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Facility

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

REPORT

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

Ninh Hai, Ninh Thuan, Viet Nam, 18th – 21st July 2005



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Cover Photo: Seaweed bloom on coral reef in Van Phong Bay, Viet Nam as a result of nutrient run-off by Dr. Vo Si Tuan.

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Report of the Meeting

1. OPENING OF THE MEETING

1.1 Welcome Address on behalf of UNEP

1.1.1 Dr. John Pernetta, the Project Director welcomed participants to the meeting on behalf of Dr. Klaus Töpfer, the Executive Director of the United Nations Environment Programme (UNEP) and Dr. Ahmed Djoghlaif, Assistant Executive Director, and Director, Division of Global Environment Facility Co-ordination (UNEP/DGEF).

1.1.2 Dr. Pernetta noted that the agenda contained a number of items outstanding from the preparatory phase, which he hoped could be completed satisfactorily during this meeting including final arrangements for the implementation of the pilot activities. He noted further that, the work of this group was somewhat behind that of other groups and expressed the hope that during the course of the next few months the group would accelerate progress such that by the time of the next regional scientific conference in November 2005 the group would be on par with the others and that outputs would be available for regional distribution.

1.1.3 Dr. Pernetta noted that over the past three years the Project Co-ordinating Unit had operated with 33% under-staffing but that as of the middle of June 2005 a full staff complement had been engaged. He welcomed Dr. Vo Si Tuan as Senior Expert in the PCU and replacement for Mr. Yihang Jiang, and noted that Dr. Tuan would serve as the PCU expert member of this regional working group. He noted further that Mr. Christopher Paterson had been appointed to replace Mr. Kelvin Passfield as fisheries expert, and that Mr. Kim Sour had been appointed to the vacant post of associate expert – natural sciences.

1.1.4 Dr. Pernetta welcomed Mr. Phong, Director of the Department of Science and Technology of Ninh Thuan Province and representative of the Ninh Thuan Provincial Government noting that he was also the focal point for the development of the demonstration site for coral reefs in Ninh Hai, Ninh Thuan Province.

1.2 Opening Statement by the Representative of the Ninh Thuan Provincial Government

1.2.1 Mr. Tran Phong expressed appreciation of behalf of the Provincial Government that Ninh Thuan Province had been selected as the venue for this meeting. He noted that Ninh Thuan was a small and poor province and that the selection of the Ninh Hai coral reef demonstration site represented a significant boost to developing capacity in the Province for integrated coastal zone management. He expressed his personal pleasure that this meeting was being convened in Ninh Hai as it was the first regional meeting to be convened in Ninh Thuan Province.

1.2.2 He noted that implementation of the demonstration site would need the active involvement, and support of the local government and the people, and noted further that in turn the province needed the assistance of international agencies in developing integrated approaches to coastal and habitat management. Land-based Pollution was a concern of the Province and the Provincial Department of Science and Technology. Finally, he expressed the hope that the meeting would be successful and that participants would enjoy their stay in Ninh Hai.

1.3 Introduction of Participants

1.3.1 Members of, alternates, and observers to, the sixth meeting of the Regional Working Group for Land-based Pollution (RWG-LbP), were invited to introduce themselves and there followed a *tour de table* during which all participants briefly outlined their experience, expertise, and involvement in the implementation of 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 noted 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 further state that members shall be eligible for re-election no more than once.

2.1.2 Members recalled that at the third meeting of the working group, convened in Phuket in July 2003, Mr. Han Baoxin, Mr. Vicente Diaz and Mr. Mohamad bin Jaafar were elected as Chairperson, Vice-Chairperson and Rapporteur, respectively. Mr. Han Baoxin and Mr. Vicente Diaz served as Chairperson and Vice-Chairperson during the fourth meeting held in March 2004 but due to the absence of Mr. Jaafar, Ms. Carol Hoh Mui Ling was elected Rapporteur. At the fifth meeting convened in Shenzhen, November 2004, Mr. Baoxin was re-elected as Chairperson, Mr. Dasminto was elected Vice-Chairperson, and Ms. Carol continued to serve as the Rapporteur. Members noted therefore that under the rules of procedure Mr. Baoxin was not eligible for re-election as Chairperson of the working group.

2.1.3 The Project Director then invited the members of the working group to nominate a Chairperson, Vice-Chairperson and Rapporteur to serve until the seventh meeting in 2006. Dr. Pham Van Ninh focal point for Viet Nam, nominated Mr. Vicente Diaz, focal point for the Philippines as Chairperson; Mr. Pak Sokharavuth focal point for Cambodia nominated Mr. Henk Uktolseya, alternate member from Indonesia, as Vice-Chairperson; and, Mr. Uktolseya nominated Ms. Norazma bt. Zainuddin alternate member from Malaysia as the rapporteur for the meeting. There being no further nominations Mr. Diaz, Mr. Uktolseya and Ms. Norazma were elected by acclamation.

2.2 Documentation and Administrative Arrangements

2.2.1 The Chairperson of the RWG-LbP, invited the Secretary of the meeting to introduce the available documentation. Dr. Pernetta briefly reviewed the discussion and information documents available to the meeting, a list of which is contained in Annex 2 of this report.

2.2.2 Dr. Pernetta introduced document UNEP/GEF/SCS/RWG-LbP.6/Inf.3, the proposed programme of work, and the administrative arrangements for the conduct of the meeting. He noted that formal sessions of the meeting would be conducted in English and in plenary although sessional working groups could be formed at the discretion of members to complete substantive agenda items as appropriate. He noted that time would need to be taken to complete various matters individually, including the finalisation of amendments to the Memoranda of Understanding and the operational documents for the pilot activities.

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.6/1 and the annotated provisional agenda, document UNEP/GEF/SCS/RWG-LbP.6/2, and invited members to propose any amendments or additional items for consideration, prior to the adoption of the agenda.

3.2 Members considered the draft provisional agenda and adopted it without amendment or addition. The agenda is attached as Annex 3 to this report.

4. REPORTS REGARDING OVERALL PROGRESS TO DATE

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

4.1.1 The Chairperson invited the Senior Expert to introduce document UNEP/GEF/SCS/RWG-LbP.6/4 "*Current Status of Budgets and Reports from the Specialised Executing Agencies in the Participating Countries*". Dr. Tuan drew the attention of the meeting to a number of outstanding issues and matters requiring the attention of members of the working group. He noted that second amendments to the MoU had not been finalised for China, Malaysia and the Philippines, that 2004 audit reports were outstanding from Cambodia, China, and Malaysia and that final signed progress and expenditure reports had not been received from China. He further noted that this was causing considerable problems in finalising outstanding matters from the preparatory phase.

4.1.2 Dr. Tuan reminded members of the policy of the GEF regarding the tracking and reporting of co-financing and the agreement of the RSTC and PSC that, the reporting formats be modified to accommodate this requirement, including the record of cash co-financing provided by the governments to the SEAs to cover the costs of national level co-ordination meetings. He drew the attention of members to Table 3 of the document, which shows that overall co-financing had reached a level of 177,310 US dollars compared with the estimate of 99,960 US dollars. He noted further that this increased co-financing stemmed from four countries and that the remaining three countries (China, Malaysia and the Philippines) had failed to meet the co-financing estimate.

4.1.3 Mr. Diaz invited members of the Regional Working Group to review the outstanding matters and to provide information and clarification regarding, the six month and annual progress reports, expenditure reports, and audit reports.

4.1.4 Ms. Norazma noted that she had brought with her the second amendment to the Malaysian MoU duly signed by the National Technical Focal Point and that since no expenditures had been incurred in 2002 and 2003 she presumed that no audit report was required for these years. Dr. Pernetta noted that a simple letter from the National Technical Focal point stating that no expenditures had been incurred would be sufficient for the record, but that an audit report from either an external audit company of international standing or, from the Government Auditors was required for 2004 expenditures.

4.1.5 Mr. Pak noted that he was not aware of the status of the Cambodian Audit report since all components in Cambodia were subject to a single audit co-ordinated by the National Technical Focal Point, Mr. Koch Savath. Dr. Pernetta confirmed that the consolidated report had not yet been received from Mr. Savath.

4.1.6 Following a general discussion, the meeting adjourned briefly to permit clarification of the status of the Malaysian, Philippines and Chinese situations. Following the reconvening of the meeting it was noted that the second amendment to the Malaysian MoU had been signed and was now operational; that some discrepancies regarding past expenditures in the Philippines precluded finalisation of the second amendment and that Dr. Tuan and Mr. Diaz would clarify the matter with Ms. Nita Tangsujaritvichit and finalise the MoU for signature before the closure of the meeting¹.

4.1.7 Dr. Pernetta reported that in the case of China the absence of six monthly reports for the last 18 months precluded finalisation of the budget revision and hence precluded signature of the MoU amendment. He noted that Mr. Baoxin had agreed to complete and submit the outstanding reports during the course of the meeting, which would permit finalisation of the budget revision and MoU before the end of the meeting².

4.1.8 Members took note of the fact that in the case of Indonesia and Viet Nam there were no outstanding administrative matters.

4.2 Consideration of Progress in finalising the Pilot Activities

4.2.1 Following the withdrawal of the proposal for Tha Chin River Mouth, Thailand, two Pilot Activities proposed by the Regional Working Group for Land-Based Pollution, were considered by the first RSTC Executive Committee meeting and approved by the Project Steering Committee on a no objections basis, namely the Lingdingyang catchment in the Pearl River, and Batam. To date no revision of the Lingdingyang catchment proposal has been received, whilst the Batam proposal has been, extensively revised by, the Indonesian Focal points in consultation with the PCU. The revised proposal is contained in document UNEP/GEF/SCS/RWG-LbP.6/5.

4.2.2 The Chairperson, invited the focal points from China and Indonesia to brief the meeting on the current status of the proposals, and outline the proposed activities.

4.2.3 Mr. Uktolseya, introduced the revised pilot activity to be undertaken in Batam noting that proposed activities fell into two categories. Assembling baseline data and information regarding land-based pollution into a GIS database to strengthen local government management of water quality in the vicinity of Batam City; and, construction of facilities for management of domestic liquid and solid

¹ The MoU was finalised and signed by the Project Director, requiring only the signature of the Secretary DENR to become operational. Ed. July 29th 2005.

² Draft 6 month reports and expenditure statements for 2004 were submitted during the meeting. Ed. 29th July 2005.

wastes in an isolated rural community in Nongsa that would serve as a demonstration for replication elsewhere in the Province. In addition public awareness activities and strengthening and publicising compliance and non-compliance by industries were activities that would be initiated to enhance the involvement of as wide a range of stakeholders as possible. He noted that the Norwegian Government was already providing some financial support to related activities in Batam and the intention of the local government was that these two activities would be run in close co-operation.

4.2.4 Members were invited to consider and discuss this proposal and during discussion Mr. Ekachai Praekulvanich noted that the solid waste management activities did not relate to the content of the Causal Chain Analysis diagram, nor, to the text outlining the land-based pollution problems. Mr. Uktolseya noted that final amendments to the text would be made to accommodate these comments. Dr. Anond noted that during the modelling workshop on carrying capacity the area of the proposed pilot activity was identified as one of low carrying capacity, in the case of nutrients.

4.2.5 Dr. Gullaya noted a number of inconsistencies in the text, including the fact that the seawater quality and sediment standards were referred to ASEAN but that ASEAN had not set standards for sediment quality, and the project had agreed to use those of China for the purposes of this project.

4.2.6 Dr. Tuan, noted the need to distinguish, in cash and in-kind co-financing and noted further that the overall co-financing exceeded the GEF grant requested. Mr. Uktolseya noted that the co-financing was from the Provincial Government and from the Norwegian grant that funded directly some of the activities outlined.

4.2.7 It was agreed that Mr. Uktolseya would work with Dr. Tuan and Dr. Pernetta to finalise the proposal during the course of the meeting.

4.2.8 Mr. Baoxin introduced the revised proposal for the Lindingyang catchment, which had not yet been formally submitted to the PCU since it had been dramatically changed in terms of system capacity. The local government had expressed the desire to increase the capacity to 30,000 tonnes per day and 81,000 square metres and a total investment of 2.8 million US dollars with the balance of the funds being provided by the local government. He noted that environmental monitoring has to be carried out in order to undertake the feasibility study and provide a baseline against which to monitor the impact of the intervention.

4.2.9 Mr. Baoxin noted that originally the PCU had criticised the proposal on the grounds that it had not specified how the impact of the intervention would be monitored and how impacts might be mitigated. He noted that not only had the proposal been revised but activities had been added to improve this aspect of the proposal. On the advice of various national experts activities had been expanded to include aspects of policy change that would hopefully result in changing the other sources of pollutant input to the system as a whole.

4.2.10 Mr. Baoxin promised that immediately following the meeting he would visit Shenzhen to discuss and finalise the proposal, which would be forwarded to the PCU within ten days of the closure of the meeting and the formal letter of commitment, would be provided by, the local government around the end of July 2005.

4.2.11 Mr. Uktolseya raised the issue of payments for the pilot activities once these had been finalised and agreed. It was noted that where an SEA had outstanding financial reports no advance could be made against the pilot activities until such time as the outstanding reports had been received and accepted by the PCU.

5. FINALISATION FOR PUBLICATION OF THE NATIONAL REPORTS

5.1 Discussion Regarding Finalisation for UNEP Publication of National Reports in English

5.1.1 The Chairperson invited the Senior Expert to present the document UNEP/GEF/SCS/RWG-LbP.6/6 "*Status of Substantive Reports from the Focal Points for Land-based Pollution of the Participating Countries*". Dr. Tuan reminded members that during both the fourth and fifth meetings of RWG-LbP, the PCU had disseminated expert reviewers' comments and recommendations for revision of the National Reports. Final revisions have, however, not been sent by some Focal Points to the PCU for editing and publication.

5.1.2 Dr. Tuan noted that the volume and diversity of the documents from the different single countries precluded the PCU consolidating these into a single regional report. Hence it was suggested that the Regional Working Group discuss and agree on what minimum elements should be included in the English versions of the national reports for regional dissemination.

5.1.3 During discussion it was noted that some focal points had completed all their requirements on time whilst others had not, consequently since it was the desire of the PCU to synchronise publication of the reports in English for regional dissemination the slowest members of the group were in fact delaying the dissemination of the outputs of the others.

5.1.4 Mr. Uktolseya queried whether, having agreed on the minimum contents individual countries would be expected to rewrite their national reports. In response Dr. Pernetta pointed out that it was not the intention that finalised reports be rewritten rather that the RWG-LbP should agree on what the minimum contents were, that should be included in the regional publication in English. This was intended to guide the PCU in the final editing and formatting of the reports to ensure a measure of comparability between individual country reports.

5.1.5 Following some discussion it was agreed that a small group would draft a minimum list of contents for consideration by the working group and that all focal points would produce finalised English versions of their reports by 8th August 2005. Following review by the RWG-LbP of the draft proposed by the small advisory group the minimum contents were agreed as contained in Annex 4 of this report.

5.2 Status of Publications in Local Languages

5.2.1 At the invitation of the Chairperson the Senior Expert noted that following the requirements of the initial MoUs signed between UNEP and the Specialized Executing Agencies for Land-Based Pollution, all National Reports should be published in local languages by the SEA for public dissemination of data and information in the participating countries. He noted that the status of these publications was presented in document UNEP/GEF/SCS/RWG-LbP.6/6 *"Status of substantive reports from the Focal Points for Land-based Pollution of the participating countries"*.

5.2.2 It was noted during discussion that responsibility for publication of the national reports in the national language remained with the SEAs but all such reports should carry the logo of the project on the outside cover and the standard UN disclaimer on the inside cover. It was also noted that the PCU required a minimum of five and a maximum of 10 copies of such publications for the record of the project and that to date very few of these publications had been received by the PCU. In some cases the reports had not yet been published and in others they had been published but the PCU did not have copies.

5.2.3 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.

5.2.4 Where national reports have been published already, the focal points were requested to provide the PCU with copies as soon as possible, together with information regarding the numbers of copies printed and the distribution list for recipients.

6. DEVELOPMENT AND UPDATE REGARDING THE NATIONAL ACTION PLANS AND REGIONAL STRATEGIC ACTION PROGRAMME

6.1 Status of Development and Update of the National Action Plans

6.1.1 Dr. Tuan reminded members that the deadlines for development and updating of the National Action Plans for Land-based Pollution in each participating country were agreed as contained in the work plan finalised by the fifth meeting of the RWG-LbP. During that meeting the document "*Comparative review of the content of the national action plans*" was presented and the optimum contents of draft Action Plans were agreed. He noted that unfortunately, there had been little progress since completion of the meeting, in November 2004.

6.1.2 The Chairperson invited focal points to present information regarding the status of their draft action plans, and the plans for their further development and finalisation. There followed an extensive discussion of the limitations faced by the focal points in meeting the agreed deadlines. The Project Director noted in this connection that: the development of National Action Plans was a requirement of the original Memoranda of Understanding hence this was not a "new and additional task" rather the finalisation of an outstanding task that had been deferred in the light of the workload associated with the hotspot characterisation.

6.1.3 During discussion it was noted that the fifth meeting of the RWG-LbP had produced a listing of the existing contents of the draft National Action Plans as a guide to revision of their contents, but that amendments had not greatly expanded the coverage of the plans. It was noted for example that none of the current plan drafts contained any estimates of the costs of interventions. Dr. Ninh pointed out that determining the costs of interventions was a highly specialised task that required inputs and assistance from other expert members of the national committee.

6.1.4 It was pointed out that the national action plans needed to be revised in order to provide the necessary inputs to the development of the regional Strategic Action Programme the first draft of which was to be provided to the sixth meeting of the Regional Scientific and Technical Committee in December 2005. There followed a round of discussion during which it was agreed that: China, Viet Nam, Thailand, and Indonesia would provide revised drafts by the middle of August (15th); and Malaysia and Cambodia revised drafts by 30th August; Philippines would provide a first draft by mid August (15th).

6.2 Update of the Goals and Targets of the Regional Strategic Action Programme

6.2.1 The Chairperson invited the Senior Expert to introduce this agenda item. Dr. Tuan noted that during the fifth meeting of RWG-LbP new goals and targets for the Regional Strategic Programme were proposed as follows:

- By 2006, review recommended national water quality criteria in the light of regionally agreed criteria;
- By 2007, develop regional guidelines for mitigation measures for non-point sources of pollution and for specific activities such as aquaculture and intensive animal husbandry;
- By 2007, estimate the carrying/assimilative capacity of coastal waters with respect to nutrients and heavy metals;
- By 2007, develop land-based pollution activities in the Strategic Action Programme to meet regional water quality objectives;
- By 2007, develop and/or implement plans for appropriate mitigation activities at the identified hotspots;
- By 2007, develop a sustainable financing mechanism for regional cooperation and collaboration for land-based pollution;
- By 2008, develop criteria for sediment and biological samples at the regional level.

6.2.2 Dr. Tuan noted further that the fifth RSTC meeting in Fangchenggang, December 2004 considered the goals and targets proposed by all the Regional Working Groups and that:

"10.2.5 The Committee considered the possible target year(s) for the revised SAP. It was agreed that, assuming the SAP would be adopted and implemented by 2007, then five and ten-year milestones would be 2012 and 2017, and these should be used by the Regional Working Groups.

10.2.6 The meeting proceeded to review each goal and target proposed by the Regional Working Groups, and provided comments for the Regional Working Groups to consider during the next meeting. The revised goals and targets for each component and sub-component, along with RSTC comments, are presented as Annex 8 to this report."

6.2.3 Regarding the goals and targets proposed by the RWG-LbP during its' fifth meeting, the RSTC suggested that

"these were not targets or goals for the regional SAP since they would be achieved by, the end of the project when the SAP would only become operational. In fact these represent the tasks of the preparatory phase of the project and hence should have been substantially met already."

6.2.4 The RSTC recommended that the RWG-LbP should consider the formulation of more action-oriented targets. Members were invited to discuss and propose updated goals and targets in accordance with the recommendations of the RSTC.

6.2.5 Mr. Uktolseya highlighted the difficulties facing Indonesia in terms of the geographic scope of the national action plan, which covered only part of the coastline of Indonesia and noted further the need for distinguishing between the achievement of targets relating to different contaminants and sources.

6.2.6 Dr. Gullaya, regional expert, suggested the need to identify and characterise other hot-spots in the South China Sea as a specific target since the hotspots characterised to date had been selected by the national focal points from a longer list. She also noted that it might be necessary to distinguish goals relating to point and non-point sources of pollution, and possibly to distinguish types of source such as industrial, agricultural and domestic, and to distinguish types of contaminant such as nutrients and heavy metals.

6.2.7 The Chairperson suggested that targets might also include the identification of best practices in mitigation targets and targets related to compliance. It was noted that this would require setting targets with respect to improved enforcement and alternate practices, and Mr. Pak suggested that targets might include setting them with respect to changes in practice, such as for example, organic production in the agricultural sector.

6.2.8 Dr. Anond suggested there might be a need to specify targets not only in terms of specific contaminants but also by area and that perhaps what was needed was to convene a much larger regional workshop to discuss and agree such targets. Dr. Tuan suggested that since the focal points were government designated and were responsible for collating, through the national committees a national perspective with respect to pollution targets they were in fact the appropriate group to undertake such an exercise.

6.2.9 Dr. Ninh noted that the Vietnamese approach had been to distinguish upstream and downstream pollutant sources and to establish targets for these sources separately. He noted that in the case of downstream sources Viet Nam had comparatively few coastal industrial hotspots and only a limited number of major coastal urban centres. He noted that he considered that Viet Nam could potentially reduce its' overall pollutant loading by 50% within the next ten years.

6.2.10 The participants proceeded to tabulate the overall goals and targets derived from the individual national action plans and to discuss these in some detail as the basis for formulating regional goals and targets. It was noted that goals written in terms of a percentage of monitoring stations meeting national water quality standards within a set time frame could potentially have little impact on overall water quality or contaminant loading in the South China Sea. For example the contaminant loading at a hotspot monitoring point might continue to increase while the total percentage of monitoring points meeting the criteria might also increase. The overall loading therefore might actually increase even though the goal and target had been met. It was agreed therefore that the goals should distinguish between monitoring stations located within or outside hotspot areas.

6.2.11 There followed a lengthy and detailed discussion of the elements covered by the national goals and targets with a view to developing a set of regional goals and targets. The Regional working group agreed to adopt the draft regional goals and targets outlined in Annex 5 of this document.

7. CARRYING CAPACITY OF THE SOUTH CHINA SEA WITH RESPECT TO LAND-BASED POLLUTION

7.1 National Activities Regarding the Estimation of Carrying Capacity

7.1.1 During the fifth meeting of the RWG-LbP, it was agreed that each focal point should consider the modelling of carrying capacity of national coastal waters with respect to nutrients and heavy metals. Initially each focal point was to have assessed the national capacity to conduct such studies and inform the PCU of the outcome of the assessment. This proposal from the RWG-LbP was discussed during the fifth meeting of the RSTC, which noted that the UNEP/GEF South China Sea Project is a regional project with a vision to formulate regional perspectives and promote regional cooperation.

7.1.2 Given that the purpose of the proposed activities was to determine the carrying capacity of the South China Sea marine basin, the RSTC was of the view that a unified approach to modelling the entire basin was preferable to separate national activities that might not necessarily result in comparable outputs, and which might also be difficult to aggregate in order to derive a basin scale picture.

7.1.3 Dr. Ninh raised a question concerning this issue and proposed implementing a regional approach through incremental national actions. He proposed that a regional picture could be achieved by assessing carrying capacity in each country according to a regionally agreed methodology including the choice of models, parameters, and the outputs. This approach would avoid the most important difficulty that the countries surrounding the South China Sea cannot submit the raw data concerning pollution load and concentration of pollutants to the PCU because there is no agreement between the countries for this purpose. Following each country's individual assessment some common regional centre would gather and compile the results into a single regional carrying capacity report. Such an approach should include not only nutrient but also heavy metal calculations.

7.1.4 In response to this query it was noted that the data sets would be neither comparable nor verifiable if each focal point used data that were not available regionally. Dr. Ninh responded that in the framework of the South China Sea "hotspot" data submitted by the national focal points was already being used and therefore it should be used in carrying capacity evaluation. The Senior Expert also informed the meeting that the RSTC had supported the proposal that the (South East Asian START³ Regional Centre) SEA START RC formulate a regional approach to evaluating the carrying capacity of the entire South China Sea basin. The RSTC had decided that:

- *The regional study should promote capacity building for participating countries in estimating carrying capacity, and data and information should be shared between countries (Para. 7.6.8).*

7.1.5 The RSTC further agreed that Dr. Anond, on behalf of Thailand NTWG, would finalise a proposal for consideration by the Executive Committee of the RSTC. The second meeting of the Executive Committee of the RSTC had been convened in Bangkok in February 2005, and had discussed and agreed the proposal to evaluate the carrying capacity of the South China Sea with respect to nutrients by using remotely sensed data of chlorophyll concentrations. The second meeting of the Executive Committee of the RSTC pointed out that:

- *Ambient concentration may be an applicable indicator of the response of the coastal system to heavy metal loading from land but a different approach should be used for nutrient (Para. 4.6).*
- *Real concerns were particulate rather than dissolved nutrient, biomass might be verified from satellite images of chlorophyll concentration, and oxygen concentration is a better indicator of ecosystem function and response with respect to nutrient loading than simple nutrient concentration in the water column (Para. 4.7).*
- *The activity should include some consideration of the next steps that might be undertaken at national level, and that one of the outputs of the regional model would be to identify critical areas of potential impact under different scenarios of inputs (Para. 4.9).*

³ START SysTem for Analysis Research and Training, of the IGBP, IHDP and WRCF.

- The activity would include a desktop program for modelling at a resolution of 0.1° (Para. 4.10).

7.2 Review of the Outputs of SEA START RC Model of Carrying Capacity of the South China Sea with Respect to Nutrient Loading from Land-based Pollution

7.2.1 The chairperson invited Dr. Anond, Director of the SEA START RC to introduce the document UNEP/GEF/SCS/RWG-LbP.6/7 "*A Model for Carrying Capacity of the South China Sea with Respect to Land-based Pollution*" and present the outputs of the model to date. Dr. Anond noted that the work had been initiated, some preliminary outputs obtained and a workshop had been convened in Bangkok between 2-5 July 2005 to provide national representatives with copies of the model and with opportunities to use this in different simulations.

7.2.2 Dr. Anond noted that in the tropics most nutrients, especially N and P, are rapidly assimilated into the organic pools (living biomass, non-living organic particulates, dissolved organic, and sediment organic), normally less than 10% of the total are in dissolved inorganic forms (such as NO_3 , NH_3 , PO_4). Total nutrient loads (which combine all forms of nutrient) directly determine the living biomass in coastal waters, which may lead to eutrophication and excess inorganic nutrients (both DIN and DIP) can be effectively removed from the system via denitrification and sorption to mineral phases. He noted further that organic matter in freshwaters generally has higher Biomass:Nutrient ratios than organic matter in the marine environment (C:N ~ 50 in rivers, ~20 in coastal, and ~15 in oceanic systems). This mean more 'old' organic C is respired (resulting in removal of more O_2) than 'new' organic C is formed (and produce less O_2) in coastal water masses, which could result in net depletion of dissolved oxygen, especially in bottom and sub-mixed-layers.

7.2.3 Dr. Anond noted the following assumptions made in developing the model: that Chlorophyll concentration in the surface layer and oxygen concentration are assumed as the state variables of the water column that functionally respond to land-based nutrient loading; that the upper/surface water is defined as the layer between sea surface and the depth of 50-m or the sea bottom, what ever is smaller; that the water in the surface layer is vertically well mixed and can only move in the horizontal directions due to wind forcing, calculated using the Princeton Ocean Model (POM); and that suspended particulate biomass in the upper layer is net removed by particle fallout that follows a first-order kinetics; that organic particles are net respired in the lower layer and consume oxygen. The model was run to achieve steady state over the time step of 1 month.

7.2.4 Dr. Anond noted that nutrient loading from particular rivers, stretches of coastline, or catchments may be varied and the distribution of surface chlorophyll in the SCS or a sub-region or sub-basin therein can be simulated for each month of the year. The results, in terms of concentration and horizontal distribution pattern may be evaluated and the response of the phytoplankton biomass to nutrient input from land can be varied in time and space, depending on physical, and biological processes in the system. He noted further that the model developed is freely available to anyone; uses US Navy NOGAPS global wind reanalysis to force the POM circulation model; uses the JODC ship drift data to verify surface circulation/current outputs; uses MODIS satellite-based chlorophyll concentration as the frame to calibrate the present monthly nutrient loading by 190+ rivers; and uses national data to verify such loads for some rivers. The modelling system is run entirely in Microsoft Excel.

7.2.5 The model can be run to estimate the monthly 'effective' loading of total nutrient from any catchment, as point or non-point loading, in chlorophyll equivalent unit, which may be converted to nutrient elements, such as N, using a Chl:nutrient ratio; can simulate the monthly responses of the chlorophyll biomass of any area in the SCS (at resolution $0.1^\circ \times 0.1^\circ$) to different loading scenarios; can be used to estimate the maximum monthly load of nutrient from any selected catchment such that the chlorophyll biomass remains under a pre-defined limit.

7.2.6 The workshop had demonstrated that carrying capacity of the marine system in the SCS with respect to total nutrient loading, as defined by the change in state of the chlorophyll biomass as a response to land-based nutrient loading, can be quantitatively estimated using a desktop modelling system developed under the UNEP/GEF SCS Project. The system is based on the mass balance of material in the surface mixed-layer of the South China Sea that takes into consideration 2-dimensional horizontal transport and first order kinetics for non-conservative processes in each grid cell. The working domain for the model was between 10°S - 30°N and 99°E - 124°E and was segmented into 100,651 grids of $0.1^\circ \times 0.1^\circ$.

7.2.7 Using only MODIS satellite chlorophyll data, participants in the workshop were able to estimate the baseline monthly nutrient loading from catchments around the SCS to be within a reasonable range. These estimates, however, need to be verified against some direct estimation of total nutrient loading by rivers. During the Workshop participants also simulated the distribution of chlorophyll under different nutrient loading scenarios. It was apparent that different areas in the SCS have different capacity to assimilate nutrient input. However, a more comprehensive modelling of the South China Sea is needed before a more conclusive result can be made.

7.2.8 It appeared during the workshop that hotspots in the SCS in terms of nutrient loading estimated using this new modelling technique might not necessarily be the same as hotspots previously defined in the project based on *per capita* waste generation (in the TDA) and by using ASEAN water quality criteria (3rd LbP RWG Meeting). The model seems to show that nutrient loading from small but numerous rivers and streams as well as from non-point sources along the coast could be even more important in controlling phytoplankton biomass and eutrophication at the SCS regional scale. A more thorough modelling for the whole SCS over an annual cycle is needed. Rivers and catchments where loading of nutrient into the adjacent coastal area could easily trigger the proliferation of chlorophyll biomass need to be carefully assessed and higher priority given to actions in the future to control or curb generation and/or disposal of nutrient.

7.2.9 In the light of this presentation, members were invited to discuss issues regarding the outputs and further development of the model. There followed a discussion of the necessity of the assumptions used in the model regarding the use of total nitrogen compared with dissolved inorganic forms of nitrogen, such as nitrate and ammonia, that countries have normally measured on a routine basis. Dr. Anond responded that such relationship between loading of inorganic forms of nutrient and phytoplankton proliferation might exist but would need more local data to verify and extrapolate them over the entire SCS. However, if data on concentration of different forms of nutrient, especially N, could not be accessed by the project then it is not possible to verify such hypotheses.

7.2.10 Dr. Ninh expressed the opinion that the model presented by Dr. Anond was of very low accuracy because the model for circulation does not take into account river discharge, which can be easily taken into account. He noted further that the model for nutrients is too simple in comparison with the available models except perhaps in the case of Cambodia. The model presented is not based on direct pollution load but is based on chlorophyll data, which cannot reflect the nutrient pollution levels.

7.2.11 As it was apparent that loading data are important both for verifying different aspects of the model estimates, the Working Group agreed with the suggestion from the Workshop that such data be compiled from countries and if necessary certain technical support from SEA START RC and Chulalongkorn University may facilitate such data compilation.

7.2.12 As there has not been a standard for chlorophyll concentration in the SCS region, the RWG suggested that Dr. Anond review such information from other sources, such as US EPA, and use that as the basis for calculating the maximum nutrient loading as well as the carrying capacity of the marine system within the SCS. The RWG also agreed with the Workshop recommendation that different modelling approaches may be applied to determine the carrying capacity at SCS regional scale with respect to heavy metals. Dr. Gullaya further suggested that instead of using ambient concentration in water, which is normally very low and can be subject to analytical errors, concentration in sediment in which data are usually more reliable may be used. The RWG agreed to have SEA START RC complete the regional modelling of chlorophyll as well as to explore new concepts on heavy metal modelling and present such outputs at the 2nd Scientific Conference in November 2005 with no additional fund from PCU.

8. FINALISATION OF THE REGIONAL OVERVIEW OF LAND-BASED POLLUTION OF THE SOUTH CHINA SEA

8.1 The chairperson invited Dr. Gullaya to present the draft Regional Overview of Land-based Pollution of the South China Sea. She informed the members of the steps in the process of finalising the draft and noted the current contents of the Regional Overview, making some recommendations regarding changes and additional information needed in order to finalise the document.

8.2 The members had a lengthy discussion and agreed to provide more inputs to Dr. Gullaya before **30th of August 2005**. Malaysia agreed to provide additional information by 7th of September. The additional inputs and responsibility for revision of the document were agreed as follows:

- Dr. Ninh will replace the map in chapter 1.
- Mr. Pak Sokharavuth is responsible for refining chapter 2, and resolving the overlap with chapter 1.
- Remove item 3.1, Review of ongoing Programmes and existing plans and replace by item 5.1 prepared by Mr. Yihang Jiang.
- Mr. Henk Uktolseya will improve the item 3.2 with more detailed information.
- Mr Diaz will improve the item 4.3 – 4.6 with more detailed information.
- Dr. Tuan will derive the information from management framework of the South China Sea Project for inputs to item 5.1, Regional and National Network.
- Dr. Anond needs to receive data on monitoring sites, such as locations, names, and parameters list from Cambodia, Malaysia, the Philippines and additional data from China, Indonesia, Thailand, and Vietnam for updating item 5.2, Regional Information Network (list of hot spots, map of monitoring stations). Dr. Anond will add paragraph on SEA START RC in this item.

9. CONSIDERATION OF THE PREPARED FRAMEWORKS AND PROCEDURES FOR VALUING THE IMPACTS OF LAND-BASED POLLUTION

9.1 Dr. Pernetta introduced this agenda item noting that in response to the request of the RWG-LbP for guidance from the Regional Task Force on Economic Valuation regarding the valuation of pollution impacts the third meeting of RTF-E had categorised the various types of impacts of Land-Based Pollution, as direct or indirect, and tangible and intangible impacts. The Task Force identified and discussed various types of pollutants, their possible impacts, and the applicability of these impacts to different ecological habitats. Following a consideration of the type of impacts, the Task Force had proceeded to formulate procedures to be used in valuing the impacts, including data needs, and appropriate valuation techniques.

9.2 Dr. Pernetta noted that Annex 4 of the report of the meeting (UNEP/GEF/SCS/RTF-E.3/3) contains the tables of frameworks and procedures for valuing the impacts of land-based pollution. Table 1 presents an overall framework whilst Tables 2.1 to 2.4 outline the impacts of land-based pollution on mangroves, coral reefs, seagrass and wetlands according to the three classes of changes to economic value; and Tables 3.1 to 3.4 include detailed procedures to be used in undertaking the valuation of these impacts.

9.3 Members took note of the content of the annex to the meeting report of the RTF-E and recognised that the framework was very comprehensive and would be of value in the context of Demonstration Site projects where land-based pollution was an identified threat. It was also noted that the valuation framework was directly relevant to an analysis of the costs and benefits of actions proposed in the national action plans.

10. REVISION OF THE WORK PLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION 2005 - 2007

10.1 The Chairperson invited the Senior Expert to introduce document UNEP/GEF/SCS/RWG-LbP.6/9, *“Proposed Work Plan and Timetable for the Regional Working Group on Land-based Pollution to December 2007”*. Members were invited to consider, in the light of the discussion under earlier agenda items, the future activities and work plan for the Regional Working Group on Land-based Pollution. The preliminary work plan for the Land-based Pollution component to December 30th 2007 was amended in accordance with the agreements reached during the meeting and is attached as Annex 6, to this report.

10.2 The Senior Expert expressed the hope that the working group would pay careful attention on the agreed deadlines and, avoid delays in submission of substantive reports as had occurred following the 4th and 5th meetings of the RWG-LbP. All members expressed their commitment to follow correctly what had been agreed during the meeting.

11. DATE AND PLACE OF THE SEVENTH MEETING OF THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION

11.1 Members recalled that the PSC had 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 where land-based pollution is considered a threat to the habitat that forms the focus of the demonstration site.

11.2 Following a lengthy discussion, it was agreed to convene the seventh meeting of the RWG-LbP in Masinloc, Philippines between 7th and 10th of August, 2006. The Philippine National Focal Point for Land-based Pollution will liaise with the PCU regarding further arrangements for the seventh meeting.

12. ANY OTHER BUSINESS

12.1 On the recommendation of the Senior Expert, members were invited to consider and discuss issues regarding inputs from the RWG-LbP to the Second Regional Scientific Conference, noting the discussion of the 5th meeting of the RSTC. The group noted the difficulties of the National Focal Points of China and Indonesia in presenting the pilot activities and recommended that justification and progress of pilot activities should be included in the overview report of the RWG-LbP for presentation by the working group Chairperson in the Conference. Members also recommended that Dr. Anond present in the Conference the outputs of Carrying Capacity Model of the South China Sea with respect to nutrient loading from Land-based sources of Pollution.

12.2 No further items of business were raised.

13. ADOPTION OF THE REPORT OF THE MEETING

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

14. CLOSURE OF THE MEETING

14.1 The meeting participants expressed their appreciation to the Provincial authorities, and to the Ministry of Natural Resources and Environment for their support and assistance in the planning and organisation of this meeting in Ninh Thuan Province, and to the PCU for their hard work in preparing the meeting.

14.2 The Chairperson expressed his appreciation to the members of the Regional Working Group for making the effort to attend the meeting and their hard work and looked forward to meeting with the members in the Philippines next year.

ANNEX 1

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ANNEX 2

List of Documents

Discussion documents

UNEP/GEF/SCS/RWG-LbP.6/1	Agenda.
UNEP/GEF/SCS/RWG-LbP.6/2	Annotated Agenda.
UNEP/GEF/SCS/RWG-LbP.6/3	Report of the Meeting.
UNEP/GEF/SCS/RWG-LbP.6/4	Current Status of Budgets and Reports from the Specialised Executing Agencies in the Participating Countries.
UNEP/GEF/SCS/RWG-LbP.6/5	Revised Proposal for Pilot Activities in Batam Indonesia.
UNEP/GEF/SCS/RWG-LbP.6/6	Status of Substantive Reports from the Focal Points for Land-based Pollution of the Participating Countries.
UNEP/GEF/SCS/RWG-LbP.6/7	A Model for Carrying Capacity of the South China Sea with Respect to Land-Based Pollution.
UNEP/GEF/SCS/RWG-LbP.6/8	Second Draft of the Regional Overview of Land-based Pollution in the South China Sea.
UNEP/GEF/SCS/RWG-LbP.6/9	Proposed Work Plan and Timetable for the Regional Working Group on Land-based Pollution to December 2007.

Information documents

UNEP/GEF/SCS/RWG-LbP.6/Inf.1	List of Participants.
UNEP/GEF/SCS/RWG-LbP.6/Inf.2	List of Documents.
UNEP/GEF/SCS/RWG-LbP.6/Inf.3	Programme.
UNEP/GEF/SCS/RSTC/ExComm.2/3	Second Meeting of the Executive Committee of the Regional Scientific and Technical Committee. Report of the Meeting. Bangkok, Thailand 21 st – 22 nd February 2005 UNEP/GEF/SCS/RSTC/ExComm.2/3.
UNEP/GEF/SCS/RWG-SG.5/3	Fifth Meeting of the Regional Working Group on the Seagrass Sub-component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Bintan, Indonesia, 24 th – 27 th August 2004 UNEP/GEF/SCS/RWG-SG.5/3.
UNEP/GEF/SCS/RWG-CR.5/3	Fifth Meeting of the Regional Working Group on the Coral Reefs Sub-component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Koh Chang, Thailand, 13 th – 16 th September 2004 UNEP/GEF/SCS/RWG-CR.5/3.
UNEP/GEF/SCS/RWG-M.5/3	Fifth Meeting of the Regional Working Group on the Mangroves Sub-component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Trat Province, Thailand, 26 th – 30 th September 2004 UNEP/GEF/SCS/RWG-M.5/3.

UNEP/GEF/SCS/RWG-W.5/3	Fifth Meeting of the Regional Working Group on the Wetlands Sub-component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Ha Long City, Viet Nam, 5 th – 8 th October 2004 UNEP/GEF/SCS/RWG-W.5/3.
UNEP/GEF/SCS/RWG-F.5/3	Fifth Meeting of the Regional Working Group on the Fisheries Component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Phu Quoc Island, Viet Nam, 11 th – 14 th October 2004 UNEP/GEF/SCS/RWG-F.5/3.
UNEP/GEF/SCS/RWG-LbP.5/3	Fifth Meeting of the Regional Working Group on the Land-based Pollution Component for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Shenzhen, China, 24 th – 27 th November 2004 UNEP/GEF/SCS/RWG-LbP.5/3.
UNEP/GEF/SCS/RSTC.5/3	Fifth 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. Fangchenggang, China, 9 th – 11 th December 2004 UNEP/GEF/SCS/RSTC.5/3.
UNEP/GEF/SCS/PSC.4/3	Fourth 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. Guilin, China, 13 th – 15 th December 2004 UNEP/GEF/SCS/PSC.4/3.
UNEP/GEF/SCS/RTF-L.3/3	Third Meeting of the Regional Task Force on Legal Matters for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Alongapo City, Philippines, 28 th February – 3 rd March 2005 UNEP/GEF/SCS/RTF-L.3/3.
UNEP/GEF/SCS/RTF-E.3/3	Third Meeting of the Regional Task Force on Economic Valuation for the UNEP/GEF Project “ <i>Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand</i> ”. Report of the Meeting. Fangchenggang, China, 18 th – 21 st April 2005 UNEP/GEF/SCS/RTF-E.3/3.

Documents tabled during the Sixth RWG-LbP meeting, Ninh Hai, Viet Nam.

Malaysia	National Action Plan for Land-based Pollution in Malaysia, 2005, 29pp. (electronic copy)
Viet Nam.	National Proposal Plan on LbP Marine Pollution Control to 2010.
SEA START RC	CD-rom “UNEP SCS-CC Land-based Pollution Loading Model Workshop 2 nd – 5 th July 2005” (10 copies distributed in the meeting only one copy for PCU)

ANNEX 3

Agenda

- 1. OPENING OF THE MEETING**
 - 1.1 Welcome Address on behalf of UNEP
 - 1.2 Opening Statement by the Representative of the Ninh Thuan Provincial Government
 - 1.3 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. REPORTS REGARDING OVERALL PROGRESS TO DATE**
 - 4.1 Status of the Administrative Reports for 2004 and 1st half of 2005: Progress Reports; Expenditure Reports; Audit Reports; and MoU Amendments
 - 4.2 Consideration of Progress in Finalising the Pilot Activities
- 5. FINALISATION FOR PUBLICATION OF THE NATIONAL REPORTS**
 - 5.1 Discussion Regarding Finalisation for UNEP Publication of National Reports in English
 - 5.2 Status of Publications in Local Languages
- 6. DEVELOPMENT AND UPDATE REGARDING THE NATIONAL ACTION PLANS AND REGIONAL STRATEGIC ACTION PROGRAMME**
 - 6.1 Status of Development and Update of the National Action Plans
 - 6.2 Update of the Goals and Targets of the Regional Strategic Action Programme
- 7. CARRYING CAPACITY OF THE SOUTH CHINA SEA WITH RESPECT TO LAND-BASED POLLUTION**
 - 7.1 National Activities Regarding the Estimation of Carrying Capacity
 - 7.2 Review of the Outputs of SEA START RC Model of Carrying Capacity of the South China Sea with Respect to Nutrient Loading from Land-Based Pollution
- 8. FINALISATION OF THE REGIONAL OVERVIEW OF LAND-BASED POLLUTION OF THE SOUTH CHINA SEA**
- 9. CONSIDERATION OF THE PREPARED FRAMEWORKS AND PROCEDURES FOR VALUING THE IMPACTS OF LAND-BASED POLLUTION**
- 10. REVISION OF THE WORK PLAN AND ACTIVITIES FOR THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION 2005 - 2007**
- 11. DATE AND PLACE OF THE SEVENTH MEETING OF THE REGIONAL WORKING GROUP ON LAND-BASED POLLUTION**
- 12. ANY OTHER BUSINESS**
- 13. ADOPTION OF THE REPORT OF THE MEETING**
- 14. CLOSURE OF THE MEETING**

ANNEX 4

Suggested Contents of National Reports for Publication by UNEP in English

- 1. INTRODUCTION**
- 2. STATE - PROVINCIAL PROFILES**
 - 2.1 Geographic setting
- 3. LAND-BASED POLLUTION SOURCES**
 - 3.1 Rivers
 - 3.2 Coastal population
 - 3.3 Industrial pollution from coastal installations
 - 3.4 Discharge from upland and lowland activities
 - 3.5 Marine dumping
- 4. LAND-BASED POLLUTION PROBLEMS AND PRIORITIES**
 - 4.1 Problems
 - 4.2 Priorities
- 5. REVIEW OF PAST AND ONGOING ACTIVITIES RELEVANT TO LAND-BASED POLLUTION**
 - 5.1 Review of past activities
 - 5.2 Review of ongoing activities
- 6. REVIEW OF NATIONAL LEGISLATION AND INSTITUTIONAL, ADMINISTRATIVE ARRANGEMENT RELEVANT TO LAND-BASED POLLUTION**
- 7. HOTSPOT CHARACTERISATION**
 - 7.1 Impact on the marine environment
 - 7.2 Changes in living marine organisms
 - 7.3 Affected marine communities
 - 7.4 Transboundary significance
 - 7.5 Accumulation of pollutants in migratory species
 - 7.6 Regional and/or global significance
 - 7.7 Affected area
 - 7.8 Affected species
 - 7.9 Effects on human health
 - 7.10 Future threats and trends
- 8. PROPOSALS FOR PILOT ACTIVITIES (Specific Actions Proposed in relation to identified issues)**
- 9. REFERENCES**
- 10. ANNEXES**
 - 10.1 Hotspots and Sensitive Areas
 - 10.2 Review of National Standards, Criteria, Monitoring Systems.

ANNEX 5

National and Regional Goals and Targets for the Action Plans and SAP

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 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.

Regarding the goals and targets proposed by the Regional Working Group on Land-based Pollution (RWG-LbP) during its' fifth meeting, the RSTC 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 at the national level (Table 1) as baseline for discussion about regional goals and targets. The meeting proposed updated goals and targets as seen below.

As an important output of the work of the Specialised Executing Agencies, the national action plans form the fundamental inputs to the updating and elaboration of the regional SAP. Until the sixth meeting of RWG-LbP, draft national action plans have not been received from Malaysia and Philippines. Some of others have not revised and updated as required and agreed during the fifth meeting of the RWG-LbP. This situation results in obstacles to the review and analysis of their contents in order to develop the required elements of the regional SAP. Therefore, members of the RWG-LbP only discussed based on their own personal experiences and proposed regional actions for inclusion in the SAP with the output presented in Table 2.

Table 1 Goals and Target at the National Level.

Country	Timeframe	Goals and Targets
Cambodia	To 2010	Develop policy, guidelines and standards to prevent and reduce the pollutant load from land-based pollution ⁴
China	To 2010	To meet national sea water quality standards for 24 parameters for 90% of monitoring stations in the coastal waters of the South China Sea ⁵ 90% of industrial effluent discharges meet the national standards At least 50% of domestic discharges meet the national standards Reduce pollution from 80% of intensive agriculture (livestock) sources in coastal areas
Indonesia	To 2019	To meet the sea water quality standards for 10 key parameters and 22 other parameters
Malaysia	To 2010	To identify all pollution sources in selected river basins and to determine impacts of pollution loading from each source ⁶
Philippines	To 2012	Receiving water body including rivers and coastal areas, and effluents from industry meet national water quality standards ⁷
Thailand	To 2015	Ambient water quality conforms to national marine water quality standards for 16 parameters in all coastal waters
Viet Nam	To 2015	To reduce the pollution load from all sources to 50% compared with 2005 loads

⁴ No impacts on water quality.

⁵ Present baseline, 115 stations, 80% of which have already met the standards 2002), need to define the number of parameters – regionally agreed parameters include Nutrients, and heavy metals.

⁶ No actions to improve water quality.

⁷ Need to define the number of parameters.

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.

Table 2 Proposed Regional Actions for inclusion in the Strategic Action Programme.

	Regional Actions for inclusion in the SAP	Regional priority	Regional Target
1.	National Policy, Legislation, Legal and Institutional Arrangements and Coordination		
1.1	Enactment, revision, updating and improvement of laws, legislation, legal and regulatory documents and framework	H	1, 4
1.2	Coordination and cooperation between and among national and international agencies/ institutions such as GPA LBA, IMO, IOC	M	2
1.3	Community participation/empowerment	H	1
1.4	Regional Land-based Pollution Funding mechanism established	H	1
1.5	Establishment of an appropriate mechanism to sustain the outcomes of SCS project	H	1,2
1.6	Development and application of marine sediment and biota quality standards, and improvement of water quality standards	H	2
2.	Public Awareness and Communication		
2.1	Establishment and implementation of public awareness regarding regional LbP issues and participation in regional campaigns through active and in-depth public relations and mass media.	H	1
2.2	Development of information sharing and data exchange	H	1,4
3.	Capacity Building and Sustainability		
3.1	Training related to sediment and biota standards (analytical procedure, ...), clean production, carrying capacity, risk assessment	M	1,2,3
3.2	Established Regional quality assurance system	H	1,2
3.3	Improvement of capability for enforcement of laws	H	1,2,4
3.4	Establishment and implementation of Standard Operating Procedures (SOPs)	M	1
4.	Research and Monitoring		
4.1	Harmonize national monitoring activities	H	1,2
4.2	Determine Carrying capacity of the South China Sea in relation to nutrients and heavy metals	H	1,2,3
4.3	Research to reduce effectively pollution from point and non-point source	M	1,2
4.4	Develop and promote mechanisms, instruments and measures on waste management - waste water and solid waste, including provision of incentives	M	1,2
5.	Pollution Control and Management		
5.1	Development of cost-effective waste management network and technologies at regional scale	H	1, 2
5.2	Regional mechanism to make use of unwanted wastes among countries	M	1,2

*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).

Work Plan for the Land-based Pollution Component to December 30th 2007

Table 1 Work Plan for the Land-based Pollution Component to December 30th 2007.

[illegible]

