ Dated _____

For Training Seminar/Workshop, please indicate: No. of participants _____ and attach **annex** giving names and nationalities of participants.

(b) PRINTED MATERIALS (Duplicate this box for each printed item)
 Report to IG Mtg. Technical Publication Technical Report Others

Title: _____

Author(s)/Editor(s) _____

Publisher _____
Symbol (UN/UNEP/ISBN/ISSN) _____

Date of publication _____

(When technical reports/publications have been distributed, **attach distribution list**)

(c) **TECHNICAL INFORMATION** **PUBLIC INFORMATION** (posters, leaflets, broadcasts etc.)

Description _____

Dates _____

(d) **SERVICES**

Description _____

Dates _____

(e) **OTHER OUTPUTS**

SECTION 3 - PROJECT DELIVERY

3.1 Summary of the Problems Encountered in Project Delivery (if any)

3.2 Actions Taken or Required to Solve the Problems (identified in Section 3.1 above)

Signed: _____
Name: _____
Designation: _____

ANNEX 5

ASEAN Working Group on Coastal and Marine Environment: Scope of Work and Activities

ASEAN countries have initiated cooperative action to maintain, develop and manage regional marine resources since the 1970s. The Meeting of ASEAN Environmental Experts under the ASEAN Committee on Science and Technology was held for the first time in 1978. Then, in 1989, such meeting was officially entitled as the Meeting of ASEAN Senior Officials on the Environment (ASOEN) and six working groups were appointed to work on different areas of marine environment. The ASEAN Working Group on Coastal and Marine Environment (AWGCME) is one of those six. The purpose of the Working Group is to enhance the co-operation among ASEAN countries in addressing coastal and marine environment issues.

In the Ninth ASOEN meeting held in Singapore during 23-25 September 1998, the Meeting agreed on restructure the ASEAN Working Groups under ASOEN to 1 Task Force and 3 Working Groups. The Pollution Control Department, Ministry of Science, Technology and Environment of Thailand was assigned as the Chairman of AWGCME during 1999-2001.

In November 1998, the ASEAN Minister Meeting on Environment held in Viet Nam directed ASOEN to formulate the Strategic Plan of Action of Environment (SPAЕ) based on Hanoi Plan of Action (HPA) for the ASEAN 2020. The relevant environmental components in HPA that are related to AWGCME are listed below:

- Develop a framework and improve regional co-ordination for the integrated protection and management of coastal zones by the year 2001;
- Develop a Regional Action Plan for the Protection of the Marine Environment from Land and Sea-based Activities by the year 2004.

AWGCME deliberated and agreed to initiate activities as part of SPAЕ in the First Meeting of AWGCME held in Bangkok, Thailand in 1999. In pursuit of rational and sustainable management of ASEAN Seas and Marine Environment, scope of work of AWGCME was defined in this Meeting. AWGCME will endeavour to promote activities and policies, relevant to the prevention and control of marine pollution in the regional seas by:

- Establishing on ASEAN common stand on specific issues on marine pollution particularly in relation to international convention and protocols;
- Identify areas of short and long-term concern relevant to marine pollution and formulating strategies that would enhance the capability of ASEAN to mitigate them;
- Identifying, encouraging and promoting projects pertaining to the management of pollution in ASEAN seas and marine environment;
- Harmonising pollution control legislation and standards with respect to marine pollution.

To achieve this, the Working Group has the following Terms of References:

1. Formulate detailed regional action plans for the sustainable development and management of coastal and marine resources including eco-development in coastal and marine environment.
2. Development a framework and improve co-ordination, co-operation and information exchange with ASEAN regional bodies and international organisations for the integrated protection, conservation and management of coastal zones and marine environment.
3. Development a regional action plan for the protection of the coastal and marine environment from land and sea-based activities.
4. Formulate activities to promote public awareness and encourage public participation towards protecting and conserving the coastal and marine environment and resources.
5. Develop ASEAN common approaches to deal with the emerging issues relating to the protection of coastal and marine environment.

The Second Meeting of AWGCME was held in Hanoi, Viet Nam and the Third Meeting was previously held in Banda Seri Begawan, Brunei Darussalam in July, 2001. The activities under SPAЕ undertaking by AWGCME are:

- Identify and establish focal points of the seven subject Areas
 - Coral reef, seagrass, mangrove;
 - Tanker sludge and ballast water;
 - Solid, liquid and hazardous waste management;
 - Clean technology;
 - Coastal erosion;
 - Eco-tourism; and marine protected areas.
- Identify and support ASEAN's participation in workshop/ seminars/ meeting
- Exchange information using standard format on coral monitoring
- Harmonize criteria for identifying coastal and marine pollution "Hot spots"
- Develop internet-based information sharing system by member countries
- Develop criteria aimed at designating areas to protect critical marine habitats and resources in member countries
- Adopt marine water quality standards for ASEAN
- Develop Guidelines for management and conservation plans for marine resources, including community-based coastal surveillance
- Develop a framework for national action plan to protect the marine environment from the discharge of sewage, industrial waste, hydrocarbons and tanker desludging activities
- Develop a regional mechanism to enhance surveillance and follow-up action against illegal discharge including tanker desludging activities at sea

To accelerate the establishment of regional criteria for marine protected areas and marine water quality and to synergise, Thailand proposed the Concept Paper on Regional Co-ordination for Integrated Protection and Management of Coastal and Marine Environment, in the Third Meeting. The Meeting agreed on the submission of the full proposal to funding agencies and to have Thailand as a project co-ordinator. The first phase of the initiative composed of preparation of working document and organisation of the first workshop was funded by UNEP. The ASEAN/UNEP Workshop on Coastal and Marine Environment in Southeast Asia: Status and Opportunities for Regional Cooperation was successfully and fruitfully organised in Bangkok, Thailand in March 2002.

At the Workshop, the ASEAN activities and action plans related to coastal and marine environment were addressed as a base to search for modalities for achieving synergies among existing and future action plan and that to achieve adoption and implementation of regional criteria and guidelines for marine protected areas and marine water quality. The outcomes of the Workshop featured below shall be submitted to AWGCME at the next meeting for endorsement before recommending them to ASOEN.

Development of criteria for the ASEAN marine protected areas (MPAs)

The experts attending the Workshop agreed to develop 2 different sets of criteria: Regional Criteria for National MPAs and Criteria for ASEAN Marine Heritage Areas.

- **Regional Criteria for National MPAs**

According to the review of existing international criteria for MPA, the IUCN Criteria for protected areas were considered to be the most compatible and applicable to those existing national criteria of ASEAN countries. The IUCN criteria were classified into social, economic, ecological, pragmatic and regional. These were further classified into sub-criteria, which were the bases for the discussion. In developing regional criteria for national MPAs, the IUCN Criteria were adjusted to suit the existing criteria of member countries obtained by deleting and integrating IUCN sub-criteria. The draft criteria are in ANNEX 1a. The Meeting also identified action to do if the draft is adopted (ANNEX 1b).

- **Criteria for ASEAN Marine Heritage Areas**

The discussion was based on the criteria proposed by the ASEAN Working Group on Nature Conservation and Biodiversity for ASEAN Heritage Park. The working group evaluated such proposed criteria and considered that they are applicable for proposing as the criteria for ASEAN Marine Heritage Areas. The group however recommended the addition of a criterion on transboundary since it is one of the concerns of ASEAN countries. See ANNEX 2a for draft Criteria for ASEAN Marine Protected Areas.

The Meeting also identified action to do if the draft is adopted (ANNEX 2b).

ASEAN Marine Water Quality Criteria

The Workshop agreed to accept the terminology and methodology adopted by C PMS-II in the derivation of marine water quality criteria for aquatic life protection, and also to use the CPMS-II proposed ASEAN marine water quality criteria or interim criteria values as the basis for the formulation of ASEAN coastal and marine water quality standards.

Following detailed deliberation, the Meeting unanimously agreed to accept the marine water quality criteria proposed for 17 out of the total of 19 parameters studied. The Meeting recommended that these 17 accepted marine water quality criteria be submitted for adoption as common ASEAN marine water quality criteria for the protection of the coastal and marine environment in ASEAN (see ANNEX 3a). Further review was suggested for another 2 parameters (see ANNEX 3b). In order to ensure the smooth implementation of ASEAN marine water quality criteria, the Meeting further unanimously agreed on the recommendations stated in ANNEX 3c. Furthermore, a list of possible linkages for implementing recommendations were generated (see ANNEX 3d).

a. Proposed ASEAN marine water quality criteria

For Aquatic Life Protection

Parameter	Criteria values	Note
Ammonia (NH ₃ -N)	70 µg/L	
Cadmium	10 µg/L	
Chromium (VI)	50 µg/L	Criteria value proposed by CPMS-II is 48 µg/L. The Meeting recommended to adopt 50 µg/L, following the existing national standards of member countries.
Copper	8µg/L	As the proposed value 2.9 µg/L is too stringent, the Meeting agreed to use round-up value of 7.7 µg/L, the product of the lowest LOEC from a chronic study 77 µg/L for reproduction for <i>Mysidopsis bahia</i> and a safety factor of 0.1.
Temperature	Increase not more than 2°C above the maximum ambient temperature	
Cyanide	7µg/L	
Dissolved oxygen	4mg/L	
Lead	8.5 µg/L	
Mercury	0.16 µg/L	
Nitrate (NO ₃ -N)	60 µg/L	A single criteria value should be derived for nitrate and nitrite combined in future.
Nitrite (NO ₂ -N)	55 µg/L	
Oil and grease	0.14 mg/L	Other related parameter, e.g. PAH, should be proposed in the future.
Total phenol	0.12 mg/L	
Phosphate (PO ₄ ³⁻ -P) (Dissolved reactive phosphorous)	15 µg/L (Coastal) 45 µg/L (Estuarine)	
Tributyltin	10 ng/L	
Total suspended solids	Permissible 10% maximum increase over seasonal average concentration	

For human health protection

Parameter	Criteria values	Note
Bacteria	100 faecal coliform/100mL 35 enterococci/100mL	Coastal water quality for recreational activities

b. List of CPMS-II proposed Water Quality Criteria requiring further review

Parameter	Criteria values	Note
Arsenic	120 µg/L	Need further review of existing concentration in the environment and criteria derivation
Zinc	50 µg/L	Need further review in view of large variation between existing national standards of member countries and proposed value. Additionally, the existing concentrations in the environment are higher than the proposed value. Do not have adequate toxicity data.

c. Proposed actions for implementation of ASEAN Marine Water Quality Criteria

- **Chemical and biological monitoring**

Priority should be given to establishing a systematic chemical and biological monitoring program in all ASEAN member countries. Due to the lack of data of some parameters in the region, the monitoring program should be encouraged to fill up the data gaps and update the existing data. Biological indices could be additional measurements to monitor the effect of some parameters on living aquatic organisms as they provide direct and clear pollution status.

- **Capacity building**

There is a great need for training on marine pollution monitoring and analytical techniques in many countries. Some parameters, such as tributyltin (TBT), exist in the environment at very low concentrations and require a high degree of skill for accurate analysis. Moreover, the necessary equipment and materials are lacking in many member countries. In order to apply common standards over the region, capacity building in terms of technique, knowledge and human resources, as well as inter-calibration is therefore necessary. Common practice of Quality assurance/quality control (QA/QC) of the laboratories and QA/QC network should be established to ensure precision of the data when comparing the data among member countries.

- **Additional water quality criteria**

Apart from reviewing the derivation of criteria values for Arsenic and Zinc, there is a need to develop criteria and standards for additional parameters of concern, such as PAH's (polycyclic aromatic hydrocarbons), phthalate esters, and pesticides.

- **Effluent criteria**

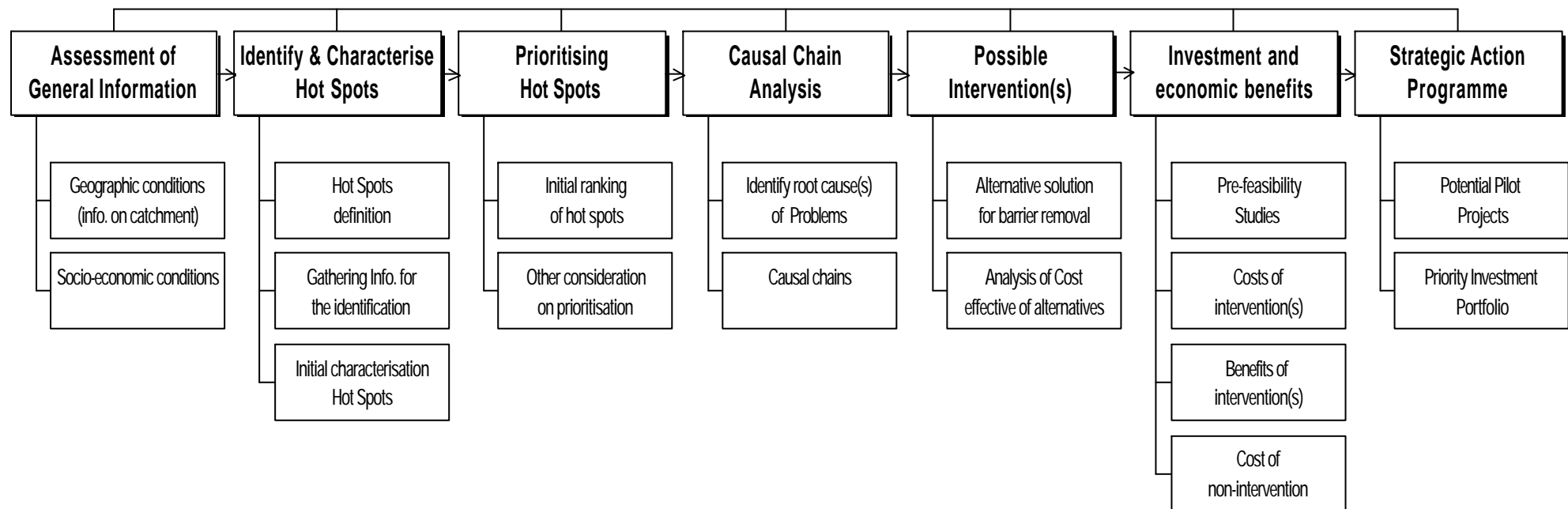
Besides water quality standards for the protection of the coastal and marine environment, there is also a need to formulate ASEAN effluent standards to ensure and enhance the coastal water quality in ASEAN.

- **Sediment quality criteria**

Whilst water quality criteria and standards are being developed, there is also a need to develop sediment quality criteria and standards in order to provide better protection of the aquatic environment. The monitoring of contaminants in sediment would provide information on both the current as well as past levels of pollution. The concentration of contaminants accumulated in sediment is usually higher than that in the water column, and this allows a higher precision of chemical analysis.

ANNEX 6

Flow Chart of Actions for the Land-Based Pollution Component of the UNEP GEF South China Sea Project



ANNEX 7

Initial guidance for the National Committees on Land-based Pollution regarding criteria, indicators data and information needs for the analysis of Hot Spots in the South China Sea and Gulf of Thailand			
Criteria	Indicators	Data & Information needed	Remarks
Impacts on the marine environment	Ambient Water Quality	Concentration of ammonia, cadmium, chromium (VI), copper, temperature, cyanide, dissolved oxygen, lead, mercury, nitrate, nitrite, oil and grease, total phenol, phosphate, tributyltin, BOD, COD, total suspended solids, and bacteria in the proposed hot spot areas at least twice a year for at least one year, as well as other parameters available.	Some of these parameters may be removed after Chinese criteria have been considered. Data submitted by National Committee for each hot spot will be compare with ASEAN/China water quality criteria.

	Sediment quality	Data on Concentration and temporal/spatial trend of land-based pollutants (heavy metals, POPs, hydrocarbon, Nutrient, organic carbon) in at least few samples of sediment of the proposed hot spot areas.	Temporal scale should be at least 4-5 years. Can also compare with existing sediment standards
	Biological samples	Concentration and trend of land-based pollutants (heavy metals, POPs, hydrocarbon) in LMOs from each proposed hot spot area.	Temporal scale should be at least 4-5 years. Can also compare with existing biological guidelines
	Changes in living marine organisms	Number of incidents and location showing any changes in physiology, behaviour, or other biological characteristics of organisms that can be attributed to land-based pollutants in each hot spot area.	e.g. imposex in molluscs due to TBT
	Affected marine communities	Area and extent of total loss or modification (including changes in species composition and abundance) of any marine or coastal habitats in each proposed hot spot areas that can be attributed to land-based pollutants.	e.g., 50% of original coral reef had been destroyed by sediments from land erosion) Fish kills due to BOD of LbP
Transboundary significance	Presence of contaminants from non-local, non-national sources	Type, concentration and other information (if any) of contaminants from non-local source.	e.g. Cs-137 radioactivity above background in water/sediments of the proposed hot spot area without any known nuclear facilities in the area or in the country.
	Potential mode of transportation of contaminants and Extent of water movement	Oceanic and atmospheric circulation and dispersion patterns, Plume, fronts, for the areas inferred from models, or observation, or remote sensing	e.g., maps or figures showing seasonal surface and sub-surface circulation

	'Quality' of migratory species	Concentration of contaminants due to land-based pollutants in migratory species, such as fish, birds and invertebrates, caught in or near the proposed hot spot area	e.g. concentration of POP, PAH, heavy metals in spiny lobsters
Regional and/or global significance	Contaminant load	Loading of land based pollutants from the catchments into each proposed hot spot area	BOD, TN, TP, SS, heavy metal, etc. that Can be estimated from real data or be derived from WHO Rapid Assessment of Pollution Source? (RAPS)
	Affected population	Number of people directly linked to the proposed hot spot area	Example of 'direct links' are living on shore adjacent to the proposed hotpot area, fishing in the area, use the area for recreation,
	Affected area	The size of the proposed hot spot	In Km ²
	Affected species	Internationally recognised endangered and/or threatened species	e.g. dugong
Human health	Food safety	Concentration of contaminants including bacteria due to land-based pollutants in seafood produced or harvested from the proposed hot spot areas	e.g. <i>E.coli</i> , POP, heavy metal, hydrocarbons
	Sickness/Disease	Number of cases per year and trend over at least 5 years of sickness, disease or death of humans living in, or near, the proposed hot spot areas that can be attributed to land-based pollutants	E.g. diarrhoea or PSP cases after red tide or bloom induced by land-based sources.
Future threats	Socio-economic development	Development plans and time span of the plan for the proposed hot spot area and its catchments basin,	Urbanisation, industry, and tourism, port development, aquaculture, golf course
	Population growth	Projected population growth in next 5 and 10 years in the proposed hot spot area and its catchments	

ANNEX 8

Analysis of Pollution Data Contained in the National Reports of Participating Countries

Load related data and Impact Related Data

Cambodia

Major geographic division: Catchment

1. Mekong 70,060 km²
2. Tonle Sap 67,600 km²
3. Coastal 18,300 km³

Major geographic division: Coastal province

1. Koh Kong 11,160 km²
2. Sianouk Ville 868 km²
3. Kampot 5,209 km³

Data	Format	Geogr.Unit	Years
Rainfall	m3/y	river catchments (35)	Longterm average
Discharge	m3/y	river catchments (35)	Longterm average
Rural Population	Persons	Coastal province (3)	1997
Urban population	Persons	Coastal province (3)	1997
Total population	Persons	Coastal province (3)	68,80,87,92,93,94,95,96,97
City population	Persons	city (9)	1997
Sewer discharge	m3/y	city (9)	1997
BOD loading	ton/day	city (9)	1997
TSS loading	ton/day	city (9)	1997
Total N loading	ton/day	city (9)	1997
Total P loading	ton/day	city (9)	1997
Solid waste generated	ton/day	city (9)	1997
Solid waste collected	ton/day	city (9)	1997
Solid waste disposed to water	ton/day	city (9)	1997
Mines and quarries	Number	city (9)	1998
Manufacturing factories	Number	city (9)	1998
Power plants	Number	city (9)	1998

Data	Format	Geogr.Unit	Years
Mines and quarries	Number	country	93,94,95,96,97,98
Manufacturing factories	Number	country	93,94,95,96,97,98
Power plants	Number	country	93,94,95,96,97,98
Import goods	ton/y	Sihanouk Ville Port	92,93,94,95,96
Export goods	ton/y	Sihanouk Ville Port	92,93,94,95,96
Number of groundwater wells drilled	new well/year	country	83,84,85,86,87,88,89,90,91,92,93,94,95,96
Number of groundwater wells drilled	new well/14 years	province (19)	1983-1996
Land use/cover (13 categories)	km2	province (22)	73-76,85-87,92-93
Oil/gas exploration	Map		
Shrimp farms	Map	Koh Kong	1992
TSS concentrations	mg/l	Mekong River (5 st)	monthly, Aug 93 – Feb 98
D.O.	mg/l	Tonle Sap River (4 st)	bimonthly, Jul 95 – Feb 98
Poor groundwater quality	Map	Country	

China

Major geographic division: Province

1. Guangdong 83,333 km²
2. Guangxi 20,361 km²
3. Hainan 33,920 km²
4. Hong Kong 1,068 km²
5. Macau 22 km²

Data	Format	Geogr.Unit	Years
Population	Person	City (33)	1996
Population	Person	Coastal province (3)	1996
Population growth	%	Coastal province (3)	1991-1995
GDP by sectors (4)	RMB/y	City (31) and province (3)	1996
Top 10 export commodities	volume and USD/y	province (3)	Average 1995-1996
Top 10 import commodities	volume and USD/y	province (3)	Average 1995-1996
Agricultural production and growth	RMB/y and %/y	province (3)	average 1992-1996
Population involved in agriculture	person	province (3)	average 1992-1996
Fishery production, value and growth	ton/y RMB/y and %/y	province (3)	average 1994-1996
Aquaculture production and growth	ton/y and %/y	province (3)	average 1994-1996
Forestry production, value and growth	ton/y RMB/y and %/y	province (3)	average 1992-1996

Data	Format	Geogr.Unit	Years
No. of tourist by origin	person/y	province (3)	average 1992-1996
No. of hotel rooms	rooms	province (3)	average 1992-1996
River discharge	km ³ /y	rivers (11)	longterm average
Total River discharge	km ³ /y	province (3)	longterm average
COD loading via rivers	ton/y	province (3)	
Inorganic N loading via rivers	ton/y	province (3)	
Inorganic P loading via rivers	ton/y	province (3)	
SS loading via rivers	ton/y	province (3)	
Oil loading via rivers	ton/y	province (3)	
COD loading direct to SCS	ton/y	province (3)	
Inorganic N loading direct to SCS	ton/y	province (3)	
Inorganic P loading direct to SCS	ton/y	province (3)	
Waste water from coastal industry	m ³ /y	province (3)	
COD loading from coastal industry	ton/y	province (3)	
Inorganic N loading from coastal industry	ton/y	province (3)	
Inorganic P loading from coastal industry	ton/y	province (3)	
SS loading from coastal industry	ton/y	province (3)	
Oil loading from coastal industry	ton/y	province (3)	
Heavy metals from coastal industry	ton/y	province (3)	
Rice field	ha	province (3)	1995
Other seasonal crops	ha	province (3)	1995
Plantation	ha	province (3)	1995
Poultry	Number	province (3)	1995
Livestock	number	province (3)	1995
Fertilizer used	ton/y	province (3)	1995
Pesticide used	ton/y	province (3)	1995
Freshwater aquaculture	ha	province (3)	1995
Marine aquaculture	ha	province (3)	1995
Land forest	ha	province (3)	
Mangrove	ha	province (3)	1990
Timber production	m ³ /y	province (3)	
Other forestry products	ton/y	province (3)	
Motor boat	Number and total tonnage	province (3)	

Data	Format	Geogr.Unit	Years
Barge	Number and total tonnage	province (3)	
Sailing boats	Number and total tonnage	province (3)	
Port activities—number of vessel and cargo transfer	Number/y and ton/y	major sea ports (17)	1996
Oil/gas terminal	location	province (3)	
Coal and oil consumptions	ton/y	province (3)	1995
Vehicles	number	province (3)	1995
MC?	number	province (3)	1995
Water treatment facilities and capacity	number and ton/y	cities (25)	1996-97, and 2003 (project)
Surface current	Map	SCS	August and February
Location of Major Loading	Map	SCS coast	

Indonesia

Major geographic division: Region

1. Riau and Batam 94,561 km²
2. Bangla-Belitung and South Sumatera 103,688 km²
3. Jakarta and West Java 46,890 km²
4. East Java 47,921 km²
5. South Kalimantan 37,660 km²
6. West Kalimantan 146,760 km²

Data	Format	Geogr.Unit	Years
Population	person	Regions 1-6	71,80,90,95,96
fertility, mortality, migration	person/y	Regions 1-6	1996
Total GDP	Rupiah	Regions 1-6	1995-96
GDP by sector (11)	Rupiah	country	1995-96
Top 10 export commodities	ton/y and USD/y	country	1997
Top 7 import commodities	ton/y and USD/y	country	1997
BOD Loading	ton/d	Region 3 only	1992
Heavy metal??	mg/l	Regions 2,4,5	1989-1991
River discharge	ton/y	Regions 3,4	1994
BOD loading by rivers	ton/y	Regions 3,4	1994
Total N loading by rivers	ton/y	Regions 3,4	1994
Total P loading by rivers	ton/y	Regions 3,4	1994

Data	Format	Geogr.Unit	Years
SS loading by rivers	ton/y	Regions 3,4	1994
Oil loading by rivers	ton/y	Regions 3,4	1994
COD loading by rivers	ton/y	Regions 3,4	1994
Per capita load of BOD, COD, N, P, detergent, phenol, coliform	g/capita/d		
Composition of solid waste	%	Jakarta, Bandung, Semarang, Pekanbaru cities	1988-89
N loading (total)	ton/y	Regions 1-6	1990
Paddy field	ha	Regions 1-6	1990, 1992-1996
Fertilizer used	ton/y and as ton-N/y	Regions 1-6	1990, 1994
Pollution load from coastal industries	Relative Industrial Pollution Factor?	Regions 1-6	1990
Industrial BOD loading via rivers	kg/d	Regions 1,4,5	1997
Industrial COD loading via rivers	kg/d	Regions 1,4,5	1997
Pollution? load from industrial and human settlement	ton/d	12 Java rivers	
Other seasonal crop	ha	Regions 1-6	
Plantation	ha	Regions 1-6	
poultry and livestock	number	Regions 1-6	
Aquaculture area	ha	Regions 1-6	
pesticide and other agrochemical used	kg/ha	country	1978-82, 1990-94
Erosion and sediment transport by rivers	mm/y and ton/km ² /y	9 major catchment in Java and Sumatera	vary (1948-1978)
Heavy metals (8) loading	kg/h	9 rivers on Jakarta Bay	1994
Incidents of oil and other spills	date, location		
BOD and COD concentrations		27 rivers	1989
Waste treatment capacity	m ³ /d	Regions 2-6	'present'
Port activities	number of calls/y and tons/y cargo load/unload	Regions 1-6	1997
Vehicles	number	Regions 1-6	1996
forest fire/urn area	ha/y	Regions 1-6	86,87,88,94,97
Wet precipitation (SO ₄ , Cl, H, Ca, Mg, NH ₄)	g	Regions 1-6	
toilet facility	Number	Regions 1-6	1992
Diarrhea	cases/y	Regions 1-6	1985-90

Data	Format	Geogr.Unit	Years
Hotel rooms	number	Regions 1-6	
International visitors	number/y	country	1980-1996
Agriculture production and earning	ton/y and	Regions 1-6	91,92,93,94,95
Case of water borne disease	case/y	Regions 1-6	90-95

Malaysia

Major geographic division: State

1. Kelantan 14,922 km²
2. Terengganu 12,995 km²
3. Pahang 35,966 km²
4. Johor 18,986 km²
5. Sabah 73,620 km²
6. Sarawak 123,985 km²

Data	Format	Geogr.Unit	Years
Total population	person	Regions 1-6	1991
BOD loading by rivers	ton/y	Regions 1-4	
Total AN loading by rivers	ton/y	Regions 1-4	
SS loading by rivers	ton/y	Regions 1-4	
Oil loading by rivers	ton/y	Regions 1-4	
Industrial sources of pollution	number	Regions 1-6	1993
Non-rice seasonal crop	ha	Regions 1-4	
Plantation	ha	Regions 1-4	
Aquaculture area	ha	Regions 1-6	
Port activities	calls/y and tons cargo transfer/y	Regions 1-6	1993
Oil spill incidents	cases/11 years	Regions 1-6	1987-97
BOD loading from major cities	ton/y	Regions 1-4	
Total AN loading from major cities	ton/y	Regions 1-4	
Number of waste treatment plants	Number	Regions 1-4	1998 and 2003 (projected)
Cases of water related diseases	cases/y	Regions 1-6	
Surface current	Map		July, January

Philippines

Major geographic division: Political Jurisdiction

1. West Luzon 29,270 km²
2. Mindoro 5,880 km²
3. Palawan 14,900 km²

Data	Format	Geogr.Unit	Years
Solid waste generated—total and coastal areas	ton/day	country	1989,1995,2000
Composition of solid waste	%	country	
Upland to lowland loading by sectors (18)—THW?	Te/y?	Metro Manila	1997

Thailand

Major geographic division: Water Resource Region

1. North 171,500 km²
2. Central 64,040 km²
3. East 36,500 km²
4. South 49,890 km²

Data	Format	Geogr.Unit	Years
GDP by sectors (3)	USD/y	country	90,91,92,93,94
BOD generated and loading by sectors (4)	ton/y	Regions 1-4	1995
Total P generated and loading by sectors (4)	ton/y	Regions 1-4	1995
Total N generated and loading by sectors (4)	ton/y	Regions 1-4	1995
BOD loading by small factories direct to the sea	ton/y	Regions 1-4	
Upland to lowland discharge of BOD	%	Chao Phrya and Tachin Rivers	
Maritime accident	case/24 years	Regions 2,3	1973-1996
Coastal land use/cover (4 classes)	ha	Regions 2,3,4	1993
Standard for potable groundwater	ppm	country	
Groundwater contamination	location	Regions 1-4	

Viet Nam

Major geographic division: River System

1. Red 72,700 km²
2. Thai Binh 15,180 km²
3. Kycung-Bac Giang 11,200 km²
4. Ma 17,600 km²
5. Ca 17,730 km²

6. Thu Bon 10,350 km²
7. Ba 13,900 km²
8. Dong Nai-Saigon 37,400 km²
9. Mekong 71,000 km²

Major geographic division: Coastal provinces

- 26 provinces (1,386 – 16,449 km²)

Major geographic division: Regions

1. Northern Mountains 5,940 km²
2. Red River Delta 6,810 km²
3. Central Coastal 51,220 km²
4. Eastern 49,820 km²
5. Southern 24,160 km²

Data	Format	Geogr.Unit	Years
Average Water discharge	m ³ /s	All river systems	
Population	person	province (26)	1996
Crude oil production	ton/y	country	1986-96
Oil concentration	mg/l	6 stations	1996 (2 periods)
Wastewater generated	m ³ /d	9 cities/towns in Northern Economic Zone	
BOD, COD, generated		3 cities/towns in Northern Economic Zone	
oil and grease generated		2 cities/towns in Northern Economic Zone	
Wastewater, TSS, BOD, COD discharge	kg/d	4 provinces in Southern Economic Zone	
Domestic wastewater	m ³ /d	6 cities in SEZ	
Fluxes of heavy metals (8)	ton/y	6 river systems and by region	
Sources (5) of oil to the sea	ton/y	country	1992, 1995, 2000
NO ₃ and PO ₄ fluxes	ton/y	6 river systems	
solid waste generated, collected	m ³ /d	15 provinces	1996
Loading at hot spots		Halong Bay, Hai Phong, Da Nang, Ganh Rai-Vung Tau	
Loading at high risk areas		Red River Delta, Mekong Delta	
BOD, COD, SS, TDS Total N and Total P in domestic waste water	ton/y	10 cities	
Groundwater yield	m ³ /s	regions	
coastal aquaculture pond and production	ha and ton/y	region	1991, 1993

Data	Format	Geogr.Unit	Years
Surface circulation	Map	SCS	January, July
Industrial and population centers	Map	Country	
Petroleum activities and navigation route	Map	Country	
Major river system	Map		

ANNEX 9 Schedule of Meetings and Workplan for 2002

Table 1 Schedule of Meetings for 2002

	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T					
January		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31			
		N.Y.														ChnN.Y.										22	23	24	25	26	27	28			
February						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
March					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
April	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
May																																			
June																																			
July	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31				
August																																			
September																																			
October																																			
November																																			
December																																			

 Official United Nations Holidays in Thailand

ANNEX 10**Data and Information Requirements for Preparation of a Regional Synthesis and Overview of Land-based Pollution in the South China Sea Marine Basin**

Geographic Unit:

Load: catchment

Impact: 10,000 km³, 100 km shoreline

Time Frame:

present

10 year ahead

10 year back

Coastal Impact Data

Criteria/Indicators	Description	Time Scale	Spatial Scale
Ambient water quality	Surface concentration of parameters in ASEAN list	1 year average for ~1990 and ~2000	Every ~100 km along coastline
Sediment quality	-%sand,silt,clay -organic content (wt.loss?)		Every ~100 km along coastline
Human Health	-cases of diarrhea per year -cases of PSP per year	Yearly, ~1990 to ~2000	From every administration unit (~10,000 km ² or ~100 km apart) along the coast

Loading Data

Criteria/Indicators	Description	Time Scale	Spatial Scale
Urban population	Number of people in urban area	~1990, 2000, 2010	Every administrative unit (~10,000 km ²) that belong to the catchment
Total population	Total number of people	~1990, 2000, 2010	Every administrative unit (~10,000 km ²) that belong to the catchment
Industrial source	Number and production of factory (by types)	~1990, 2000, 2010 (if any)	Every administrative unit (~10,000 km ²) that belong to the catchment
Agriculture source	-Paddy field area (ha) and rice production (ton/y) -Other annual crop area and production -Plantation area (fruits, rubber)	~1990, 2000, 2010 (if any)	Every administrative unit (~10,000 km ²) that belong to the catchment
Livestock source	-Number of poultry (duck, chicken) -Number of livestock (cow, buffalo, sheep...)	~1990, 2000, 2010 (if any)	Every administrative unit (~10,000 km ²) that belong to the catchment
Aquaculture	-pond area (ha) -production (ton/y)	~1990, 2000, 2010 (if any)	Every administrative unit (~10,000 km ²) that belong to the catchment
Solid waste	-waste generated (ton/y) -waste collected (ton/y)	~1990, 2000, 2010 (if any)	Every administrative unit (~10,000 km ²) that belong to the catchment
Waste water treatment facilities	-Number of facility -Capacity	~1990, 2000, 2010 (if any)	Every administrative unit (~10,000 km ²) that belong to the catchment
Groundwater	-Groundwater yield (m ³ /d) -Groundwater salinity/chloride	2000	Atleast 10 wells for each administrative unit (~10,000 km ²) along the coastline