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**UNDP/GEF PROJECT ENTITLED “REDUCING ENVIRONMENTAL STRESS IN THE  
YELLOW SEA LARGE MARINE ECOSYSTEM”**

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**Fourth Meeting of the Regional Scientific and Technical Panel  
for the UNDP/GEF Yellow Sea Project**  
*Guangzhou, China, 26-28 November 2007*

and

**Fourth Meeting of the Project Steering Committee  
for the UNDP/GEF Yellow Sea Project**  
*Guangzhou, China, 29-30 November 2007*

**PROJECT MANAGER’S REPORT ON  
2007 PROJECT IMPLEMENTATION**



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## 1 INTRODUCTION

1. The Implementation of the UNDP/GEF Project on “Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem (YSLME)” since the last Regional Scientific and Technical Panel (RSTP) and the Project Steering Committee (PSC) has been smooth and successful, according to the workplan approved by the PSC at its Third Meeting (Jeju Island, Republic of Korea, 20-22 November 2006).

2. The Transboundary Diagnostic Analysis (TDA) (Fig. 1) has been finalised and published as a major project outcome, which provided updated scientific and social economic information of the Yellow Sea ecosystem. The preparation of the Strategic Action Programme (SAP) has been initiated, and the regional targets for the management actions have been identified through the SAP *Ad-hoc* Working Group and the Regional Working Groups. Management actions have also been identified, including the technical, institutional and legislative actions. Through the Yellow Sea Partnership (YSP) framework and implementation of the public awareness and communication strategy, co-operation and co-ordination with other organisations and projects show encouraging progress with substantive financial support generated during the inter-sessional period. With identification of the regional targets and management actions, the preparation of the National Strategic Action Plans (NSAP) have also been initiated.

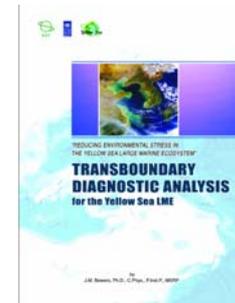


Figure 1. The cover of the TDA.

3. The achievements of the project have been recognised by a wide range of stakeholders and other organisations and projects during the Fourth GEF International Water Conference and the Second Global Large Marine Ecosystem Conference. With the successful implementation and recognition of the major achievements, it was recommended that a Yellow Sea Commission should be established with the major task to implement the SAP, which requires financial support from GEF for the project’s second phase. After 5 years initial implementation, the Commission would be self-sustainable with financial support from the participating countries.

4. Involvement of Democratic People’s Republic of Korea (DPRK) is still under negotiation. Following receipt of official endorsement from DPRK, the formal involvement of DPRK depends on the formal acceptance of the current participating countries, and the recommencement of UNDP operations there. Some activities have been discussed and planned using funding from other sources.

## 2 MAJOR ACHIEVEMENTS SINCE THE LAST MEETING

5. As with previous years, there were many outputs and outcomes produced by the project in 2007, ranging from technical activities to capacity building and regional collaboration. The major achievements realised by the project are described in the following sections, and a list of meetings, activities, and events convened under the auspices of the project in 2007 is attached as [Annex 1](#).

## 2.1 Finalisation and Publication of the Transboundary Diagnostic Analysis

6. Following the discussion and approval from the last RSTP and PSC meetings, the TDA has been finalised and published. The TDA collected relevant data and information about the Yellow Sea which contributed to:
  - (i) Identification of the regional environmental problems in the Yellow Sea with agreed regional formats and expected contributions from the participating countries;
  - (ii) Identification of the priority environmental problems using regionally agreed criteria and processes;
  - (iii) Analysis of the transboundary nature of the environmental problems following the internationally accepted guidelines and processes;
  - (iv) Identification of causes of the environmental problems with carefully designed and implemented procedures; and
  - (v) Suggestions for potential management actions to address the root causes of the environment problems.
7. The TDA was distributed widely to all stakeholders and other international and regional projects, and received compliments from the readers. The TDA provided the scientific basis for preparing the SAP.

## 2.2 Discussion and Agreement on Regional Targets and Management Actions for the Strategic Action Programme

8. The Project organised three preparatory meetings in 2007 for SAP development: Consultation Meeting and two *Ad-hoc* Working Group Meetings. The Consultation Meeting prepared the “Conceptual Procedure” which describes the objective and central theme of the Project’s SAP, the procedure and mechanism of preparing the SAP, and the timelines and responsible parties to prepare the SAP. The First and Second *Ad-hoc* Working Group Meetings identified “Regional Targets” (Fig. 2) (also known as Ecosystem Quality Objectives) and “Management Actions,” respectively. By definition, the Regional Targets are “the ecological state that is aimed for by the year 2020” (Document UNDP/GEF/YS/AWG.2/2, Annex 2), while the Management Actions aim to achieve those targets.
9. A draft structure of the SAP which includes discussions of the Regional Targets and Management Actions was presented to the First *Ad-hoc* Meeting. The Second *Ad-hoc* Meeting prepared guidelines for demonstration activities and for two components of feasibility studies (i.e. cost-benefit analysis [CBA], political and social acceptance analysis [PSA]). The second Meeting also established an SAP drafting group

Figure 2. Reduction of fishing boats in China by 30% is one of the regional targets the SAP will address.

consisting of five members: three natural scientists, one social scientist, and the Project Manager.

10. A Call for Proposals for demonstration activities will be advertised in early 2008. An external review panel will evaluate proposals and decide which ones to fund. The implementation of selected proposed demonstration activities is expected to start in September 2008 and end in December 2009.
11. The RWG meetings organised after the above three preparatory meetings, reviewed and finalised both the Regional Targets and Management Actions. The RWG meetings of natural science components assessed technical feasibility of the proposed Actions, while the RWG-I Component prepared implementation plans of the CBA and PSA. The RWG-I also prepared guidelines for preparing NSAPs and for conducting CBA of Management Actions.
12. In summary, the Project produced the following outputs in 2007 to develop SAP and NSAPs:
  - Conceptual Procedure finalised;
  - Regional Targets identified;
  - Management Actions identified;
  - SAP Structure drafted;
  - Guidelines for demonstration activities prepared;
  - SAP Drafting Group established;
  - Call for Proposals for Demonstration Activities prepared;
  - Technical Feasibility Study of Proposed Management Actions conducted;
  - Implementation Plans of the CBA and PSA prepared;
  - Guidelines for NSAPs development prepared; and
  - Guidelines for CBA prepared.
13. Meetings of the SAP Drafting Group are scheduled three times in 2008 (January, March, and May 2008). Special RSTP and PSC Meetings will be convened in April 2008 to review the final draft of the SAP. The Yellow Sea Project aims to obtain an endorsement of the SAP in the second half of the year 2008 from the governments of China and ROK.

### **2.3 Regional Co-operation in Data Information Sharing – Ocean Colour**

14. The RWG-E has been implementing an activity on developing/refining a regional ocean colour algorithm for the Yellow Sea. This activity was initiated because such an algorithm was needed in the region that can be used for better assessment and future monitoring of primary productivity in the Yellow Sea.
15. The activity has been contracted to Tohoku University to co-ordinate relevant activities in the region. Thus far, 2 of 3 planned workshops have been convened to advance the activity. The “First YSLME Ocean Color Workshop” (YOC-1) was held on 4<sup>th</sup> June 2007 in Ansan, ROK. Scientists from China, ROK, and Japan gathered to examine available data to formulate or refine ocean colour algorithms for Yellow Sea turbid waters. Participants gave presentations showing the available data, existing OC algorithms, current problems, and future directions. A working strategy was developed, where the currently scattered *in-situ* data sets would be merged and stored in a data server hosted by the PMO. These data are available for the scientists to download for validation of *in-situ* algorithm.

16. The YSLME PMO established an *in-situ* data sever which will be used exclusively by the Ocean Colour group members.
17. Considering the characteristics of OC remote sensing and reliability of the *in-situ* parameters taken together with *in-situ* optical measurements, the OC algorithms for retrieval of chl-a, TSS, and CDOM was examined first. At a later stage of the activity, the OC atmospheric correction algorithm would be considered. After the first workshop, the contractor produced a map showing all the contributed data as shown in Figure 3, which covers a wide area of the Yellow Sea, as well as parts of the East China Sea.

18. The “Second YSLME Ocean Color Workshop” (YOC-II) was held from 1<sup>st</sup> to 2<sup>nd</sup> September 2007 at Nagasaki University, Japan. Following the YOC-I Workshop, scientists from China, Republic of Korea, and Japan gathered to examine the progress of data analysis, working towards the validation and refinement of a regional ocean colour algorithm for Yellow Sea turbid waters. The YSLME Project presented the common dataset where bio-optical data contributed by the scientists are stored in one common data server and accessible by all members of the YOC group. The database was reviewed and additional

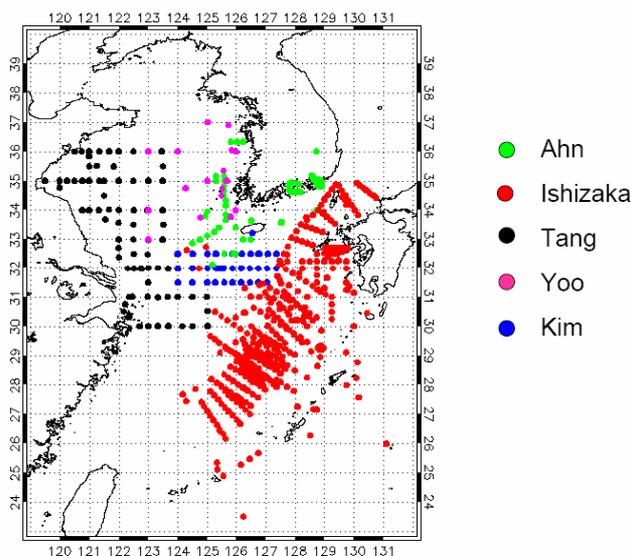


Figure 3. Location of data points contributed by OC activity members.

variables were agreed to be added (coloured dissolved organic matter at different wavelengths, temperature and salinity). It was also discovered that some data were inconsistent for the same variables due to differences in sampling/analytical methods. Finally, scientists were tasked to contribute more data for the previously agreed variables.

19. Regional collaborative efforts in ocean colour algorithm development are gradually expanding. In addition to the “core members” of this activity, there has been some progress to examine how to include other regional experts into this activity. The final workshop will include participation by other ocean colour scientists in the region, and the workshop will spend some time to investigate how other OC projects can be incorporated to improve the regional algorithm.
20. This activity not only contributes to the development of regional co-operation in developing regional algorithm, but also shows the co-operative spirit of the participating countries in data and information sharing to achieve a common goal. The agreement from the second workshop to share additional data shows that this kind of regional co-operation will ultimately produce a product that can be used by scientists working in the same field, and also scientists working in related issues (see also Section 3 for Ecosystem Component’s implementation).

## **2.4 Public Awareness and Participation Through Effective Co-operation in the Yellow Sea Partnership**

21. The Project implemented a number of public awareness activities in 2007, according to the "Public Awareness and Communication Strategy" that was discussed and agreed by the First YSP Workshop (Beijing, China, 15-16 March 2006). Targeting a wide range of stakeholders from decision-makers to school children, the activities included organising a conference and a training workshop; providing lectures, hands-on activities, and site visit opportunities; and granting small-scale financial assistance. Specifically, the following activities were conducted to raise the awareness of environmental issues in the Yellow Sea
- Yellow Sea Partnership, including YSP Session at EAS Congress;
  - Youth Programme;
  - Local Government Training;
  - Regional Conference (Follow-up Meeting of Parliamentary Conference);
  - Voluntary Internship Programme;
  - Full-time Internship Programme; and
  - Small Grants Programme.
22. For more information about each activity, see Section 3.5 in this report. The activities, co-ordinated under the YSP, are expected both to invite more stakeholder participation in the Project and to strengthen the understanding and capacity of various sectors of society to initiate marine conservation efforts. Co-operation through the YSP would enable the Project to reach out to stakeholders effectively and efficiently so as to secure their support for future Project implementation. A broad and strong support obtained through the YSP's public awareness activities will help in endorsing the SAP.

## **2.5 Discussion on the Project's Second Phase - Implementing the Strategic Action Programme**

23. During the Fourth GEF International Waters Conference, a meeting was organised with relevant officers from the GEF Secretariat, UNDP/GEF Unit and UNDP/GEF Regional Co-ordinating Office to report on YSLME's progress and explore the possibility for a second phase to implement the YSLME SAP. The following elements were reported:
- (i) TDA has been finalised with several new findings in the Yellow Sea. The causal chain analysis identified major problems and causes of the problems. The major problems are within the GEF's new priority areas, such as enrichment of nutrients, biodiversity conservation, etc.
  - (ii) The SAP *Ad-hoc* Working Group identified tangible management targets for SAP, with some management actions falling within national plans and policies, e.g. reduction of 30% of fishing boats, and reduction of 10% nutrient discharge every 5 years in China; and no new reclamation projects in Republic of Korea will be approved. Most of these tangible targets are approved by the governments, with clearly defined actions and budgets.
  - (iii) The necessity of GEF involvement in the implementation of YSLME SAP, the second phase of the project, and associated co-financing from the participating governments.

- (iv) Proposed mechanism for implementation of SAP, e.g. establishment of a YSLME Commission, which would be a non-legal binding mechanism.
24. GEF Secretariat and UNDP/GEF expressed their satisfaction with the implementation of the project so far. Discussion was held on how to finance the second phase of the YSLME project. As the GEF4 funding will terminate at the end of 2009, and GEF5 funding will start in 2010, the timeframe for Phase 2 implementation matches perfectly with GEF's funding cycle. There was a positive response that during the GEF5 funding, GEF will support the 2<sup>nd</sup> phase of the YSLME project, i.e. implementation of the SAP.

### 3 PROJECT IMPLEMENTATION

#### 3.1 Publication of Data Reports, Regional Syntheses and Governance Analyses

25. The national data and information collection, regional data syntheses, and national governance analyses reports were finalised in 2006. Editors were hired to edit these reports, and the PMO prepared them for printing. The data and syntheses reports were published in 3 separate volumes: 1) Vol. 1 - China National Report; 2) Vol. 2 - Republic of Korea National Report; 3) Vol. 3 - Regional Syntheses (Fig. 4). The governance analyses will be published as Volume 4 once the Regional Governance Analysis is finalised.

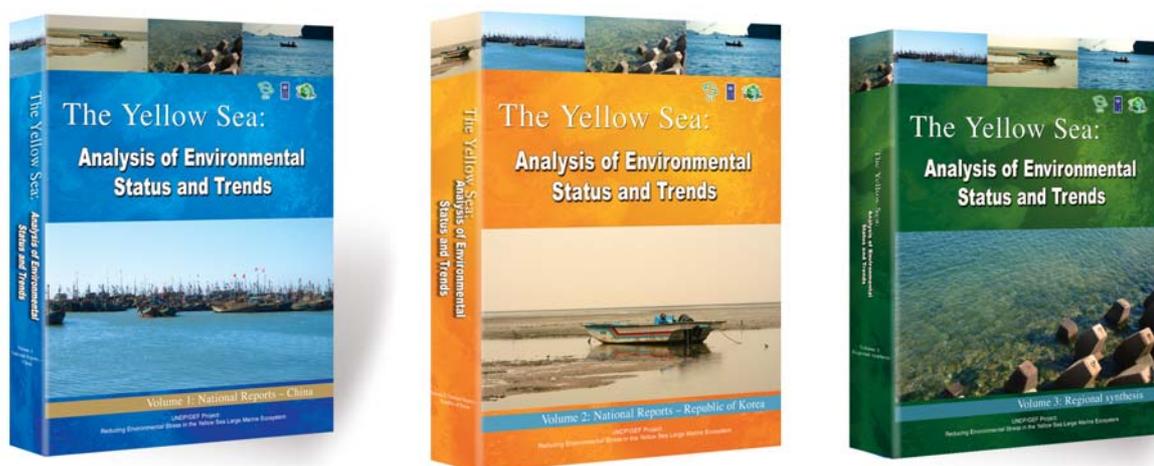


Figure 4. Draft of data reports and regional syntheses book covers.

#### 3.2 Fourth Round of RWG Meetings

26. The fourth round of RWG meetings was held during September to November 2007. In all meetings, the members reviewed and finalised the SAP regional targets and management actions. Technical feasibility studies were carried out by the natural science components, while RWG-I considered how to carry out cost-benefit analysis of management actions, and political and social acceptance analyses of the SAP itself. The RWGs also suggested some demonstration activities to implement to test the effectiveness and benefits of the management actions. The details of each RWG meeting and respective component's activities during the year will be reported

by the Chairpersons of each group. These documents are also available as Working Document UNDP/GEF/YS/RSP.4/6a-e.

### 3.3 Fisheries Component

#### 3.3.1 Report on stock assessment methodology

27. Following comments from the 3<sup>rd</sup> RWG-F Meeting, the report on stock assessment methodology was modified as agreed, and finalized. The report includes: i) A comprehensive report on current methods of assessing fisheries stocks; ii) A list of the sources of data and information collected throughout the report; iii) A list of major issues and priorities that need to be addressed in the Yellow Sea region; and iv) Recommendations for stock assessment in the Yellow Sea Large Marine Ecosystem.
28. The report highlights the major problems in Yellow Sea stock assessment, which are:
  - a. The lack of agreed methods such as those used by ICES;
  - b. The availability of data at a regional level is limited, including insufficient fisheries data and survey data;
  - c. The different coverage, targeted species, methods and gear used in surveys result in incomparable results preventing effective stock assessment; and
  - d. The different standards in catch statistics.
29. The report recommends a number of steps for overcoming these problems:

First step is to establish several scientific working groups (WG), such as

  - Fisheries data WG, responsible for: collection of fisheries data; data standardization, etc.
  - Survey methods WG, responsible for: comparison of survey methods used by the different countries; calibration to ensure consistent survey methods are used to estimate the biomass of stocks; development of better observation tools and survey strategies.
  - Fisheries biology WG responsible for; collection of fisheries biology data; data standardization; biological characteristics of major species, e.g. growth, mortality, migration and distribution, spawning, feeding, wintering, etc.
  - Stock assessment WG responsible for: selecting adequate mathematical models for the fish stocks in the Yellow Sea ecosystem; prediction of stock size of commercially important species; providing sound estimates of allowable biological catch (ABC) and total allowable catch (TAC) for fisheries management.

Second step is to establish a mechanism to exchange survey data and fisheries data.

Third step is to establish a joint survey mechanism based on analysis all the historical individual surveys performed by countries from the working groups.

#### 3.3.2 Sustainable mariculture symposium

30. The Sustainable Mariculture Symposium/Workshop was hosted by the West Sea Mariculture Research Center, Taean, Republic of Korea on 18-19<sup>th</sup> June 2007.
31. During the symposium, scientists, mariculture farmers and policy makers listened to talks during two sessions:

- “Aquaculture technologies for reducing environmental stress” covering polyculture experiences in ROK and China, fish culture seawater recirculation systems and open sea/deep sea cage culture (Fig. 5).



Figure 5. Off-shore mariculture, presented by Dr. Lee Jung Uie at the symposium.

- “Best management practices for aquaculture” covering heterotrophic pond culture of shrimp, artificial food chain construction in pond culture, sustainable cage culture and advances in shellfish culture.

32. During the workshop, experts gave short presentations followed by extensive discussions on the major obstacles to increase sustainability in mariculture in the Yellow Sea. Previously mentioned topics were revisited, and in addition, further presentations on best management practices for feeds and feeding and how mariculture scientists can contribute to the preparation of the SAP for were given. Experts discussed the challenges faced by the industry and how these problems had been addressed on both sides of the Yellow Sea. The outcomes of the discussion are all available online as the workshop report.

### 3.3.3 Determination of carrying capacity for mariculture

33. A workshop was held in Rongcheng City hosted by the Yellow Seas Fisheries Research Institute with the aim of exchanging modelling methodologies of carrying capacity estimation, and suggesting regional activities to determine the carrying capacity for mariculture.
34. Mariculture scientists from China and ROK defined “Carrying Capacity” as the maximum productivity and maximum economic benefit. This method balances the nutrient budgets and primary productivity to set appropriate densities and diversity of culture species. The framework and methods presented at the workshop will be a useful management tool for the planning of mariculture and could be employed as a demonstration activity of the Project’s SAP management actions.
35. The workshop reviewed progress on development of carrying capacity models for mariculture (Fig. 6). To facilitate understanding, simple carrying capacity models on single trophic level culture such as bivalve mariculture, macro-algae mariculture, and finfish mariculture were presented and the parameters and reliability explained. Multi-species carrying capacity models were also presented. Detailed discussions followed, comparing the models used and parameters required, resulting in a good exchange of ideas and suggestions for improvement.

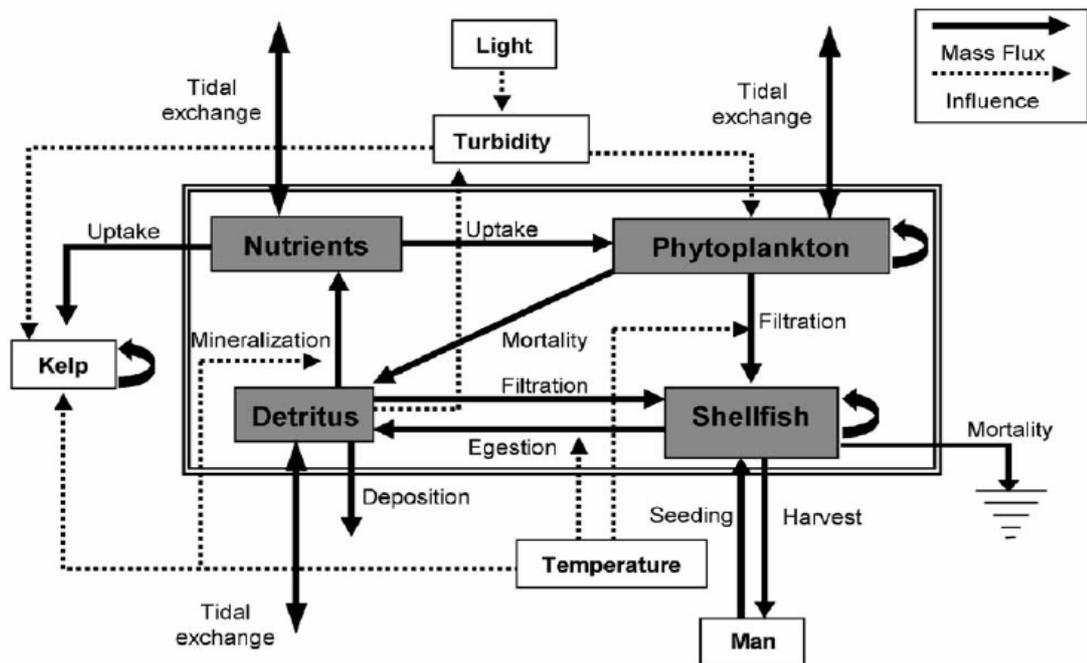


Figure 6. Conceptual diagram of the mariculture carrying capacity model from Sungo Bay, Shandong Province (from Nunes et al, 2003).

36. The workshop report outlines the various methodologies available for modelling carrying capacity and presents a model that may be useful in the estimation of carrying capacity for embayments around the Yellow Sea. It is a major step forward in assisting in reducing the environmental impact of mariculture.

### 3.3.4 Diagnosis and prevention of mariculture disease

37. The aim of the activity was to facilitate the exchange of information on the developments in mariculture disease diagnosis, prevention and control. A workshop was held in Jeju and hosted by Jeju National University on 16 - 17 October 2007.
38. Experts reported on the development of new methods for rapid diagnosis of mariculture disease and the identification of emerging diseases. Novel methods for the prevention and control of fish and shellfish disease were also reported including some promising work on the use of bacteriophages, selection of genetically disease resistant strains of culture organisms and probiotics.
39. Important discussions followed on the need for a regional early warning mechanism to prevent the outbreak of new diseases. Members agreed that the current system, where occurrence of notifiable diseases is reported four times a year to the Network of Aquaculture Centres in Asia-Pacific (NACA), was probably effective in preventing disease outbreaks. However, the list of notifiable diseases was thought to be too limited and may not include regionally important diseases and the reporting mechanism may be too slow. The participants agreed that a yearly regional disease workshop was needed to discuss developments in the identification, prevention and control of emerging diseases.

### 3.4 Biodiversity Component

#### 3.4.1 Gene pool

40. A workshop, in which twelve experts gave presentations on genetic diversity in the Yellow Sea, was held in Busan, Republic of Korea on 14-15<sup>th</sup> May 2007, hosted by the Project.
41. The various techniques used in genetic analysis were reviewed and the development of micro-satellite markers and DNA chip technology were highlighted as promising. Other topics included genetic diversity in microbes, differences in diversity between hatchery-raised and wild stocks of fish, shrimp and gastropods. This is particularly important as the greater the genetic diversity, the greater the evolutionary potential which may be especially important given the impacts from both climate change and pollution, and the greater the resistance to diseases. Moreover, the loss of locally adapted ecotypes can impact on the productivity of the system. Selective breeding can reduce genetic diversity as a result of genetic bottlenecks, this not only impacts on the fitness of cultured stocks, but also genetically similar escapees from culture facilities and restocking programs can impact on the diversity in wild populations through interbreeding.
42. The use of DNA barcoding and chip technology to separate morphologically similar species eg. skate species in the Yellow Sea where different species command different prices even though looking remarkably similar, was reported. Other important papers described the use of mitochondrial DNA for the separation of stocks. Fisheries management requires knowledge of the area used by each stock of commercial species in order to set exploitation levels that are sustainable.
43. One of the major problems facing cultured animals is the spread of disease; the identification of genes controlling disease response in scallops is a step towards the development of disease resistant stocks and prevention of the annual losses that occur currently (Fig. 7). Other researchers used *Amphioxus*, a possible ancestor of all chordates with a genome uncomplicated by extensive genetic duplication, in the study of the genetic control of development and disease response.

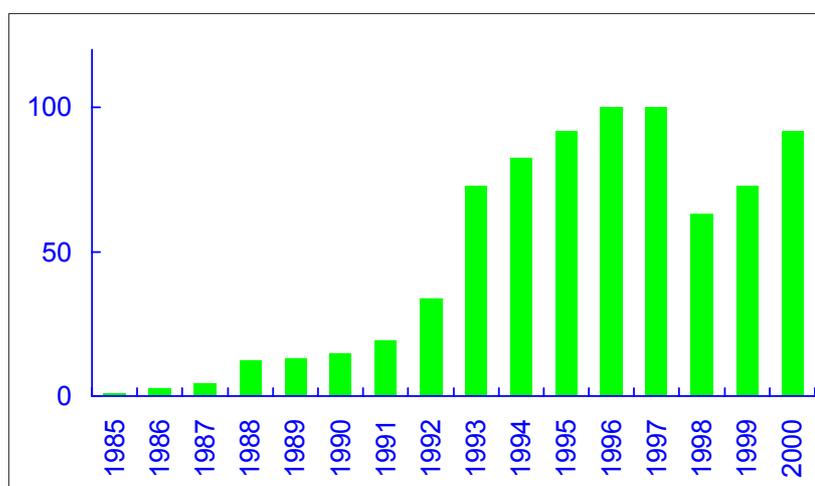


Figure 7. Reduction in scallop production (10<sup>5</sup> tonnes) in China in 1998 caused by disease (presented by Song Lincheng at the Gene Pool Workshop).

44. The threats to genetic biodiversity and the conservation measures necessary to preserve genetic diversity in the Yellow Sea were discussed during the final day. The main threats that specifically affect genetic diversity come from aquaculture escapees and restocking practices, where selective breeding and limited brood stock numbers result in reduced genetic diversity that is then passed onto the wild population. Other threats that also affect biodiversity generally (species, habitat and genetic diversity) come from pollution, over-harvesting and fishing, introduction of non-indigenous species and loss of habitat from reclamation and destructive fishing practices. Thus, for management, species and genetic diversity can be considered together as the threats and conservation measures required to preserve diversity are the same, with the exception of the threat from aquaculture.
45. As the study of genetic diversity is relatively new and development of micro-satellite markers is expensive, there is insufficient data to measure changes in genetic diversity in wild stocks in the Yellow Sea, with the possible exception of the fleshy shrimp. Lastly, the participants agreed that the study of genetic diversity could be aided by the compilation of a list of links to genetic data bases around the Yellow Sea that were not included in the more common genetic databases such as that hosted by the IUCN. The PMO is compiling a list of websites sent in by participants and will construct a webpage that will be distributed to the participants' institutions. This will also be available on the project website.

### **3.5 Ecosystem Component**

#### **3.5.1 Ocean colour algorithm development**

46. As already mentioned in Section 2.3, this activity was initiated in 2007, with 2 workshops already convened in ROK and Japan to first examine the available data, then to start improving on existing algorithms, or developing a new regional one. Validation of some algorithms was discussed. At the time of preparing this report, activity members had agreed to contribute more data so that the validation of algorithms could be more robust.
47. A third and final workshop will be held in January 2008, where the final product will be delivered. Additional participant(s) from China who are also working in ocean colour, but who are not part of the core members, are planning to attend, to examine how this activity might expand its collaboration to include other relevant scientists and research groups. This is yet another example of the success of this activity both in the technical context, as well as for regional co-operation.

#### **3.5.2 Primary productivity estimation**

48. This activity has just gotten underway, and aims to provide basin-scale estimation of primary production as a potential baseline figure, and develop a regional algorithm for long-term monitoring. The results will be useful for higher trophic level productivity estimation and also identify areas that management could target to maintain acceptable productivity levels. An FRRF is being manufactured, and will be used for *in-situ* measurements in 2008. The proposed outputs of the activity include monthly and annual primary productivity maps and inter-annual variability of primary productivity in the Yellow Sea.

### 3.5.3 CPR survey

49. A plankton survey was carried out by FIO in April 2006, using the CPR, with a final report showing data on temperature, salinity, DO, pH, fluorescence, and phytoplankton & zooplankton abundance. The fronts for some oceanographic variables was observed. The results of this activity were reported at the 4<sup>th</sup> RWG-E Meeting where members agree that further surveys were needed, and perhaps can be carried out during the co-operative cruise. Some results from the survey are shown in Figures 8-10, which were borrowed from the activity report.

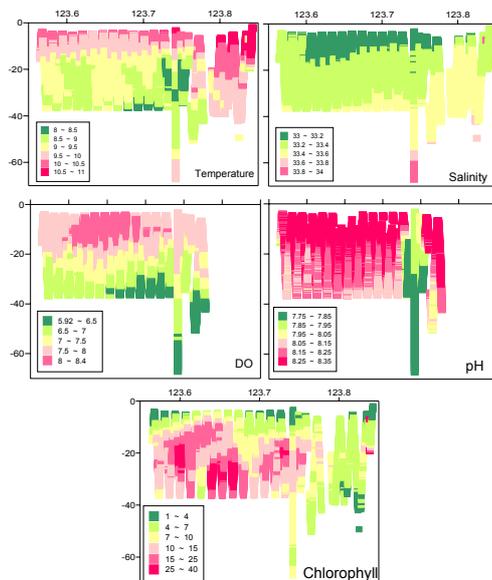


Figure 8. Temperature (°C), salinity (psu), DO (mg/L), pH, and Chlorophyll-a concentration (µg/L) in Transect 1 of the Nv-shuttle cruise in the central southern Yellow Sea in 2007.

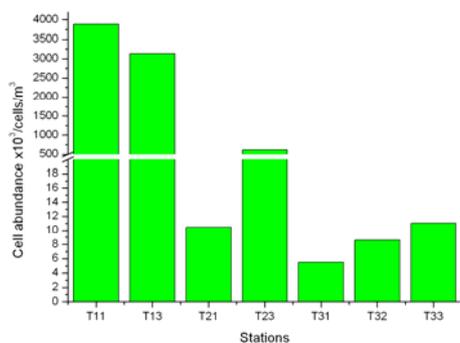


Figure 9. Phytoplankton abundance in the seven stations during the Nv-shuttle cruise in the central southern Yellow Sea in Spring.

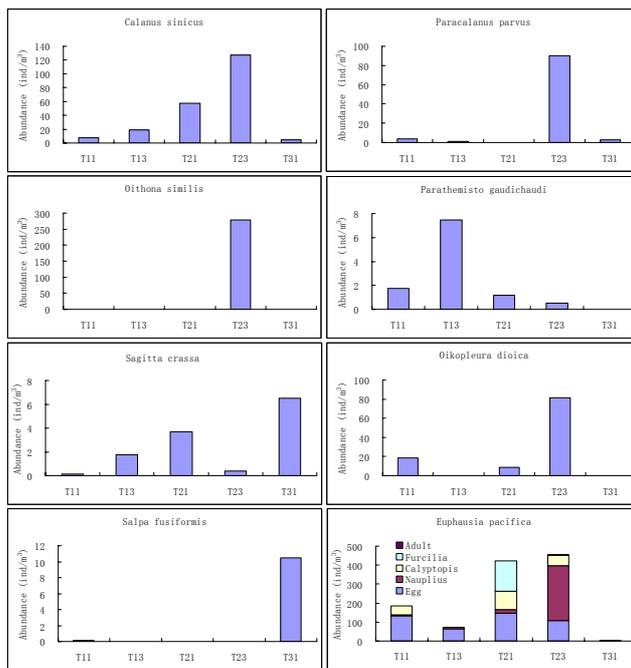


Figure 10. Abundance of dominant zooplankton species at the sampling stations during the Nv-shuttle survey in the central southern Yellow Sea in spring, 2007.

### 3.6 Pollution Component

#### 3.6.1 Data quality assurance - Inter-calibration exercises (nutrients, metals, organics)

50. The second round for “Nutrients in Seawater Inter-calibration” activity was completed. The same four labs from China and three labs from ROK that participated in Round 1, continued with the activity by analyzing nutrient concentration of certified reference materials (ammonia, filterable reactive phosphorus, nitrate, nitrite, silicates) obtained from a lab in Australia contracted to implement the activity. The Queensland Health Scientific Services, Australia, co-ordinated the activity on behalf of the Yellow Sea Project, by supplying the reference materials to each lab, collecting and analysing the results, and preparing the final reports containing the summary results and recommendations for future improvement. Similar to Round 1 carried out in 2006, the results from Round 2 also were very good, with a high acceptance rate of the results, with nearly all labs meeting the acceptable level for all nutrients.
51. Inter-calibration exercises for metals and organic compounds in sediment and biota started in 2007 with participation by 4 labs in China for both metals and organics analyses, 4 labs from ROK for each metals and organics analyses. The IAEA-MEL co-ordinated the activity, by supplying the reference materials to each lab, and collecting and analysing the results. Full results of these exercises will be available in December 2007. However, preliminary data submitted from a few labs showed that the results are very good, with most labs achieving the acceptance levels.
52. Although the results were good, participating labs still had some minor problems, and would like to improve their capacity in these chemical analyses (Fig. 11). Further inter-calibration activities are planned for 2008.

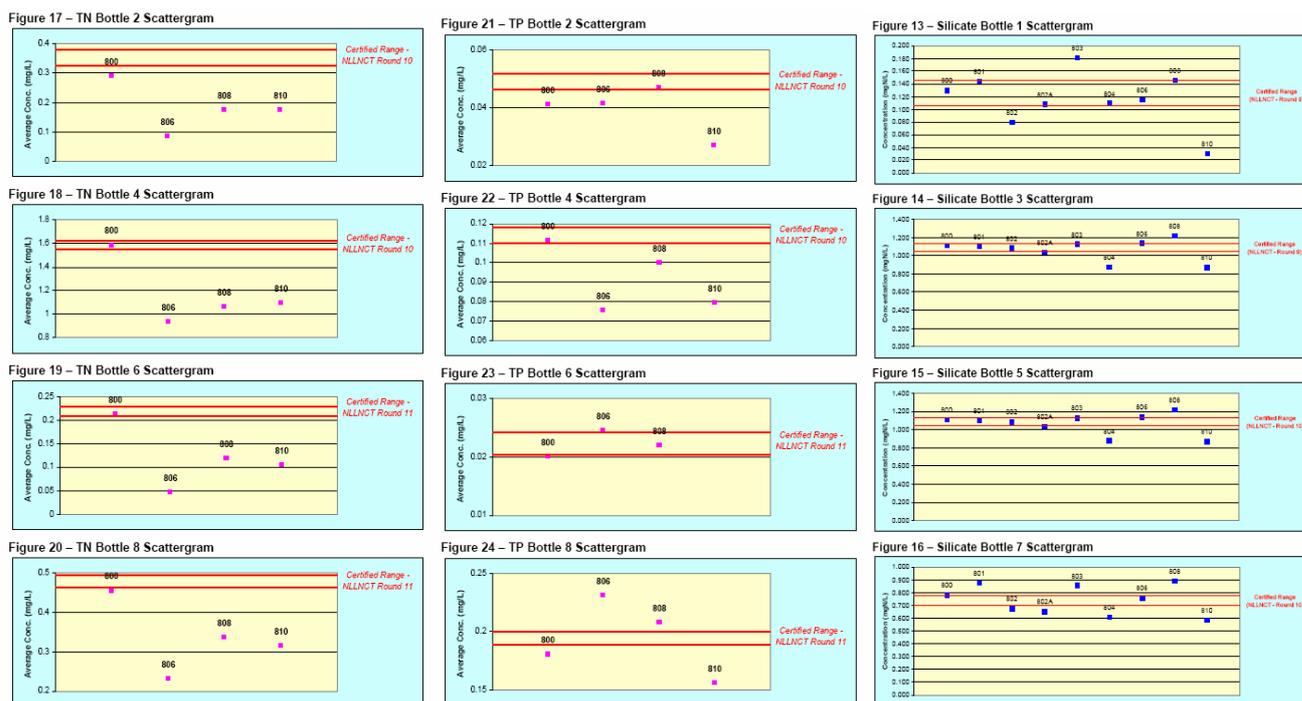


Figure 11. Results showed the necessity for further inter-calibration exercises. Results for analysis of TN (left), TP, (middle) and silicate (right).

### 3.6.2 Inter-calibration summary workshop

53. An inter-calibration summary workshop was held from 8-10 October 2007 in Jeju (Fig, 12). The objectives of the workshop were to:
  - Review and summarise the two nutrient inter-calibration exercises organised by YSLME and QHSS.
  - Review results-to-date for metals & organics inter-calibration exercise.
  - Assess the degree of comparability of the results obtained by the participating labs.
  - Exchange experiences on and lessons learned from problems related to analytical chemistry, and to apply lessons learned to future work.
54. Participants presented their results, SOPs, QA/QC methods, problems encountered, and exchanged ideas on improving analytical skills, such as methods for validating data, precision data, repeatability, reproducibility, bias, and uncertainty. The coordinators for the exercises participated in the workshop to make recommendations to participants on improving analytical skills, and obtain information from participants on technical and capacity gaps in their laboratories.
55. Participants requested the PMO to consider hosting another summary workshop in late 2008/early 2009 to review results of the next rounds of the exercise.



Figure 12. Participants of Inter-calibration Summary Workshop.

### 3.7 Investment Component

#### 3.7.1 Yellow Sea Partnership, including YSP Session at EAS Congress

56. One of the highlights of the YSP activities was the “Yellow Sea Partnership for Enhanced Public Awareness and Participation” session which was organised in the East Asian Sea Congress, Haikou, China, 12-16 December 2006. This event focused on how public awareness and participation activities undertaken through the joint efforts of partners can reach out to a wider stakeholdership. The session shared experiences of the various partner’s public awareness activities, and also how to improve the function of the partnership for the benefit of the entire Yellow Sea region.
57. Another highlight was the second YSP Workshop, hosted by NOWPAP that was organised in Busan, ROK, 1<sup>st</sup> October 2007. The meeting reviewed the completed and on-going co-operative activities, discussed co-operative activities from 2007 and onwards, and discussed the management mechanism of the YSP. The Project assisted NOWPAP in organising this annual meeting by providing ideas on meeting agenda, joint activities, and administrative mechanism. All the partners attended the workshop with their own budget.
58. The Workshop agreed to exchange further information for joint activities in 2008, host regular meetings by rotation, and use both the YSP logo (Fig. 13) and each organisation’s logo on the organisation’s publications. The next Workshop will be held back-to-back with the meeting of Ramsar Convention in Changwon, ROK, from 28 October to 4 November 2008.
59. The Project conducted its public awareness activities, as mentioned below, in co-operation with YSP members and in line with the Strategy for Public Awareness and



Yellow Sea's Partnership

Figure 13. Draft YSP logo.

Communication. It should be noted that the co-operation between WWF and the Project under the YSP successfully resulted in the second phase of “WWF/KORDI/KEI Yellow Sea Eco-Region Planning Programme,” now called YSESP. The Project provided the WWF with ideas on the implementation structure of YSESP, the demonstration activities to protect habitats in the Yellow Sea, and the small-scale grant programme. The two projects—YSLME and YSESP—will actively collaborate so as to produce maximum outputs from their activities. For example, the timing and sites of demonstration activities implemented under those two projects will be co-ordinated well in advance, and the data and information collected through the demonstrations will be mutually shared. As a result, both projects will make their activities more efficient and effective, eliminating unnecessary duplication. For more information about the co-operation with YSESP, see Section 7.3 in this report.

### 3.7.2 Youth Programme

60. Following the success of the Youth Programme in ROK, 2006, in co-operation with the Liaoning Fisheries Research Institute, the Dandong Ocean & Fisheries Bureau, and the Liaoning Province Ocean & Fisheries Bureau, the Project organised the second Youth Programme in Dandong, China, from 11-12 August 2007 to provide youth in the region with opportunities to deepen their understanding of environmental issues in the Yellow Sea. About 50 students (aged 12-16) from Dandong #6 Middle School and their two teachers participated in this activity (Fig. 14).
61. The Programme consisted of two components: lecture session and hands-on activity session. In the first session, regional experts provided indoor lectures on the Yellow Sea’s ecosystem, and the second session, the participants conducted field activities of cleaning marine litter, releasing juvenile puffer fish stocks into the sea, and visiting the Donggang National Nature Reserve located in Yalu River estuary.
62. Amway International and Amway Dandong Office sponsored the hands-on activities and visit to the Donggang Nature Reserve. Over 30 Amway staff participated in the event, as they also wished to improve their understanding on marine environmental problems and potential solutions. This is a success story to involve the private sector into project activities.
63. China Central Television’s main station, CCTV-1, reported the event during the 7PM news, one of the main news broadcasts. China Ocean News also wrote an article about the event. Those news reports—the video clip and the newspaper article—are available online in the Project’s website at <http://www.yslme.org/>.



Figure 14. From left to right: Middle school student asking questions to lecturers during lecture session of Dandong Youth Programme; releasing juvenile puffer fish stocks; Amway employees and Project Manager getting ready to release puffer fish.

### **3.7.3 Involvement of local government**

64. The “Second Training Workshop for Local Government Officers” was organised in Qingdao, China, from 10 to 12 July 2007 with the theme of “Marine Spatial Planning: How to Manage the Sea and Coast?” The workshop focused on the Marine Spatial Planning approach, and provided the participants with an opportunity to gain practical skills to address coastal development issues in a holistic manner, which might greatly affect the environment as well as society. Through lectures, case studies, and group discussions, the participants deepened their understanding about the processes and techniques of managing marine and coastal resources in order to not only secure their valuable ecosystem, but also promote sustainable use of the resources.
65. Eighteen local government officials from the Yellow Sea’s coastal provinces and cities: eight officials from China and ten officials from ROK attended the workshop. Scholars with expertise in marine functional zoning, coastal sea protection, and sea use management were invited as lecturers from prominent governmental and academic institutions in China.

### **3.7.4 Involvement of parliamentary organisations**

66. As reported in the Project Manager’s Report during the third RSTP/PSC meeting (Jeju, ROK, 20-24 November 2006), the Parliamentary Conference, held in Qingdao, China, March 2006, received considerable attention from the international community because this meeting was the first event in GEF projects where the parliamentarians addressed transboundary environmental issues. GEF/IW:LEARN published a document about this activity, to disseminate the lessons learned from its implementation to a wide range of audiences (GEF/IW:LEARN [2006]. International Waters Experience Note, 1 [available at <http://www.iwlearn.net/>]).
67. Given the successful implementation of the Parliamentary Conference and the agreement made by its participants, the “Regional Conference on Protection of the Marine Environment and Sustainable Use of Marine Resources in the Yellow Sea” was organised as a follow-up meeting of the Parliamentary Conference in Incheon, ROK, 11-13 October 2007. With prominent regional scientists as well as representatives from national and municipal assemblies in China and ROK invited, the Regional Conference focused on socio-economic aspects of the Yellow Sea’s ecosystem, such as legislation, economy, and public awareness. The conference also explored the possibility and mechanism to secure continuous dialogue at the highest level of decision-making among the two participating countries and other relevant countries.

### **3.7.5 Voluntary Internship Programme**

68. The Project and Yonsei University Graduate School of International Studies (GSIS) initiated the “Voluntary Internship Programme” in June 2007. The objective of the Programme is to allow graduate students to voluntarily engage in hands-on experiences in implementing international project activities. The Programme consists of three activities:
  - Introductory session on U.N. System and UNDP/GEF Yellow Sea Project;
  - Participation in Project’s international meetings and workshops; and
  - Summary and reporting session.

69. Through the Programme, it is expected that the participants develop a basic understanding of not only the managing marine ecosystem in a sustainable manner, but also the procedure of implementing U.N. environmental projects.
70. The first activity, the Introductory Session, was organised in the University's Seoul campus with the participation of 17 Yonsei students as well as officials from GSIS, UNDP-Seoul, and the Yellow Sea Project. For the second activity, the Yellow Sea Project invited graduate students to the "Regional Conference." While the students attended the Conference as observers, they greatly assisted in organising the meeting smoothly by providing administrative supports and translation services. After the Conference, the third activity was held, where the participating students gave presentations on lessons learned from the internship and on suggestions for improving both Project implementation and conservation activities in the Yellow Sea. The interns suggested facilitating more co-operation in the region, NGO and youth participation, and DPRK involvement in the Project activities. The interns also recommended strengthening the Voluntary Internship Programme to encourage more participation from university students in the Project.

### **3.7.6 Internship Programme**

71. To provide an opportunity for young government officers and young scientists to become intimately familiar with the operational procedures of United Nations' international projects, the Project invited two interns to this year's "Internship Programme." The interns were selected by National Project Co-ordinators. Stationed in the PMO, those interns assist in implementing various activities under the Project. For example, the interns help the Project Manager and Programme Officers organise international meetings, draft meeting documents, and review output reports from contracted work.
72. An intern with training in political science, invited from KORDI, currently serves his six-month internship in the PMO. Another intern from Ocean University of China, who has expertise in legal issues, is expected to start her internship in December 2007.

### **3.7.7 Small Grants Programme**

73. Out of six organisations funded by the Small Grants Programme in 2006, the following four organisations successfully completed their activities, while the other two contractors are currently preparing their final reports.
  - Citizens' Institute for Environmental Studies, ROK, facilitated knowledge and information exchange among local residents in the area affected by large-scale reclamation and development.
  - Dalian Maritime University, China, mobilised university students to educate local communities on coastal and marine ecosystem.
  - Liaoning Ocean and Fishery Department, China, reached out to a number of local stakeholders, including school children, businessmen, and other residents by offering, for example, environmental education courses, business seminars, street-level educational campaigns, and drawing and essay contests.
  - Shihwa Lake Saver, ROK, trained school teachers to prepare environmental education courses at local schools, providing technical support for developing curriculum and educational materials (Fig. 15).



Figure 15. Training workshop for school teachers, organised by Shihwa Lake Saver, ROK.

74. The Project will publish a summary report of the Programme in early 2008, compiling the process and results of all the projects completed in 2007.
75. Following the successful implementation of the Small Grants Programme in 2006, the Project decided to fund six projects under the Programme in 2007. The proponents of six funded projects, selected from 14 submitted proposals by the External Review Panel, include university, local government, and local environmental NGO. Table 1 shows the projects funded under the Small Grants Programme in 2007.

Table 1. Projects awarded under the Small Grants Programme in 2007.

<b><u>Project Title</u></b>	<b><u>Organisation</u></b>
Capacity Building for Local Sea-Water Cultivation Proprietors in the Participation and Management of Marine Protected Areas around Yantai Region	Yantai University-Shandong
Fishermen's self monitoring of marine litter in Boryeong, W Korea	Korea Marine Rescue Center Corp.- Chungcheongnam-do
Promoting Civil Participation in Coastal Conservation Utilizing the Muan Tidal flat Center	Eco-Horizon Institute-Seoul
Enhancing the Ability of Local Stakeholders to Effectively Understand the Impacts and Technical Ways of Sustainable Mariculture in San Gou bay	Shandong Province-Rongcheng
Capacity Building of Local stakeholders of Ganghwa tidal-flat – Through Establishing	Korean Federation for Environmental Movement (KFEM)-Seoul

<u>Project Title</u>	<u>Organisation</u>
a Ganhwa Tidal-flat Community Action Network (GTCAN)	
Building the Partnership between Government Departments and Enterprise on Protecting the Marine Environment of Yalujiang River Estuary	Liaoning Ocean and Fishery Department

### 3.7.8 Data and information management

76. In 2006, the Project in co-operation with the China-Korea Joint Ocean Research Center (CKJORC), established the regional GIS and meta databases, located in the CKJORC, to facilitate the effective data and information management in the region. Entrusted by the Third RSTP Meeting, the Project contracted the CKJORC again in 2007 to assume the main responsibility of conducting the operation and maintenance of the regional GIS and meta databases, considering the Center's expertise and experience in this field.
77. The databases have been established in CKJORC, with linkages with relevant global, regional and national databases. The databases need to be improved in structure and formats, and enhancing system functions for easy inquiry and presentation of the data and information. With necessary arrangements and improvements made, the regional databases (equipped with spatial-information technologies to store, manage, and display multi-source and heterogeneous data and information) are expected to offer users a "one-stop shopping" service, enabling them to access enormous quantity of data at various regional data centres by providing data sharing functions such as metadata query, data query, and map-based query. The databases will provide, as much as possible, the relevant data and information regarding the Yellow Sea from relevant data sources.
78. The mirror sites of the databases should be located in ROK and PMO; the location in ROK will be decided after NPC for ROK finishes co-ordination and consultation with relevant agencies.

### 3.7.9 Guidelines for cost-benefit analysis of management actions

79. The PMO prepared guidelines for economic analysis of management actions, which explain how to value environmental quality and how to measure costs and benefits of the actions (Fig. 16). Specifically, the guidelines define the "value" of ecosystem in economic terms, explain the concept of "negative externality," and provide possible valuation techniques based on internationally recognised literature. The guidelines also outline a multiple-step procedure for cost-benefit analysis of the management actions, including net present value calculation and sensitivity analysis. A draft report of the Project's mid term evaluation mentioned that,

*"This is a first attempt to develop guidance for GEF projects to incorporate economic aspects into environmental decision-making, in particular for SAP development. . . . The Guidelines should not only help assess the economic impact of recommended*

*management actions for the Yellow Sea, but also serve as guidance for economic analyses in other GEF projects.”*

80. The guidelines will be used as a reference to assess, as case studies, the economic feasibility of some proposed management actions in the SAP. The guidelines will also be used for selected demonstration activities to check their efficiency and appropriateness.

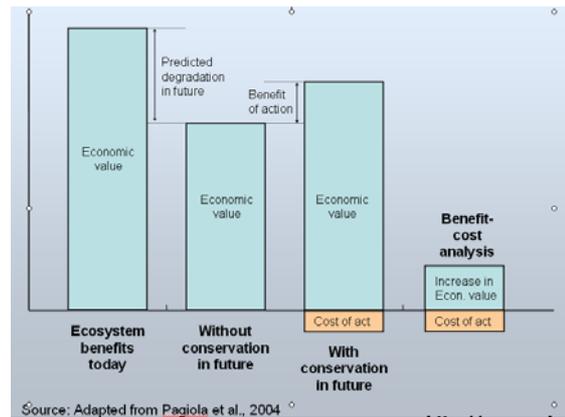


Figure 16. Cost-benefit analysis of management action.

### 3.7.10 Regional governance analysis

81. The Project conducted a Regional Governance Analysis in co-operation with the Center for International Law and Policy of Myongji University to understand the underlying root causes of the Yellow Sea’s ecosystem problems through analysis of the political environment and to provide the basic foundation for identifying possible future interventions as part of the preparative work for the development of the SAP.
82. The Analysis examined stakeholders, international co-operative mechanisms, legislative status in the participating countries, and institutional arrangements in the context of the Yellow Sea. Based on those examinations, the Analysis then recommended creating “a YS LME Commission as a central mechanism to address the [environmental] issues identified” in the Yellow Sea (Chung, 2007, Draft Report of Regional Governance Analysis, clause 188). The YSLME Commission, “a soft, non-legally binding, cooperation based institution” (ibid, clause 192), is expected to facilitate the SAP implementation and to secure a sustainability of conservation efforts in the Yellow Sea.”

### 3.7.11 National co-ordination and implementation

83. Project implementation at national level was carried out by the NPCs in each country. The NPCs nominated participants to workshops and meetings, and also attended some project activities. Details on national co-ordination and implementation can be found in the NPC’s reports (Document UNDP/GEF/YS/RSP.4/5a-b).

### 3.7.12 Report Writing Workshop for Environmental Practitioners

84. The Project organised the “Proposal and Report Writing Workshop for Environmental Practitioners: Keys to Effective Writing” in Ansan, ROK, 22-23 October 2007, to strengthen the capacity of government agencies and research organisations to prepare high-quality proposals and reports for securing the integrity and sustainability of environmentally-related research activities that the organisations implement. Eighteen professionals who deal with marine and coastal management participated in the Workshop: ten from China and eight from ROK. A professor from a university in USA was invited to serve as the workshop lecturer. The lecturer has expertise in freshwater and estuarine wetlands ecology and a proven track record of publishing dozens of peer-reviewed journal papers.

85. The workshop, consisting of lectures and hands-on exercises, covered how to write effective proposals, research papers, and abstracts. The lectures described tips for writing proposals, including proposal organisation, experimental design and statistics, and presentation of data (figures and tables). The hands-on exercises illustrated how to present data as figures and tables and how to organise and list references (in-text citations and bibliographic list). Tips for writing a research paper, including the structure of the paper, composing the abstract and use of SI units, were also covered. A writing exercise to compose abstracts for presentations, proposals and research papers was conducted as part of the hands-on exercises.

### 3.8 Cross Component Issues

#### 3.8.1 First Regional Science Conference

86. The “First Yellow Sea Regional Science Conference” was organised in Hangzhou (14-16 August 2007) in association with China Ocean News and State Oceanic Administration’s Second Institute of Oceanography. The conference consisted of presentations focusing on the current knowledge of the ecosystem’s provisioning, regulating, and cultural services. Oral presentations and posters explained the status of the services with respect to fisheries, mariculture, biodiversity, pollution, and overall ecosystem structure and function. The presentations also provided scientific information and suggestions on how to manage the Yellow Sea in order for the ecosystem to continue providing its services. Natural and social science topics were presented, such as educational issues and public awareness and participation. The conference allowed scientists to exchange knowledge, learn experiences from other regions, and obtain an update on Yellow Sea’s ecosystem status (Figs. 17-20).

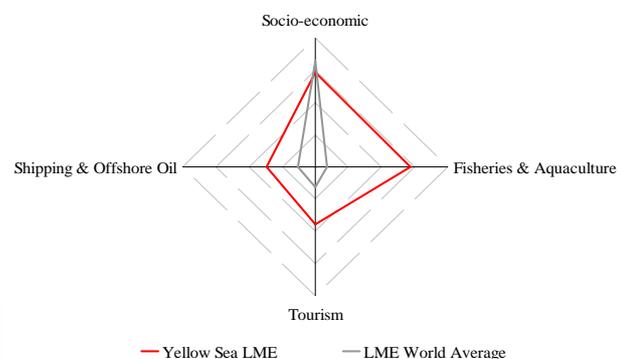


Figure 17. Some presentation slides shown at the Science Conference. Left: jellyfish caught in fishing nets (Dr. Uye Shin-ichi), right: Activity index values for three major marine sectors and the HDI (“socioeconomic”) in comparison to the LME world average (Dr. Jin Di).

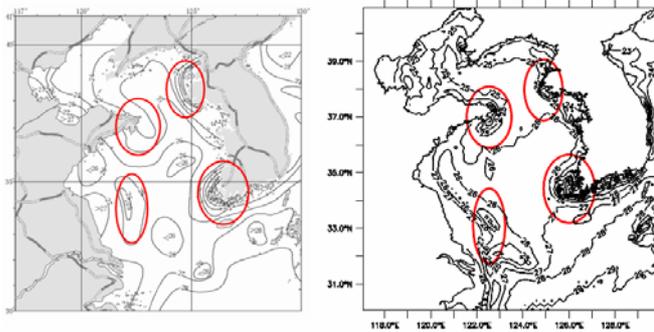


Figure 18. Observed (left) and Simulated SST (right) in August (presented by Dr. Qiao Fangli).

From Guo et al, 2004

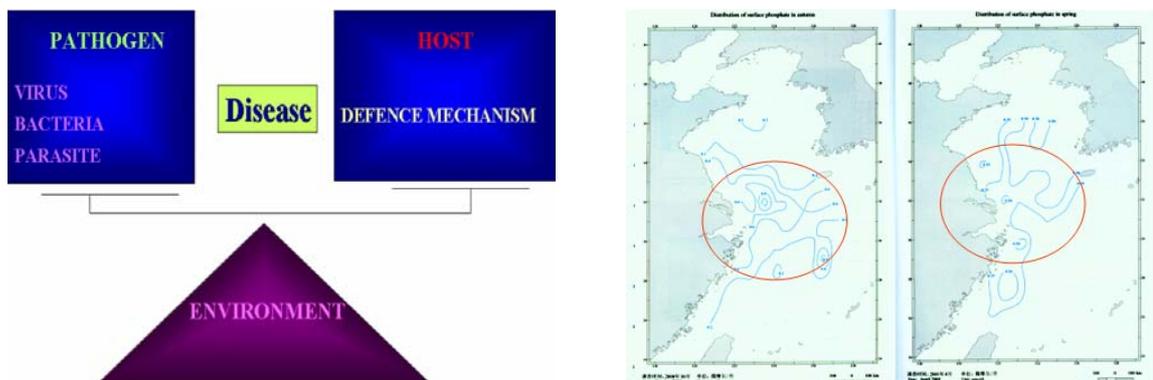


Figure 19. Left: Concept of mariculture disease control (Dr. Park Soo-il). Right: Distribution of phosphate in the surface seawater of the Yellow Sea (left: autumn 2000, right: spring 2001) (Dr. Kim Hak-Gyoon).

87. All together, there were 3 Keynote Speeches, 19 Invited Speakers, and 10 Contributing Speakers. The poster exhibition contained posters displayed by 10 groups of authors, including the PMO, local government officers, NGOs, and young scientists. The Question and Answer session and Discussion period on the oral presentations saw active participation from the audience in asking clarification, providing suggestions and general lively talks about the presentations.
88. During the conference summary given by the Chairperson of the Conference Organising Committee, participants were asked to contribute ideas for:
  - future directions in management of the physical, chemical and biological environments;
  - enhancement of cultural services; and
  - incorporation of legislative, political and institutional issues into management.
89. Some of these ideas were considered and incorporated by the SAP Ad-hoc Working Group as possible management actions to be included in the SAP.
90. The conference provided a forum for scientists from within and beyond the region to exchange views and information and to build up co-operation amongst each other.



Figure 20. Left: Opening ceremony of the Regional Science Conference. Right: Poster Session.

### 3.8.2 Exhibition of “Parliamentary Conference 2006” during the GEF IWC-4

91. At the GEF IWC-4 Conference in Cape Town, South Africa, 31 July – 3 August 2007, the Project organised an exhibition with the focus on the Parliamentary Conference. Displaying publications, newsletters, posters, and promotional items for raising public awareness, the Project’s exhibition booth attracted a number of visitors from around the world who attended the IWC-4 (Figs. 21-22). A short video depicting the Parliamentary Conference was shown in the booth and was introduced at this GEF meeting’s film show.



Figure 21. The project’s exhibition booth at IWC-4 about Parliament Conference and public awareness.

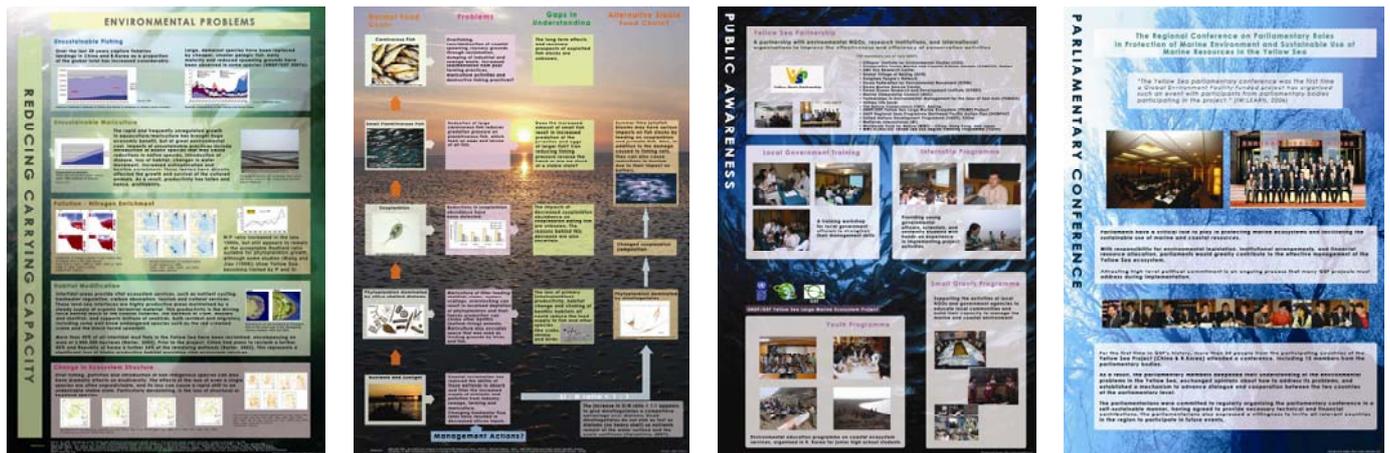


Figure 22. Four new posters developed by PMO.

### 3.9 Co-operative Cruises

92. Following the instruction from the last PSC meeting, the PMO continued to facilitate negotiation on the co-operative cruises. The Project Manager organised several individual discussions and negotiations with the governments and experts of the participating countries on this important issue. Several informal meetings were organised with participation of the relevant experts and governmental officers.
93. At the time this report was prepared, initial agreements had been reached, and had been submitted for the final approval of the participating governments, according to the relevant national regulations.
94. It is expected that the winter cruise would be organised from 5-25 January 2008. Upon receiving the final approval, a technical meeting will be organised prior to the cruise to discuss technical details.

### 3.10 Mid-Term Evaluation

95. As planned in the Project Document approved by the GEF Council, and the workplan approved by the PSC, a mid-term evaluation was implemented, guided by UNDP Office in Korea. Dr. Alan Fox and Dr. Ong Jin-Eong were assigned to carry out this task (Fig. 23).
96. The purpose of the Mid-Term Evaluation was to examine the performance of the project since the beginning of its implementation. The review included both the evaluation of the progress in project implementation, measured against planned outputs set forth in the Project Document in accordance with rational budget allocation, and the assessment of features related to the process involved in achieving those outputs, as well as the initial and potential impacts on the project.

*“The Mid-term Evaluation Report (MTE report) constituted the combined outcome of a literature review and evaluation mission, including a series of interviews of selected stakeholders from ROK and China carried out in August 2007. The evaluation was carried out on behalf of UNDP and UNOPS, the project’s implementing and executing agencies, respectively.*

*A review of work plans and budget documents, coupled with interviews of stakeholders and the project team gave evidence that the YSLME project*

management office (PMO) is well-managed and includes an experienced and effective project team. Appropriate financial and project management structures have been set in place based on GEF/UNDP/UNOPS guidelines. Expectations for a well-functioning Project Steering Committee (PSC) Regional Science and Technology Panel, and Regional Working Groups (RWGs) have been fulfilled. The PMO is working with an accomplished array of scientists and managers in key institutions in China and ROK.

The project has chalked up some notable achievements, in particular the completion and approval of the TDA, and successful efforts to engage parliamentarians from both countries. The project has also faced some setbacks, most notably an inability of the partner countries to agree on the scope of activities to be carried out during a planned cooperative cruise, even there are positive signs in the negotiation. At the halfway point, roughly 1/3 of the project budget has been utilised.

A great opportunity may be presented in the near future to expand the Yellow Sea partnership to include the Democratic People's Republic of Korea (DPRK). Within UNDP/GEF-approved parameters and timeframes, the project team and partner countries should make every effort to engage the DPRK as a full and active partner in the YSLME. The partner countries should also consider establishing a Yellow Sea Commission and Secretariat, to serve as the frame for future joint efforts and international support.”<sup>1</sup>

97. The final report of Mid-Term evaluation is listed as one of the information documents for this meeting.



Figure 23. Left: Ong Jin-Eong, one of the mid-term evaluators, speaking to Yoo Sinjae and Uye Shin-ichi. Right: Alan Fox, another mid-term evaluator, engaging in discussion during the Science Conference.

### 3.11 Internal Auditing

98. In October, following the request from UNDP-Seoul Office, the PMO was audited by Deloitte Anjin LLC that was nominated by UNOPS headquarter as an internal auditor. The result of overall assessment was “Satisfactory” out of 3 categories which were satisfactory, partially satisfactory, and unsatisfactory. The audit area and scope were general organisation, treasury, fixed asset, purchasing, human resources & payroll, financial reporting, travel and other expenses for 2004 to September 2007.

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<sup>1</sup> Quoted from MTE Report.

99. The executive level observations were as follows: "In general, the operations and management of the Project Office are well controlled, with some control weaknesses/opportunities for improvement." There were some minor points for improvement stated in the report of the internal audit, mainly for purchasing goods. PMO agreed with those minor recommendations, and will soon implement some of the relevant recommendations.

#### **4 INVOLVEMENT OF DPR KOREA IN THE PROJECT**

100. During the last PSC meeting, this issue was discussed, and the meeting agreed that, "the PSC should welcome the participation of DPRK, and prepare for DPRK's participation in the Project by taking the opportunity of Mr. Li, NPC of China, and Mr. Jiang, Project Manager's, upcoming visit to DPRK." However, due to the fact that the operation of UNDP in DPRK was stopped in May 2007, it was not possible to continue the visit.
101. Efforts to involve DPRK in the project have continued. The Project Manager had a meeting with a DPRK government official in Dalian, China, on 10 August 2007. Following the exchange of views on the involvement of DPRK in the project, it was agreed that before a final decision is made by the PSC, some co-operative activities should be carried out under a bi-lateral framework, including:
- Collecting PCs and some analytical equipment to be used by the institutions of DPRK through a Chinese NGO;
  - Organising a marine pollution monitoring training in China funded by bilateral resources; and
  - Organising a training course on mariculture techniques in China funded by bilateral resources.
102. The implementation of these activities is currently being planned.

#### **5 FINANCIAL REPORT**

103. Since 2007's 3<sup>rd</sup> quarter, the project began using the Atlas system at the buyer level, which is the main ERP system of UNOPS headquarter to create and maintain POs on a quarterly basis. Access to Atlas helps maintain a higher level of accuracy for the figures in the BRIO report.
104. UNOPS decided to move another step forward in setting up the project with an Atlas account, such that PMO will manage many of its own transactions through to actual payment rather than just the PO. Right now, UNOPS is processing an Atlas account for the PMO.
105. Due to many of the transactions through Imprest being increased in value, the project's Imprest level of local currency was increased from U\$30,000 to U\$70,000 equivalent.
106. The expenditure report for 2007 is attached as [Annex II](#).

## **6 REPORT ON THE PROJECT MANAGEMENT OFFICE**

### **6.1 Office & Facilities**

107. With thanks for the generous support from KORDI, the PMO office moved to Research Building #3 in the KORDI compound in June 2007. The new office is bigger and brighter than the previous one. PMO would like to express its appreciation to KORDI's continuous and generous support for the new office space. Some additional furniture was purchased based on the new office setup.
108. The PMO's physical address is as follows:

UNDP/GEF Yellow Sea Project  
Rm3113, KORDI, 1270, Sa2-Dong, Sangnok-Ku  
Ansan-Shi, Kyungki-Do, R.Korea (426-744)  
Tel: 82-31-400-7829  
Fax: 82-31-400-7826

109. The Inventory Report in [Annex III](#) lists the PMO's assets.

### **6.2 Staff Recruitment and Intern Programme**

#### New PMO Staff

110. Mr. Mark Walton, new Environment Officer in charge of Fisheries and Biodiversity components, joined the project in January 2007 as successor to Mr. Jeff Archer who resigned from the project.
111. Mr. Walton holds a PhD in mangrove rehabilitation and fisheries productivity from the University of Wales, Bangor, UK. He has worked in fisheries management and aquaculture in Asia and Central America.

#### Internship Programme

112. Mr. Seong Hwan Pae and Ms. Wei Yan successfully completed their internship in 2006. This year, Mr. Yunil Kim joined the project on 1<sup>st</sup> October as the new intern from Republic of Korea. Ms. Yu Ming from China is expected to join the project in December 2007. The PMO is pleased to host 2 interns as planned, although there was some delay in the selection and arrival the interns. The interns will assist with organisation of at least one Regional Working Group Meeting and enhance their skills to work in an international project through assisting the Project Manager and Programme Officers with activity implementation.

### **6.3 Project Website, Partnership Website, E-Discussion Group and Newsletter**

113. After three years of operation, the project website [www.yslme.org](http://www.yslme.org) continues to run smoothly. The aim of "information dissemination" is fully sufficient and works as a linkage among the UNDP/GEF Yellow Sea members. It disseminates background information about the project, the staff and partners, the latest news on implementation, project reports and meeting documents, and relevant stories about the Yellow Sea.

114. Based on a recommendation from the “1st Yellow Sea Partnership Workshop” in Beijing, China, 15-16 March 2006, the PMO established the Partnership website <http://partnership.iwlearn.org/> (Fig. 24). The website helps to

promote environmentally-sustainable management and use of the marine and coastal resources in the Yellow Sea for the Yellow Sea Partners (Table 2). Technically, the platform takes advantage of the free tools and services offered by IW:LEARN website toolkit, which aims to: (1) Enable any GEF project to have a powerful and easy to manage website; and (2) Utilize the internet based GIS Map server and standards for information exchange. The biggest benefit of the website is that the partners can update their news and schedule by themselves with provided ID and Password so it reduces the YSLME PMO’s work load. The right side of the main page shows news from the Yellow Sea partners and the main section automatically produces real time news on the Yellow Sea from GOOGLE.COM, using RSS technique and shows a GIS map of the sea.



Figure 24. The Partnership website <http://partnership.iwlearn.org/>.

Table 2. The list of registered partners for the Yellow Sea Partnership website.

- Birds Korea
- Citizens' Institute for Environmental Studies (CIES)
- Cooperative Young Marine and Coastal Scholar Society (CYMCSS), Dalian
- DMZ Eco Research Centre
- Global Village of Beijing (GVB)
- Kanghwa People's Network
- Korea Federation for Environmental Movement (KFEM)
- Korea Marine Rescue Center (KMRC)
- Korea Ocean Research and Development Institute (KORDI)
- Marine Stewardship Council (MSC)
- Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)
- Shihwa Life Saver
- The Nature Conservancy (TNC), Beijing
- UNEP Regional Seas Programme Northwest Pacific Action Plan (NOWPAP)
- UNDP/GEF Yellow Sea Large Marine Ecosystem (YSLME) Project
- United Nations Development Programme (UNDP), China
- Wetlands International (WI)
- Worldwide Fund for Nature (WWF) – China, Hong Kong, and Japan
- WWF/KORDI/KEI Yellow Sea Eco-Region Planning Programme (YSEPP)

115. In addition to the partnership website, an E-discussion group email serves as a forum to exchange views among the Yellow Sea Partners. If a group member sends any news, announcements, queries to [partnership@yslme.org](mailto:partnership@yslme.org), the e-mail address redirects all incoming e-mail to each registered participant's e-mail account. For registration for the partnership website and email group, please contact [info@yalme.org](mailto:info@yalme.org) or [euidea@yslme.org](mailto:euidea@yslme.org).
116. Quarterly paper- and electronic-based newsletters (Vol.3 No.1 – Vol.3 No.4) for this year were issued in January, April, July, and October (Fig. 25). The newsletter for the last three months of the year will be published in January 2008. The full list of newsletters is linkable on the website [www.yslme.org](http://www.yslme.org). It presents all past events, workshops, and activities implemented through the PMO. The PMO continues to seek better ways to communicate with the public and transmit information. Suggestions in this regard are welcome.



Figure 25. The Newsletter Vol.3 No.1 – Vol.3 No.4.

## 6.4 Operation of the Office

117. The PMO continues to operate within the rules and regulations of UNOPS.
118. A Temporary Finance Assistant was hired to replace Ms. Kyungsuk Lee who was on maternity leave for 4 months from Feb to May 2007. Ms. Kyungyun Lim joined the PMO on 10 January 2007, and managed the project's accounting and assisted with administrative issues.
119. Language Exchange Programme: PMO continued the lessons to share the basic communication skill in English, Chinese, Korea and Spanish with PMO staffs and KORDI on a regular basis.
120. New posters: PMO produced 4 new posters indicating the environmental problems in each component, diagram for handling the problems, and achievements of public awareness such as Yellow Sea Partnership, Local Government Training, Youth Programme, Small Grants Programme, Internship Programme, and Parliamentary Conference. The posters were displayed at GEF IW4 and the Regional Science Conference in Hangzhou.

121. Entry visa to ROK and China: With strong support from Ministry of Foreign Affairs and Trade in Korea and State Oceanic Administration in China, PMO facilitated the visa process for the meeting participants. Following extensive discussion with relevant organisation, it seems not possible to issue a re-entry visa for the experts of the projects, according to the national regulation.

## **7 CO-OPERATION WITH OTHER ORGANISATIONS AND PROJECTS**

### **7.1 Exchange of Memorandum on Co-operation**

122. The Yellow Sea Project has been actively seeking partnership with relevant organisations not only participating governments and their affiliated agencies, but also regional projects, NGOs, and universities to pursue more effective conservation activities.
123. During and since the 3<sup>rd</sup> PSC Meeting, the Project signed an MOU with the following organisations:
- IOC Sub-Commission for the Western Pacific (IOC/WESTPAC) on 23 November 2006;
  - UNDP/GEF Project on “Biodiversity Management in the Coastal Area of China’s South Sea (SCCBD)” on 13 December 2006;
  - Yonsei University Graduate School of International Studies on 8 March 2007;
  - Myongji University on 19 June 2007; and
  - Oceanic and Fisheries Administration of Shandong Province, China, on 6 August 2007.
124. The Project also signed a Letter of Co-operation (LOC) with PEMSEA on 16 December 2006, and an LOC with NOWPAP RCU on 24 May 2007.
125. The MOUs and LOCs state the partnership between the Project and the organisations mentioned above, specifying activities and focal areas to collaborate on.
126. The MOU signed on 7 March 2005 between the Project and the WWF/KORDI/KEI Yellow Sea Eco-Region Planning Programme was reviewed; then, the “Review Document and Future Implementation of Complementary Activities” was exchanged between the two projects on 25 June 2007. With current and future co-operative activities examined, the Review Document describes: (i) potential areas for co-operation; (ii) co-operation mechanism; and (iii) major areas for future co-operation.

### **7.2 Co-operation with NOWPAP in Marine Litter Issues**

127. The Project has been strengthening co-operation with NOWPAP in a variety of areas, especially in the area of marine litter. Programme Officers of the PMO contributed to International Coastal Cleanup Campaigns that NOWPAP organised in Rizhao, China, June 2007 and in Busan, ROK, September 2007 by giving presentations, attending panel discussions as panelists, and conducting coastal cleanup.
128. Those contributions not only enhanced collaboration between the two international projects, but also provided opportunities for the Project to expand its partnerships to relevant organisations such as local NGOs in China and ROK.

### **7.3 Synergy with WWF on Selection of Demonstration Projects and Small Grants**

129. During a meeting, between Mr. Tobai of WWF and Mr. Jiang and Mr. Walton of YSLME at the PMO in February 2007, a list of complementary activities was drawn up.
130. The meeting produced a review document of the future implementation of joint activities which included three sections: potential areas for co-operation; co-operation mechanisms; and major areas for future co-operation. Important future co-operation will involve representation at both projects' PSC meetings, attendance of WWF personnel at SAP Ad-Hoc meetings and RWG-B meetings. WWF will continue to review YSLME small grants proposals and YSLME will assist in the reviewing of the proposals for small grants offered by the new WWF/YSESP project, which will be aimed at the protection of endangered and endemic species, one of the priority problems identified in the TDA.
131. WWF and YSLME have already adopted a common planning framework for the protection of habitats in the Yellow Sea. To assist in the selection of suitable sites for the demonstration of SAP management actions, WWF will perform an assessment of MPA/national nature reserve management effectiveness, with the results used in conjunction with the report from the contracted Biodiversity Advisors. This report will identify the best examples of RAMSAR habitats located in the Yellow Sea.
132. Finally, WWF and YSLME have agreed that a single SAP drafted by the YSLME project will be used for the protection of biodiversity and habitats in the Yellow Sea. The WWF have already provided considerable input into the SAP, attending all the YSLME SAP meetings to date.

### **7.4 Proposed Wetland Meeting with Other UNDP/GEF Funded Projects**

133. A meeting was proposed on "Exchanging experiences in biodiversity protection in coastal wetlands" between the UNDP/GEF funded projects in the region. Other important projects and NGO's involved in wetland protection are also to be invited to participate in the meeting. The objectives of the meeting are to:
  - i) Promote the exchange of information between the projects, and update each other on the progress and scheduled events;
  - ii) Share experiences and lessons in implementing project activities in wetland protection and management, including public awareness and capacity building activities;
  - iii) Explore possibilities of co-operation and co-ordination of the relevant project activities to improve effectiveness and maximize benefits of project implementation; and
  - iv) Prepare, if applicable, a joint workplan and/or activities for better protection and management of coastal wetlands in the region.
134. An invitation of interest was sent out to UNDP offices in China and ROK and WWF on 28<sup>th</sup> September 2007. Participants have suggested a meeting during the first quarter of 2008.

## 8 CHALLENGES TO PROJECT IMPLEMENTATION

135. After over two years of project implementation, there seems to be improvement with fewer challenges faced during project implementation. To continuing smooth project implementation, national and regional co-ordination must continue to be efficient and effective to ensure that the project's SAP objective is met.
136. In order to ensure successful project implementation in the remaining 2 years, it is critical that challenges in improved national and regional co-ordination are addressed now. The RSTP and PSC are requested to pay attention to these challenges, to take action to eliminate them, or at least lessen their negative impacts on implementation. The challenges to project implementation are listed in Table 3.

Table 3. Challenges to project implementation.

<u>Issue</u>	<u>Situation</u>
<b>Need to enhance the roles of the IMCC</b>	The IMCCs have been established in both countries with regular meetings. However, participation from a wide range of government agencies should be strengthened, especially since SAP will be submitted for approval in the middle of next year.
<b>Expand participation in the national and regional working groups, to include other stakeholders such as NGOs</b>	Since project inception, the membership of NWGs, RWGs, and project partners have expanded to include more institutions. However, the new members are still limited in number or only on a short-term basis (Small Grants Programme). Considering the future of the project (SAP approval and subsequent implementation), it would be more effective and beneficial to the region if additional institutions, especially NGOs, have long-term involvement in the project. It should be noted that expanding long-term participation to more institutions, would not only bring more expertise and human resources to the project, but also bring more attention to the environmental problems faced by the Yellow Sea.
<b>Unstable NWG and RWG membership</b>	The members of some Regional Working Groups are still somewhat unstable with membership changes, although there was improvement in 2007. Consistent membership will lead to better understanding of the project for the individual, and also for the affected project component. Stable membership can help the implementation of project activities.
<b>Lack of institutional incentives</b>	While a stable membership of most RWGs has happened, the issue of lack of incentives has not been solved. It was reported that some RWG members were unwilling to attend RWG meetings because of lack of incentives. Institutional incentives should be pursued, while financial incentives (e.g., consulting fee for attendance) are neither appropriate nor available. The institutional incentives are conditions such that RWG meetings are a priority; the members get credits for participation. The participating governments should make sure that the importance of RWGs is understood clearly by the top management of organisations which dispatch the RWG members. Those

<u>Issue</u>	<u>Situation</u>
<p><b>Little regard for previously agreed meeting dates, deadlines and attention to reminders</b></p>	<p>organisations have to recognise the RWGs as a task with high priority.</p> <p>There continues to be a few delays in meeting milestones stated in legally signed contracts for activities, although this has improved. It is understood that contracted parties have busy schedules with their regular jobs; however, to take on a contract signifies a commitment to delivering the services on time. The delay in submission of some SGP reports has impacted the contractor's chance to receive future contracts.</p> <p>Contracted parties need to maintain a sense of urgency in order to maintain efficient project implementation.</p> <p>Agreements made for future meeting dates need to be observed. This year, only one RWG had its meeting during its previously agreed dates. The shifting of dates creates unnecessary extra work and co-ordination for all parties involved.</p>
<p><b>Need more attention and action on agreements from various meetings</b></p>	<p>The RWG, RSTP, and PSC Meetings are the fora for project partners to meet annually and agree on future project implementation. The discussions and agreements reached at these meetings should be addressed and acted upon, to minimize delay in project implementation. Postponing activities is not an efficient way for implementation.</p>
<p><b>More attention should be given to the quality of project deliveries</b></p>	<p>The implemented activities should produce useful results that meet the project's objectives and contribute to better management of the YS ecosystem. It is preferred to spend a little more time to find a good contractor that will produce good results, rather than focus on spending project money within the allotted time and compromise the quality of project delivery.</p>

139. As the project moves towards the approval of the SAP and potential implementation of the SAP, the challenges above illustrate a need for a continued sense of commitment by all parties to the project and a faithful and optimistic outlook that the project, with an SAP in place, will indeed provide the expected benefits to the region's marine environment.
140. Recommendations for future implementation to overcome the challenges are described in Section 9.

## 9 RECOMMENDATIONS FOR FUTURE IMPLEMENTATION

141. Recommendations for future implementation to overcome the challenges listed in Section 8 remain similar to previous years for the same challenges. Table 4 shows the challenges, recommendations, and improvements from previous years.
142. With the SAP under development, and potential for implementation starting within 3 year's time, it is not too early to develop a solid foundation to strengthen inter-agency co-operation and co-operation with other stakeholders. The trust among all

project partners and stakeholders seems to have improved, and should continue to build in order to ensure widespread regional collaborative efforts to produce the best possible results for the region's environmental management schemes. This, compounded with respect for deadlines and wise-use of donor funds will sustain good environmental protection and management of the Yellow Sea long into the future.

143. Some recommendations from the Mid-Term Evaluators are mentioned below.

#### **YS Commission**

144. The "Regional Governance Analysis" proposed the establishment of a Yellow Sea Commission and Secretariat to oversee the implementation of SAP and the sustainability of the management actions until 2020. The MTE Draft Final Report suggested that the costs and benefits and management mechanisms for establishing a Yellow Sea Commission and Secretariat should be listed to allow consideration for this option to be included in the SAP. "A Commission can enable the partner countries to normalise their joint efforts and provide a long term repository for bilateral and multilateral financial support.<sup>1</sup>"

#### **Communications and Public Awareness Officer**

145. The project has made advances in enhancing public awareness and participation through the Yellow Sea Partnership. It is important for the other YS Partners to see this initiative as also benefiting their specific activities and interests, so that it becomes more of a mutually shared effort, and less of a YSLME-directed effort. The MTE suggested to consider adding a communications expert for the PMO. This person would take direct responsibility for public relations, web content, special events, educational programmes, the Yellow Sea Partnership and the Small Grants Programme. One or both of the partner countries could second a communications expert for this effort, perhaps on a rotating basis.

146. Future YS Partnership activities should continue to expand private sector support mechanisms, such as those already developed with Panasonic on the YSESP and Amway international on the Dandong Youth Programme.

#### **DPRK Involvement**

147. The MTR reiterated the importance of DPRK's full involvement in the project, "It is vital to the long-term sustainability of the Yellow Sea ecosystem that the DPRK becomes a partner in this regional effort." All project partners realise this issue and should strive to find a solution whereby DPRK can become fully involved in the project as soon as possible.

#### **Project Extension**

148. As mentioned in the 4<sup>th</sup> RWG-I Meeting Report, the members recommended the consideration of a no-cost extension for the project before starting Phase 2. This transition period would be used to prepare the initiation of Phase 2.

Table 4. Challenges to project implementation, recommendations, and areas of improvement.

<u>Issue</u>	<u>Recommendations</u>	<u>Improvement seen from last/previous years</u>	<u>Further action needed</u>
Need to enhance the roles of the IMCC	Further enhance national co-ordination		√

<sup>1</sup> From MTE Draft Final Report.

<u>Issue</u>	<u>Recommendations</u>	<u>Improvement seen from last/previous years</u>	<u>Further action needed</u>
Expand participation in the national and regional working groups, to include other stakeholders such as NGOs and universities	and roles of IMCC Further increase in incentive of the national participating institutions	√	√ Consider to include additional stakeholders
Unstable NWG and RWG membership	Further strengthen communication among all the project partners	√ mostly	√ There is still the occasional change in membership √
Lack of institutional incentives	Further ensure the qualities of the project outcomes produced		
Reduction in institutional overhead fees for contracts and reporting on use of co-financing		√ for overhead reduction	√ Need further information on co-financing uses
Need for better understanding of the UN and GEF financial rules and operational mechanisms		√	
Little regard for deadlines and attention to reminders		√ mostly	√ Can still be improved somewhat
Need more attention and action on agreements from various meetings		√ some	√ Can still be improved somewhat
Communication between contracted parties/WG members and PMO		√	
Quality of output results		√ mostly	√ Can still be improved somewhat
Inadequate sense of trust among project partners		√ some	√ Can be improved

## Annex I

### List of Meetings and Workshop-Related Activities Convened by the Project in 2007

6 - 8 Feb	SAP Consultation Meeting, Jinghong, China
10 - 12 April	First SAP <i>Ad-hoc</i> Working Group Meeting, Hongchun, ROK
14 - 15 May	Gene Pool Analysis Workshop, Busan, ROK
4 June	1 <sup>st</sup> Yellow Sea Ocean Colour Workshop, Ansan, ROK
18 - 20 June	Sustainable Mariculture Workshop, Taean, ROK
19 June	Voluntary Internship Programme (VIP) Introductory Session, Seoul, ROK
10 - 12 July	2 <sup>nd</sup> Local Government Officials Workshop on Sea-use Regulations, Qingdao, China
11 - 12 Aug	Dandong Youth Public Awareness Programme, Dandong, China
14 - 16 Aug	First Yellow Sea Regional Science Conference, Hangzhou, China
18 - 20 Aug	Second SAP <i>Ad-hoc</i> Working Group Meeting, Hangzhou, China
1 - 2 Sept	2 <sup>nd</sup> Yellow Sea Ocean Colour Workshop, Nagasaki, Japan
4 - 6 Sept	Mariculture Carrying Capacity Workshop, Rongcheng, China
17 -19 Sept	4 <sup>th</sup> Regional Working Group Meeting - Biodiversity, Ansan, ROK
1 Oct	2 <sup>nd</sup> Yellow Sea Partnership Meeting, Busan, ROK
3 - 5 Oct	4 <sup>th</sup> Regional Working Group Meeting - Ecosystem, Ningbo, China
8 - 10 Oct	Inter-calibration Summary Workshop, Jeju, ROK
11 - 13 Oct	4 <sup>th</sup> Regional Working Group Meeting - Pollution, Jeju, ROK
11 - 13 Oct	Regional Conference on Protection of Marine Environment and Sustainable Use of Marine Resources in the Yellow Sea, Incheon, ROK
16 - 19 Oct	4 <sup>th</sup> Regional Working Group Meeting - Investment, Jeju, ROK
16 - 17 Oct	Regional workshop on mariculture disease control and prevention, Jeju, ROK
22 - 23 Oct	Proposal and Report Writing Workshop, Ansan, ROK
26 Oct	VIP Reporting Session, Ansan, ROK

7 - 9 Nov	4 <sup>th</sup> Regional Working Group Meeting - Fisheries, Seokcho, ROK
26 - 28 Nov	4 <sup>th</sup> RSTP Meeting, Guangzhou, China
29 - 30 Nov	4 <sup>th</sup> PSC Meeting, Guangzhou, China

**Annex II**  
**Expenditure Report for 2007**

Available upon request



**Annex III**

**PMO's Inventory List**

Jan. 2007	928	Jul. 2007	917.00	UN EXCHANGE RATE
Feb. 2007	925	Aug. 2007	903.00	
Mar. 2007	928	Sep. 2007	940.00	
Apr. 2007	941	Oct. 2007		
May. 2007	917	Nov. 2007		
Jun. 2007	920	Dec. 2007		

Period	PROJECT EXPENDITURE					EXPENDITURE AMOUNT		Authorizati on	Ref	
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION			LC	US\$ equi			
Dec.04	4205	72800	Office Equipment	LCD Projector	O-04-001	PLC-XT15KA(SANYO)	KRW 3,540,000	<b>3,361.82</b>	<b>34</b>	Including OS Software(130,000) Including OS Software(130,000) <b>Disposal on 2005</b>
Dec.04	4205	72800	Office Equipment	Scanner	O-04-002	EPSON Perfection 1270	KRW 102,000	<b>96.87</b>	<b>34</b>	
Dec.04	4201	72800	IT Equipment	Lap-top Computer	I-04-001	Toshiba	KRW 1,960,000	<b>1,861.35</b>	<b>34</b>	
Dec.04	4201	72800	IT Equipment	Lap-top Computer	I-04-002	Toshiba	KRW 1,960,000	<b>1,861.35</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF124 * 2	KRW 354,400	<b>336.56</b>	<b>34</b>	
<b>Jul.05</b>	<b>4302</b>	<b>72200</b>	<b>Furniture</b>	<b>Partition</b>	F-04-001	<b>(KF124 * 2)</b>	<b>-KRW 91,314</b>	<b>(89.17)</b>		
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF104W * 5	KRW 775,500	<b>736.47</b>	<b>34</b>	

Period	PROJECT EXPENDITURE						EXPENDITURE AMOUNT		Authorizati on	Ref
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION				LC	US\$ equi		
<b>Jul.05</b>	<b>4302</b>	<b>72200</b>	<b>Furniture</b>	<b>Partition</b>	F-04-001	<b>(KF104W * 5)</b>	<b>-KRW 28,904</b>	<b>(28.23)</b>		<b>Disposal on 2005</b>
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF084W *2	KRW 266,000	<b>252.61</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF5214 T * 2	KRW 35,800	<b>34.00</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF5114 L * 1	KRW 15,200	<b>14.43</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF6014 * 6	KRW 49,800	<b>47.29</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF126 * 5	KRW 1,055,000	<b>1,001.90</b>	<b>34</b>	
<b>Jul.05</b>	<b>4302</b>	<b>72200</b>	<b>Furniture</b>	<b>Partition</b>	F-04-001	<b>(KF126 * 5)</b>	<b>-KRW 42,527</b>	<b>(41.53)</b>		<b>Disposal on 2005</b>
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF106 * 2	KRW 357,200	<b>339.22</b>	<b>34</b>	
<b>Jul.05</b>	<b>4302</b>	<b>72200</b>	<b>Furniture</b>	<b>Partition</b>	F-04-001	<b>(KF106 * 2)</b>	<b>-KRW 15,649</b>	<b>(15.28)</b>		<b>Disposal on 2005</b>
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF5216 T * 1	KRW 21,400	<b>20.32</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF5116 L * 1	KRW 20,000	<b>18.99</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF6016 * 5	KRW 48,500	<b>46.06</b>	<b>34</b>	
<b>Jul.05</b>	<b>4302</b>	<b>72200</b>	<b>Furniture</b>	<b>Partition</b>	F-04-001	<b>(KF6016 * 4)</b>	<b>-KRW 5,706</b>	<b>(5.57)</b>		<b>Disposal on 2005</b>
Dec.04	4302	72200	Furniture	Multi-Bar	F-04-001	KA0012 * 6	KRW 103,200	<b>98.01</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Multi-Bar	F-04-001	KA0008 * 1	KRW 12,400	<b>11.78</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Horizontal Shelf	F-04-001	KA0101 * 7	KRW 28,700	<b>27.26</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Supplies Shelf	F-04-001	KA0104 * 7	KRW 24,500	<b>23.27</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Pencil Case	F-04-001	KA0106 * 7	KRW 14,700	<b>13.96</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Shelve	F-04-001	KT3312 * 3	KRW 429,000	<b>407.41</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Chair	F-04-002	CH2301	KRW 112,500	<b>106.84</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Shelve	F-04-001	KT3010 * 3	KRW 130,200	<b>123.65</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Cabinet	F-04-003	SC0085W5 * 2	KRW 252,400	<b>239.70</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Cabinet	F-04-004	SB0082W2 * 2	KRW 95,400	<b>90.60</b>	<b>34</b>	

Period	PROJECT EXPENDITURE						EXPENDITURE AMOUNT		Authorizati on	Ref
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION				LC	US\$ equi		
Dec.04	4302	72200	Furniture	Cabinet	F-04-005	SC0085W5 * 4	KRW 505,200	<b>479.77</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Cabinet	F-04-006	SC0082W2 *1	KRW 86,900	<b>82.53</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Cabinet Door	F-04-004	SB0082W2 * 5	KRW 238,500	<b>226.50</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Conferenc e Table	F-04-007	SR118	KRW 214,500	<b>203.70</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Chair	F-04-008	CH0011AF * 6	KRW 605,400	<b>574.93</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Folding Table	F-04-009	CR9006 * 1	KRW 116,800	<b>110.92</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Cabinet	F-04-0010	SC982F 800	KRW 111,000	<b>105.41</b>	<b>34</b>	
Dec.04	4302	72200	Furniture	Cabinet	F-04-0011	SC982C 800	KRW 367,600	<b>349.10</b>	<b>34</b>	
Dec.04	4302	72200	Vehicle	Motor Vehicle	V-04-001	Hyundai Trajet 2.0 A/T	KRW 24,094,000	<b>22,881.29</b>	<b>30</b>	
Jul.05	4104/4201	72800	IT Equipment	Office Software	I-05-001	Windows XP Pro (Kor)	355,000	<b>354.65</b>	<b>PO%19281- 44,45</b>	krw 355,000 * 1ea
Jul.05	4104/4201	72800	IT Equipment	Office Software	I-05-002	MS windows XP Pro (Eng)	1,155,000	<b>1,153.85</b>	<b>PO%19281- 44,45</b>	krw 385,000 * 3ea
Jul.05	4104/4201	72800	IT Equipment	Office Software	I-05-003	MS windows XP Pro - OLP NL (Eng)	3,390,000	<b>3,386.61</b>	<b>PO%19281- 44,45</b>	krw 565,000 * 6ea
Jul.05	4104/4201	72800	IT Equipment	Office Software	I-05-004	H Office 2003 Pro - OLP NL (Kor)	456,000	<b>455.54</b>	<b>PO%19281- 44,45</b>	krw 456,000 * 1ea
Jul.05	4104/4201	72800	IT Equipment	Office Software	I-05-005	Acrobat 7.0 Std (Eng)	900,000	<b>899.10</b>	<b>PO%19281- 44,45</b>	krw 300,000 * 3ea
Nov.05	4104	72800	IT Equipment	Office Software	I-05-006	MS Project 2003 Std - OLP NL (Eng)	650,000	<b>623.20</b>	<b>PO#29386- 14</b>	1ea
Nov.05	4201	72800	IT Equipment	Lap-top Computer	I-05-007	Fujitsu S6240- SDM16	1,700,000	<b>1,629.91</b>	<b>PO#29386- 13</b>	
Apr.05	4201	72800	IT Equipment	Portable Hard Disk	I-05-008		CNY 640	<b>77.91</b>	<b>PO#19281- 44</b>	
May.05	4201	72800	IT Equipment	Lap-top Computer	I-05-009	Fujitsu S7011SF16	KRW 1,760,000	<b>1,777.60</b>	<b>PO#19281- 44</b>	

Period	PROJECT EXPENDITURE					EXPENDITURE AMOUNT		Authorizati on	Ref	
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION			LC	US\$ equi			
Jun.05	4201	72800	IT Equipment	DVD Read/Writ er	I-05-0010		198.98	PO#19281- 44		
Mar.05	4204	72200	Office Equipment	Copy machine	O-05-001	Cannon IC-D380H	KRW 550,000	550.00	PO#17811- 01	
Apr.05	4210	72200	Office Equipment	Digital Camera	O-05-002	Nikon Coolpix3700	KRW 279,000	281.36	PO#19281- 38	
Apr.05	4210	72200	Office Equipment	Type Writer	O-05-003	ET-3800 Kyungbang Co.	KRW 200,000	201.69	PO#17811- 07	
May.05	4210	72200	Office Equipment	Safety Box	O-05-004	Bum Il ESD- 104A(Digital Double Locking)	KRW 299,000	301.99	PO#19281- 38	
May.05	4210	72200	Office Equipment	Conferenc e Call Machine	O-05-005	SoundPointPro225	KRW 370,000	372.38	PO#19281- 38	
Jul.05	4302	72200	Furniture	Task Chair	F-05-002	CH0011AF * 8 (615*530*785)	KRW 896,000	883.72	PO#19281- 39	KRW 112,000
Jul.05	4302	72200	Furniture	Famillia Chair	F-05-003	CH2301 * 1 (620*595*870~970)	KRW 125,000	123.29	PO#19281- 39	KRW 125,000
Jul.05	4302	72200	Furniture	Desk	F-05-004	TD016 * 2 (1600*800*720)	KRW 426,000	420.16	PO#19281- 39	KRW 213,000
Jul.05	4302	72200	Furniture	Extension desk	F-05-005	SD912F * 1 (600*1200*720)	KRW 139,000	137.09	PO#19281- 39	KRW 139,000
Jul.05	4302	72200	Furniture	Endless cabinet	F-05-006	SC982C * 2 (800*290*1920)	KRW 204,000	201.20	PO#19281- 39	KRW 102,000
Jul.05	4302	72200	Furniture	Square table	F-05-007	SR024S * 1 (2400*900*720)	KRW 312,000	307.72	PO#19281- 39	KRW 312,000
Jul.05	4302	72200	Furniture	Folding Table	F-05-008	CR9006 * 1 (590~610*480~520 *720)	KRW 113,000	111.45	PO#19281- 39	KRW 113,000
Jul.05	4302	72200	Furniture	Partition	F-05-001	KF104W * 9 (1000*66*1370)	KRW 1,557,000	1,535.65	PO#19281- 39	KRW 173,000

Period	PROJECT EXPENDITURE					EXPENDITURE AMOUNT		Authorizati on	Ref	
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION			LC	US\$ equi			
Jul.05	4302	72200	Furniture	Partition Frame	F-05-001	KF0104 * 2 (1000*34*1370)	KRW 96,000	94.68	PO#19281- 39	KRW 48,000
Jul.05	4302	72200	Furniture	Partition Frame	F-05-001	KF0124 * 5 (1200*34*1370)	KRW 265,000	261.37	PO#19281- 39	KRW 53,000
Jul.05	4302	72200	Furniture	Partition tile	F-05-001	KF1106 * 4 (1000*14*600)	KRW 104,000	102.57	PO#19281- 39	KRW 26,000
Jul.05	4302	72200	Furniture	Partition tile	F-05-001	KF1126 * 10 (1200*14*600)	KRW 300,000	295.89	PO#19281- 39	KRW 30,000
Jul.05	4302	72200	Furniture	L Shape connector	F-05-001	KF5114 L * 6 (H: 1370)	KRW 96,000	94.68	PO#19281- 39	KRW 16,000
Jul.05	4302	72200	Furniture	Endong	F-05-001	KF6014 * 10 (H: 1370)	KRW 90,000	88.77	PO#19281- 39	KRW 9,000
Jul.05	4302	72200	Furniture	Leg	F-05-001	KF8001 * 2	KRW 44,000	43.40	PO#19281- 39	KRW 22,000
Jul.05	4302	72200	Furniture	Shelf	F-05-001	KT3010 * 2 (1000*360*200)	KRW 96,000	94.68	PO#19281- 39	KRW 48,000
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	System Case_Portavrace DSR with Matte Box	NZD 419.61	309.84	PO%35736- 10	
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	Headphone_Sennh eiser HD202 Closed back monitor	NZD 56.00	41.35	PO%35736- 10	
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	Video Camcoder	NZD 4,747.50	3,505.55	PO%35736- 10	
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	Video Light HVL20DW2	NZD 112.50	83.07	PO%35736- 10	
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	Battery Pack - NPF970	NZD 483.76	357.21	PO%35736- 10	
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	AC Adaptor and Power Charger	NZD 237.96	175.71	PO%35736- 10	

Period	PROJECT EXPENDITURE					EXPENDITURE AMOUNT		Authorizati on	Ref
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION			LC	US\$ equi		
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	ACVQ1050D Wireless Lavalier Mike Kit UWPC1	NZD 686.25	<b>506.73</b>	PO%35736- 10
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	Tripod/Stand	NZD 151.88	<b>112.15</b>	PO%35736- 10
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	DVCAM Tapes VF58CPKS	NZD 239.00	<b>176.48</b>	PO%35736- 10
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	IEEE DV Cable	SGD 145.00	<b>89.51</b>	PO%35736- 10
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	Headphone port adaptor	SGD 12.00	<b>7.41</b>	PO%35736- 10
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	Memory Stick	SGD 95.00	<b>58.64</b>	PO%35736- 10
Mar.06	4210	72200	Office Equipment	SONY Camcoder	O-06-001	Rain Cofer + Shipping		<b>99.90</b>	PO%35736- 10
Feb.06	4201	72800	IT Equipment	Lap-top Computer	I-06-001	Toshiba M50- 03601S	KRW 1,400,000	<b>1,452.28</b>	PO%35736- 15
Jun.06	4201	72800	IT Equipment	Office Server	I-06-002	AS-PE1800 - Dell TM Power Edge TM 1800 Server	KRW 3,968,000	<b>4,252.95</b>	PO%41557- 12, PO%35736- 15
Dec.06	4104	72800	IT Equipment	Office Software	I-06-003	Expert Choice Software	KRW 3,900,000	<b>4,190.98</b>	PO%53903- 03
Nov.06	4205	72200	Office Equipment	LCD Projector	O-06-002	Sony CX20		<b>1,560.00</b>	PO%46928- 08
Nov.06	4203	72200	Office Equipment	Printer	O-06-003	Cannon I90 Printer		<b>250.00</b>	PO%46928- 08
Nov.06	4210	72200	Office Equipment	Scanner	O-06-004	Scanner HP Scanjet7650	KRW 653,600	<b>688.00</b>	PO%46928- 08
Jun.07	4302	72200	Furniture	Shelves	F-07-001	Shelving units for container	KRW 170,000	<b>184.78</b>	PO%61923- 16
Jun.07	4302	72200	Furniture	Container	F-07-002	Container	KRW	<b>1,304.34</b>	PO%61923-

Period	PROJECT EXPENDITURE					EXPENDITURE AMOUNT		Authorizati on	Ref	
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION			LC	US\$ equi			
						1,200,000		16		
Jun.07	4302	72200	Furniture	Double drawer	F-07-003	TP0312W (420*560*570)	KRW 264,000	286.96	PO%61923- 16	2EA
Jun.07	4302	72200	Furniture	Farmilar Chair	F-07-004	CH2301 (620*595*870~970)	KRW 126,000	136.96	PO%61923- 16	1EA
Jun.07	4302	72200	Furniture	Topline Desk	F-07-005	TD016 (1600*800*720)	KRW 213,000	231.52	PO%61923- 16	1EA
Jun.07	4302	72200	Furniture	L-shape Connector	F-07-003	KF5514 (H:1370)	KRW 19,000	20.65	PO%61923- 16	1EA
Jun.07	4302	72200	Furniture	Partition	F-07-003	KF068W (600*66*1770)	KRW 154,000	167.39	PO%61923- 16	1EA
Jun.07	4302	72200	Furniture	Partition	F-07-003	KF108W (1000*66*1770)	KRW 220,000	239.13	PO%61923- 16	1EA
Jun.07	4302	72200	Furniture	Partition	F-07-003	KF128W (1200*66*1770)	KRW 256,000	278.26	PO%61923- 16	1EA
Jun.07	4302	72200	Furniture	L-shape Connector	F-07-003	KF5118 (H:1770)	KRW 24,000	26.09	PO%61923- 16	1EA
Jun.07	4302	72200	Furniture	Ending Connector	F-07-003	KF6018 (H:1770)	KRW 24,000	26.09	PO%61923- 16	2EA
Jun.07	4302	72200	Furniture	Folding Table	F-07-006	CR9006 (630*525*720)	KRW 260,000	282.61	PO%61923- 16	2EA
<b>Total Amount as of Aug 2007</b>								<b>\$74,169.69</b>		
							IT Equipment	\$24,176.26		
							Furniture	\$13,924.50		
							Vehicle	\$22,881.29		
							Office Equipment	\$13,187.65		
								<b>TRUE</b>		

Period	PROJECT EXPENDITURE				EXPENDITURE AMOUNT		Authorizati on	Ref
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION		LC	US\$ equi		
Jun.07	4302	72200	Furniture	Svc fee for installation	F-07-001	KRW 330,000	358.70	PO%61923- 16

## Annex IV

### List of Acronyms

CBA	cost-benefit analysis
CDOM	coloured dissolved organic matter
CKJORC	China-Korea Joint Ocean Research Center
CPR	continuous plankton recorder
DO	dissolved oxygen
DPRK	Democratic People's Republic of Korea
EAS	East Asian Seas
ERP	Enterprise Resource Planning
GEF	Global Environment Facility
GEF IWC-4	GEF's 4 <sup>th</sup> International Waters Conference
GEF/IW:LEARN	GEF/International Waters:Learning Exchange and Resource Network
GIS	geographic information system
IAEA-MEL	International Atomic Energy Agency-Marine Environmental Laboratory
ICES	International Council for the Exploration of the Sea
IMCC	Inter-ministerial Co-ordinating Committee
IUCN	World Conservation Union
KORDI	Korea Ocean Research and Development Institute
LOC	Letter of Co-operation
MOU	Memorandum of Understanding
MTE	mid-term evaluation
NACA	Network of Aquaculture Centres in Asia-Pacific
NGO	Non-Governmental Organisation
NOWPAP	Northwest Pacific Action Plan
NOWPAP RCU	NOWPAP Regional Co-ordinating Unit
NPC	National Project Co-ordinator
NWG	National Working Group
NSAP	National Yellow Sea Action Plan
OC	ocean colour
PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
PMO	Project Management Office
PSA	political and social acceptance
PSC	Project Steering Committee
QA/QC	quality assurance/quality control
QHSS	Queensland Health Scientific Services
ROK	Republic of Korea
RSS	Any format of: Really Simple Syndication (RSS 2.0), <a href="#">RDF</a> Site Summary RSS 1.0 and RSS 0.90), or Rich Site Summary
RSTP	Regional Scientific and Technical Panel
RWG	Regional Working Group
RWG-F, E, B, I	Regional Working Group – Fisheries, Ecosystem, Biodiversity, Investment
SAP	Strategic Action Programme
SI	Le Système international d'unités (International System of Units)
SOP	standard operating procedures
TDA	Transboundary Diagnostic Analysis
TSS	total suspended solids
UN	United Nations
UNDP	United Nations Development Programme
WWF	World Wide Fund for Nature
YOC	Yellow Sea ocean colour

YSESP

Yellow Sea Ecoregion Support Project

YSLME

Yellow Sea Large Marine Ecosystem

YSP

Yellow Sea Partnership