



United Nations
Environment Programme



UNEP/GEF South China Sea
Project



Global Environment
Facility

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

REPORT

**Seventh Meeting of the Regional Working Group for
the Land-Based Pollution Component**

Sihanoukville, Cambodia, 7th – 10th August 2006



First published in Thailand in 2006 by the United Nations Environment Programme.

Copyright © 2006, United Nations Environment Programme

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder provided acknowledgement of the source is made. UNEP would appreciate receiving a copy of any publication that uses this publication as a source.

No use of this publication may be made for resale or for any other commercial purpose without prior permission in writing from the United Nations Environment Programme.

UNEP/GEF
Project Co-ordinating Unit,
United Nations Environment Programme,
UN Building, 2nd Floor Block B, Rajdamnern Avenue,
Bangkok 10200, Thailand
Tel. +66 2 288 1886
Fax. +66 2 288 1094
<http://www.unepscs.org>

DISCLAIMER:

The contents of this report do not necessarily reflect the views and policies of UNEP or the GEF. The designations employed and the presentations do not imply the expression of any opinion whatsoever on the part of UNEP, of the GEF, or of any cooperating organisation concerning the legal status of any country, territory, city or area, of its authorities, or of the delineation of its territories or boundaries.

Cover Photo: An inlet of the Shiyan Constructed Wetland (Baoan District, Shenzhen City, China) by Dr. Chunhong Peng.

For citation purposes this document may be cited as:

UNEP, 2006. Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand. Report of the Seventh Meeting of the Regional Working Group on Land-Based Pollution. UNEP/GEF/SCS/RWG-LbP.7/3.

Table of Contents

1.	OPENING OF THE MEETING	1
1.1	WELCOME ADDRESS ON BEHALF OF UNEP	1
1.2	INTRODUCTION OF PARTICIPANTS.....	1
2.	ORGANISATION OF THE MEETING	1
2.1	ELECTION OF OFFICERS	1
2.2	DOCUMENTATION AND ADMINISTRATIVE ARRANGEMENTS.....	1
3.	ADOPTION OF THE MEETING AGENDA	2
4.	STATUS OF ADMINISTRATIVE REPORTS FOR 2005 AND 2006: PROGRESS REPORTS; EXPENDITURE REPORTS; AUDIT REPORTS; AND MOU AMENDMENTS	2
5.	STATUS OF SUBMISSION OF SUBSTANTIVE OUTPUTS FROM THE SPECIALIZED EXECUTING AGENCIES AND REGIONAL WORKING GROUP MEMBERS	3
5.1	PUBLICATION OF NATIONAL REPORTS IN LOCAL LANGUAGES AND ENGLISH.....	3
5.2	FINALISATION, ADOPTION AND IMPLEMENTATION OF NATIONAL ACTION PLANS	4
5.3	THE REGIONAL OVERVIEW OF LAND-BASED POLLUTION OF THE SOUTH CHINA SEA.....	5
6.	STATUS OF PILOT ACTIVITIES	5
6.1	BATAM, INDONESIA.....	5
6.2	LING DING YANG, CHINA.....	6
7.	REVIEW OF THE REVISED NATIONAL ACTION PLANS AND FINALISATION OF INPUTS TO THE REGIONAL STRATEGIC ACTION PROGRAMME	6
7.1	REVIEW OF THE REVISED NATIONAL ACTION PLANS	6
7.2	REVISION OF THE GOALS AND TARGETS OF THE REGIONAL STRATEGIC ACTION PROGRAMME.....	7
7.3	DISCUSSION OF THE REGIONAL ACTIONS FOR INCLUSION IN THE LAND-BASED POLLUTION COMPONENT OF THE REGIONAL STRATEGIC ACTION PROGRAMME	7
7.4	ESTIMATION OF THE COSTS OF THE ACTIONS.....	8
8.	UPDATE OF THE REGIONAL GIS DATABASE AND META-DATABASE AND EFFICIENT USE OF THE PROJECT WEBSITE.....	8
9	CONSIDERATION OF THE RSTC RECOMMENDATIONS REGARDING CARRYING CAPACITY OF THE SOUTH CHINA SEA MARINE BASIN	9
9.1	APPLICATION AND EXPANSION OF MODELLING APPROACH DEVELOPED BY SEA START RC	9
9.2	POSSIBLE COLLABORATION WITH THE COBSEA/GPA-LBA PROJECT “ <i>DETERMINATION OF POLLUTION LOADING FROM LAND-BASED SOURCES BY USING MODELLING AND GIS</i> ”	9
10.	CONSIDERATION OF PROPOSED SOUTH CHINA SEA PROJECT TRAINING ACTIVITIES REGARDING THE LAND-BASED POLLUTION COMPONENT	10
11.	REVISION OF THE WORK PLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION 2006-2007	10
12.	DATE AND PLACE OF THE EIGHTH MEETING OF THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION.....	10
13.	ANY OTHER BUSINESS	11
14.	ADOPTION OF THE REPORT OF THE MEETING.....	11
15.	CLOSURE OF THE MEETING	11

List of Annexes

- | | |
|----------------|---|
| ANNEX 1 | List of Participants |
| ANNEX 2 | List of Documents |
| ANNEX 3 | Agenda |
| ANNEX 4 | Analysis of the content of the Draft National Action Plans from the Perspective of the Regional Action Programme |
| ANNEX 5 | Draft Inputs to the SAP from the Land-based Pollution Component |
| ANNEX 6 | Work Plan and Timetable for the Regional Working Group on Land-based Pollution, 2006-2007 |

Report of the Meeting

1. OPENING OF THE MEETING

1.1 Welcome Address on behalf of UNEP

1.1.1 The Project Director, Dr. John Pernetta, opened the meeting, at 08:30 on 7th August 2006, and welcomed participants on behalf of Dr. Achim Steiner, the Executive Director of UNEP, and Mr. Olivier Deleuze, the Officer-in-Charge of the UNEP Division of Global Environment Facility Co-ordination to the Seventh Meeting of the Regional Working Group on Land-based Pollution. Dr. Pernetta extended a very warm welcome to the new members of the group, and hoped that they would feel that their participation in the work of the group was worthwhile.

1.1.2 Dr. Pernetta noted that there was a very full agenda in front of the meeting, which included some substantive items requiring preparation of materials during the meeting, in particular the inputs to the Strategic Action Programme covering the detailed actions and costs of activities in the Land-based Pollution component of the SAP. He noted further that communication during the inter-sessional period had not been good and expressed the hope that during the next inter-sessional period this would improve as a consequence of better use of the facilities offered by the project website.

1.1.3 Dr. Pernetta expressed a warm welcome to His Excellency Mr. Prak Sihara, Vice-Governor of Sihanoukville and invited him to address the meeting. Mr. Sihara welcomed participants on behalf of the Government of Sihanoukville and on behalf of the Senior Minister, Minister of Environment, Dr. Mok Mareth. He noted that like many developing countries Cambodia was trying to balance economic development with sound environmental management in an effort to achieve sustainable development, and that one problem faced by Cambodia was increasing pollution of their inland and coastal waters.

1.1.4 Mr. Sihara noted that Cambodia was appreciative of the support provided by UNEP, and the GEF through the South China Sea Project, and expressed the support of the government for the project objectives. He hoped that the capacity of Cambodia for addressing problems arising from Land-based Pollution would be enhanced, as a result of their participation in the project, and expressed the hope that the meeting would be both productive and enjoyable and that it would result in a wider appreciation of the problems of Land-based Pollution in the Country.

1.2 Introduction of Participants

1.2.1 Dr. Pernetta invited the members, alternates and observers to the Seventh Meeting of the Regional Working Group on Land-based Pollution (RWG-LbP) to introduce themselves to the meeting and to provide a brief background on their involvement in the Project. The list of participants is contained in Annex 1 of this report.

2. ORGANISATION OF THE MEETING

2.1 Election of Officers

2.1.1 Dr. Pernetta reminded the members that the Rules of Procedure state that, the Regional Working Group shall elect, from amongst the members, a Chairperson, Vice-Chairperson and Rapporteur to serve for one year. The Rules state further that members shall be eligible for re-election no more than once. Dr. Pernetta noted that none of the officers elected during the sixth meeting were present, hence the issue of their re-election did not arise.

2.1.2 The Project Director noted that only three members present had participated in all the working group meetings to date and that, members might wish to elect one of these members to the office of Chairperson. Mr. Han Baoxin nominated Dr. Gullaya Wattayakorn as Chairperson, Dr. Gullaya nominated Mr. Pak Sokharavuth as Vice-Chairperson and Mr. Hashim bin Daud as Rapporteur. There being no further nominations these officers were elected by acclamation.

2.2 Documentation and Administrative Arrangements

2.2.1 The Chairperson, Dr. Gullaya invited the Secretary of the meeting to introduce the available documentation, the list of which is contained in Annex 2 of this report.

2.2.2 Dr. Pernetta introduced the documents noting that there were ten discussion documents for consideration by the meeting, including the inputs to the Land-based Pollution component of the Strategic Action Programme.

2.2.3 Dr. Pernetta briefed participants on the administrative arrangements for the conduct of the meeting, and the proposed organisation of work (UNEP/GEF/SCS/RWG-LbP.7/Inf.3). He noted that formal sessions of the meeting would be conducted in English and in plenary although sessional working groups might be formed at the discretion of members to complete substantive agenda items including preparation of the inputs to the Strategic Action Programme.

3. ADOPTION OF THE MEETING AGENDA

3.1 The Chairperson introduced the provisional agenda prepared by the Project Co-ordinating Unit (PCU) as document UNEP/GEF/SCS/RWG-LbP.7/1 and the annotated provisional agenda, document UNEP/GEF/SCS/RWG-LbP.7/2, and invited members to propose any amendments or additional items for consideration, prior to the adoption of the agenda.

3.2 Dr. Vo Si Tuan suggested, and the meeting agreed that, potential contributions to the PEMSEA Congress in December be considered under agenda Item 13, any Other Business.

4. STATUS OF ADMINISTRATIVE REPORTS FOR 2005 AND 2006: PROGRESS REPORTS; EXPENDITURE REPORTS; AUDIT REPORTS; AND MOU AMENDMENTS

4.1 The Chairperson invited the Senior Expert to introduce document UNEP/GEF/SCS/RWG-LbP7/4 *"Current Status of Budgets and Administrative Reports from the Specialised Executing Agencies in the Participating Countries"*. Dr. Tuan drew to the attention of the meeting, a number of matters requiring the attention of the working group.

4.2 Dr. Tuan noted that a number of routine reports were outstanding from China, Indonesia and the Philippines. In the case of the Philippines no reports had been received in 2005 and for China and Indonesia reports for the second half of 2005 had not been submitted to date. In addition he noted that progress and expenditure reports for the two pilot activities had not been submitted by Indonesia and China, and that audit reports were overdue from China, Indonesia, Philippines and Thailand. Dr. Tuan noted further that administrative reports for the first half of 2006 were due by 31st July and that to date few of these had been received.

4.3 In reviewing Table 5 of document UNEP/GEF/SCS/RWG-LbP7/4 Dr. Tuan noted that Malaysia currently held a cash balance of more than twelve thousand dollars, and Thailand a balance in excess of nine thousand dollars. In contrast China was in deficit since they had failed to submit the expenditure statements and no funds had been transferred since 2004.

4.4 Dr. Tuan noted that despite the absence of a number of the progress reports the total co-financing was more than double the original estimate. In this context he reminded members of the policy of the GEF Council regarding tracking and reporting of co-financing and the agreement of the RSTC and PSC that the reporting formats be modified to accommodate this requirement. He noted that despite the agreement of the PSC that the governments would progressively assume responsibility for financing the costs of national co-ordination activities over the life of the project, there was little evidence from the reports that this had happened to date.

4.5 Mr. Hashim requested clarification regarding the contents of the last four columns of Table 5 and Dr. Pernetta explained that under the major heading of "SEA Totals" the figures under the "Advance" column represented the total amounts of money advanced to the SEAs to date, Expenditure was the amount that they had reported as spent, consequently the balance in hand was the difference between these two. The column headed 2nd MoU Amend contained the total sum committed under these memoranda, hence the difference between this figure and that in the column headed "Advance" represented the sum committed but not yet advanced to the SEA. Mr. Hashim noted that the large cash balance held by Malaysia represented funds for the publication of the National Report and convening of National Consultation meetings, workshops and seminars, on the National Action Plan, which were planned for the second half of 2006.

4.6 Dr. Saravuth Rattanachongkiat noted that Thailand had submitted all required reports except for the 2005 audit report. He noted that the costs for this were large (400 US\$) in comparison with the total size of the grant and therefore he proposed that the expenditures for 2005 and 2006 be audited jointly. Dr. Pernetta noted that this would be acceptable provided that Thailand made a formal request to the PCU to audit two years at once.

4.7 Ms. Zulhasni, noted that it was the intention of Indonesia to send all overdue reports by the end of August and noted that in Indonesia the National Technical Focal Point had arranged for audit of all components jointly, which had resulted in some delays.

4.8 Mr. Pak noted that Cambodia would submit a combined audit report for 2005 and 2006 and that all other reports were up-to-date. Dr. Nguyen Thi Viet Lien noted that Viet Nam was fully up-to-date with all reporting requirements.

4.9 Mr. Han Baoxin expressed surprise regarding the fact that the PCU had not received the 2004 audit report and agreed that he would request his office to fax the cover page for this report to the hotel and immediately dispatch a copy of the report to the PCU. He noted that the audit report for 2005 was under preparation and would be completed by the end of August. He noted that he had electronic copies of the progress reports for 2005 in his computer and agreed to work with Dr. Tuan to finalise these reports by the end of the meeting. He noted the need to prepare separate reports for the National activities from the reports for the Lindingyang pilot activity.

4.10 Ms. Perseveranda-Fe J. Otico noted that in the case of the Philippines the second amendment to the MoU had been finalised and signed by the Project Director in 2005 but unfortunately, it had not been signed by the Secretary of the Department of Environment and Natural Resources. Subsequently the Secretary had been changed twice. It was agreed that during the meeting Dr. Pernetta would work with Ms. Otico to draft a new amendment that would reflect the changed circumstances including the budget and work plan.

5. STATUS OF SUBMISSION OF SUBSTANTIVE OUTPUTS FROM THE SPECIALIZED EXECUTING AGENCIES AND REGIONAL WORKING GROUP MEMBERS

5.1 Publication of National Reports in Local Languages and English

5.1.1 The Chairperson invited the Senior Expert to present the document UNEP/GEF/SCS/RWG-LbP.7/5 "*Status of Publication of National Reports and Submission of National Action Plans from the Specialized Executing Agencies*" that detailed information regarding the status of national publications received by the PCU. It was noted that it was an obligation of the SEAs under the requirements of the original MoU to publish and disseminate nationally the national reports in an appropriate local language and that UNEP would take responsibility for publishing the reports in English for regional distribution.

5.1.2 Dr. Tuan noted that copies of the published national reports had not been received from Cambodia, China, Indonesia, Malaysia and the Philippines and that these were overdue since they should have been produced prior to June 2004.

5.1.3 Dr. Pernetta reminded members of the commitments made during the 6th meeting regarding the publication of the national reports, which were as follows:

The following situation was noted by the group with respect to the publication of the national reports in local language:

- *Cambodia, not all reports had been published but all would be completed by the end of 2005 and the PCU would be provided with copies;*
- *China the national report had been produced and published and copies would be provided to the PCU upon the return of Mr. Baoxin to China;*
- *Indonesia, the national report would be published by 8 August 2005 and copies provided to the PCU;*
- *Malaysia, the national report would be published in English by the end of 2005 and copies provided to the PCU;*

- *Philippines, the national report would be published in English by the Focal Point Agency by 8 August 2005 and copies provided to PCU;*
- *Thailand, the national report was in the process of publication and copies would be supplied to the PCU by the end of August 2005;*
- *Viet Nam, the national report had been published and copies supplied to the PCU during the last meeting.*

(Paragraph 5.2.3 of UNEP/GEF/SCS/RWG-LbP.6/3)

5.1.4 Mr. Pak apologised for the fact that he had forgotten to send copies of the publications to the PCU and noted that these had in fact been published by the end of 2005 as agreed during the sixth meeting but copies had not been dispatched to the PCU.

5.1.5 Mr. Hashim noted that the Malaysian report was ready for publication but he had been awaiting clearance from the PCU of the quoted publication costs. Dr. Pernetta noted that the PCU did not normally clear quotations unless there was some question regarding their acceptability on the part of the SEA. Dr. Tuan noted that the revised budget had in fact included clearance of the costs of publication.

5.1.6 Mr. Han noted that the Chinese report had been revised according to the agreed minimum contents but had not yet been formally translated into Chinese for local publication. Dr. Tuan noted that the revision referred to, was for the publication in English since the minimum contents had been developed to ensure some consistency between the national reports when published by UNEP in English. The national reports when published in Chinese did not have to conform to this requirement. Mr. Han noted that in this case it would be possible to publish the Chinese version by the end of August.

5.1.7 Ms. Zulhasni, indicated that the Indonesian report would be published by the end of August and Dr. Pernetta noted that a similar assurance had been given during the last meeting when the Indonesian representative had indicated that the report would be published by 8th August 2005. He informed the meeting that no further funds would be transferred to Indonesia and China until such time as the reports had been published.

5.1.8 Ms. Otico noted that in the case of the Philippines the national report was currently being finalised and should be published by the end of this year.

5.1.9 Regarding publication in English for regional dissemination the PCU has prepared the draft version for publication of the national Reports from Cambodia, Indonesia, Malaysia, Thailand and Viet Nam. Revised national reports following the agreed minimum contents had not been received from either China or the Philippines and consequently these countries were delaying publication of the full set of reports.

5.2 Finalisation, Adoption and Implementation of National Action Plans

5.2.1 Members were reminded by Dr. Tuan of the previously agreed deadlines for completion of final draft National Action Plans (NAPs) for Land-based Pollution in each participating country as contained in the work plan agreed by the sixth meeting of the RWG-LbP. A revised NAP in line with the agreements of the previous meeting had not been received by the PCU from China and the Philippines still had not submitted a first draft of the NAP. Dr. Tuan noted that there were a number of weaknesses in some of the revised NAPs.

5.2.2 Mr. Hashim noted that there was a need to look again at national level needs in Malaysia that take greater account of existing plans and programmes such as the "Vision 2020" and existing environmental policies. He noted that millions of ringgit were spent annually in addressing sewage pollution issues for example, and that such expenditures had not been taken into account in the NAP which contained no costings for the planned actions.

5.2.3 Dr. Saravuth noted that the NAP for Thailand needed to be expanded and more details provided in the missing fields. Mr. Pak noted that some revisions of the Cambodian NAP had been undertaken already and in particular the numbers of goals and strategies had been rationalised to make them consonant. Dr. Lien noted that the Vietnamese NAP had already been amended to bring the dates into line with the SAP and these now included milestones at 2017.

5.2.4 Mr. Han noted that both Guanxi and Hainan Provinces had reviewed the draft NAP and that he was awaiting a response from Guangdong Province and anticipated that the revised NAP would be completed by the end of August. Dr. Pernetta noted that a date for revision of 15th August 2005 had been recorded in the last meeting report, but this had not been met.

5.2.5 The Chairperson, Dr. Gullaya noted that, members should be more serious about the delivery of outputs and more careful in making commitments during discussions.

5.2.6 Professor Law Ah Theem expressed concern about how one would monitor the impacts of the South China Sea project since there was a need to take a regional perspective rather than a purely national perspective. Dr. Pernetta expressed agreement with this opinion noting that there was a need for the group to take a broader perspective that, encompassed regional objectives, which might not necessarily be merely a reflection of shared or summed national objectives.

5.2.7 Mr. Hashim noted that in Malaysia it was planned to convene a national workshop/seminar on the NAP in November but that the issue of Land-based Pollution was very complex, involving multiple parties and hence it was more difficult to secure agreement on national priorities when compared with action plans relating to biodiversity or habitat conservation for example.

5.2.8 Ms. Otico noted that the Philippines is currently developing the NAP and that the work plan for completion of this would form part of the amendment to the MoU, consequently its' contents could only be considered in the context of the SAP at a later date.

5.3 The Regional Overview of Land-based Pollution of the South China Sea

5.3.1 The Chairperson, Dr. Gullaya noted that during the sixth meeting, members had agreed to provide more inputs to her for revision of the draft regional overview of land-based pollution in the South China Sea. Dr. Gullaya noted that anticipated inputs from the Philippines and SEA START RC had not been received.

5.3.2 Ms. Otico noted that she had some materials with her from Mr. Diaz the Philippines focal point, which she would pass to Dr. Gullaya, and Dr. Tuan noted further that the SEA START RC inputs were themselves dependent on national inputs that had not been received by SEA START to date.

5.3.3 In view of the extensive delays experienced in finalising the regional review of Land-based Pollution in the South China Sea, Dr. Gullaya sought clarification from the Project Director as to whether it was still worth publishing such a review. Dr. Pernetta responded that, provided the review could be finalised, and provided that, it was considered worth publishing in terms of its' content then it would serve a valuable purpose in providing background justification to the decision makers regarding the adoption of the Strategic Action Programme.

5.3.4 It was agreed that Dr. Gullaya would consult with the two other regional expert members concerning the quality of the contents and report back to the meeting their opinions on the value of publishing the document.

6. STATUS OF PILOT ACTIVITIES

6.1 Batam, Indonesia

6.1.1 Ms. Zulhasni, the alternate for the focal point of Indonesia for Land-based Pollution was invited by the Chairperson to brief the meeting on the status of implementation of the Batam Pilot Activity. She noted that the office had been established, the site manager, technical assistant and administrative staff appointed, and a number of activities completed.

6.1.2 Ms. Zulhasni noted further that the GIS system had been established and existing data sets: including the location of monitoring points; existing water quality data; information regarding discharge points and location of existing industries; and habitat distribution had been input to the GIS database.

6.1.3 Ms. Zulhasni informed the meeting that with respect to component 2 a series of community consultations had been conducted to secure agreement of households regarding the installation of community septic tanks and a scheme for provision of rubbish bins and establishment of a collection and disposal system.

6.2 Ling Ding Yang, China

6.2.1 The Focal Point of China for Land-based Pollution was invited by the Chairperson to brief the meeting on the status of implementation of the Ling Ding Yang Pilot Activity. Mr. Han noted that two meetings had been conducted related to the initial activities namely one concerned with evaluating the feasibility study for the man-made wetland and the second with finalising the primary design criteria both of which had been supported by co-financing from the State Environment Protection Administration and the local government.

6.2.2 Mr. Han noted that between May 2005 and May 2006 six monitoring programmes had been executed to determine the baseline condition of the river water that would be input to the system once constructed. From the preliminary design study it had been determined that the facility would treat a total of 40,000 cubic metres of water per day and that this would be processed through four wetland sub-sets.

6.2.3 The design of the system would include "pre-treatment" in terms of sediment pools, anaerobic digestion and oxidation pond being undertaken before discharge of the water to the wetland. Final cost estimates were of the order of 35 million yuan with a unit treatment cost once operational of 0.224 yuan per tonne of water. Mr. Han noted that during discussions with local authorities it had become apparent that there were plans to construct an elevated highway over part of the area set aside for the wetland. Since these were not yet fixed it had been decided to proceed with the construction of the wetland.

6.2.4 During discussion queries were raised regarding the impact of the road construction on the capacity of the system to remove nutrients since this was in part a function of the biological (primary) production of the vegetation in the man-made wetland. It was felt that even an elevated structure if it covered 20% of the wetland would reduce ambient light conditions significantly enough to impact the effectiveness of the nutrient removal.

7. REVIEW OF THE REVISED NATIONAL ACTION PLANS AND FINALISATION OF INPUTS TO THE REGIONAL STRATEGIC ACTION PROGRAMME

7.1 Review of the Revised National Action Plans

7.1.1 The Chairperson invited the Senior Expert to introduce the document UNEP/GEF/SCS/RWG-LbP.7/6 "*Analysis of the Contents of the Draft National Action Plans from the Perspective of the Strategic Action Programme*" which was drafted based on the revised versions of the NAPs received to date. This document was sent to all members in advance of the seventh meeting for their review and the provision of inputs before and during the meeting.

7.1.2 Dr. Tuan noted that during the fifth meeting of the RWG-LbP a comparative review of the contents of the draft National Action Plans had been considered. Following receipt of guidance from the Regional Scientific and Technical Committee (RSTC) on the further development of NAPs, an overall analysis of the contents of the draft NAPs was considered by the sixth meeting of the RWG-LbP. Dr. Tuan noted that the five revised NAPs had been reproduced as documents UNEP/GEF/SCS/RWG-LbP.7/6.Cam; 7/6.Ind; 7/6.Mal; 7/6.Thai and 7/6.Vie for the information of the meeting.

7.1.3 Dr. Tuan proposed and the meeting agreed that individual members would check their own entries in Tables, 1, 2, 3, and 4 overnight and provide him with any amendments. It was further agreed that the meeting would discuss and consider what should be entered into the regional column based on common elements from the national entries.

7.1.4 There followed an extensive discussion of problems related to Land-based Pollution and Dr. Pernetta indicated that the group needed to decide on what it intended to use as the focus for the SAP, whether it should be sources, impacts, or the contaminants themselves. He noted that the work to date had focussed on impacts rather than sources and that the assumption was that heavy metals and nutrients were the most significant contaminants in terms of observable impacts.

7.1.5 During the discussion of the summary tables of the NAP contents with a view to identifying actions to be undertaken at the regional level, it became apparent that there were a large number of empty cells in the tabulation, and indeed for many components and activities only one or two countries had identified these and included them in the action plans. The table was amended by the focal points over night and is attached as Annex 4 of this report. For deciding on the regional actions it was agreed

that the group would focus on the amplification of the synoptic tabulation contained in document UNEP/GEF/SCS/RWG-LbP.7/7 and insert additional regional actions into this tabulation.

7.2 Revision of the Goals and Targets of the Regional Strategic Action Programme

7.2.1 Regarding the goals and targets proposed by the Regional Working Group on Land-based Pollution (RWG-LbP) during its' fifth meeting, the RSTC had suggested that the RWG-LbP should consider the formulation of more action-oriented targets. During the sixth meeting, the national focal points for Land-based Pollution presented goals and targets of the National Action Plans as baseline for discussion of the regional goals and targets. The meeting had proposed updated targets as presented in Annex 5 of the sixth meeting report (UNEP/GEF/SCS/RWG-LbP.6/3) as follows:

Regional targets:

- 1 *By the year 2017, to meet sea water quality (14 parameters) standards following ASEAN criteria (except pollutants from scientifically identified natural sources, if any) for*
 - *90% of monitoring stations in the 17 hot spots characterised by the RWG-LbP between 2002 – 2004;*
 - *80% of other monitoring stations (more than 400 at present time)* in coastal waters of the South China Sea.*
2. *By the year 2012, agree and adopt regional standards for contaminants in sediment and biota.*
3. *By the year 2012, characterise and prioritise all hot spots surrounding the South China Sea.*
4. *By the year 2012, review and amend national legislation in support of all targets.*

7.2.2 The RWG-LbP noted that the RSTC had reviewed these targets during their sixth meeting and suggested that:

The Regional Working Group on Land-based Pollution reconsider the draft goals and targets since the wording of the first suggested that it might be possible to achieve the target and at the same time have an increased loading of pollutant reaching the South China Sea.

7.2.3 During discussion it was noted that for some countries, estimates of load from point sources were available but there were few estimates for contaminants from non-point sources. It was suggested therefore that, it was difficult to define a target with respect to the load and hence it was not possible to address directly the concern of the RSTC. The Working Group decided to include a target to derive an estimate of total contaminant load arriving in the South China Sea marine basin. In this connection the working group took note of the modelling approach developed by SEA START RC in collaboration with the EAS/RCU and recognised that this was one valuable approach to estimate loads from non-point sources of nutrient pollution.

7.2.4 It was agreed to amend the second target and replace the word “standard” with “criteria”. There followed a lengthy discussion of the target regarding the amendment of national legislation during which it was noted that amending legislation was frequently a lengthy process and the target might not be met in all cases. Despite this concern it was agreed to retain the target in order to ensure that countries worked towards achieving the other targets.

7.3 Discussion of the Regional Actions for Inclusion in the Land-based Pollution Component of the Regional Strategic Action Programme

7.3.1 In introducing this agenda item it was noted that up to the sixth meeting of the RWG-LbP, draft NAPs had not been received from Malaysia and Philippines, and some others had not been revised and updated. Consequently discussion during the sixth meeting, of possible actions for inclusion in the regional SAP was largely based on personal experience. The sixth meeting of the RSTC considered this and advised that:

* Numbers of monitoring stations of the participating countries: China, 115; Cambodia, 8; Indonesia, around 100; Malaysia, 128; Philippines, 18; Thailand, 100+; Viet Nam, 21 (72 if plans are implemented by 2010).

10.2.17 *Regarding the land-based pollution activities it was noted that these were drafted on the basis of an incomplete set of national action plans and that consequently they would require more extensive work by the RWG-LbP. The meeting recommended that, the RWG-LbP needs to go through this issue again based on NAP inputs to reflect national perspectives.*

7.3.2 The Senior Expert introduced document UNEP/GEF/SCS/RWG-LbP.7/7 “*Inputs from the Land-based Pollution Component for Updating the Regional Strategic Action Programme*” and the initial draft text prepared by the PCU.

7.3.3 The working group decided to tackle the development of actions for the SAP through small groups working on each of the main components. The regional experts and PCU member served as facilitators for each of the small groups which prepared sets of appropriate activities for each component. Thereafter the group reconvened in plenary and discussed the drafts in detail, amended and agreed them as presented in Table 5 of Annex 5.

7.3.4 The working group considered Annex 1 of document UNEP/GEF/SCS/RWG-LbP.7/7 and it was agreed that Dr. Zainal Arifin would redraft the text in line with the discussion of the problems related to Land-based Pollution and Ms. Otico would prepare draft text relating to the challenges. It was further agreed that each focal point would complete the information required in Tables 3 and 4 and that the drafts would be prepared overnight, circulated and discussed during the next session. For incomplete entries in the Tables a time would be agreed by which the focal points would supply the information to the PCU.

7.3.5 The revised text and tables are attached to this report as Annex 5.

7.4 Estimation of the Costs of the Actions

7.4.1 Given the fact that the meeting was behind schedule it was agreed that this agenda item would not be considered during this meeting.

8. UPDATE OF THE REGIONAL GIS DATABASE AND META-DATABASE AND EFFICIENT USE OF THE PROJECT WEBSITE

8.1 The Chairperson invited the PCU Member to introduce document UNEP/GEF/SCS/RWG-LbP.7/8, “*Status of the UNEP/GEF South China Sea Project Website, Online Tools, and Activities to Promote the Land-based Pollution Component of the Project*”. The Focal Points were reminded that it is their responsibility to ensure that they present new land-based pollution GIS and meta-data sets to the Project Co-ordinating Unit as they become available at the national level. Agreements made during the sixth meeting regarding revision and updating of national data for inclusion in the regional databases have generally not been implemented.

8.2 Dr. Tuan noted that the PCU has conducted an evaluation of each meta-data entry and has prepared guidance for project component focal points concerning how their existing meta-data entries could be revised to make them more user-friendly. The results of this evaluation were presented in Annex 2 of document UNEP/GEF/SCS/RWG-LbP.7/8. Members were invited to discuss and agree on a schedule for updating the regional databases and for amending existing entries in the light of the analysis conducted by the PCU.

8.3 Questions were raised regarding the format of the meta-database and the nature of materials that should be submitted. It was agreed that existing meta-data entries would be updated online and new entries made by 10th September and available GIS data would be submitted by the end of September.

8.4 Members were invited to discuss and agree on how the project website might be used to improve communication between members of the RWG-LbP, during the inter-sessional period, and for disseminating information about the Land-based Pollution component activities to the SCS Project Network and other interested parties. It was agreed that an e-forum for land-based pollution problems would be established and that Dr. Arifin would serve as moderator.

9. CONSIDERATION OF THE RSTC RECOMMENDATIONS REGARDING CARRYING CAPACITY OF THE SOUTH CHINA SEA MARINE BASIN

9.1 Application and Expansion of Modelling Approach Developed by SEA START RC

9.1.1 The Chairperson noted that the sixth meeting of the RSTC had considered “*Report of the Investigation of the Carrying Capacity of the South China Sea Basin with respect to Nutrients*”; and discussed and agreed a series of recommendations, as seen in paragraphs 8.7 and 8.8 the meeting report:

8.7 Dr. Anond presented possible recommendations for the consideration of the committee as follows:

- Encourage LbP SEA’s to use the quantitative modelling approach to re-assess existing hotspots and to identify new hotspots of nutrient loading in the SCS by also incorporating carrying capacity of the coastal system, and future scenarios for nutrient generation/treatment in the catchments into consideration;*
- A ‘no-cost’ annex of the MoU between PCU and SEA START RC to continue technical support for countries to continue modelling;*
- LbP SEA’s are encouraged to participate in the COBSEA/GPA-LBA project “Determination of Pollution Loading from Land-Based Sources by Using Modelling and GIS” by involvement in their catchment modelling exercise and linking catchment loading scenarios to determine future sensitivity of the coastal areas to future land-based pollution loading;*
- Allow SEA START RC to put data and GIS model results, modelling scripts, etc. developed by the project on to the SCS project website;*
- RWG LbP and expert members in the group identify an institution in SCS region and draft a technical element of ToR to develop the carrying capacity with respect to heavy metal (based on level in sediment and biological sample data, e.g. from mussel watch project, and relation with nearby land-based heavy metal sources).*

8.8 The meeting agreed to accept these recommendations as detailed above, following minor amendment to the original wording.

9.1.2 Dr. Pernetta noted that the model for carrying capacity of the South China Sea with respect to nutrient loading from land-based pollution developed by SEA START RC had already been uploaded to the Project Website, together with a User Manual for the South China Sea Nutrient Carrying Capacity Model which provides guidance for running the model. It was noted that the model could be run entirely in Excel and that geographic sub-sets could be used to examine the effects of change in nutrient loading on sub-units of the entire South China Sea marine basin.

9.1.3 During discussion various proposals were made concerning possible institutions that could be contacted regarding development of a model of carrying capacity of the South China Sea with respect to heavy metals. These included PEMSEA, Marine Science Institute of the University of the Philippines, Department of Marine Science, Chulalongkorn University, and SEA START RC. It was agreed that members would contact these and other institutions to ascertain their interest and/or willingness to undertake this work.

9.2 Possible Collaboration with the COBSEA/GPA-LBA Project “Determination of Pollution Loading from Land-based Sources by Using Modelling and GIS”

9.2.1 The Chairperson invited Ms. Birgitta Liss, Junior Professional Officer of the East Asian Seas, Regional Co-ordinating Unit to present document UNEP/GEF/SCS/RWG-LbP.7/9 entitled COBSEA/GPA-LBA Project “*Determination of Pollution Loading from Land-based Sources by Using Modelling and GIS*”. Ms. Liss highlighted the approach of the project, which was based on modelling nutrients derived from human populations and agricultural sources within catchments in order to provide an estimate of nutrient inputs to coastal waters.

9.2.2 During discussion it was noted that the number of catchments was quite limited (15) and the majority were quite small, hence it would be difficult to generalise to all 300 catchments draining to the South China Sea, although ultimately it could be used to generate estimates of total nutrient loading. It was suggested that this model could be used to provide more realistic scenarios of future nutrient inputs that could be used in modelling eutrophication status of the coastal waters of the South China Sea and hence there was value in linking this model and its' outputs to the Carrying Capacity model developed by the South China Sea Project.

9.2.3 It was agreed that the members of the Regional Working Group on Land-based Pollution would provide data relating to additional catchments where possible, and that where appropriate the EAS/RCU would attempt to involve members of the RWG-LbP in such activities.

10. CONSIDERATION OF PROPOSED SOUTH CHINA SEA PROJECT TRAINING ACTIVITIES REGARDING THE LAND-BASED POLLUTION COMPONENT

10.1 The Chairperson invited the Senior Expert to introduce document UNEP/GEF/SCS/RSTC.6/Sub-Comm regarding "*The South China Sea Project Training Programme*". The Senior Expert outlined the aims and *modus operandi* of the South China Sea Project training programme, as well as the procedures proposed for the selection of Implementing Entities and the conduct of training courses.

10.2 In response to the query from number of members, Dr. Tuan noted that relevant participants should be related to demonstration sites or pilot activities and that no person could attend more than one course. Focal points need to send their nominations for participants to the National Technical Focal Point who was responsible for selecting 3 - 4 candidates as appropriate for each training course.

10.3 The Focal points from China and Indonesia noted that the training courses on "Community-based management" and "Project design, planning and financial management" were relevant to their pilot activities and candidates would be sent to the National Technical Focal Point for nomination. Ms. Zulhasni also noted that she would recommend that a representative from the Batam Pilot Activity should attend the training course on "Mechanism for sustainable production/use of mangroves and other wetlands".

11. REVISION OF THE WORK PLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION 2006 - 2007

11.1 Based on the discussion and agreements reached under the previous agenda items, and document UNEP/GEF/SCS/RWG-LbP.7/10 "*Proposed Work Plan and Timetable for the Regional Working Group on Land-based Pollution, 2006 to 2007*", the Regional Working Group considered its' work plan for the period 2006- 2007.

11.2 Dr. Tuan noted that the work plan should include a timetable to finalise and secure high level government approval of the National Action Plans, and the publication of national reports in those cases where the Specialised Executing Agencies have not completed publication. The draft work plan was considered, amended and approved as it appears in Annex 6 of this report.

12. DATE AND PLACE OF THE EIGHTH MEETING OF THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION

12.1 Members recalled that the PSC decided at its' second meeting that future RWG meetings should be convened at potential demonstration sites. It should be noted that this ruling does not specify that meetings must be held in demonstration sites relating to the specific component or sub-component of the project, hence the working group is at liberty to propose a meeting at any demonstration site.

12.2 Members were invited to consider and agree upon the proposed time and place for the eighth meeting of the RWG-LbP. Following some discussion it was agreed to convene the eighth meeting of the working group at one of the demonstration sites in the Philippines between 6 - 9 August 2007.

13. ANY OTHER BUSINESS

13.1 The Chairperson invited members to propose, consider and discuss any further items of business under this agenda item, noting that at the time of adopting the agenda it had been agreed to discuss the PEMSEA Congress at this point in the agenda.

13.2 Dr. Tuan noted that the deadline for submission of abstracts was August 15th and following some discussion the group decided that insufficient time was available to prepare a paper for submission to this conference.

14. ADOPTION OF THE REPORT OF THE MEETING

14.1 The Rapporteur, Mr. Hashim presented the draft report of the meeting prepared by the Secretary for consideration and adoption by the members. The draft was considered amended and adopted as it appears in this document.

15. CLOSURE OF THE MEETING

15.1 The Chairperson invited the Project Director to make a few closing remarks. Dr. Pernetta thanked the participants for their hard work and the substantial inputs to the draft SAP. The Chairperson thanked the ladies of the PCU for their support to the meeting, the government of Cambodia for hosting the meeting and all participants for their substantial contributions during the discussions.

15.2 The Chairperson formally closed the meeting at 1705 on 10th August 2006.

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

Mr. Pak Sokharavuth, Deputy Director
Department of Pollution Control
Ministry of Environment
48 Samdech Preah Sihanouk
Sangkat Tonle Bassac, Khan Chamkarmon
Phnom Penh, Cambodia

Tel: (855 23) 222 439
Mobile: (855) 12 962103
Fax: (855 23) 987 880
E-mail: sokharavuth@online.com.kh

Indonesia

Ms. Zulhasni, Head
Marine Environmental Protection Division
Ministry of Environment
JI D.I. Panjaitan Kav 24
Jakarta 13410
Indonesia

Tel: (62 21) 8590 5638
Fax: (62 21) 8590 4929
E-mail: zulhasni@menlh.go.id

Philippines

Ms. Perseveranda-Fe J. Otico
Pollution Research Section
Research and Development Division
Environmental Management Bureau (EMB),
DENR Compound, Visayas Avenue
Diliman, Quezon City
Philippines

Tel: (632) 426 4337; 426 4339
Fax: (632) 927 1518; 426 4340
E-mail: fejtico@yahoo.com

Viet Nam

Dr. Nguyen Thi Viet Lien, Deputy Director
Center for Marine Environment Survey
Research and Consultation
Institute of Mechanics, NCST
264 Doi Can Street, Ba Dinh District,
Hanoi, Viet Nam

Tel: (844) 832 6136; 832 6195
Fax: (844) 832 7903
E-mail: nvlien@imech.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) 8554 1616;
Mobile: (86) 13 9024 08273
Fax: (86 20) 8552 5658; 8553 8243
E-mail: hbh@scies.com.cn; bxhan@21cn.com

Malaysia

Mr. Hashim bin Daud, Director
Marine and Water Division
Department of Environment, Malaysia (DOE)
Level 2, Podium 2, Block 4G3 Precint 4,
Federal Government Administrative Centre
62574, Putrajaya, Malaysia

Tel: (603) 8871 2104
Fax: (603) 8888 4070
E-mail: hd@doe.gov.my

Thailand

Dr. Saravuth Rattanachongkiat
Marine Environment Division
Water Quality Management Bureau
Pollution Control Department, 6 Floor
Ministry of Natural Resources and Environment
92 Soi Pahon Yothin 7, Pahon Yothin Rd.,
Sam Sen Nai, Phayathai
Bangkok 10400, Thailand

Tel: (66 2) 298 2253-4
Fax: (66 2) 298 2240
E-mail: nuipcd@yahoo.com

Expert Members

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
gullaya@gmail.com

Professor Dr. Law Ah Theem
Faculty of Maritime Studies and Marine Science,
University College of Science and Technology
Malaysia (Kustem),
Mengabang Telipot, 21030 Kuala Terengganu
Terengganu Darul Iman, Malaysia

Tel: (609) 668 3302; (60) 16 3266 933
Fax: (609) 669 4660
E-mail: atlaw@kustem.edu.my

Dr. Zainal Arifin
Research Center for Oceanography
Indonesian Institute of Sciences
Jl. Pasir Putih I, Ancol Timur
Jakarta, 14430, Indonesia

Tel: (62 21) 6471 3850 Ext. 125
Mobile: (62) 811 907027
Fax: (62 21) 6471 1948
E-mail: zarifin@dnet.net.id

Observers

Ms. Birgitta Liss
Junior Professional Officer
United Nations Environment Programme
2nd Floor, Block B, United Nations Building
Rajdamnern Nok Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 2214
Fax: (66 2) 281 2428
E-mail: liss@un.org

Mr. Chea Nara
Vice, Chief
Office of Environmental Pollution Control
#48, Preath Sihanouk, Sangkat, Tonle Bassac
Khan Charmkamorn
Phnom Penh, Cambodia

Tel: (855) 23 222 439
Mobile: (855) 12 758 687
E-mail: narachea@hotmail.com

Project Co-ordinating Unit Member

Dr. Vo Si Tuan, Senior Expert
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
2nd Floor, Block B, United Nations Building
Rajdamnern Nok Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 2084
Fax: (66 2) 288 1094
E-mail: vo@un.org

Project Co-ordinating Unit

Dr. John Pernetta, Project Director
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
2nd Floor, Block B, United Nations Building
Rajdamnern Nok Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 1886
Fax: (66 2) 288 1094
E-mail: pernetta@un.org

Ms. Unchalee Pernetta, Programme Assistant
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
2nd Floor, Block B, United Nations Building
Rajdamnern Nok Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 1670
Fax: (66 2) 288 1094
E-mail: kattachan.unescap@un.org

Ms. Saranya Rojananuangnit, Team Assistant
UNEP/GEF Project Co-ordinating Unit
United Nations Environment Programme
2nd Floor, Block B, United Nations Building
Rajdamnern Nok Avenue
Bangkok 10200, Thailand

Tel: (66 2) 288 2608
Fax: (66 2) 288 1094
E-mail: rojananuangnit@un.org

ANNEX 2

List of Documents

Discussion documents

UNEP/GEF/SCS/RWG-LbP.7/1	Agenda.
UNEP/GEF/SCS/RWG-LbP.7/2	Annotated Agenda.
UNEP/GEF/SCS/RWG-LbP.7/3	Report of the Meeting.
UNEP/GEF/SCS/RWG-LBP.7/4	Current Status of Budgets and Administrative Reports from the Specialised Executing Agencies in the Participating Countries.
UNEP/GEF/SCS/RWG-LbP.7/5	Status of Publication of National Reports and Submission of National Action Plans from the Specialized Executing Agencies.
UNEP/GEF/SCS/RWG-LbP.7/6	Analysis of the Contents of the Draft National Action Plans from the Perspective of the Strategic Action Programme.
UNEP/GEF/SCS/RWG-LbP.7/6.Cam	Draft Strategic Plan for Land-based Pollution for 2006 – 2010 and beyond of Cambodia.
UNEP/GEF/SCS/RWG-LbP.7/6.Ind	Strategy and Action Plan on Land-based Pollution of Indonesia.
UNEP/GEF/SCS/RWG-LbP.7/6.Mal	National Action Plan for Land-based Pollution in the South China Sea of Malaysia.
UNEP/GEF/SCS/RWG-LbP.7/6.Tha	Management Framework to Protect Marine Environment from Land-based Pollution of Thailand.
UNEP/GEF/SCS/RWG-LbP.7/6.Vie	National Proposed Plan on Land-based Pollution Control to 2010 of Viet Nam.
UNEP/GEF/SCS/RWG-LbP.7/7	Inputs from the Land-based Pollution Component for Updating the Regional Strategic Action Programme.
UNEP/GEF/SCS/RWG-LbP.7/8	Status of the UNEP/GEF South China Sea Project Website, Online Tools, and Activities to Promote the Land-based Pollution Component of the Project.
UNEP/GEF/SCS/RWG-LbP.7/9	COBSEA/GPA-LBA Project “Determination of Pollution Loading from Land-based Sources by Using Modelling and GIS”.
UNEP/GEF/SCS/RWG-LbP.7/10	Proposed Work Plan and Timetable for the Regional Working Group on Land-based Pollution 2006 to 2007.

Information documents

UNEP/GEF/SCS/RWG-LbP.7/Inf.1	List of Participants.
UNEP/GEF/SCS/RWG-LbP.7/Inf.2	List of Documents.
UNEP/GEF/SCS/RWG-LbP.7/Inf.3	Programme for the Sixth Meeting of the RWG-LbP.
UNEP/GEF/SCS/RSTC.6/Sub-Comm	First Meeting of the Sub-committee of the Sixth Meeting of the Regional Scientific and Technical Committee for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Bangkok, Thailand, 6 th – 10 th February 2006 UNEP/GEF/SCS/RSTC.6/Sub-Comm.

Published Reports supplied in hard copy (available on the Project Website www.unepscs.org)

UNEP/GEF/SCS/PSC.5/3	Fifth 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 Meeting. Batam, Indonesia, 12 th – 14 th December 2005 UNEP/GEF/SCS/PSC.5/3.
----------------------	--

- UNEP/GEF/SCS/RSTC.6/3 Sixth Meeting of the Regional Scientific and Technical Committee for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Batam, Indonesia, 8th – 10th December 2005 UNEP/GEF/SCS/RSTC.6/3.
- UNEP/GEF/SCS/RWG-SG.6/3 Sixth Meeting of the Regional Working Group on the Seagrass Sub-component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Bolinao, Philippines, 27th – 30th September 2005 UNEP/GEF/SCS/RWG-SG.6/3.
- UNEP/GEF/SCS/RWG-W.6/3 Sixth Meeting of the Regional Working Group on the Wetlands Sub-component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Sihanoukville, Cambodia, 12th – 15th September 2005 UNEP/GEF/SCS/RWG-W.6/3.
- UNEP/GEF/SCS/RWG-F.6/3 Sixth Meeting of the Regional Working Group on the Fisheries Component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Kudat, Sabah, Malaysia, 5th – 8th September 2005 UNEP/GEF/SCS/RWG-F.6/3.
- UNEP/GEF/SCS/RWG-CR.6/3 Sixth Meeting of the Regional Working Group on the Coral Reefs Sub-component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Masinloc, Philippines, 22nd – 25th August 2005 UNEP/GEF/SCS/RWG-CR.6/3.
- UNEP/GEF/SCS/RWG-M.6/3 Sixth Meeting of the Regional Working Group on the Mangroves Sub-component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Busuanga Island, Palawan, Philippines, 1st – 5th August 2005 UNEP/GEF/SCS/RWG-M.6/3.
- UNEP/GEF/SCS/RWG-LbP.6/3 Sixth Meeting of the Regional Working Group on the Land-based Pollution Component for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Ninh Hai, Ninh Thuan, Viet Nam, 18th – 21st July 2005 UNEP/GEF/SCS/RWG-LbP.6/3.
- UNEP/GEF/SCS/RTF-E.4/3 Fourth Meeting of the Regional Task Force on Economic Valuation for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Xuan Thuy, Nam Dinh Province, Viet Nam, 27th – 30th March 2006 UNEP/GEF/SCS/RTF-E.4/3.
- UNEP/GEF/SCS/RTF-L.4/3 Fourth Meeting of the Regional Task Force on Legal Matters for the UNEP/GEF Project “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”. Report of the Meeting. Shantou, China, 24th – 27th April 2006 UNEP/GEF/SCS/RTF-L.4/3.

Document received during the RWG-LbP-7 meeting in Sihanoukville, Cambodia 7-10 August 2006.

- Cambodia:** Cash Advance Request (30 June-31 December 2006)
Six Monthly Project Expenditure Report (January-June 2006)
Six Month Progress Report (January-June 2006)
Report on the Meeting of the Land-Based Pollution Committee at Koh Kong Province on 29 March 2006.

ANNEX 3

Agenda

- 1. OPENING OF THE MEETING**
 - 1.1 Welcome Address on behalf of UNEP
 - 1.2 Introduction of Participants
- 2. ORGANISATION OF THE MEETING**
 - 2.1 Election of Officers
 - 2.2 Documentation and Administrative Arrangements
- 3. ADOPTION OF THE MEETING AGENDA**
- 4. STATUS OF ADMINISTRATIVE REPORTS FOR 2005 AND 2006: PROGRESS REPORTS; EXPENDITURE REPORTS; AUDIT REPORTS; AND MOU AMENDMENTS**
- 5. STATUS OF SUBMISSION OF SUBSTANTIVE OUTPUTS FROM THE SPECIALIZED EXECUTING AGENCIES AND REGIONAL WORKING GROUP MEMBERS**
 - 5.1 Publication of National Reports in Local Languages and English
 - 5.2 Finalisation, Adoption and Implementation of National Action Plans
 - 5.3 The Regional Overview of Land-based Pollution of the South China Sea
- 6. STATUS OF PILOT ACTIVITIES**
 - 6.1 Batam, Indonesia
 - 6.2 Ling Ding Yang, China
- 7. REVIEW OF THE REVISED NATIONAL ACTION PLANS AND FINALISATION OF INPUTS TO THE REGIONAL STRATEGIC ACTION PROGRAMME**
 - 7.1 Review of the Revised National Action Plans
 - 7.2 Revision of the Goals and Targets of the Regional Strategic Action Programme
 - 7.3 Discussion of the Regional Actions for Inclusion in the Land-based Pollution Component of the Regional Strategic Action Programme
 - 7.4 Estimation of the Costs of the Actions
- 8. UPDATE OF THE REGIONAL GIS DATABASE AND META-DATABASE AND EFFICIENT USE OF THE PROJECT WEBSITE**
- 9. CONSIDERATION OF THE RSTC RECOMMENDATIONS REGARDING CARRYING CAPACITY OF THE SOUTH CHINA SEA MARINE BASIN**
 - 9.1 Application and Expansion of Modelling Approach Developed by SEA START RC
 - 9.2 Possible Collaboration with the COBSEA/GPA-LBA Project "*Determination of Pollution Loading from Land-based Sources by Using Modelling and GIS*"
- 10. CONSIDERATION OF PROPOSED SOUTH CHINA SEA PROJECT TRAINING ACTIVITIES REGARDING THE LAND-BASED POLLUTION COMPONENT**
- 11. REVISION OF THE WORK PLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION 2006 - 2007**
- 12. DATE AND PLACE OF THE EIGHTH MEETING OF THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION**
- 13. ANY OTHER BUSINESS**
- 14. ADOPTION OF THE REPORT OF THE MEETING**
- 15. CLOSURE OF THE MEETING**

ANNEX 4

Analysis of the content of the Draft National Action Plans from the Perspective of the Regional Action Programme

During the Fifth Meeting of the Regional Scientific and Technical Committee (RSTC), members considered the process of revision and adoption of the Strategic Action Programme (SAP) during the second phase of the project. It was noted that the next meetings of the Regional Working Groups would have to consider revision of the relevant portions of the SAP, and inputs from the sixth meetings would be collated by the Project Coordinating Unit (PCU) into a draft revised SAP for review by the RSTC in December 2005. The RSTC agreed that a final version of the SAP should be completed by the end of 2006. It was further noted that the various Regional Working Groups would be responsible for the revision of sections of the SAP related to the specific components and sub-components, and that the RSTC would be in a better position to identify regional actions and activities, such as coordination across the components.

Based on the existing versions of the National Action Plans (NAP) received from Focal Points for the Land-based Component, the PCU compiled a summary of their contents, as the basis for discussion of regional actions relating to Land-based Pollution that should be included in the draft revised SAP. This review was introduced as the document UNEP/GEF/SCS/RWG-LbP.7/6 "*Analysis of the Contents of the Draft National Action Plans from the Perspective of the Strategic Action Programme*".

The Regional Working Group on Land-based Pollution considered the contents of the review and provided additional information to complete the document. In deciding on the regional actions it was agreed that these would focus on the amplification of the synoptic tabulation contained in document UNEP/GEF/SCS/RWG-LbP.7/7 and additional regional actions were inserted into this tabulation as seen in the Annex 5.

The Tables attached herein summarise the outputs of the discussion and analysis of the contents of the draft National Action Plans from the Perspective of the Strategic Action Programme, as follows:

Table 1 Problems of Land-based Pollution derived from the National Action Plans and at the regional level

Table 2 Challenges for Land-based Pollution Management Outlined in each of the National Action Plans and at the regional level

Table 3 Goals, Time Frames, Total Costs and Key Executing Agencies Outlined in each of the National Action Plans for the Land-based Component

Table 4.1 – 4.5 Objectives and Activities for different components at the national level

Table 1 Problems of Land-based Pollution derived from the National Action Plans and at the regional level¹.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam	Region
The major cause influencing marine water quality is liquid wastes (sewage) then followed by agricultural waste, oily waste, solid waste (organic matters), sediment matter, and solid waste (non-organic matters).	Urban and industrial pollution have eliminated the inshore demersal fishery and has degraded the coastal eco-system Sewage Liter and Plastics POPs Nutrients and organics Sedimentation/siltation Heavy metals Hydrocarbons Radioactivity <i>Escherichia coli</i>	Organic and inorganic discharges from big towns Agricultural run-off is significant as this area is still largely agricultural based High concentrations of <i>Escherichia coli</i> were detected in most of the coastal waters Heavy metals level is relatively low, indicating a lower level of industrialization compared to the West Coast of Peninsular Malaysia.	Generally, the increase of anthropogenic activities due to the economic expansions in this region leads to a generation of large amount of wastes such as wastewater, solid wastes, organic matters etc., which affect marine environments, water quality, sediment, and marine organisms	Pollution in downstream areas of river watersheds The units seriously polluting the environment in coastal provinces Coastal urban waste water Coastal urban solid waste Coastal economic zones hazardous waste Pollution in marine ports Transboundary pollution needs to be controlled Oil pollution	Contaminants POPs (transboundary significance) Heavy metals Nutrient Oil Suspended solid Sources Sewage Agricultural discharge Shrimp farm Impacts Eutrophication Living resource decline?? Human health Eco-system degradation by degraded water quality Siltation/sedimentation Marine mammal health (heavy metal) Food quality for export

Table 2 Challenges for Land-based Pollution Management Outlined in each of the National Action Plans and at the regional level.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam	Region
Lack of cooperation with concerned institutions. Lack of financing Lack of planning Limited human resources and manpower as well as technology Limit on the public awareness programme Data information related to LBP unavailable Laboratory equipment is limited	The lack of effective implementation and enforcement of the existing rules and regulations. Institutional arrangement particularly to enhance cooperation mechanism in controlling, implementing and monitoring the marine pollution programmes. Improper disposal of sewage Effective controlling on herbicides and pesticides use	Division of powers to control land-based pollution at central and lower levels of government. To improve land use planning. To provide more access to centralized sewage treatment facilities. These in turn need to be upgraded.	Lack of commitment in terms of land get from the government and collaboration from the private sectors. Lack of vision to create integrated and sustainable management strategies since the beginning.	Information on the state of pollution is inadequate Public awareness on the environmental pollution is very low Financial economic shortage Legal, institutional and management poor	Lack of cooperation and coordination among related sectors at the national level & Weak linkage between central and lower levels of the governments High population pressure and industrialisation causing increased contaminant load. Low public awareness & Lack of responsible commitment of citizens Lack of treatment facilities Lack of appropriate legislations and Weak law enforcement Lack of government commitment in balancing economic growth and environmental protection Low priority for environment protection, public awareness and enhancement of advocacy Lack of research and monitoring resources (human, facilities...) Lack of regional comparable monitoring and analytical methodology & Lack of criteria standard for sediment quality

¹ No revised National Action Plan (NAP) received from China and no first draft of NAP submitted by Philippines for this analysis.

Table 3 Goals, Time Frames, Total Costs and Key Executing Agencies Outlined in each of the National Action Plans.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam
Goals				
Develop and implement policies and guidelines related to land-based pollution management. Develop activities for information and scientific data collection related to marine water quality and update Prepare and implement plan to determine marine pollution hotspots and to take measures for prevention land-based pollution Provide and strengthen National Capacity for land-based pollution management Raise public awareness and promote public participation for preventing and combating of land-based pollution	For Heavy Metal – to establish of Rules and Regulation to lessen the concentration of this agent in the environment. For Oil – to obligate and implement the International Convention on Oil Pollution as well as to provide financial allocations in coping with this issue. For Solid Waste – to provide a system for Waste Disposal as well as the Establishment of related Rules and Regulation in reduction of Solid Waste. For Sedimentation – to provide a system for Management in this regard as well as the Establishment of related rules and regulation. For Organics and Nutrients – to establish a sewage (treatment) system as well the provision of financial allocation in coping with this issue. For E coli – to establish of a sewage (treatment) system.	All actions to contribute to protect the environment and improved the marine water quality.	To reduce pollution from all sources of origins in order to maintain marine environmental quality within standards To make all the related institutions and people aware of and participate in resource management and marine environmental management	Contributing significantly to the marine environment protection
Time Frame				
2006 – 2010 and beyond	1994 – 2019	2004 - 2010		To 2017
Total cost				
40,000 USD	No provided	No provided	No provided	1,549.5 millions USD
Key Executing Agencies				
Ministry of Environment (MoE)	Ministry of Environment (MoE)	Department of Environment, Sewage Service Dept. and Local Authorities	Marine Environment Division, Water Quality Management Bureau, Pollution Control Dept.	Ministry of Natural Resources and Environment (MoNRE)

Table 4.1 Objectives and Activities for Component 1: Research and Monitoring.

Cambodia ²	Indonesia	Malaysia	Thailand ³	Viet Nam ⁴
Objectives				
Establish scientific data on marine water quality	<i>(No objective for all components)</i>	Monitor baseline and pollution trends	Systematically study, research and develop instruments for water pollution management	Establishment of a synchronous governmental management system from national to local (coastal provinces) level, improvement of legal documents and strengthening of capacity in marine pollution control ⁵
Activities				
Sub-component 1: Assessment and Research				
Determine marine water pollution parameters and its quality standard Research and study on situation of non-point source of pollution especially from aquaculture and animal husbandry	Identifying major sewage hot-spots which pose specific environmental and health hazard Inventorying all possible sources of POPs, (including both present and potential sinks); Identifying marine and coastal areas where nutrient input will cause either direct or indirect pollution Compiling and maintaining inventories of (possible) sources of heavy metals	Identifying problem areas	Research and development of knowledge, technology and innovation to solve water pollution problems Support the advanced scientific research that provide practical applications	Pollution Inventory and Auditing
Sub-component 2: Monitoring				
Determine sampling sites, take and analyze samples, record data and disseminate such information;	Establishing and improving the monitoring of both sedimentation and siltation in the marine and coastal environment Developing planning and monitoring capacity at local levels to deal with nutrient pollution from agricultural and urban areas Establishing and improving monitoring of pollution by heavy metals	Create an extensive river and marine water quality monitoring network that serves as a comprehensive, systematic and precise database for water quality status in Malaysia Monitoring of the river water quality throughout the project and after the pollution prevention and river water quality enhancement programme; Enforcement and Environmental Awareness	Conduct monitoring programs in water bodies country wide. Create network for monitoring red tide phenomenon and warning net work for emergency events	Development and implementation of Master Plan of National Environmental monitoring
Sub-component 3: Socio-economic and cultural assessment				

² Activities derived from Part B – Action Plan but not under Strategic goals.

³ Activities derived from sections on Water pollution management and Management plan for pollution affecting the marine environment.

⁴ Activities derived from proposed projects to meet two objectives.

⁵ This objective used for first four components.

Table 4.1 Cont. Objectives and Activities for Component 1: Research and Monitoring.

Cambodia ⁶	Indonesia	Malaysia	Thailand ⁷	Viet Nam ⁸
Sub-component 4: Database management				
Produce, publicize and share scientific data and information related to land-based pollution to the line ministries and relevant stakeholders nationally and internationally.		Development of database to be used as baseline for studies concerning the ambient standards in river and marine water quality monitoring	Using database, information technology and mathematical model to increase efficiency in environmental management	Development of marine pollution control database at national, ministerial and provincial levels
Sub-component 5: Information system				
Collect, analysis, produce and update information and scientific data related to marine water quality		Generate report for government and public	Support the technologies and share the monitoring data that related to pollution mitigation Set up monitoring systems to continuously monitor environmental status of all tourist beaches	
Sub-component 6: Decision support system				
		Comprehensive study to formulate action plans/pollution prevention and river water quality enhancement programmes		Create collaborative mechanisms between related organisation and exchange information among governmental organizations.
Sub-component 7: Environmental Impact Assessment				
		To improve land use planning		
Priority				
High		High	High	Medium - High
Time Frame				
2007 - 2010	1994 – 2019 (sewage, litters, POPs, heavy metal & E.coli) 2005 – 2009 (sedimentation)	2001 - 2010		2007 - 2012
Cost				
177,500 USD				40.5 millions USD
Executing Agencies				
MoE		Department of Environment,		MoNRE, other ministries and provincial governments

⁶ Activities derived from Part B – Action Plan but not under Strategic goals.

⁷ Activities derived from sections on Water pollution management and Management plan for pollution affecting the marine environment.

⁸ Activities derived from proposed projects to meet two objectives.

Table 4.2 Objectives and Activities for Component 2: National Policy, Legal and Institutional Arrangement and Co-ordination.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam
Objectives				
Develop and effectively implement policy related to marine water pollution management.		National policy to protect the environment	Effective water pollution management strategy	
Activities				
Sub-component 1: Integration of research programmes with management and policy making				
Develop memorandum of understanding for corporation between concerned institutions related to marine water quality management activities		Setting up an integrated and focused centre for the promotion and implementation of CP and EST in the country as well as for the region	Support the integrated and active water quality management Develop mechanisms, instruments and measures to support water pollution management	Integration of National Pollution Control Plan into Socio-economic development plans of 3 coastal economic zones
Sub-component 2: Monitoring the NAPs				
Sub-component 3: Review and improve existing laws and policies				
Develop policy related to marine water quality management. Develop guideline for marine water quality monitoring and evaluating	Developing plans for the installation of BAT and BEP facilities Applying the precautionary approach principle through legislation, regulations or directives Developing plans (targets, timetables, sector specific measures) to reduce eliminate emissions and discharges of heavy metals from all sources Establishing criteria for best environmental practices in dumping dredged materials and in dredging operations	Adoption of a comprehensive waste management policy to address issues of waste reduction, reuse and recycling Development of specific EIA Guidelines for Municipal Solid Waste Incinerators and specific EIA Guidelines for Sanitary Landfills	Update the laws associated with water pollution management Set up discharge standards based on the waste receiving capacity of each area Revise and invent additional laws and regulations specifically for marine environmental management and strictly enforce the laws Legally mandate the local residences, and small scale restaurants and hotels to install waste treatment systems such as grease traps and septic tanks Legally mandate all the ships and marine vessels to have on board waste reception facilities	Assessment of law/ regulation enforcement in pollution control Adjust and improve the legal documents related to land allocation, budget, tax and fee. Implement the criteria on strict treatment Implementation of the Decision No. 64/2003/QD-TTg on resolving the units seriously polluting the environment in coastal provinces
Sub-component 4: Integration of government agencies				
		National policy to integrate all actions by agencies to control land-based pollution		
Sub-component 5: Stakeholder analysis and involvement				
			Having active and in-depth public relations Provide information to general public	

Table 4.2 cont. Objectives and Activities for Component 2: National Policy, Legal and Institutional Arrangement and Co-ordination.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam
Sub-component 6: Community empowerment				
			Set up local organizations to manage marine environment and transfer the responsibilities from central to local government	
Sub-component 7: Strengthening traditional value and management system				
Sub-component 8: Establish an incentive system for good governance				
	Developing and implementing fiscal and economic incentives an measures to reduce and eliminate emissions and discharges of heavy metals		Implementing of Land-based Pollution management along side a group of strategic plans to build up strong foundations for pollution management.	
Sub-component 9: Linkage to regional and international obligations				
Sub-component 10: International and regional cooperation				
		Participation in: COBSEA, PEMSEA and ASEAN Working Group on Marine and Coastal Environment	Participation in COBSEA, PEMSEA, Asean Working group and "GPA.	Transboundary marine pollution control
Priority				
High		High		Medium - high
Time Frame				
2006 - 2008	1994 – 2019 (sewage, litters, POPs, heavy metal & E.coli) 2005 – 2009 (sedimentation)			2007 - 2012
Cost				
90,000 USD				201.5 millions USD
Executing Agencies				
MoE, MIME, MOWRAM, MAFF, MOPWT, local authorities and stakeholders		Department of Environment, Ministry of Natural Resources and Environment	Pollution Control Department Ministry of Natural Resources and Environment.	MoNRE, Ministry of Planning and Investment (MPI) and other ministries

Table 4.3 Objectives and Activities for Component 3: Public awareness, Communication and Education.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam
Objectives				
Raise public awareness on marine water quality management		Environment education at schools and universities, environment awareness to all stakeholders	Establish local networks for water pollution management by having every sector involve. Provide appropriate funding to local network for education and public awareness.	
Activities				
Sub-component 1: Improve government services				
Produce training module, hand book, and other materials for in-service officers				
Sub-component 2: Development, improvement, and dissemination of awareness materials				
Develop and carry out public campaigns for keeping clean of coastal area and marine water Develop public awareness raising program on marine water quality	Implementing public awareness campaigns for the need of sewage treatment Implementing an effective awareness and education campaign for the public, industry commerce and sea-going vessels on the need for reducing waste generation and the need for environmentally sound disposal Implementing information services, awareness and education campaigns to the public, industrial and agricultural sectors Developing and implementing awareness and education campaigns for the public and industry on the need to reduce and eliminate pollution by heavy metals Development of public awareness on the impact of <i>E.coli</i> to human health Provision of change in attitude to use toilets (public or personal)	Environmental Awareness for Schools/Institute of Higher Learning Environmental Awareness for the Public Environmental Information Dissemination Local authorities will be encouraged to introduce various initiatives and appropriate economic approaches such as incentives and collection charges to reduce the amount of household waste. With regard to industrial wastes, industrial parks will be encouraged to build waste disposal sites for improved management and proper disposal of their waste	Educate and encourage general public to understand and participate in the environmental protection Improve knowledge of people in all levels, especially at the local level	Public awareness raising on pollution control
Priority				
Medium - High		High		Medium
Time Frame				
2006 - 2010	1994 – 2019 (sewage, litters, POPs, heavy metal & E.coli) 2005 – 2009 (sedimentation)	2006 - 2010		2007 - 2012
Cost				
110,000 USD				0.5 million
Executing Agencies				
MoE, Local authorities, and stakeholders		Department of Environment, Ministry of Natural Resources and Environment	Pollution Control Department Ministry of Natural Resources and Environment.	Ministry of Education and Training

Table 4.4 Objectives and Activities for Component 4: Capacity Building and Sustainability.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam
Objectives				
Strengthening institutional capacity in marine water quality management			Funding to facilitate the municipal wastewater management by local government.	
Activities				
Sub-component 1: Human resource development				
Reform existing provincial/ municipality working group for the marine water quality management	The provision of training and education for local administrators to plan, build and run treatment facilities		Development of human resources and organizations	
Sub-component 2: Immediate training activities				
Sub-component 3: Law enforcement				
	Implementing and improving regulatory and mandatory programs to control effluent discharge using minimum guidelines and water quality criteria while considering the characteristic of the receiving bodies of water;		Strictly enforcing the laws Prohibit discharge of wastewater to the areas that have low waste receiving capacity Inspect the water quality discharged from treatment facilities according to the legal standards	
Sub-component 4: Monitoring, Controlling and Surveillance				
	Controlling the importation of POPs waste in accordance with the Basel Convention			Pollution control in downstream areas of river watersheds
Sub-component 5: Financial sustainability				
Seeking diversification funding for land-based pollution programme				
Sub-component 6: Infrastructure development				
	Building and maintain sewage facilities in line with policies while incorporating local capacities Establishing appropriate port reception facilities for litter from ships Establishing BAT reception facilities for the proper disposal of POPs waste Establishment of septic tanks in settlements located at the coastal areas	Individual sewerage systems will be implemented in locations such as hilly and isolated areas where connections to the centralized system are costly or have an adverse impact on the environment	Restore all the central treatment facilities Building waste water treatment facilities for fishing piers and similar activities.	Development and implementation of the plan on collection and treatment of waste water in coastal urban areas Strengthening the capacity in collection and treatment of solid waste in big coastal urban areas

Table 4.4 cont. Objectives and Activities for Component 4: Capacity Building and Sustainability.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam
Sub-component 7: Institutional building and strengthening				
Organize training courses for in-service officers				Upgrading and establishment of the pollution control agencies (with marine pollution control units) at national and local levels
Sub-component 8: Network establishment and strengthening				
			Create network of all sectors & Improve the collaboration between sectors	
Priority				
				Medium - High
Time Frame				
2006 - 2010	1994 – 2019 (sewage, litters, POPs, heavy metal & E.coli) 2005 – 2009 (sedimentation)			2007-2017
Cost				
75,000 USD				1,035 millions USD
Executing Agencies				
MoE		Sewerage Services Dept.Ministry of Energy, Water and Communication,	MoNRE and local government	MoNRE, Ministry of Construction (MoC), other ministries and provincial government

Table 4.5 Objectives and Activities for Component 5: Pollution Control and Management.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam
Objectives				
Develop the implementing measures for protection and combating of land-based pollution		Policy and laws to control land-based pollution	Increase efficiency of law enforcement in association with water pollution management	Significant improvement of marine environment.
Activities				
Sub-component 1: Develop guidelines for sustainable management				
<p>Develop draft guideline for reduce non-point sources of pollution.</p> <p>Prepare guideline for sampling, transport and hand-over samples.</p> <p>Develop criteria for evaluating the identified land-based pollution hotspots.</p>	<p>Promoting primary and secondary treatment of discharge made into rivers, estuaries and marine waters</p> <p>Promoting balanced fertilization in agriculture where losses of nutrients from the soil to the aquatic environment is at an acceptable level</p> <p>Establishing control and preventive measures on coastal erosion and siltation due to anthropogenic factors (land use, coastal mining, construction technique and practices</p> <p>Development of measures to minimize and limit generation of wastes leading to safe processing, conditioning, transportation and disposal;</p>		Create mechanisms for systematically monitoring the progresses	Development of alternatives on hazardous waste management in three economic zones.
Sub-component 2: Strengthen management components				
Develop contingency plan and working group (emergency response team) for combating the marine pollution			Improve municipal wastewater treatment efficiency Regulate the pollution sources of origins	Control of pollution in rivers and coastal waters, caused by economic activities (industry, agriculture, transport, fisheries, mining and tourism)
Sub-component 3: Establish/enhance habitat/environment system				
	<p>Installing appropriate public garbage containers in general public use areas;</p> <p>Reducing and eliminating emission and discharges in all source sectors;</p> <p>Installing sewage treatment facilities to minimize nutrient loads to the marine and coastal environments;</p> <p>Implementing programs and measures on heavy metals which respect the precautionary approach principle and promote the use of the best available technology and best environmental practices;</p>			<p>Pollution treatment and water quality recovery in downstream areas of Nhue-Day, Cam and Sai Gon-Dong Nai</p> <p>Pollution treatment and environment recovery in the marine ports of Hai Phong and Da Nang City</p> <p>Pollution treatment and coastal environment recovery of Quang Ninh-Hai Phong, Da Nang-Dung Quat, Vung Tau-Ganh Rai</p>

Table 4.5 cont. Objectives and Activities for Component 5: Pollution Control and Management.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam
Sub-component 4: Community-based management				
Training course for community level , and public awareness campaign will be organised				
Sub-component 5: Sustainable use of coastal systems				
	Introducing watershed management practices to prevent, control or reduce degradation to marine and coastal environments; Improvement of Public Awareness on Environmental Management and Development including the use Sustainable Principles in the protection of the marine and coastal zone, through campaigns, educational and training courses;			
Sub-component 6: Environmentally friendly technologies				
	Establishing sound land use technique and practices which reduce excessive sediment run-off to water courses and estuaries leading to marine and coastal environmental degradation	Promote cleaner production and environment friendly technologies		
Sub-component 7: Types of management regimes, development of models				
	Introducing regulatory measures and economic instruments to reduce solid waste generation Implementing cost-effective control over man-made inputs of nitrogen and phosphorus into coastal waters where eutrophication threatens marine environment and resources Implementing fiscal and economic incentives and measures which will encourage the reduction or elimination of the use of POPs;	Implementation of the action plan/pollution prevention and river water quality enhancement programmes		Implementation of ICZM in some important areas being tourism sites, focal economic centers and ecological areas
Sub-component 8: Alternative livelihood				
Sub-component 9: Establishment of management zones				
Priority				
Medium		High		Medium - High
Time Frame				
2008 - 2009	1994 – 2019 (sewage, litters, POPs, heavy metal & E.coli) 2005 – 2009 (sedimentation)	2001 - 2010		2007 - 2017
Cost				
20,000 USD				272 millions USD
Executing Agencies				
MoE, MOPWT, MOH, MOWRAM, Local authorities, and stakeholders		Department of Environment, Department of Drainage and Irrigation Department of Sewerage Services Local Authorities, State Governments		MoNRE, MoC, Ministry of Transport, Ministry of Finance, General Department of Tourism and provincial Government

ANNEX 5

Draft Inputs to the SAP from the Land-based Pollution Component

PROBLEMS OF LAND-BASED POLLUTION AND PRIORITIES IN THE SOUTH CHINA SEA

Population distribution and growth along the coast, as well as inland residential, industrial and agricultural developments have greatly influenced pollution loads into aquatic environment of all countries of the region. Many sources of Land-based pollution from the participating countries of Cambodia, China, Malaysia, Indonesia, the Philippines, Thailand and Viet Nam are discharged directly into the South China Sea and the Gulf of Thailand. This reflects the growth in coastal populations due to economic growth along the coastlines in these countries, which results from coastal tourism, fishing and fish processing, mariculture and maritime trade and transport. Contaminants include domestic sewage, solid wastes, industrial discharges, seabed exploration, and the discharge of operational and ballast water from tankers. Indirect sources of contaminants include agriculture including intensive animal production and urban and industrial centres inland that discharge contaminants to the freshwater catchment systems. Run-off, and associated suspended sediment loads have increased over the last century as a consequence of coastal reclamation and construction, deforestation, and poor agricultural practices, including the expansion of agriculture in upland areas.

Land-based activities are major source of pollution in the coastal waters of South China Sea. This major source of land-based pollution may be categorized into two sources, firstly contaminants from point source (i.e., ports, harbours, industrial complexes), and secondly contaminants from non-point source (i.e., sewage, agricultural run-off, brackish-water aquaculture), (Figure 1). Between these two sources of contaminants, suspended solids and excessive nutrients loads, though they do not pose immediate threat to the marine living resources, are among the most commonly found in coastal waters of countries bordering SCS. High concentration of suspended solids largely come from land-clearing practices, logging activities and conversion of mangrove forests at upland area. On the other hand, high nutrient loads is mainly because of untreated domestic wastes from most coastal cities or urban areas that directly discharged into water bodies or rivers. Similarly, in rural areas, agricultural waste from over-applied of fertilizers, pesticides and herbicides in farming practices enters the aquatic environment through runoff and leaching processes. Both contaminants, high suspended solids and excessive nutrient loads, will likely reduce ecological functioning of SCS ecosystem and decline productivity of the system. Excessive of nutrient loads will frequently trigger eutrophication process that lead to phytoplankton blooming. For example, the Pearl River estuary in PR of China, intensive pollution has occurred from a mixture of sources resulting in high loads of inorganic pollutants including nitrogen and phosphorus, as well as toxic substances. As a result, the loads of BOD, total nitrogen and total phosphorus as well as toxic substances into the South China Sea and Gulf of Thailand have been increasing.

Compare to suspended solids and nutrients, oils, heavy metals and persistent organic pollutants (POPs) pose an immediate impact to both living resources and ecosystem degradation. Oils and greases pollution from land-based sources contribute about 40-50% to the total oil pollution in the marine environment. The threat of oils pollution to marine living resources is even greater when there is no existent of laws or lack of law enforcement. For examples, in Cambodia and Viet Nam there is no regulation to control ship wastes such waste engine oil is generally discharged directly into coastal water bodies. Similarly, even though the regulation exist, in coastal waters of Western Kalimantan, oil and grease, mercury, and phenols exceed the ASEAN Marine Water Quality Criteria due to possible lack of controlling or monitoring.

Based on several studies conducted in coastal area bordering SCS (e.g., Thailand, Philippines, Viet Nam, Malaysia and Indonesia), selected metal concentration such mercury (Hg), Arsenic (As) and lead (Pb), tend to increase during the last. These heavy metals have potential negative impact on the health of marine living resources and human who consume seafood products. Hence, solid and strategic actions are need to curb the ever increasing metal contaminants in both biota and sediment.

Pollution hot spots may be of two types in terms either of the sources such as concentrations of industry or urban areas, or of impacts, which are generally found in inshore waters that are semi-enclosed or have low flushing rates.

Figure 1 Relationship between contaminants and their impact to SCS ecosystem health.

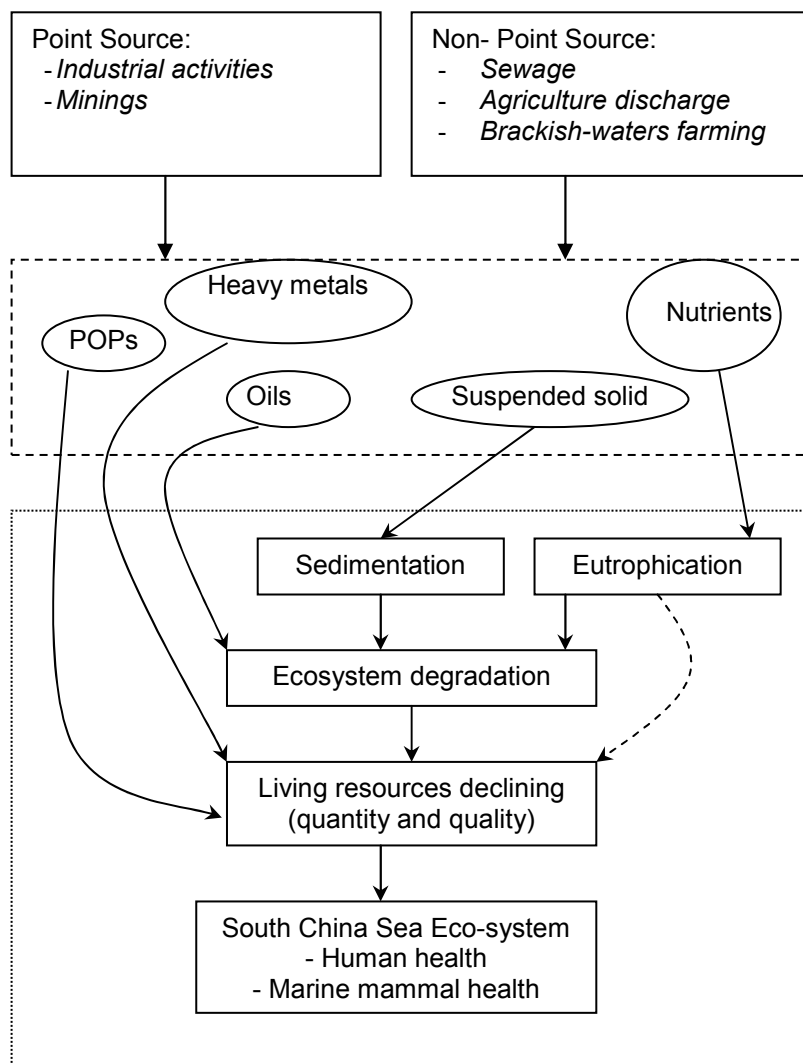


Table 1 reflects the contents of the National Action Plans and indicates that for all the countries bordering the South China Sea and Gulf of Thailand organic wastes discharged from coastal settlements is the most widespread issue. Governments have tried therefore to tackle the problems resulting from point sources by constructing and restoring waste treatment facilities, and initiating cleaner production at fish piers and for industry, as well as promulgating regulations and legislation to control waste discharge.

THE MANAGEMENT STATUS OF LAND-BASED POLLUTION IN THE SOUTH CHINA SEA

Challenges for Land-based Pollution Management

National challenges

Based on information derived from the revised National Action Plans, the challenges for Land-based Pollution management at the national level is presented in Table 2.

Table 1 Problems of Land-based Pollution of the South China Sea at the National and Regional Levels⁹.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam	Region
The major cause influencing marine water quality is liquid wastes (sewage) then followed by agricultural waste, oily waste, solid waste (organic matters), sediment matter, and solid waste (non-organic matters).	Urban and industrial pollution have eliminated the inshore demersal fishery and has degraded the coastal ecosystem Sewage Liter and Plastics POPs Nutrients and organics Sedimentation/siltation Heavy metals Hydrocarbons Radioactivity Escherichia coli	Organic and inorganic discharges from big towns Agricultural run-off is significant as this area is still largely agricultural based High concentrations of <i>Escherichia coli</i> were detected in most of the coastal waters Heavy metals level is relatively low, indicating a lower level of industrialization compared to the West Coast of Peninsular Malaysia.	Generally, the increase of anthropogenic activities due to the economic expansions in this region leads to a generation of large amount of wastes such as wastewater, solid wastes, organic matters etc., which affect marine environments, water quality, sediment, and marine organisms	Pollution in downstream areas of river watersheds The units seriously polluting the environment in coastal provinces Coastal urban waste water Coastal urban solid waste Coastal economic zones hazardous waste Pollution in marine ports Transboundary pollution needs to be controlled Oil pollution	Contaminants POPs (transboundary significance) Heavy metals Nutrient Oil Suspended solid Sources Sewage Agricultural discharge Shrimp farm Impacts Eutrophication Living resource decline Human health Ecosystem degradation by degraded water quality Siltation/sedimentation Marine mammal health (heavy metal) Food quality for export

Table 2 Challenges for Land-based Pollution Management at the National and Regional Levels.

Cambodia	Indonesia	Malaysia	Thailand	Viet Nam	Region
Lack of cooperation with concerned institutions. Lack of financing Lack of planning Limited human resources and manpower as well as technology Limit on the public awareness program Data information related to LBP unavailable Laboratory equipment is limited	The lack of effective implementation and enforcement of the existing rules and regulations. Institutional arrangement particularly to enhance cooperation mechanism in controlling, implementing and monitoring the marine pollution programs. Improper disposal of sewage Effective controlling on herbicides and pesticides use	Division of powers to control land-based pollution at central and lower levels of government. To improve land use planning. To provide more access to centralized sewage treatment facilities. These in turn need to be upgraded.	Lack of commitment in terms of land get from the government and collaboration from the private sectors. Lack of vision to create integrated and sustainable management strategies since the beginning.	Information on the state of pollution is inadequate Public awareness on the environmental pollution is very low Financial economic shortage Legal, institutional and management poor	Lack of cooperation and coordination among related sectors at the national level Weak linkage between central and lower levels of the governments High population pressure and industrialisation causing increased contaminant load. Low public awareness and Lack of responsible commitment of citizens Lack of treatment facilities Lack of appropriate legislations and Weak law enforcement Lack of government commitment in balancing economic growth and environmental protection Low priority for environment protection, public awareness and enhancement of advocacy Lack of research and monitoring resources (human, facilities...) Lack of regional comparable monitoring and analytical methodology Lack of criteria standard for sediment quality

⁹ No revised National Action Plans received from China and Philippines for derivation of information to be included in both tables.

Regional challenges

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

High population pressure and industrialization causing increased contaminant load

Rapid increase in population generate domestic wastes which include solid and liquid wastes, while industrialization also result in increasing volume of industrial wastes (wastewater, toxic and hazardous wastes). These wastes which are either discharged directly, or discharged without prior treatment, intensify the contaminant load in receiving bodies of water.

Lack of treatment facilities

Much of the domestic and industrial wastes are discharged directly into the receiving water bodies due to absence or lack of treatment facilities. Consequently, the wastes accumulate and pollute the receiving water bodies.

Lack of cooperation and coordination among related sectors at the national level and Weak linkage between central and lower levels of the governments

Lack of cooperation and coordination among the different sectors (e.g., government, academe, private agencies, industry) in the national level, and weak linkage between the central and local government units make implementation of environmental regulations and programmes less effective, and thus weaken the capability of countries in controlling land-based pollution.

Lack of appropriate legislations and Weak law enforcement

Land-based pollution problems are not effectively controlled because appropriate legislations are lacking. Compliance to environmental regulations/legislations requires strict implementation/enforcement of the law and is reduced because law enforcement is weak.

Low public awareness and Lack of (responsible) commitment of citizens

Low public awareness on the importance of environmental protection and on the programs/legislations being implemented to protect the environment, do not make the public realize their role in environmental protection by complying to legislations, and in the importance of their participation as stakeholders in controlling land-based pollution.

Lack of government commitment in balancing economic growth and environmental protection and Low priority for environment protection (public awareness and enhancement of advocacy)

Low priority for environment protection due to lack of government commitment in balancing economic growth and environmental protection result to lower budgetary allocations for environmental protection. This results to less effective implementation of programmes on environmental protection, purchase of appropriate equipment for environmental research and monitoring, and thus weakens the countries' capability to control pollution being intensified by economic growth.

Lack of research and monitoring resources (human, facilities...)

The countries' capability manage/control land-based pollution is reduced by lack of research and resource monitoring resources.

Lack of regional comparable monitoring and analytical methodology

Accurate assessment of marine environmental quality of the region cannot be conducted with lack of regional comparable monitoring and analytical methodology.

Lack of criteria for sediment quality

More accurate assessment of the marine environment quality will be done with the availability of the sediment quality criteria, in addition to water quality criteria. Consequently, this will result to formulation of more appropriate intervention measures to control pollution.

International Constraints

Sustainable Development Programmes in developing countries have been hampered by inadequate Overseas Development Aid, which has continued to decline between over the last decade. For some developing countries, this translates into fewer financial resources for sustainable development Programmes. In addition the International Sustainable Development discourse has been somewhat undermined by the recent international agenda for economic liberalization, particularly trade liberalization.

Pollution Hotspots

The data on hotspot, according to ASEAN criteria (3rd Meeting of the Regional Working Group on Land-Based Pollution), was also compiled and put in a GIS (Figure 2). Seventeen hotspots were characterized using the scoring system agreed at the 2nd Meeting of the Regional Working Group. Hotspots characterized this way were quite different from those cauterised in the Transboundary Diagnostic Report (TDA) of the Project, which was based on BOD and nutrient generated per capita.

Management status of hot spots is presented in Table 3

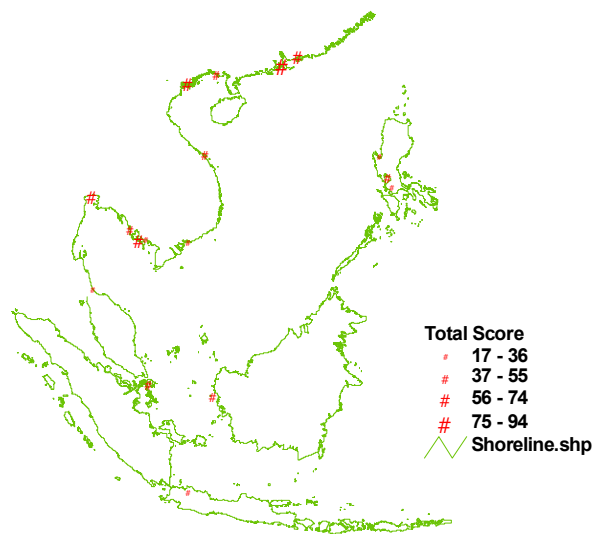


Figure 2 Pollution hotspots characterization in the South China Sea based on a combination of ASEAN/China scoring system agreed in the project.

Table 3 Status of Management of Pollution Hot Spots¹⁰

Rank	Name of Hotspots	Major Problems	Existing Actions for Land-based Pollution Management	Effectiveness & Challenges in Management
1	Pearl River	Nutrient Heavy Metals in Sediment Heavy Metals in Biological samples	Pearl River Delta Environment Planning' (2004-2020). The total capacity of town sewage (Bio-Chemical) treatment plant had achieved about 6.42 million t/d in the delta area (no including HK and Macau) Close the small electroplating factory. Enhance monitor and manage on the electroplating factory by use online monitor for waste water. Layout centralizing zone for electroplating factory	The water quality, especial for the rivers that across the town or city, have been improved obviously. The pollutant load of the no-point source is increasing; the increasing of industrial & urban progress and population. To decrease the pollution loads of heavy mental which were directly discharged to environment and no treating. Land-use of the centralizing electroplating zone and environmental safety is difficulty
2	Sihanoukville	Nutrient Heavy Metals in sea water Heavy Metals in Biological samples	Sub-decree on water Pollution Control Sub-decree on wastes management	Lack of equipment, finance to the enforcement, for the heavy metal from industry we can also control on the discharge as all the factory have to build the treatment facility before discharge.
3	Daya Bay	Heavy Metals in Biological samples Contaminant Movement Contaminant Load	Close the small electroplating factory. Enhance monitor and manage on the electroplating factory by use online monitor for waste water. Layout centralizing zone in another basin for the electroplating business. Layout and construct the centralizing waste water treatment plant in the industrial zone, and pump the waste water to deep sea by use a pipeline (20 km from the coastline).	To stop the pollution loads of heavy mental which were directly discharged to environment and no treating. Small electroplating factories were remove out the basin, but Chemical factories went the area. The water quality in nearshore waters has been improved for the moment, and the allowable discharge pollutant loads were increase and can be allocated to using. The extended pollutant loads will affected the marine life in certain degree, and the environmental risk is increasing along with the chemical zone's constructing
4	The Upper Gulf of Thailand and East Coast	Nutrient Heavy Metals in Biological samples Contaminant Movement	Initiate a management framework to protect marine environments from Land-based pollution. Develop hazardous waste treatment facilities. Complete operation of the already installed and repaired treatment systems up to their full capacities. Inspect the water quality discharged from treatment facilities according to the legal standards.	Lack of commitment in terms of budget from the government and collaboration from the private sectors. Lack of vision to create integrated and sustainable management strategies since the beginning
5	Quang Ninh	Heavy Metals Heavy Metals in Sediment Heavy Metals & DDT in Biological samples	Waste auditing from sources (factories, industrial zones) Commitment to meet discharge standard Forbbidance of using DDT in agriculture since 1992 Waste water treatment unit is on operating Plan for building sanitary landfill	Finance for waste (liquid, solid and harzadous) management and treatment Financial for technological renovation and adoption of environmental friendly and/or low waste production technologies The hotspots are famous tourism sites, environmental protection need to be taken to meet requirement of tourist sector.

¹⁰ Basic information based on Hot Spot ranking in the 3rd meeting of the RWG-LbP.

Table 3 cont. Status of Management of Pollution Hot Spots.

Rank	Name of Hotspots	Major Problems	Existing Actions for Land-based Pollution Management	Effectiveness & Challenges in Management
6	Batam	Heavy Metals in sea water Heavy Metals in Sediment Heavy Metals in Biological samples	Enforce the Environmental Act to control the industrial wastes discharge to marine water Encourage the industries to apply the precautionary approach principles in managing the wastes (such as implementation of EIA, meet the waste water effluent standards) Promote clean production programme	At present, waste water effluent standard and clean production mechanism considered to be effective to reduce the concentration of heavy metals to marine environment. To some extent, poor quality of EIA study and its implementation reflected to ineffectiveness of conducting environmental management in the industries. Provision of integrated waste water management for the small scale industries. Enhance capability of EIA commission members Provision of trained and certified inspectors for controlling pollution of different types of industries. Law enforcement
6	Manila Bay	Heavy Metals in sea water Heavy Metals in Sediment Heavy Metals in Biological samples	Enforcement of effluent standards (DAO 35/1990) Mandatory wastewater treatment for point sources of pollution (e.g., industries, etc.) – PD 984 and the Clean Water Act Mandatory installation and use of septic tanks for household waste (Sanitation Code of the Philippines) Desludging of septage (voluntary) Treatment of septage Rehabilitation of receiving bodies of water, e.g., Pasig River, other priority rivers outside of Metro Manila Regular clean up of water bodies Enforcement of the Ecological Solid Waste Management Act - promote the practice of the hierarchy of waste management especially through the local government units: reduce, reuse, recycle, recover - closure of solid waste dumpsites and conversion into controlled dumpsites and eventually into sanitary landfill	Medium level of compliance for point sources Proliferation of informal dwellers that do not have access to sanitation facilities Low level of desludging activities Very limited septic treatment facilities Lack of focus, lack of resources Low level of compliance by local government units Lack of resources and access to technology
8	Bei Hai	Heavy Metals in Sediment Contaminant Movement Contaminant Load	Close the small electroplating factory. The total capacity of town sewage (Chemical) treatment plant had achieved about 200 thousand t/d in BeiHai Urban area.	To decrease the pollution loads of heavy metal which were directly discharged to environment and no treating. Land-use of the centralizing electroplating zone and environmental safety is difficulty. The water pollution loads were reduced. Biological treatment process has no been added to the sewage treatment plant
8	West Kalimantan	Nutrient Heavy Metals in sea water	Regulate and control the pesticides use for agricultural activities Enforce the Environmental Act to control the industrial wastes discharge to marine water Encourage the industries to apply the precautionary approach principles in managing the wastes (such as implementation of EIA, meet the waste water effluent standards) Promote clean production program	Lack of public awareness Law enforcement Lack of trained and certified inspectors for controlling pollution of different types of industries.
10	Da Nang	Heavy Metals in sea water Contaminant Load Contaminant Movement	Waste auditing from sources (factories, industrial zones) Commitment to meet discharge standard Forbiddance of using DDT in agriculture since 1992 There is a plan for building waste water treatment Plan for building sanitary landfill	Low - medium effectiveness Finance for waste (liquid, solid and hazardous) management and treatment Financial for technological renovation and adoption of environmental friendly and/or low waste production technologies The hotspots are famous tourism sites, environmental protection need to be taken to meet requirement of tourist sector.

Table 3 cont. Status of Management of Pollution Hot Spots.

Rank	Name of Hotspots	Major Problems	Existing Actions for Land-based Pollution Management	Effectiveness & Challenges in Management
10	Koh Kong	Nutrient Heavy Metals in sea water Heavy Metals in Biological samples	Sub-decree on water Pollution Control Sub-decree on wastes management	Lack of equipment, finance to the enforcement, for the heavy metal from industry we can also control on the discharge as all the factory have to build the treatment facility before discharge.
12	DKI Jakarta	Nutrient Heavy Metals in sea water Contaminant Load	Controlling effluent from industrial sites Regulate and control the pesticides use for agricultural activities Enforce the Environmental Act to control the industrial wastes discharge to marine water Encourage the industries to apply the precautionary approach principles in managing the wastes (such as implementation of EIA, meet the waste water effluent standards) Promote clean production program	At present, waste water effluent standard and clean production mechanism considered to be effective to reduce the concentration of heavy metals to marine environment. To some extent, poor quality of EIA study and its implementation reflected to ineffectiveness of conducting environmental management in the industries. Uncontrolled population growth Urbanization and industrialization
13	Vung Tau	Nutrient Heavy Metals in sea water Heavy Metals in Sediment	Waste auditing from sources (factories, industrial zones) Commitment to meet discharge standard Forbiddance of using DDT in agriculture since 1992 Hazardous treatment unit is on operating There is a plan for building waste water treatment Plan for building sanitary landfill	Low - medium effectiveness Finance for waste (liquid, solid and hazardous) management and treatment Financial for technological renovation and adoption of environmental friendly and/or low waste production technologies The hotspots are famous tourism sites, environmental protection need to be taken to meet requirement of tourist sector.
13	Kampot	Heavy Metals in sea water Heavy Metals in Sediment Heavy Metals in Biological samples	Sub-decree on water Pollution Control Sub-decree on wastes management	Lack of equipment, finance to the enforcement, for the heavy metal from industry we can also control on the discharge as all the factory have to build the treatment facility before discharge.
15	Lingayen	Heavy metals in sea water Contaminant Movement	Control in the number of aquaculture structures in the Gulf	Guidelines in the establishment of fish cages in lakes and coastal waters Environmental criteria in polyculture systems to mitigate waste and increase fish production Programmatic compliance policy on the Environmental Impact Statement System Review of the Code of conduct for aquaculture
16	Songkhla	Contaminant Load Contaminant Movement	Promoting environment friendly practice. Building domestic wastewater treatment facilities. Educate and encourage general public to understand and participate in the environmental protection.	Lack of commitment in terms of budget from the government. Limit of the public awareness.
17	Batangas	Contaminant Load Contaminant Movement	Enforcement of effluent standards Preparation of the oil spill contingency plan Enforcement of the Ecological Solid Waste Management Act	Low level of compliance Lack of resources to fully implement the law

Pollution Monitoring Sites

For regional GIS database, countries agreed at the GIS Workshop in 2002 to submit data on monitoring stations, such as locations, names, and parameters list. China, Indonesia, Thailand and Viet Nam had provided such data for a total of 44 stations (Figure 2). Details of monitoring activities and interpretation to pollution management in the countries bordering the South China Sea are presented in Table 4.

Table 4 Status of Monitoring Activities in the Participating Countries.

Country / Monitoring category	Number of monitoring station	Frequency	Means and levels of Interpretation to management
Cambodia			
Water quality	8		Publication and distribution to concern institutions
Sediment	3		
Bio - parameters	3		
China			
Water quality	102	4 Programmes /Year, 4 time/Programme	
Sediment	>9	1 time /Year, (may be once in the period of 5 year with about 50-100 monitoring stations)	
Bio - parameters	No routine or regulating monitoring programme	May be once in about 5 year depending on the special project	
Indonesia			
Water quality	100	1-2 times annually	Not yet reliable for decision making
Sediment			
Bio - parameters			
Malaysia			
Water quality	128	4 times annually	Annual report for government and public
Sediment			
Bio-parameters			
Philippines			
Water quality	Manila Bay: 9 Lingayen Gulf & Batangas Bay: NDA	Monthly	Comparison with water quality criteria; Determination of the risk quotient
Sediment	Manila Bay: 15 Lingayen Gulf & Batangas Bay: NDA	Quarterly	Comparison with standards in other jurisdictions (since the Philippines does not have sediment quality standards); Determination of the risk quotient
Bio - parameters	Manila Bay (oyster and mussel): 3 Lingayen Gulf & Batangas Bay: NDA	Twice per year	
Thailand			
Water quality	240 (Gulf of Thailand and Andaman Sea)	Twice per year (dry and wet seasons)	Comparison with water quality criteria of Thailand
Sediment	75 (Gulf of Thailand and Andaman Sea)	Once per year (dry season)	Comparison with standards of various countries (Sediment quality criteria of Thailand is under processing)
Bio - parameters	15 (fish + shellfish)		Comparison with standards of Ministry of Public Health of Thailand
Viet Nam			
Water quality	22	4 times/year	Yearly Report of Environment Status for public, for environment management and National Assembly
Sediment	22	4 times/year	
Bio - parameters	22	4 times/year	

GOAL

In the fifth meeting of the Regional Working Group on Coral Reefs, there was a discussion of the goal of the SAP, which was amended in paragraph 7.2.10:

“The goal of the Strategic Action Programme is to foster regional cooperation and collaboration in order to halt or slow the current rate of environmental degradation and assist participating states in taking actions within their respective policies, priorities and resources, thereby contributing to human well-being; promotion of the sustainable use of marine living resources; and contributing to the maintenance of globally significant biological diversity, for the benefit of present and future generations.”

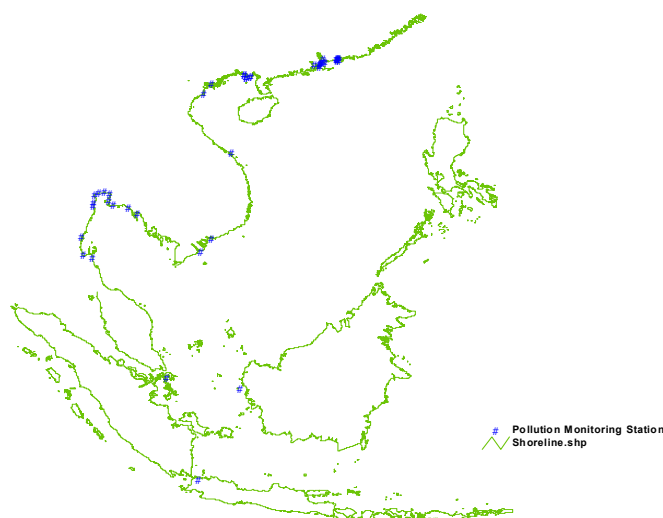


Figure 2 Pollution monitoring stations in the South China Sea.

TARGETS

The specific targets for Land-based Pollution management developed by the RWG-LbP are:

1. By the year 2017, to meet sea water quality (14 parameters) standards following ASEAN criteria (except pollutants from scientifically identified natural sources, if any) for:
 - 90% of monitoring stations in the 17 hot spots characterised by the RWG-LbP between 2002 – 2004;
 - 80% of other monitoring stations (more than 400 at present time)^{*} in coastal waters of the South China Sea.
2. By the year 2012, estimate total contaminant loading to the South China Sea.
3. By the year 2012, agree and adopt regional criteria for contaminants in sediment and biota.
4. By the year 2012, characterise and prioritise all hot spots surrounding the South China Sea.
5. By the year 2012, review and amend national legislation in support of all targets.

OBJECTIVES AND ACTIONS

The proposed regional activities to promote sustainable management of Land-based Pollution are categorised into five main components; namely:

Component 1 – Research and Monitoring:

Component 2 – National Policy, Legislation, Legal and Institutional Arrangements and Coordination

Component 3 – Public awareness, Communication and Education:

Component 4 – Capacity Building and Sustainability:

Component 5 – Pollution Control and Management

Each component contains specific objectives and activities. Detailed actions are presented in Table 5.

COST OF ACTIONS

(No cost estimation done during the seventh meeting of the Regional Working group on Land-based Pollution)

^{*} Numbers of monitoring stations of the participating countries: China, 115; Cambodia, 8; Indonesia, ca. 100; Malaysia, 128; Philippines, 18; Thailand, 100+; Viet Nam, 21 (72 if plans are implemented by 2010).

Table 5 Proposed Regional Actions for inclusion in the Strategic Action Programme.

Component/ Sub-components	Regional Activities
1. Research and Monitoring Objectives: Develop common methodology that will generate comparable data between participating countries	
1.1 Assessment	Development of basin scale model of carrying capacity of the South China Sea related to heavy metal Development of guidelines or criteria of sediment and biological quality for the region Selection of set of water quality parameters used efficiently for management Estimation of total contaminant loading to the South China Sea basin using quantitative modelling and GIS Research to reduce effectively pollution from point and non-point source
1.2 Monitoring	Development and harmonisation of comparable monitoring and analytical methodology
1.3 Mapping	
1.4 Socio-economic and Cultural Assessment	Identification of driving forces (population pressure, industrialisation) from human activities Identification of human behaviours regarding waste discharge from coastal villages, aquaculture, fishing boats to the sea
1.5 Database Management	Maintenance of meta-database and GIS database developed by the SCS Project
1.6 Information System	Development of information sharing and data exchange Maintenance of website of the SCS project
1.7 Decision Support System	
1.8 Environmental Impact Assessment	
2. National Policy, Legislation, Legal and Institutional Arrangements and Coordination Objective: To maintain and improve regional collaboration and coordination to ensure successful implementation of the Regional Strategic Action Programme	
2.1 Integration of Research Programme with Management and Policy Making	Enhancement of regional network to interpret scientific knowledge for pollution management in the South China Sea
2.2 Monitoring the SAP and NAPs	Periodical (each five year) evaluation of SAP and NAPs implementation to be conducted by independent experts
2.3 Review and Improve Existing Laws and Policies	Development of roster of experts that can review and improve legislation as required
	Development and application of marine sediment and biota quality guideline/criteria,
2.4 Common understanding of national and regional policies	
2.5 Stakeholder Analysis and Involvement	
2.6 Community Empowerment	Seminar and/or workshop for sharing and dissemination of experiences and lessons learned regarding Community participation/empowerment in managing Land-based Pollution Review, synthesis and dissemination of community based practices in management of wastes from aquaculture and settlement
2.7 Strengthening Traditional Value and Management System	
2.8 Establish an Incentive System for Good Governance	Creation of award programme for local governments for best practices in pollution management every two years
2.9 Linkage to International Obligations	
2.10 International and Regional Co-operation	Maintenance of coordinating framework developed by the SCS Project to ensure SAP implementation Organisation of a forum for cooperation between and among national and international agencies/institutions such as GPA LBA, IMO, IOC, ASEAN, COBSEA Development of mechanism for bilateral management of Land-based Pollution in transboundary waters

Table 5 cont. Proposed Regional Actions for inclusion in the Strategic Action Programme.

Component/ Sub-components	Regional Activities
3. Public Awareness, Communication and Education	
Objective: To raise public awareness on the impacts of land-based pollution	
3.1 Development, Improvement, and Dissemination of Awareness Materials	Conduct regional training programme on Land-based Pollution for journalists and broadcasters Development of public awareness materials
3.2 Community involvement in Public Awareness	Identification of non-government organisations to encourage community participation on marine pollution awareness Establishment of networking among the stakeholders
4. Capacity Building and Sustainability	
Objective: To enhance and upgrade the skills and capacity of human resources, institutional capability and financial sustainability in implementing the Strategic Action Programme.	
4.1 Human Resource Development	
4.2 Immediate Training Activities	Training courses related to sediment and biota (methodology standardization, carrying capacity and risk assessment) for the technician level). The duration of each training will take about 3-7 days. Regional experts or consultant will conduct the training. (First priority is for methodology standardization) Training course on modelling and GIS for land-based pollution study The duration of each training will take about 3-7 days. Regional experts or consultant will conduct the training. Training courses and workshops of land-based pollution control management (for managers). The duration of training will take about 2-3 days. Regional experts or consultant will conduct the training.
4.3 Law Enforcement	Seminar/workshop for sharing experiences in law enforcement related to land-based pollution control.
4.4 Monitoring, Controlling and Surveillance	Training related to standardization of procedures for monitoring, control and operation of sampling instruments. The duration of training will take about two weeks. Regional experts or consultant will conduct the training.
4.5 Financial Sustainability	Establishment of Regional Land-based Pollution Funding mechanism
4.6 Infrastructure Development	
4.7 Institutional Building and Strengthening	Establishment of institutional network for exchange of information and technical support. Development and implementation of environmental laboratory recognition scheme
5. Pollution Control and Management	
Objective: To achieve a healthy marine environment based on regional marine environment quality criteria	
5.1 Develop Guidelines for Sustainable Management	Establishment of Standard Operating Procedures (SOPs) for pollution control and management by regional experts and/or consultants Review and synthesis of EIA practices from the countries bordering the South China Sea by regional experts and/or consultants
5.2 Strengthen Management Component	Establishment of regional network of decision support systems
5.3 Enhance environment quality	Conduct of regional workshops to share experiences, technologies in establishment of integrated waste treatment facilities
5.4 Community-based Management	Development of pilot projects in application of 3R program (reduce, recycle and reuse) Transfer knowledge on simple waste treatment techniques (man-made wetlands and communal septic tanks) for small scale management of pollution.
5.5 Sustainable Use of Coastal Systems	Development of guideline for spatial planning of coastal land-use and marine zoning
5.6 Environmentally Friendly Technologies	Conduct workshop/conferences to review and to transfer technologies for cost-effective waste management, clean production and non-gasoline energy appropriate for use in the region
5.7 Types of Management Regimes, Development of Models	Conduct workshops for exchange and adoption (if possible) of existing successful management models developed by the countries bordering the South China Sea
5.8 Alternative Livelihood	
5.9 Establishment of Transboundary Management Zones	Implementation of joint actions in reducing land-based pollution in transboundary waters

ANNEX 6

Work Plan and Timetable for the Regional Working Group on Land-based Pollution, 2006 - 2007

Table 1 Work Plan for the Land-based Pollution Component to December 31st 2007 as agreed in the sixth meeting of the RWG-LbP¹¹.

Year	2005						2006				2007			
	3			4			1	2	3	4	1	2	3	4
Quarter														
Month	July	Aug	Sep	Oct	Nov	Dec	J - M	A - J	J - S	O - D	J-M	A-J	J-S	O-D
National Activities														
National Committee meetings														
National Technical Working Group														
RWG-LbP meetings									X					X
Provide data to RWG-LbP and RSTC														
Submit final version of National Reports for publication by UNEP¹²			Thai, Ind						Chi-31 Aug					
Publication national reports in local language		Vie	Tha				Cam		Chi, Mal, Ind-Sept					
Update and Maintain National Meta-database				X	X	X				X				
Provide and/or Update Meta-database online									10 Sept					
Provide and Update data in GIS format to regional Database						X			30 Sept	X				
Implementation of Pilot Activities														
Further Elaboration of the SAP														
Provide guidance to IMC on the pollution component input to SAP With stakeholders, review/revise plan to implement the Strategic Action Plan														
Development and Finalisation of NAPs	X	X												
Revised draft of NAPs		Cam Tha Vie	Ind		Mal									
Final draft of NAPs of Cam, Ind, Mal, Tha & Vie									X					
Revised NAP from China									15 Sept					
First draft of NAP from the Philippines														
Public Meeting for dissemination of NAPs														
Final draft of the Regional Overview of LbP	X	X	X	X						30 Oct				
Provide inputs from focal points to Dr. Anond									30 Sept					
Modelling Carrying Capacity of South China Sea from Land-based Pollution	X	X												
Implementation of pilot activities														
Participation in the training programme														

¹¹ Acronyms used in this table: Cam-Cambodia, Chi-China, Ind-Indonesia, Mal-Malaysia, Phi-Philippines, Tha-Thailand, Vie-Viet Nam.

¹² Philippines will inform the PCU timeframe for submission and publication of national report, and draft of national action plan following consultation with national working group.

