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

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**Seventh Meeting of the Regional Scientific and Technical Panel  
And Project Steering Committee  
For the UNDP/GEF Yellow Sea Project  
*Beijing, China, 23-25 February 2011***

**Report of Project Implementation Progress**



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## 1 INTRODUCTION

In close co-operation with all the governments of the participating countries, and partners of the project, the implementation of the UNDP/GEF Project on Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem (YSLME) has been implemented effectively and successfully during the inter-sessional period. The Project achieved a **“Highly Satisfactory”** ranking according to the Project Implementation Review (PIR) (Appendix I).

As the Project’s current phase reaches its final stage, the implementation of the project activities since the last meeting of the Project Steering Committee (PSC) have different contents and formats from those of previous years.

Having followed instructions by the Sixth Meeting of the PSC (Xi’an, China, 17-19 November 2009), the Project focused its major efforts on the preparation of the necessary documents for the implementation of the Strategic Action Programme (SAP) or the second phase of the Project. With the SAP endorsed by the governments of China and Republic of Korea (ROK), supported by the government of Democratic People’s Republic of Korea (DPRK), the Project achieved almost all its objectives, including the preparation of key documents such as the Transboundary Diagnostic Analysis (TDA), the SAP, the implementation of co-operative cruises in the Yellow Sea for the first time in history, and the preparation of and agreement on the mechanism for future co-operations in the Yellow Sea.

For the effective implementation of the SAP, all partners of the Project felt that there was a strong need to solicit continuous support from GEF for the next phase to initiate the SAP implementation and to establish a governance mechanism for co-operation. Relevant documents were prepared for the application of the Project’s second phase, including the Project Identification Form (PIF) and the Project Document. Since the last PSC meeting, the PIF has been finalised in close co-operation with all the coastal countries and UNDP. The PIF was officially endorsed by the governments of DPRK and ROK. Through UNDP/GEF, the PIF was submitted to the GEF Secretariat. Due to the fact that the endorsement letter was not received from China on time, and the issue of the UNDP’s “comparative advantage”, the PIF was not included in the work programme of the GEF Council’s meeting scheduled in November 2010. Efforts in ensuring the official endorsement letter from China are continuing.

A variety of activities, approved by the last PSC meeting, has been duly implemented during the inter-sessional period. These activities, designed for the effective implementation of the SAP under the Project’s second phase, included the second regional science conference, the training workshop on financial sustainability, the regional networking meeting for marine environment monitoring and assessment and the marine protected areas network meeting.

Additionally, intensive efforts were made in summarising the outcomes and knowledge generated through the last 5 years of project implementation. Such efforts included the preparation of a summary book highlighting the Project’s lessons learned, the publications of the demonstration project reports, and the finalisation of the co-operative cruise summary report.

The final evaluation of the Project’s first phase was scheduled for November 2010. An international review team was formed with Dr. Gunnar Kullenberg and Dr. Mike Huber as its members. It was anticipated that the draft final evaluation report would be available for the Seventh PSC meeting.

Since the last meeting of the PSC, the project has received additional financial support from the governments of China and ROK for a smooth transition of the Project from the current phase to the next one of SAP implementation. The detailed report on these contributions is

provided in subsequent sections of this report. It should be noted that without the active participation and generous support from the governments, it would have been impossible for the Project to make the significant achievements mentioned in this report.

## **2 MAJOR ACHIEVEMENTS SINCE THE LAST MEETING**

### **2.1 Finalisation of the Project Identification Form (PIF) and the Project Document for the implementation of the SAP (the second phase)**

Following comments and advice from the PSC, the PIF was finalised in close co-ordination with National Project Co-ordinators (NPCs) and UNDP/GEF. This important document provided all the necessary information required by the GEF.

With the endorsement from the participating countries, the SAP and its agreed management actions and activities, will be fully implemented in the second phase. The total budget requested from the GEF for the next four years was US\$ 9,529,412, and the total co-financing budget was US\$ 2,450,783,273 mainly from the participating countries, the UNDP, and the WWF.

An official endorsement letter from DPRK was received on 6 August 2010 and from ROK, on 13 September 2010. The internal co-ordinating process in China is underway.

The PIF was officially submitted to the GEF Secretariat by the UNDP/GEF; however, the PIF was not included in the work programme of the GEF Council's meeting because the endorsement letter from China had not been received. Efforts in ensuring the official endorsement letter from China are continuing.

The draft Project Document was prepared. It was anticipated that upon approval of the GEF Council of the PIF, the Document would be finalised with the inclusion of comments and suggestions made by the GEF Council. Then, the Document would be submitted to the GEF Chief Executive Officer for its endorsement.

### **2.2 Summary of the Project outcomes and outputs**

Having implemented a wide range of activities, the Project has produced a number of significant outputs since the last PSC meeting. These activities were generally categorised into the following three groups: (i) summary and dissemination of the 5-year project implementation under the Project's current phase, (ii) preparation and facilitation for the SAP implementation under the second phase, and (iii) co-ordination and co-operation with relevant organisations and projects.

Firstly, the activities greatly contributed to improving an understanding of ecosystem status and trends in the Yellow Sea and to providing relevant stakeholders, including scientists and policymakers, with opportunities to plan and design further activities to conserve the ecosystem. The results of over 20 SAP demonstration activities were finalised, and the summary report will be published early in 2011. Similarly, the findings of co-operative cruises were compiled into a report that will to be published along with the SAP demonstration activity report. The second regional science conference played an important role as a vehicle to summarise, analyse, and disseminate major scientific and managerial achievements obtained through project implementation. A series of scientific conferences (e.g. the third mariculture conference) and technical workshops (e.g. the YSLME session at East Asian Seas [EAS] Congress, the ocean colour algorithms development) helped in generating, soliciting, and displaying innovative knowledge and tools based on the practices and lessons learned from various actions taken in the region and around the world.

Secondly, the activities significantly advanced the phase II preparation by producing the necessary documents, networking with relevant organisations and initiatives, enhancing the capacity of local stakeholders, and raising awareness among all those who have an interest in making the SAP implementation work. The PIF was prepared and endorsed by DPRK and ROK, while the negotiation within China for its endorsement continues. The Project Document was drafted and will be finalised upon approval of the PIF by the GEF Council, together with comments and suggestions on the necessary modifications. Vigorous networking efforts were made individually at the national level without sufficient regional co-ordinations with respect to marine protected areas (MPAs) and environmental monitoring and assessment. Training opportunities were offered for local practitioners (e.g., local government officials, non-governmental organisations (NGOs), MPA managers) to improve their skills in conducting scientific studies (e.g., benthic surveys) as well as managing conservation programmes (e.g., project planning, human resource management, fund-raising). Intensive efforts were constantly made to involve a wide range of stakeholders, including youths and the general public. The third Model United Nations invited over 100 students to discuss global issues such as environmental degradation and climate change in order to help them develop skills necessary for public debate and negotiation. A promotional video highlighting the Project's major activities and achievements was produced to motivate people to think and act for conservation, and also promote public support for the Project. A mirror site of the regional database was established, providing data and information in English and Korean. (The regional databases that had been in operation since 2006, provided services in English and Chinese.)

Lastly, co-operation with other organisations and programmes/projects engaged in ecosystem conservation in the region were advanced. For example, the partnership with WWF, the Liaoning provincial government, and Panasonic (a multinational consumer electronics manufacturer), progressed the conservation of critical habitats in the Yalu River estuary. The co-operation with Yellow Sea Ecoregion Support Project (YSESP) helped the Project reach out to a broad range of people, including the general public to solicit their support for the SAP implementation. Conducting joint activities with relevant international organisations such as UNEP and UNESCO/IOC helped reduce duplications of effort; as a result, the efficiency of regional efforts increased as a whole.

For details of each activity, see Section 3: Project implementation in this report as well as Appendix III: Activities and Workshops Participated by the Project in 2010.

### **3 PROJECT IMPLEMENTATION**

#### **3.1 Cross component**

##### ***Strategic Action Programme (SAP) demonstration activities finalised***

A total of 21 demonstration activities were successfully completed to illustrate the usefulness and effectiveness of management actions proposed by the Strategic Action Programme (SAP), a document designed to maintain and improve the capacity of the Yellow Sea ecosystem in providing ecosystem services (Table 1). The activities tested whether the actions would achieve the management targets set by the SAP by 2020 in selected topics and/or in specific geographic areas, before the actions are adopted on a more widespread basis. Having revealed the efficacy of the proposed actions, the results supported the actions which can now be implemented on a regional scale. Additionally, the demonstration activities suggested recommendations to ensure full and timely fulfilment of the targets.

Appendix II in this document highlights major findings, while the progress and preliminary results of some activities were reported during the last Regional Scientific and Technical

Table 1: Strategic Action Programme demonstration activities

<b>Demonstration project</b>	<b>Geographic location</b>	<b>Consultant</b>
1. Improved biodiversity management in the Rongcheng Seagrass beds	Rongcheng, China	Rongcheng Ocean and Fishery Bureau
2. Stakeholder training in critical habitats of the Rongcheng Seagrass Beds	Weihai, China	Shandong University at Weihai
3. Improved public awareness of the benefits of biodiversity conservation at the Rongcheng Seagrass Beds	Weihai, China	Association of Emeritus Professionals Weihai
4. Improved biodiversity management of the tidal mudflats south of Ganghwa Island	Ganghwa, Republic of Korea (ROK)	Aqualab
5. Stakeholder training in the critical habitats of the tidal mudflats south of Ganghwa Island	Ganghwa, ROK	Aqualab
6. Improved public awareness of the benefits of biodiversity conservation for the Ganghwa tidal mudflat	Ganghwa, ROK	Aqualab
7. Monitoring jellyfish blooms in the Yellow Sea	Central part of the Yellow Sea	National Fisheries Research and Development Institute (NFRDI)
8. Assessing impacts of N:P:Si change on the Yellow Sea ecosystem	Qingdao, China	First Institute of Oceanography (FIO)
9. Assessing and Monitoring the Impacts of Climate Change on the Yellow Sea ecosystem	Qingdao, China	FIO
10. Environmentally friendly mariculture: Integrated Multi-Trophic Aquaculture	Rongcheng, China	Yellow Sea Fisheries Research Institute (YSFRI)
11. Effectiveness of closed fishing areas/season in reducing fishing effort	China	YSFRI
12. Effectiveness of stock enhancement in rebuilding fish stocks	China	YSFRI
13. Environmentally friendly mariculture: Limited water exchange shrimp culture	Taeon, ROK	West Sea Mariculture Research Center (WSMRC)
14. Assessment of the effectiveness of improved fisheries management	ROK	Pukyong National University
15. Economic analysis of the SAP demonstration activity in Ganghwa	Ganghwa, ROK	YSLME Project/Anyang University
16. Cost-benefit Analyses of Strategic Action Programme Demonstration Activities: Improvement of Sustainable Mariculture Techniques	Shandong Province, China	FIO
17. Management of recreational waters	Qingdao, China	National Marine Environment Monitoring Center (NMEMC)
18. Monitoring and assessing atmospheric deposition of pollutants	Dalian, & northern Yellow Sea, China	NMEMC
19. Calculation of nutrient loads in hot spot areas	Yalu River estuary, China	NMEMC
20. Monitoring and assessing aea-based sources of nutrients	Zhuanghe, China	Liaoning Ocean & Fisheries Science Research Institute (LOFSRI)
21. Managing pollution in critical habitats around the Yellow Sea	Southern Ganghwa, ROK	Academy-Industry Cooperation Foundation



Panel (RSTP)/PSC meeting as well as the second Regional Science Conference. The summary report of all the activities is scheduled to be published early 2011.

### ***New knowledge generated through the Science Conference***

Following the successful implementation of the first meeting in 2007, the “Second Yellow Sea Regional Science Conference” was organised in Xiamen, China from 24 to 26 February 2010 (Figure 1). The main theme of this second meeting was “Towards a Science-Driven Ecosystem Approach to Management.” The Project hosted the meeting with the support from the governments of China and ROK. The objectives of the conference were to: (i) summarise knowledge and experience obtained through the Project; (ii) exchange scientific views and information; (iii) discuss the ecosystem-based approach for management; and (iv) identify emerging scientific issues, including the impacts of climate change on the Yellow Sea. About 60 presentations were given by prominent scientists and managers in and beyond the region. New findings and information generated during the conference will contribute to a summary book highlighting the activities and outputs of the Project.

After opening remarks were presented by representatives from China, ROK, and DPRK, the conference had two keynote speeches and 39 oral presentations according to the following four sessions: (i) Ecosystem Drivers and Impacts, (ii) Mechanisms of Ecosystem Change, (iii) Science-Based Management, and (iv) Governance and Cooperation. There were also poster sessions held during the conference, where 13 posters regarding the coastal and marine ecosystem in the Yellow Sea were presented. A total of 71 participants, including scientists, managers of conservation activities, and government officials from and beyond the region, attended the conference.

The participants shared knowledge and experience obtained through the Project, sharing scientific views and information. The conference highlighted the “ecosystem-based approach” which was considered an important management approach to address environmental issues holistically and to protect the Yellow Sea ecosystem. Climate change was addressed during the conference as an environmental factor that the Project should deal with as the impact of this global issue on the ecosystem becomes evident. Presentations by scientists from DPRK provided useful information on the environmental status and trend of marine and coastal ecosystems in DPRK and greatly contributed to a better understanding of the Yellow Sea ecosystem as a whole.

Future directions were proposed through active discussions among the participants, in which barriers and problems in conducting the demonstration activities of the SAP were addressed. To properly handle the challenges expected in the future and to successfully implement the SAP under the Project’s second phase, the participants suggested that the “community-based approach” should be more strongly emphasised, and the new management tools should be developed continuously. For a better scientific understanding of the ecosystem, it was recommended to utilise various ocean observation methodologies such as remote sensing for the long-term monitoring of eutrophication.

CDs containing all the presentations were distributed in the conference and via the Project website ([www.yslme.org](http://www.yslme.org)).

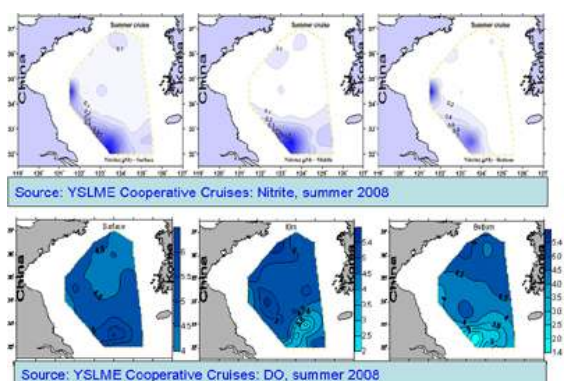


**Figure 1: Participants in the Second Yellow Sea Regional Science Conference (left). Dr. Sinjae Yoo, Co-Chairperson, Conference Organising Committee giving the opening speech (right).**

### ***Findings of co-operative cruises summarised***

To finalise the draft report of the co-operative cruises, the final workshop was organised in Tai'an, China, 9-10 June 2010. Prior to this workshop, a series of technical meetings had been organised in 2009, and the draft report that summarised the methods and results of the cruises had been prepared. The experts from China and ROK, participating in the workshop, discussed the process and findings of the cruises, reviewed parameters surveyed during the cruises, and provided comments and suggestions to improve the draft. The final report had been prepared according to the comments and suggestions, and it was expected that the report would be published in early 2011. All data and information generated from the cruises would be available to the public through online databases as well as publications.

The cruises produced, for the first time in history, significant scientific knowledge covering the entire basin of the Yellow Sea. This knowledge included not only the trends and fractionation of the major physical, chemical and biological parameters, but also the distribution and seasonal changes of most of the parameters. The benthic samples provided information about the abundance and distribution of benthic communities and of pollution in the Yellow Sea over about one century. One of the results, as shown in the Figure 2, indicated the relationship between nutrient distribution and the possible existence of hypoxia at the bottom during the summer. The results greatly contributed to a better understanding of the status and trends of the environment in the Yellow Sea as a whole.



**Figure 2: Nutrient distribution in the Yellow Sea as an example of findings from the co-operative cruises**

### ***Summary book preparation initiated***

The “Workshop on Project’s Summary Book Preparation” was organised in Dalian, China on 11 November 2010 (Figure 3). Three experts from China and ROK participated in this initial meeting to prepare for a publication that highlights major findings and experiences obtained from the 5-year project implementation. The participants discussed and agreed on the outline of the publication, guidelines for preparing drafts, and a work plan. The agreements will be used as a reference to guide preparatory actions to be taken from late 2010 through early 2011.

Project Steering Committee, feeling the need to broadly disseminate the new knowledge and know-how gained from the Project, decided at its sixth meeting in 2009 to summarise the activities implemented during the Project’s first phase to understand and manage the ecosystem in the Yellow Sea. Based on this decision, a “Summary Book” will be prepared in 2011 to document the process and outputs of some of the key activities. A drafting team with a total of six experts was organised, and they will conduct this important task. It is expected that the Book will offer precious lessons not only for this region to further improve its ecosystem management, but also for other regions to enhance their conservation activities by referring to both successes and failures of the Project.

Consisting of five chapters, the Book will describe a variety of issues from the status and trends of the conditions of the ecosystems in the Yellow Sea to environmental problems faced by the ecosystems and to the approach and actions taken by the Project to overcome the problems. The current and future health of the ecosystems will be illustrated in terms of their biological, chemical, and physical conditions as well as of socioeconomic conditions in the littoral countries. With the ecological linkage considered, an ecosystem-based approach that the Project has been and will be taking will be presented as a potential solution to address the environmental problems holistically. Both future management actions and the results of some of the key actions that were implemented as demonstration activities under the Project’s first phase will be discussed to provide the future direction of ecosystem management in the Yellow Sea. The Book will portray the stories of accomplishments, struggles, and hardships that the Project faced in its 5 years of project implementation.



Figure 3: Dr. Suh-Yong Chung (centre) discusses the outline of Summary Book, while other workshop participants listen (left to right: Mr. Yihang Jiang, Ms. Helen Davies, Dr. Mingyuan Zhu, and Dr. Quan Wen).

### **3.2 Fisheries component**

#### ***Third mariculture conference organised***

The Third Regional Mariculture Conference was organised in Wen Deng, China, 27-29 April 2010 with more than 30 participants from China, ROK, and the USA (Figure 4). The conference covered a wide range of topics, including the techniques used to reduce environmental impacts, genetic advances to improve yields, disease prevention, and the application of Large Marine Ecosystem (LME) concept in ecosystem-based assessment and management. The conference provided the latest scientific and technical information on mariculture in the Yellow Sea, and the application of the LME concept with associated five modules provided useful information in identifying the future direction of sustainable mariculture.



**Figure 4: Participants in the third Regional Mariculture Conference**

It was reported that intensive efforts have been made to develop technologies for the integrated multi-trophic aquaculture (IMTA) and limited water exchange shrimp culture. Recent studies indicated that these new technologies greatly contributed to reducing the negative impacts of mariculture industries on the ecosystem, while the technologies made it possible to produce more seafood. For example, genetic studies on shrimp species helped in improving both productivity and environmental conditions in the Yellow Sea. The IMTA concept was refined: new methodologies were developed with the identification of an ideal proportion of culturing species established; seaweeds accounted for 70%; shellfish, 20%; and fin fish, 10%. Additionally, there was a significant progress reported in the region in preventing diseases in mariculture.

To effectively exchange information and knowledge on sustainable mariculture, it was agreed to continue to organise the conference in the region. While hoping the GEF continues to support this activity, the participants expressed their willingness to raise financial resources from national sources to cover the costs of future conferences.

### **3.3 Biodiversity component**

#### ***Yellow Sea biodiversity conservation at the EAS Congress***

During the EAS Congress (23-27 November 2009 in Manila, Philippines), the Project organised a session entitled “Innovation in biodiversity and habitat conservation: lessons learnt” on the second day of the Congress (Figure 5).

Throughout the day, eleven speakers gave talks from organisations working with the Project on biodiversity management as participants in demonstration projects, as recipients of YSLME small grants, and/or as partners such as WWF and Korea Ocean Research and Development Institute (KORDI). The talks ranged from large regional scale perspectives to smaller scale innovations in protecting critical habitats and individual species. During the day, some common themes emerged; a) the importance of working with partners to fill gaps in experience and avoid duplication, and b) the importance of the involvement of stakeholders in any conservation process. Of note were the successes of the Project’s demonstration activities in improving management of the critical habitats of Ganghwa tidal flat and especially the Rongcheng/Chudao Seagrass beds that were recently awarded



provincial protection as a result of the activities in the area. Other notable talks included the provision of shorebird roosting and nesting habitats in the Yalu Nature Reserve, the preservation of nesting and feeding habitats for the endangered black faced spoonbill, the use of fishermen to monitor heavy metal contamination from nearby industry in shellfish harvested in the core area of the Yancheng Nature Reserve to raise awareness amongst fishermen, and the completion of a plan to conserve the remaining portion of the Mokpo Estuary as the Mokpo Urban Wetland.

Discussions focused on what could be done to prevent further deterioration/reclamation of coastal wetlands and how to improve the management of Marine Protected Areas (MPAs) and other important marine areas. Participants suggested that although sufficient legislation existed, implementation and enforcement of both national laws and international conventions remained a problem, therefore raising awareness in central and local government was critical. When governmental protection fails, local communities are the last line of protection, therefore they need to be provided with the accurate and understandable information and the motivation to protect the environment. This process can be further enhanced by the involvement of the local community in monitoring, decision making, and management because this provides the local community with a sense of ownership. Finally, all management plans developed for critical habitats should also be developed in conjunction with an implementation plan.



**Figure 5: Dr. Gyung Soo Park presenting at the YSLME Special Session on biodiversity and habitat conservation at the EAS Congress**

### ***Networking marine protected areas: First annual meeting of MPA Network organised***

In co-operation with the KMI, the WWF YSESP, and the LOFSRI, the Yellow Sea MPA Network annual meeting and the training workshop on benthic surveys for ecosystem-based management of coastal wetlands in the Yellow Sea, were organised in Dalian and Dandong, China, 5-9 September 2010 (Figure 6). With the attendance of about 40 participants and lectures from China and ROK, these events strengthened the co-operation among the participating MPAs by sharing resources, planning future joint activities and improving management capacities.

During the annual meeting, the managers and experts not only exchanged information and experience of relevant management activities in different parts of the Yellow Sea, but also discussed key issues on managing MPAs. The meeting also discussed and agreed on the activities and a workplan for the MPA network. It was suggested that a wide range of activities with respect to policies, science and technologies, socioeconomics, and public awareness should be further considered as the major elements of the MPA network.

The workshop provided the participants with training in laboratory and field activities. On the one hand, the laboratory session focused on the ecosystem-based management in the Yalu

River estuary, commercially important marine benthic species and the benthic sampling techniques. On the other hand, the field session, organised in the Yalu River estuary, helped the participants practice knowledge and skills newly acquired through the laboratory session.



**Figure 6: Participants attending the annual meeting of Yellow Sea Marine Protected Area Network (left) and conducting field activities in the Yalu River estuary (right)**

### ***A session on biodiversity conservation organised in CBD-COP 10***

A side event was organised during the tenth Conference of Parties for the Convention on the Biological Diversity (CBD-COP 10) in co-operation with WWF. The workshop focused on the multi-level participation in the biodiversity conservation. There were about 30 participated in the event. Presentations from the central, provincial, and local governments, Panasonic, WWF and YSLME were given to the workshop. Participants of the CBD-COP 10 attended the workshop.

### **3.4 Ecosystem component**

#### ***Ocean colour algorithms developed***

On 11 December 2009 in Ansan, ROK, the core group of ocean colour scientists from China Japan, and ROK met to report results and finalise the ocean colour algorithms that had been developed and refined over the past two years. The workshop was held in conjunction with the “Korea-Japan Workshop on Ocean Colour” organised by the KORDI. The scientists shared experiences and reported their work on various topics related to remote sensing and ocean colour.

The workshop heard from a scientist at First Institute of Oceanography (FIO), China, who compared the “ocean colour in-situ data” with his in-situ data which gave high-quality validation results, particularly in the coastal areas. The scientist used the shared data to develop and validate a chl-a algorithm with respect to suspended sediment concentrations, with the new algorithm giving better results than the standard algorithm. Presentations were also given by all other members on: an update of the group’s work, the best chl-a algorithm for estimating primary productivity in the Yellow Sea, atmospheric correction, algorithms for use in the Yellow and East China Seas, and future work.

A peer-reviewed paper was submitted by the group to a journal. While the paper stated that the algorithms developed were better suited for use in the East China Sea as compared to the Yellow Sea, scientists agreed to continue with the established successful collaborative framework, to continue refining/developing algorithms especially for chl-a estimates, atmospheric correction and to include more Chinese scientists in the future. The group also

suggested that future work should include more international collaboration, joint cruises, more in-situ data sharing, and the application of algorithms.

### **3.5 Pollution component**

#### ***Networking regional environmental monitoring and assessment activities***

To prepare for the establishment of regional networks for ecosystem monitoring and assessment activities, the following two activities were conducted in Dalian, China: the “International Symposium on Marine Ecosystem Assessment: Systematic Design and Requirements (8 November 2010)” and the “YSLME Regional Workshop on Regional Network for Ecosystem Monitoring and Assessment (9-10 November 2010)” (Figure 7). Scientists and experts from inside and outside the Yellow Sea region attended the meetings, and provide scientific knowledge and tools for the establishment of a regional network on marine environment assessment and monitoring.

With the expectation that the meetings would contribute to the SAP implementation in instituting the networks, the meetings helped in understanding national policies and systems of existing monitoring and assessment activities, promoting good practices to improve the existing systems and methodologies, and strengthening capacities to research and operate the activities at the national and regional levels.

Having considered scientific and technical aspects of the networks, participants identified the requirements for establishing the networks to monitor and assess the status and trends of ecosystems in the Yellow Sea. These findings were expected to provide possible guidelines for designing the networks under the Project’s second phase.



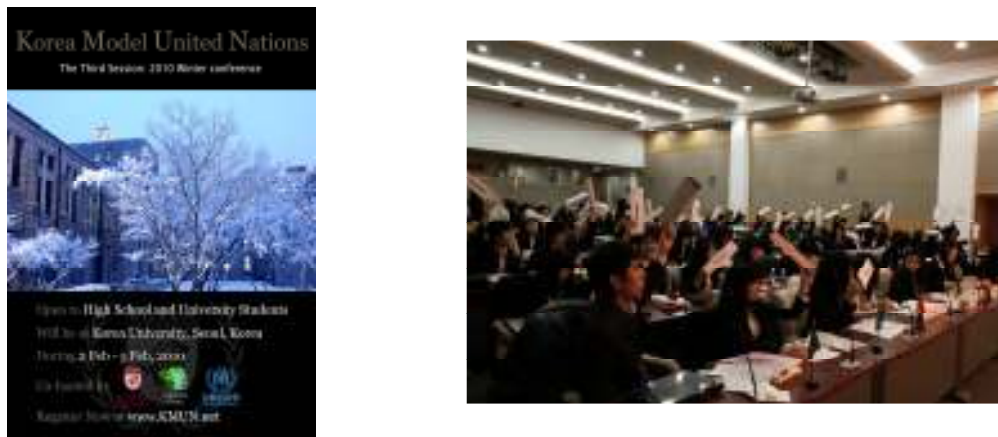
**Figure 7: Participants attending regional environmental monitoring and assessment activities**

### **3.6 Investment component**

#### ***Third annual Model United Nations organised***

The Yellow Sea Project co-organised the third annual Korea Model United Nations (KMUN) in Seoul, ROK from 2 to 5 February 2010 in co-operation with the Division of International Studies, Korea University and the Representative in ROK for the United Nations High Commissioner for Refugees (Figure 8). The objective of this activity was to provide an opportunity for college and high-school students to exchange their views on global issues, including environmental issues, and to develop skills necessary for public debate and negotiation. The KMUN consisted of eight sessions, including the General Assembly and the Security Council, and more than a hundred students attended the meeting from all over the country.

Under the instruction of and facilitation by the student organisation, the participants familiarised themselves with the country that they were representing and gathered background information on the assigned issues as well as the UN organisations. Specifically, the students studied committees, topics, countries, and foreign policies that were assigned. Then, the participants negotiated with others who represented different countries, following the UN rules, and prepared position papers and created resolutions as a result of the negotiations. These activities helped the students develop skills in research, writing, public speaking, problem solving, consensus building, and co-operation. Dr. Suh-Yong Chung, a professor at the University and a member of the Project's regional working group supervised the student organisation for the successful implementation of the meeting.



**Figure 8: A poster of Korea Model United Nations 2010 (left) and discussion in progress (right)**

### ***Project promotional video released***

The Project has produced its promotional video, “The Yellow Sea – A Sea of Co-operation, Peace, and Prosperity: Conservation Actions taken by UNDP/GEF YSLME Project” (Figure 9). Reviewing the history briefly, this 16 minute video highlights the Project's major activities and achievements in scientific research, policy development, and public awareness campaigns.

The video describes the SAP as one of the major outputs, explaining its innovative ecosystem-based approach compared to the traditional sector approach. In simple language, the video allows even those new to marine science, to obtain a clear understanding of the environmental issues in the Yellow Sea.

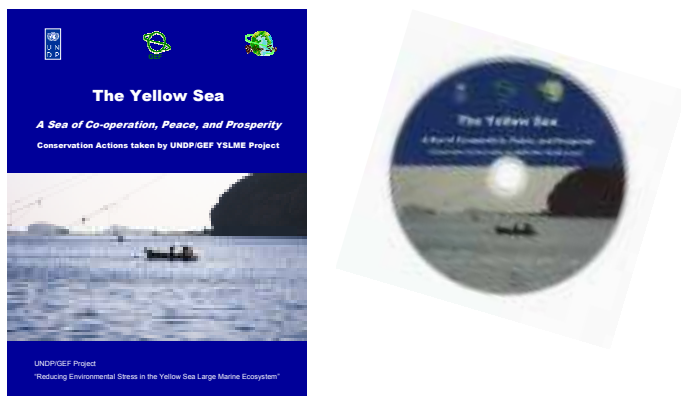
It is expected that audiences, watching the video, will understand the importance of the Yellow Sea to their lives, the environmental problems threatening the marine and coastal ecosystems, and the actions taken by the coastal states, China and ROK, under the auspices of Project. It is hoped that the video will motivate people to think and act for conservation, encouraging public support for the Project in addressing transboundary international waters issues in the region.

A number of partners and organisations have contributed to producing the video. These include the Anyang University, the LOFSRI, and the WWF. The video is produced in association with the China Ocean News.

The following interviews with regional experts have been conducted and included in the video to articulate some of the issues that the Yellow Sea ecosystem faces: “The importance of regional co-operation” by Dr. Quan Wen, National Marine Environment Monitoring Centre (NMEMC), China; “The ecosystem-based approach” by Dr. Sinjae Yoo, KORDI; and “The co-operation with partners” by Mr. Sadayoshi Tobai, WWF.



The video is available on the Project's website at <http://www.yslme.org/>. For a copy of the DVD, contact the Project Management Office at [info@yslme.org](mailto:info@yslme.org).



**Figure 9: Project's promotional DVD and its cover design**

### ***Regional database mirror site developed***

The Project developed a mirror site of the regional GIS and meta databases to further facilitate the effective use and management of data and information concerning the Yellow Sea (Figure 10). The mirror site minimized the risk of data loss by making a backup copy of the data, while the site improved the accessibility to the data by providing the same service as the original site hosted by the China-Korea Joint Ocean Research Centre (CKJORC).

This new site allows users to retrieve both numerical data and geographic information as map products. Providing the services in Korean at the mirror site and in Chinese at the original site, in addition to English, should attract more users whose native language is not English.

The mirror site was developed and operated in co-operation with the KORDI and the Ministry of Land, Transport and Maritime Affairs, ROK. The CKJORC provided technical assistance to establish the site. For more information, please access the website at <http://www.yfdb.org/> (the original site) or <http://www.yfdbkorea.org/> (the mirror site).



**Figure 10: Mirror site of the Yellow Sea regional databases**

### ***Fund-raising workshop organised***

The "Workshop for Accessing Funding: Basics and Approaches to Financial Sustainability" was organised in Qingdao, China, 21-23 July 2010 as one of capacity building activities of

UNDP/GEF Yellow Sea Project (Figure 11). The workshop was organised by the Project with the support of FIO.

Sixteen participants attended the workshop from a wide range of entities, including national and local government agencies, conservation projects, NGOs, and research/academic institutions. Experts in the field of project management and fund-raising were invited as lecturers from international organisations, NGOs and the private sector.

The workshop, focusing on the financial sustainability of conservation activities, provided the participants with an opportunity to gain practical skills to approach potential donors to raise funds for implementing their activities.

Through lectures and group work, the participants developed a good understanding of the rationale and steps needed to pursue a long-term and sustainable execution of conservation plans. The participants deepened their understanding and knowledge about the issues through mutual learning and co-operation with other participants with different backgrounds.



**Figure 11: Dr. Gregory Edwards, The Nature Conservancy (left) and participants discussing action plans for fund-raising with Dr. Mr. Thomas Tang, AECOM (right)**

***Voluntary Internship Programme: A young professional completed her summer internship***

Ms. Gea Kang, an undergraduate majoring in history at Stanford University, served as a summer intern at the Project Management Office (PMO) from July to August 2010 (Figure 12). In co-operation with the Stanford in Government Fellowship Program, this activity was implemented under the Project's Voluntary Internship Programme. The objective of the Programme was to provide college students with hands-on experiences in implementing and contributing to Project activities. The student, working with Project staff members, was expected to obtain both the latest scientific information about the Yellow Sea and the understanding of managing international conservation projects.

In addition to learning about how the UN system worked, the everyday processes that resulted in international decision-making and implementation, and the personal experiences that brought each office staff member, Ms. Kang worked on a research project investigating why Northeast Asian countries had faced difficulties in entering into a legally binding regional seas agreement. Throughout the process, she gained valuable insights into the wide range of fields that environmental policy integrates, such as history, science, and politics. This was a very exciting opportunity for her to learn about these critical issues while receiving training from staff members with diverse perspectives and backgrounds.

Ms. Kang said "As I approach my last year in college and start seriously reflecting upon potential future directions, I am very grateful that I was able to experience UN work firsthand. This summer has inspired me to further pursue international public service, and I highly encourage other undergraduates to take advantage of any opportunities to learn from the

PMO. I very much appreciate each and every one of the staff members for making my stay so worthwhile and memorable.”



**Figure 12: Ms. Gea Kang working at Project Management Office**

#### **4 FINANCIAL REPORT 2010**

The financial report showing the expenditures of 2010 is attached as Appendix IV

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

##### **5.1 Office & facilities**

With generous support from the KORDI, the PMO has operated without any difficulties during the year.

Since the UNDP Country Office was closed in 2009, there have been difficulties for staff members who were non-Korean, to obtain visas and work permits. There were also problems with regard to UNOPS bank accounts and tax-free issues. Efforts have been taken in consultation with UNDP and UNOPS, but there are still problems remain in the operation of the project office in Ansan, Korea.

The inventory list of the Project’s assets is attached as Annex V.

##### **5.2 Operation of the office**

The PMO continued to operate within UNOPS’ rules and regulations.

The following five PMO staff members resigned during the inter-sessional period: Ms. Connie Chiang (Environment Officer), Ms. Junghwa Kim (Secretary), Ms. Kyungsuk Lee (Admin Assistant), Ms. Euidea Yun (IT Specialist), and Mr. Mark Walton (Fisheries Officer).

The vacancies were filled by three new staff members: Mr. Jongtae Choi (IT and Admin Assistant), Ms. Helen Davies (Marine Environmental Officer), and Ms. Gyounghee Kim (Admin Assistant).

##### **5.3 Online & printed media**

###### ***YSLME Project website***

The Project website (<http://www.yslme.org>) functions as a tool for a wide range of stakeholders to not only have a better understanding of environmental issues in the Yellow

Sea, but also prepare and implement conservation activities to protect and manage its important natural resources. Having been continuously improved and updated, the website vigorously promotes project implementation by providing those who wish to participate in the Project, with relevant information such as activity reports and meeting documents (Figure 13). With the latest activities and results uploaded, the website also greatly contributes to disseminating a variety of information about the Yellow Sea ecosystem to a broad audience, including the general public. All reports and materials of the major activities described above in this document are available online at the website, and relevant organisations and projects such as the regional databases are also linked to the site.



**Figure 13: The YSLME Project website (left) and the Yellow Sea Partnership website (right)**

The website of Yellow Sea Partnership provides a common platform for member organisations to exchange and disseminate information among and beyond the Partnership. The website, developed with IW:LEARN toolkits, allowed each member organisation to update information without asking for support from the Project that serves as a secretariat to the Partnership. This unique function helps to eliminate administrative costs, and moreover, improves the ownership of the website and other relevant activities among the members.

### **Newsletter**

The Newsletter, summarising the progress and results of major activities conducted under the Project, disseminated information about environmental problems in the Yellow Sea region and conservation efforts to address them. With the use of graphics and simple words, the Newsletter aimed at conveying messages to a broader audience of people beyond specialists.

A total of four issues of the Project's quarterly Newsletter were published in 2011 (Figure 14). Approximately 200 hardcopies of each issue were distributed to key stakeholders and partners, including government and non-government organisations, while the electronic copy of the publication was released online on the Project website.

The Newsletter plays an important role to keep stakeholders well-informed on project implementation and to raise public awareness of environmental issues in the Yellow Sea. This communication medium has helped the Project obtain continuous support from all those who have an interest in the health of these international waters.



Figure 14: Examples of the YSLME Project Newsletter released in 2010.

## 6 CO-OPERATION WITH OTHER ORGANISATION AND PROJECT

The Project further advanced co-operation with relevant organisations and projects. These included local governments, NGOs, and private entities as well as international organisations and research institutions. This section highlights the progresses and results of some of these major co-operative activities.

### ***Co-operation with local stakeholders***

#### *Joint efforts initiated with local government, NGO, and the private sector in conserving biological diversity*

Liaoning provincial government of China, WWF/YSESP, and the Project exchanged a memorandum of understanding (MOU), working together to protect marine biological diversity in the Yellow Sea (Figure 15). Under the MOU, a co-operative demonstration project was launched with the objective of conserving coastal habitats in the Yalu River estuary.

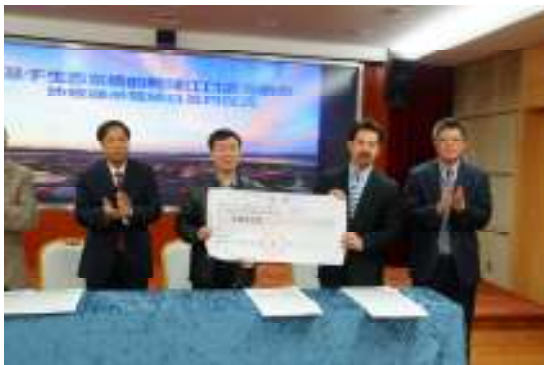
Based on the assessment made by the Project and the YSESP on biological diversity in critical habitats in the Yellow Sea, the Yalu River estuary was selected as the project site. The project aimed at preparing a comprehensive management plan and improving the implementation and enforcement of conservation activities according to the plan. The project was expected to (i) enhance co-operation and co-ordination among all relevant stakeholders by making collective efforts, (ii) improve an understanding of the habitat ecosystems by conducting scientific studies; and (iii) enhance habitat management by promoting best practices and training personnel.

The provincial government and Panasonic, a multi-national corporation producing consumer electronics, individually provided one million Chinese yuan in supporting the project. Involving the local government and a private company will increase the ownership of local stakeholders as well as the sustainability and effectiveness of the project.

The Project contributed to realising these joint initiatives by taking various approaches. These efforts included providing not only the scientific information generated through the SAP demonstration activities in the relevant area, but also advice to establish a mechanism in which all stakeholders work together. The Project also provided local stakeholders with



the opportunities to build and strengthen the capacity of designing and implementing conservation plans and activities.



**Figure 15: Participants attending the MOU signing ceremony to launch the joint activity of conserving biological diversity in the Yalu River estuary (from left to right: Mr. X. Zhao, Director General, Liaoning Ocean and Fishery Bureau; Dr. J. Han, Deputy Director, Liaoning Ocean & Fisheries Science Research Institute (LOFSRI); Mr. S. Tobai, WWF Japan; Mr. Y. Jiang, Yellow Sea Project)**

#### *Reaching out to local stakeholders through co-operation with NGOs*

Co-operating with the YSESP, the Project works closely with local stakeholders to pursue a successful implementation of the SAP.

With the participation of the Project, the “Korea-China meeting on the Biodiversity Conservation of the Yellow Sea Ecosystem” was organised by the YSESP in Muan, ROK from 25 to 27 May 2010 (Figure 16). To share experiences and seek further cooperation, over 50 participants attended the meeting from a wide range of entities, including NGOs, universities, and local governments that were actively engaged in conserving the ecosystem in the Yellow Sea. Following the presentations on conservation efforts at the grass-root level, a representative of the Project described the SAP with the focus on biodiversity and habitat conservation. The lecture provided the audiences with an opportunity to think how their local efforts fit in and contribute to the regional strategy. The meeting was hosted by the WWF and the KORDI with the support of the Panasonic Corporation.

Networking through the YSESP enabled the Project to strengthen the existing co-operation with local stakeholders and nurture a co-operative relationship with other local organisations participating in the YSESP. Such a relationship helped the Project reach out to a broad range of people, including the general public. Concerted efforts between the Project and the local organisations were expected to encourage a vigorous participation and support to the SAP at the local level, ensuring the smooth implementation of the strategy, and making conservation efforts effective and efficient.



**Figure 16: Dr. Woong-Seo Kim, YSESP Supervisor, giving a talk on the project activities. Mr. Kim serves as the Chairperson of Regional Working Group for Biodiversity under the Yellow Sea Project**

### ***Co-operation with research institution***

#### *Memorandum of Understanding signed with Plymouth Marine Laboratory*

In order to promote the science-driven ecosystem-based approach adopted by the SAP and improve the capacity of the participating countries in protecting the marine environment, an MOU was signed during the EAS Congress 2009 between the Project, the Plymouth Marine Laboratory (PML), and the NMEMC (Figure 17).

Under this MOU, the NMEMC sent to the PML a scientist with the expertise in numerical modelling to study ecosystem modelling and try to apply current PML models to the Yellow Sea ecosystems. The PML has set up an ecosystem model for Chinese, Japanese, and Korean waters using the ERSEM ecosystem model coupled to POLCOMS which includes the Yellow Sea, and this could provide the basis for a mutually beneficial collaboration.



**Figure 17: From left to right: Mr. Yihang Jiang, Mr. Stephen de Mora, and Mr. Wen Quan getting ready to sign the MOU**

### ***Co-operation with international organisations***

#### *Continued co-operation with UNEP/NOWPAP*

As one of the major partners of the project, UNEP Northwest Pacific Action Plan (NOWPAP) has played important roles in the marine environment protection in the northwest Pacific region. Continued co-operation has been strengthened during the last inter-sessional period. The field of co-operation included the public awareness raising, the remote sensing training, the data and information management, and the coastal cleanup campaign.

The Project extended a potential co-operation with the NOWPAP in the field of biodiversity conservation. The organisations were mutually involved in each other's activities to address marine and coastal biodiversity issues. For example, the NOWPAP joined the Project's effort to establish the regional network of MPAs to improve their management.

An information consultation was held in Busan, Korea with participation of the Co-ordinators of NOWPAP and COBSEA Action Plans, and the Project Manager of the YSLME. Through exchanging project information and experiences, potential co-operation between YSLME and UNEP's regional seas programme was further discussed and agreed upon.

On behalf of the Project, PMO staff members attended the "2010 NOWPAP International Coastal Cleanup (ICC) and Workshop on Marine Litter Management" (Hirado, Japan, 26-28 March 2010; Jeju, ROK, 1-2 October 2010) (Figure 18). NOWPAP Regional Coordinating Unit has organised the ICC campaigns since 2006, and the Project has actively participated in and contributed to, this regional initiative, as NOWPAP's partner organisation. The workshop reviewed the history and development of ICC campaigns in the region, assessed the policies and actions taken by the participating countries, presented best practices in the region, and explored ideas for effective solid waste management. There was a participation in the ICC from local citizens, who showed strong interest in issues relating to marine litter..



**Figure 18: Mr. Sungjun Park, Finance and Administrative Officer, sorting marine litter during the 2010 NOWPAP ICC campaign. Mr. Park contributed to strengthening co-operation with NOWPAP and other relevant organisations.**

With the invitation from the Toyama Prefecture government of Japan and NOWPAP, Mr. Yihang Jiang, the Project Manager attended the Biodiversity Forum in Toyama, Japan, 15 October 2010 and gave a presentation on biodiversity conservation through the MPA network of the YSLME project. The forum was attended by more than 100 participants, including the Governor of the Toyama Prefecture.

Close co-operation also extended to the field of marine environment assessment and monitoring. The NOWPAP Co-ordinator together with 4 experts from NOWPAP participated in the International Symposium and Regional Workshop on the Regional Network on Marine Environment Assessment and Monitoring, organised in Dalian, China, 8-10 November 2010. It was tentatively agreed that more co-operation on the assessment of the marine environment should be encouraged between NOWPAP and YSLME. This initiative would enhance regional efforts to understand ecosystem status and trends, facilitating data sharing and eliminating duplications among similar activities that were currently conducted individually.

*Enhance co-operation with PEMSEA*



Co-operation with PMESEA has been continued and enhanced. Discussions on the co-operation and co-ordination have been a continued process during the last inter-sessional period.

The Project Manager attended the PEMSEA Partnership Council in Dandong, China, and presented a statement on the use of the PEMSEA's SDS-SEA as a political framework in the East Asian region. This concept was further elaborated in the GEF's stocktaking meeting organised in Manila, the Philippines, 28-29 October 2010, to which GEF representative attended.

PEMSEA is going to send its representative to attend the forthcoming PSC meeting. Further co-operation and co-ordination will be discussed.

#### *Promoting co-operation with UNESCO/IOC*

To strengthen the co-operation with UNESCO/IOC, the Project contributed to the following two activities in 2010: the eighth Intergovernmental Session of IOC Sub-Commission for the Western Pacific (WESTPAC) (Bali, Indonesia, 10-13 May 2010) and the KORDI-UNESCO/IOC Joint Workshop on Capacity Building for the UN Regular Process (Seoul and Ansan, ROK, 20-22 October 2010).

Firstly, over 100 delegates and prominent scientists from WESTPAC's member countries, international organisations, and research institutions in and beyond the region attended the Intergovernmental Session. Those engaged in the Project played an important role for the session. For example, Dr. Zhanhai Zhang, National Project Co-ordinator for China, presided over the meeting as WESTPAC's Chairperson. Mr. Wenxi Zhu who co-ordinated a number of Project activities served as Secretariat to the session. Prof. Youn-Ho Lee, Chairperson of Project's Regional Working Group for Biodiversity, presented a proposal for a project on genetic species identification and recruitment monitoring of coral reef marine organisms as one of the new projects of WESTPAC.

On behalf of the Project, Mr. Isao Endo of the PMO gave a statement on co-operation with WESTPAC (Figure 19). Having thanked WESTPAC for its strong support and co-operation with the Project, Mr. Endo suggested areas for possible future co-operation. The meeting welcomed the suggestion, and Mr. Zhu expressed his hope to explore the possibility of developing a strategic programme for co-operation between the Project and WESTPAC.



**Figure 19: Mr. Isao Endo (left) giving a statement at the WESTPAC eighth intergovernmental session. Dr. Zhanhai Zhang (second from right) chaired the session, while Mr. Wenxi Zhu served as Secretariat (first from right)**

Secondly, at the Joint Workshop where participants from and beyond the region exchanged information to review the status of assessing marine environment at the national and regional levels, identify the needs for capacity building, and explore possible co-operations to strengthen regional efforts, a representative from the PMO gave a talk on project implementation with the focus on environmental monitoring and assessment activities. Having implemented the activities intensively, Mr. Endo said, the Project would like to contribute to the Regular Process by sharing the data and information collected from project implementation and the experiences in networking regional activities for a better understanding of marine ecosystems. The participants noted this statement and explored a possibility for future co-operation with the Project.



Selected Project: 994 - Yellow Sea

### Rating of Progress Towards Meeting Development Objective (DO)

2010 Ratings and Comments must be entered by the National Project Manager/Coordinator, the UNDP CO and the UNDP RTA. Ratings from the GEF Operational Focal Point and the Executing Agency where appropriate are encouraged. See pop up box next to comment box for guidance. For guidance in determining the appropriate DO rating, please see the definitions listed in the table at the bottom of this sheet.

	Overall 2008 Rating (from 08 PIR)	Overall 2009 Rating (from 09 PIR)	2010 Rating	Comments
National Project Manager/Coordinator:	HS	HS - Highly Satisfactory	HS - Highly Satisfactory	All activities for the Project's first phase were successfully completed. Major outputs included: (i) SAP was officially approved by the Governments of the participating countries. (ii) PIF & the Project Document were drafted, with about \$2.6 billion as co-financing resources (iii) Political support was generated for the continuation of the project. Government of ROK provides US\$ 500,000, and China provides RMB 2,000,000, covering bridging phase of the project. (iv) All the expected outcomes and outputs of the project have been achieved and the demonstration activities to assess the effectiveness of the SAP management actions have been completed. Co-operative cruises—implemented by China and ROK for the first time in history—made it possible to understand the entire basin of the Yellow Sea. Yellow Sea Partnership (YSP) was established with more than 20 organisations, and a number of environmental campaigns were organised
Government GEF OFP[5] (encouraged):	HS			
Executing Agency (encouraged):	HS		HS - Highly Satisfactory	The implementation of project activities during the period under review has been highly successful. Activities approved under the project workplan - through the PSC - have been successfully implemented. From a management stand point, the project management unit of the YSLME has demonstrated highest diligence and efficiency in the execution of its activities.
UNDP Country Office:	HS	HS - Highly Satisfactory		

UNDP Regional Technical Advisor:

HS	HS - Highly Satisfactory	HS - Highly Satisfactory	The successful completion of all project activities during the reporting period would contribute to the management and protection of the YSLME. As indicated above, the major outputs include the official approval of the SAP by China and ROK and the endorsement by DPRK. The SAP has also been initially implemented through a number of demonstration activities. In recognition of the important contribution of the project in SAP implementation, ROK and China are contributing cash support for the bridging phase of the project - from the current phase to the next. The project has now drafted the PIF & the Project Document for phase 2 with considerable cofinancing from ROK, China and DPRK. Consultations with the governments for the establishment of the YSLME Commission have now been conducted. The above accomplishments concretely indicates the strong political support that the project has secured, which is critical in ensuring the achievement
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## Rating Definitions

Highly Satisfactory (HS)	Project is expected to achieve or exceed <b>all</b> its major global environmental objectives, and yield substantial global environmental benefits, without major shortcomings. The project can be presented as "good practice".
Satisfactory (S)	Project is expected to achieve <b>most</b> of its major global environmental objectives, and yield satisfactory global environmental benefits, with only minor shortcomings.
Marginally Satisfactory (MS)	Project is expected to achieve <b>most</b> of its major relevant objectives <b>but</b> with either significant shortcomings or modest overall relevance. Project is expected not to achieve some of its major global environmental objectives or yield some of the expected global environment benefits.
Marginally Unsatisfactory (MU)	Project is expected to achieve its major global environmental objectives with <b>major shortcomings</b> or is expected to achieve only some of its major global environmental objectives.
Unsatisfactory (U)	Project is expected <b>not</b> to achieve most of its major global environment objectives or to yield any satisfactory global environmental benefits.
Highly Unsatisfactory (U)	The project has <b>failed</b> to achieve, and is not expected to achieve, any of its major global environment objectives with no worthwhile benefits.

[5] In the case of a project involving more than 1 country, it is suggested that for simplicity only the OFP (optional) and Country Office Programme Manager from the lead country sign-off. If representatives from more than 1 country sign off, please add additional rows as necessary indicating the country name for each signature.

## Appendix II SAP demonstration activities: Major findings

This section summarises the results of some of the key activities, highlighting their major findings. The final report of all the activities is scheduled to be published by the Project in the second half of 2010.

### *Activities primarily addressing provisioning services*

The SAP proposed an action to develop environment-friendly mariculture methods and technologies to achieve the target of improving mariculture techniques to reduce environmental stress. The integrated multi-trophic aquaculture (IMTA) and the limited water exchange shrimp culture were implemented as the demonstration activities to assess the efficacy of the action in reducing the nutrient load in surrounding waters. The former activity was conducted in Rongcheng, China; the latter was in Taean, Republic of Korea (ROK).

The IMTA cultured species from different trophic levels together in such a way that the waste products of one species were utilised by another. Ecosystem carrying capacity models set the relative densities of various culture organisms to minimise a competition for resources and maximise the growth and survival of species. As a result, the productivity and profitability of aquaculture increased while its impacts on the ecosystem decreased. The commercial benefit of the IMTA per unit area was approximately 3 to 4 times higher than that of conventional measures.

The limited water exchange shrimp culture used heterotrophic conditions (heterotrophic culture) (Figure 20). Aggregations (flocs) of bacteria, kept in suspension by high aeration, were fed on recycled shrimp waste and excess food and were then subsequently eaten by the shrimp. This technique demonstrated many advantages; for example, no nutrients, pathogens, or chemicals were released. Water quality remained stable, so there was no need to exchange water. Recycling nitrogen by the bacterial flocs resulted in high feed conversion ratios; less food was required. The annual production of this method could be more than 70 times than that of conventional ways in ROK.



Figure 20: Limited water exchange shrimp culture (courtesy of Dr. J. Kim)

### *Activities primarily addressing regulating services*

Three activities demonstrated the effectiveness of SAP management actions to control pollutants by modelling pollution loads and manage pollution inputs from atmospheric, sea, and land-based sources. The activities aimed to show how the actions would contribute to achieving the target of reducing the total loading of nutrients from 2006 levels.

“Hot spots” such as Yalu Estuary receive annual loads of 4,415 tonnes of inorganic nitrogen and 367 tonnes of active phosphate from the Yalu River. Land- and sea-based nutrient discharges also contribute to the heavily polluted estuary and result in the increase in

frequency of harmful algal blooms seen in the past few years. In Qingduizi Bay, there is a large area dedicated to mariculture and land reclamation.

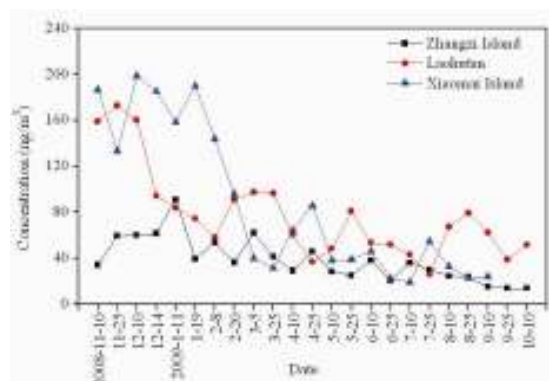
Assessment of the relative contribution of the difference sources of nutrient enrichment of the Yalu estuary provides hard evidence as to where most attention should be directed in order to reduce the eutrophication process. For non-point sources, better farming practice to reduced erosion and fertilizer use are recommended and improved sewage treatment is necessary to limit point-source pollution.

### *Atmospheric deposition*

The contribution of atmospheric pollution was assessed at three sites, A1 – A3 (Figure 21). Dry and wet depositions were monitored over a year for nutrients, metals, and polycyclic aromatic hydrocarbons (PAHs). Zhangzi Island (A3), being furthest from land showed less deposition than the other two sites. It was observed that metals had the highest concentration in Laohutan (A1) due to the existence of various industries. Meanwhile, Hg and total PAHs were the highest in Xiaomai Island (A2) which was close to a large oil refinery in Qingdao (Figure 22). Deposition fluxes of PAHs to the northern Yellow Sea were estimated to be higher than those in the coastal areas of America, indicating PAH pollution is heavy in China.



**Figure 21: Atmospheric input monitoring stations (A1 – A3), sea-based nutrients assessed at Qingduizi Bay and land-based sources assessed at Yalu Estuary**



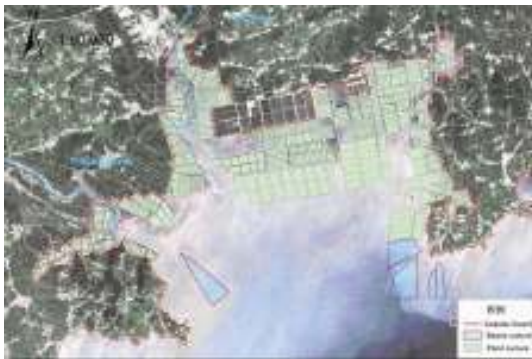
**Figure 22: Time trends of ΣPAHs at (A3) Zhangzi Island, (A1) Laohutan and (A2) Xiaomai Island**

Ratios of the different PAH compounds were used to determine the source; summer ratios indicated liquid fuel combustion, while those from winter and spring resulted from burning coal and wood. The two sampling sites close to industrialised cities had the highest metal

deposition. Nitrate and ammonium salt were the two main nutrients and were largely derived from fossil fuel combustion, such as power plants, automobile exhaust, and wood burning. Other important sources of atmospheric N came from sewage, industrial effluent, and fertilizers. The ratio of N:P exceeded the optimal Redfield ratio (16N:1P) required by phytoplankton.

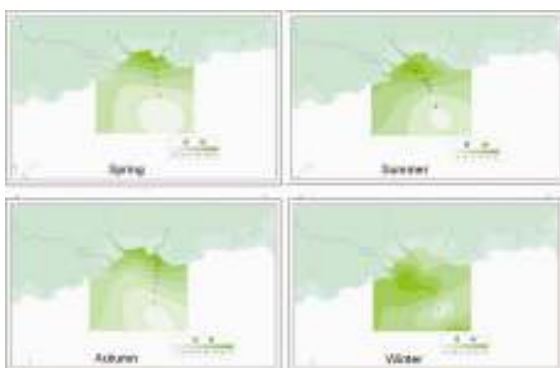
#### *Sea-based sources of nutrient input*

To determine the relative contribution to nutrient enrichment in Qingduizi Bay (Figures 20 & 23), nutrient inputs from mariculture farms and sewage from the Huli and Yingna Rivers were monitored using 9 stations in the Bay, 3 outside the Bay, and directly from mariculture farm outlets.



**Figure 23: Map of Qingduizi Bay showing areas used for pond culture and beach culture. Major rivers are indicated in blue**

The contribution of sea-based nutrient discharges to total loadings was estimated to be about 4.92%, of which the marine aquaculture industry supplied an estimated 2.31% and diffusion across sediment-water interface contributed an estimated 2.61% of total loadings. However, 95.08% of the total nutrient loadings were from land-based sources, with 62.62% estimated to be from rivers (probably from agriculture) (Figure 24) and 32.46% from sewage. At present, the mariculture industry in Qingduizi Bay has a low impact on environment because there are many ponds with little artificial feeding or fertilization and because the major method is pond farming of a mix of clam, Chinese shrimp, and jellyfish.



**Figure 24: Temporal and spatial distribution of ammonia concentration in Qingduizi Bay**

#### *Land-based nutrient inputs*

In the Yalu River (Figure 21), the main nutrient sources were from agriculture, sewage, and other point sources. Historical data, monthly data of direct drainage outlets (DDO) obtained from Dandong local government, and data from three surveys were analysed together with data from the other two demonstration activities. A model of the total nutrient loads from



atmosphere, land, and sea was attempted, and the point and non-point sources were identified to aid in management and policy development.

The total loads of nutrients in Yalu River estuary mainly consisted of three fractions: nutrient loads from Yalu River (Figure 25) (from both DDOs [Figure 26] and non-point sources [Figure 27]), directly from DDOs into the estuary, and from mariculture. The Yalu River contributed 99.1% of total N and 96.1% of total P loading in the Yalu estuary (Table 2), with non-point sources contributing 35.6% TN and 33.2% TP and this figure would significantly increase if the entire drainage basin had been included in the study.



Figure 25: The annual load of the pollutant from Yalu River

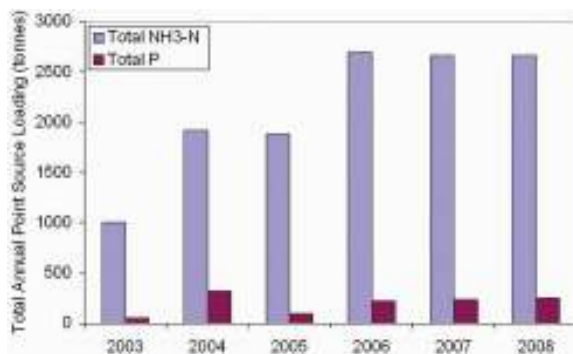


Figure 26: Annual contribution to the nutrient loading of Yalu River from DDOs (point sources)

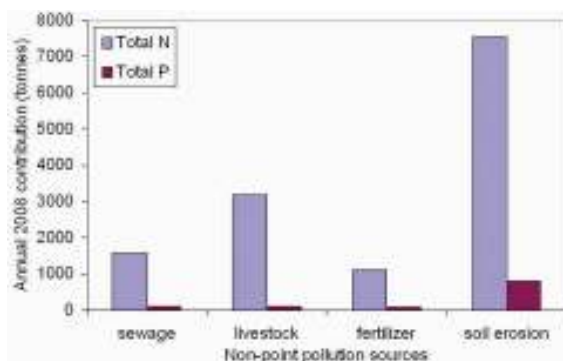


Figure 27: Annual contribution of the different non-point sources to the pollutant loading in the Yalu River

Table 1: Annual loads of N and P in Yalu River estuary

Pollutants	Total (t/a)	Proportion (%)		
		Yalu River	Mariculture	effluent
TN	37,670	99.1	0.85	0.021
TP	3,370	96.1	3.86	0.018

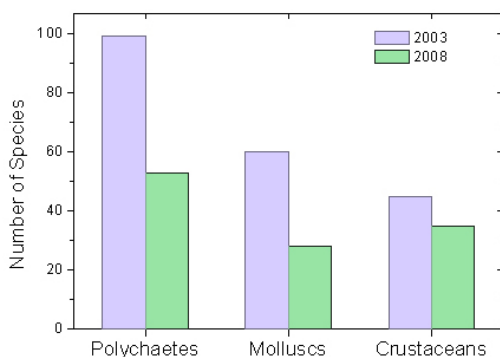
**Activities primarily addressing supporting services**



As part of the SAP action to develop regional guidelines for coastal habitat management, a pilot project was carried out in the tidal flat of Ganghwa, ROK—one of the critical habitats in the Yellow Sea. The purpose of this was to demonstrate how effective the action would be in maintaining habitats targeted by the SAP, according to the standard and regulations that were set by national functional zoning plans. A variety of activities were conducted in this project in a comprehensive manner, including the biodiversity survey, policy development for pollution control, capacity building and public awareness and the socioeconomic study.

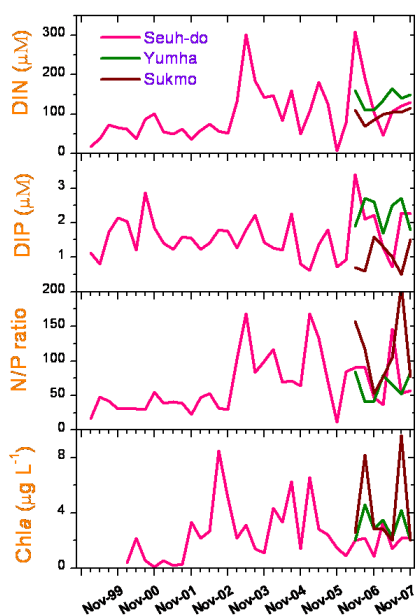
The survey of the current benthic macro-infauna community of the tidal flat showed:

- A significant (52%) decline in species diversity from the last survey made in 2003 and
- A dramatic shift in species composition with polychaetes indicative of pollution and other opportunistic species becoming dominant in both density and biomass (Figure 28).



**Figure 28: Benthic macro-infauna community of the Ganghwa tidal flat**

Significant increases in dissolved inorganic nitrogen concentration since May 2003 result in mean DIN concentrations of 136  $\mu\text{M}$ . This suggests that the community change may be associated with deteriorating water quality (Figure 29).

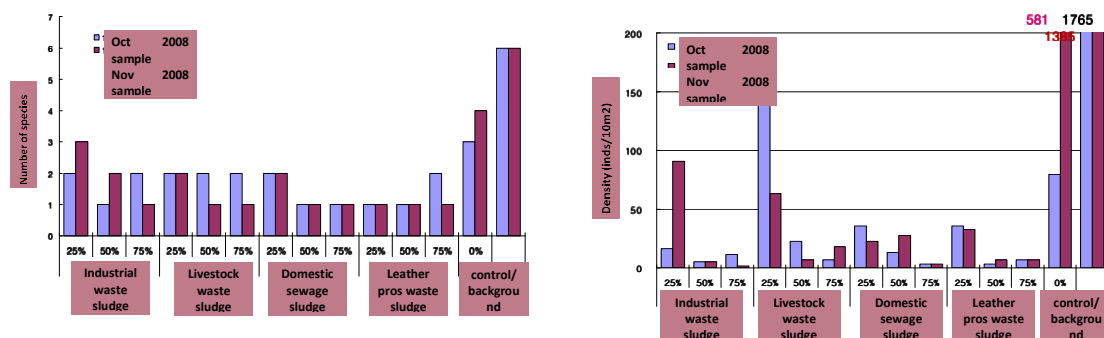


**Figure 29: Pollution status of the Ganghwa tidal flat**

According to the three-month experiment to understand the relationship between increased organic pollution and benthic biodiversity (Figure 30), organic pollution greatly impacts benthic community in the tidal flat and results in a significant loss of biodiversity and density of meiobenthic organisms compared with the control treatments with no added fertilizer or sludge (Figure 31).



**Figure 30: A study on the relationship between increased organic pollution and benthic biodiversity**



**Figure 31: Benthic biodiversity according to various organic treatments**

Based on the study results, a new management plan has been developed with proposed actions, including:

- re-zoning of coastal use,
- possible amendment of current laws and regulations,
- public awareness and education,
- establishment of a working group to reduce the pollution loadings, and
- construction of centralised sewage-treatment plants.

According to the economic analysis, the benefit of improving the tidal flat management is estimated as much as KRW 13 billion per year.

**Appendix III Activities and workshops participated by the Project in the inter-sessional period 2009 - 2010**

<b>Activity/workshop</b>	<b>Date</b>	<b>Venue</b>
Third annual Korea Model United Nations	2 - 5 February 2010	Seoul, Republic of Korea (ROK)
Second Yellow Sea Regional Science Conference	24 - 26 February 2010	Xiamen, China
2010 NOWPAP International Coastal Cleanup (ICC) and Workshop on Marine Litter Management	26 - 28 March 2010	Hirado, Japan
Third Regional Mariculture Conference	27 - 29 April 2010	Wen Deng, China
International Waters Project Management Workshop	10 - 14 May 2010	Copenhagen, Denmark
Eighth Intergovernmental Session of the IOC Sub-Commission for the Western Pacific (WESTPAC-VIII)	10 - 13 May 2010	Bali, Indonesia
A Korea-China Meeting on the Biodiversity Conservation of the Yellow Sea Ecosystem	25 27 May 2010	Muan-gun, ROK
Final Workshop for the Co-operative Cruise Summary	9 - 10 June 2010	Tai An, China
Expert Consultation to develop science-based advice to GEF on reducing eutrophication-caused Hypoxic zones in coastal waters	16 - 17 June 2010	Washington, DC, USA
Meeting for the Preparation of East Asian Seas Stocktaking Consultation of the GEF Project in the East Asian Seas	25 June 2010	Busan, ROK
Twelfth IOC/UNESCO-IUCN-NOAA Consultative Meeting on Large Marine Ecosystems	8 - 9 July 2010	Paris, France

**Appendix III Activities and workshops (cont.)**

<b>Activity/workshop</b>	<b>Date</b>	<b>Venue</b>
Workshop for Accessing Funding: Basics and Approaches to Financial Sustainability	21 - 23 July 2010	Qingdao, China
PEMSEA Third East Asian Sea Congress	26 - 30 Jul	Dandong, China
Yellow Sea MPA Network Annual Meeting and Training Workshop on Benthic Survey for Ecosystem-based Management of Coastal Wetlands in the Yellow Sea	5 - 9 September 2010	Dalian and Dandong, China
2010 NOWPAP ICC and Workshop on Marine Litter	1 -2 October 2010	Jeju, ROK
Marine Biodiversity Forum	15 October 2010	Toyama, Japan
Tenth Conference of the Parties to the Convention on Biological Diversity	18 - 23 October 2010	Nagoya, Japan
East Asian Seas Stocktaking Meeting and Seventh Executive Committee Meeting	28 - 29 October 2010	Manila, Philippines
International Symposium on Marine Ecosystem Assessment: Systematic Design & Requirements	8 November 2010	Dalian, China
YSLME Regional Workshop on Regional Network for Ecosystem Monitoring & Assessment	9 - 10 November 2010	Dalian, China
Workshop on Project Summary Book	11 November 2010	Dalian, China

## Data from Atlas System on 7 Feb. 2011

Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	FY 2010		
					Yr 2010	Total Expenditure	Balances
0.PMO	0A	Salary	1101	Programme Manager	94,995	-95,275	-280
			1102	Environ Officer	0	0	0
			1103	Fisheries Officer	0	0	0
			1104	Economist	0	0	0
			1301	Secretary	6,647	-2,232	4,415
			1302	Driver	5,519	-14,557	-9,038
			1303	Adm. Asst.	6,647	-14,983	-8,336
			1304	Finance & Adm. Officer	10,960	-22,710	-11,750
			1305	IT specialist	2,532	-11,690	-9,158
<b>Sub Total</b>					<b>127,300</b>	<b>-161,448</b>	<b>-34,148</b>
0D	Premises	4101	Office supplies	4,500	-3,052	1,448	
		4102	Library acquisitions	0	-857	-857	
		4104	Computer Software	0	0	0	
		4201	Computers	0	0	0	
		4203	Printers	0	0	0	
		4204	Copy machine (small size)	0	0	0	
		4205	PowerPoint OHP	0	0	0	
		4206	Automobile	0	0	0	
		4301	Office rent	0	0	0	
		4302	Furniture	0	0	0	
		4303	Premises costs	2,500	0	2,500	
		5101	Rental & maint. of computer equip.	1,500	-117	1,383	
		5102	Rental & maint. of copiers	500	-264	236	
		5103	Repair & maint. of vehicles & insurance	4,376	-2,647	1,729	
		5104	Rental & maint. of other office equip	1,000	-735	265	
		5105	Rental of meeting rooms & equip.	0	0	0	
		5220	Publication (other than reports)	500	0	500	
		5221	Webpage design and updating	500	0	500	
		5301	Communication	1,000	-513	487	
		5302	Postage/freight	4,000	-1,892	2,108	
		5303	Operation cost	17,000	-9,775	7,225	
		1306	Staff Charges	16,224	-20,576	-4,352	
		5607	Reimbursement Costs	-7,497	-14,626	-22,122	
5701	Provision & Contribution-Staff charges	107,246	0	107,246			
5801	PO Accrual & Reversal	25,067	0	25,067			

Data from Atlas System on 7 Feb. 2011

Data from Atlas System on 7 Feb. 2011					FY 2010		
Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	Yr 2010	Total Expenditure	Balances
			5600	UNOPS Project Supporting Cost (6%) *	18,343	-53,147	-34,804
				<b>Sub Total</b>	<b>196,760</b>	<b>-108,200</b>	<b>88,560</b>
				<b>0.PMO Total</b>	<b>324,060</b>	<b>-269,647</b>	<b>54,412</b>
6.Cross Component	6A	Travel	1501	Project Staff Travel	35,000	-38,272	-3,272
			1601	Annual Tri Part Review (IVB)	0	0	0
			1602	Interviews/Travel (CTA Prospects) (IVB)	0	0	0
	6B	Meeting	3301	Project Steering Committee meetings	0	-343	-343
			3302	RSTP meetings	0	0	0
			3303	Regional scientific conferences	90,000	-38,992	51,008
	6C	Premises	4208	Sea-going equipment	0	0	0
			4210	Equipment unspecified	0	0	0
	6D	Contingencies	1223	Other consultant contracts	90,000	0	90,000
			1228	Phase 2 preparation - consultant	20,000	-8,750	11,250
			2135	Other institutional contracts	90,000	0	90,000
			2166	2 Regional cruise reports	15,000	-7,508	7,492
			2177	Bridging phase	80,000	0	80,000
			2178	Cross Component Demo	0	0	0
			3102	Short term fellowship for training	0	0	0
			3217	Additional training activities	50,000	0	50,000
			3335	Additional meetings required	45,000	0	45,000
			3349	2 WGs for Phase 2	0	0	0
			3350	Cruise Summary W/S	0	0	0
			5219	Printing cost for the additional reports	0	-1,937	-1,937
5401			Exigency costs	30,000	0	30,000	
5501			Evaluation (consultants fees/travel/DSA)	48,000	-43,980	4,020	
1307	Staff Charges	184,872	-209,082	-24,210			
5606	UNOPS Project Supporting Cost (6%)	46,672	0	46,672			
				<b>Sub Total</b>	<b>824,544</b>	<b>-348,865</b>	<b>475,679</b>
				<b>6.Cross Component Total</b>	<b>824,544</b>	<b>-348,865</b>	<b>475,679</b>
1.Fisheries			1201	Development of Joint Stock Assessment Guidelines-Consultant	0	0	0
			1225	Expert exchange programme	0	0	0
			2101	Institution Contracts for Data & Information collection	0	0	0

## Data from Atlas System on 7 Feb. 2011

Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	FY 2010		
					Yr 2010	Total Expenditure	Balances
1.Fisheries	1A	Stock assessment	2102	Institution Contracts to Revise National Stock Assessment Data	0	0	0
			2103	Institution Contract to Perform Regional Stock Assessment (Cooperative Cruise)	0	0	0
			2150	Regional Stock Assessment ( 4cruises +3 expert consultations)	0	-60,000	-60,000
			1226	Young Scientist exchange	0	0	0
			2147	Demo - Effectiveness of closed season / area	0	0	0
			2149	Demo – Improvement in fisheries management system	0	0	0
			2148	Demo - Effectiveness of stock enhancement	0	0	0
			2168	Other Contracts-Fisheries	54,570	0	54,570
	1B	Carrying capacity	5201	Stock assessment report	0	0	0
			1202	Developing Guidelines for Carrying Capacity Analysis-Consultant	0	0	0
			2104	Institution Contracts for Annual carrying capacity determination	0	0	0
			5202	Carrying capacity report	0	0	0
			2146	Carrying capacity technical guide line (mariculture)	0	0	0
	1C	Mariculture Production	3338	Regional training for carrying capacity (mariculture)	0	0	0
			1203	Development of Sustainable Mariculture-Consultant	0	0	0
			1701	Mariculture Advisor	0	0	0
			3344	Regional Mariculture Conference	0	0	0
			3345	World Aquaculture Society meeting	0	0	0
			3351	Mariculture workshop	10,000	-11,479	-1,479
			3352	Local Govt. in Fisheries Management	15,000	0	15,000
			2105	Institution Contracts to Implement mariculture techniques (Demonstration Projects).	30,000	0	30,000
			3202	Reg. training on mariculture techniques	0	0	0
			3203	Reg training on disease diagnosis, prevention and control	0	0	0
	1D	Fisheries Management - Regional Agreements,	1204	Feasibility study on the regional agreement,i.e. FAO code of conduct	0	0	0
			1205	Prepare regional Agreement on Legislation-Consultant	0	0	0
			1206	SAP-fisheries-Consultant	0	0	0

Data from Atlas System on 7 Feb. 2011

Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	FY 2010			
					Yr 2010	Total Expenditure	Balances	
1. Fisheries		National Laws & Management Plan for Fisheries	2106	Institution Contracts to Implement Reg Fisheries and ecosystem Management / Implementation Plans	0	0	0	
			5203	Publication of regional fisheries agreement	0	0	0	
	1E	Meetings	3304	RWG-F Meeting 1	0	0	0	
			3305	RWG-F Meeting 2	0	0	0	
			3306	RWG-F Meeting 3	0	0	0	
			3307	RWG-F Meeting 4	0	0	0	
			3308	RWG-F Meeting 5	0	0	0	
			3309	RWG-F Meeting 6	0	0	0	
	<b>Sub Total</b>					<b>109,570</b>	<b>-71,479</b>	<b>38,091</b>
	1A	Stock assessment	2107	Ship rental	0	0	0	
			4207	Equipment for regional survey (f)	0	0	0	
			3336	2nd & 3rd Technical Meeting for the Cooperative Cruise	0	0	0	
	1F	UNOPS Project Supporting Cost	5304	Operation cost	0	0	0	
			1308	Staff Charges	71,639	-80,607	-8,968	
			5608	Reimbursement Costs	0	-580	-580	
			5802	PO Accrual & Reversal	0	0	0	
			5601	UNOPS Project Supporting Cost (6%)	10,872	-4,430	6,443	
	<b>Sub Total</b>					<b>82,511</b>	<b>-85,616</b>	<b>-3,105</b>
	<b>1. Fisheries Total</b>					<b>192,081</b>	<b>-157,095</b>	<b>34,985</b>
	2. Biodiversity	2A	Habitat Conservation (Activity 1 to 3) & Vulnerable Species (Activity 2 to 5)	1208	Review of National Practice of Coastal Habitats and Vulnerable Species-Consultant	0	0	0
2108				Institution Contracts to review existing national practices of coastal habitat use, conservation & restoration	0	0	0	
2109				Institution Contracts to Implement Regional Strategy for Conservation Areas	0	0	0	
2151				Management effectiveness of reserves (two country reports)	0	0	0	
2152				Regionsal training for Reserve managers ( 2 meetings in local language)	10,000	-10,000	0	
2169				Management improvement in demo site	45,558	-45,558	0	
2170				Other Contracts-Biodiversity	54,573	0	54,573	
2171				Public awareness in demo site	9,405	-9,405	0	
3353				MPA Network	10,000	-10,000	0	



Data from Atlas System on 7 Feb. 2011

Data from Atlas System on 7 Feb. 2011					FY 2010		
Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	Yr 2010	Total Expenditure	Balances
			5204	Review national practices of coastal habitat use, conservation, and restoration-Printing costs	0	0	0
			5205	Review of status of vulnerable species and vulnerable trophic linkages-Printing costs	0	0	0
	2B	Genetic Diversity	1702	Biodiversity Advisor	0	0	0
			2144	Genetic diversity	0	0	0
			2153	Review of Genetic diversity in fleshy shrimp	0	0	0
			5222	Printing cost for habitat status and Genetic review	10,000	0	10,000
	2C	Meetings	3310	RWG-B Meeting 1	0	0	0
			3311	RWG-B Meeting 2	0	0	0
			3312	RWG-B Meeting 3	0	0	0
			3313	RWG-B Meeting 4	0	0	0
			3314	RWG-B Meeting 5	0	0	0
			3315	RWG-B Meeting 6	0	0	0
			<b>Sub Total</b>		<b>139,536</b>	<b>-74,964</b>	<b>64,572</b>
	2C	Meetings	3337	Cross Component Conference (RSTP3)	0	0	0
	2D	UNOPS Project Supporting Cost	5305	Operation cost	0	0	0
			1309	Staff Charges	22,220	-25,002	-2,782
			5609	Reimbursement Costs	0	-315	-315
			5803	PO Accrual & Reversal	0	0	0
			5602	UNOPS Project Supporting Cost (6%)	9,705	-4,517	5,189
			<b>Sub Total</b>		<b>31,926</b>	<b>-29,834</b>	<b>2,091</b>
			<b>2.Biodiversity Total</b>		<b>171,462</b>	<b>-104,798</b>	<b>66,664</b>
3.Ecosystem			1216	Regional data synthesis - Institution Contracts	0	0	0
			1703	Ecosystem Advisor	0	0	0
			2118	Institution Contracts - Nat'l data & Info collection	0	0	0
			2119	Institution Contracts for Demonstration of new and innovative technologies for monitoring (FRRF)	0	0	0
	3A	Status of Ecosystem	3208	Reg training (estimation) on carrying capacity of ecosystem (CPR)	0	0	0
			2121	Institution Contracts for cooperative study cruise - ecosystem	0	0	0
			3334	Regional workshop on remote sensing for monitoring ecosystem	0	0	0

Data from Atlas System on 7 Feb. 2011

Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	FY 2010			
					Yr 2010	Total Expenditure	Balances	
3.Ecosystem			3354	Harmonising basin-wide ecosystem monitoring	10,000	-10,074	-74	
			2136	Spring cruise benthos and sediment core	0	0	0	
			2137	Intercalibration	0	0	0	
	3B	Carrying Capacity of Ecosystem	1217	Prepare guidelines for ecosystem carrying capacity-Consultant	0	0	0	
			5211	Publish report on carrying capacity-Printing costs	0	0	0	
	3C	Stressors to Ecosystem	1218	ID and rank stresses to ecosystem-Consultant ( regional monitoring)	0	0	0	
			2120	Institution Contracts to develop long-term sustainable investments & lessen stress to ecosystem	0	0	0	
			2155	Demo - Institution contract for jellyfish monitoring	0	0	0	
			2154	Demo - Institution contract for effects of climate change	48,874	0	48,874	
			2167	demo-NPSi ratio	39,535	0	39,535	
			2172	Macroalgae bloom	15,000	0	15,000	
			2173	Other Contracts-Ecosystem	54,570	0	54,570	
	3D	Meetings	5212	Publish reports-Stresses to ecosystem-Printing costs	0	0	0	
			3322	RWG-E Meeting 1	0	0	0	
			3323	RWG-E Meeting 2	0	0	0	
			3324	RWG-E Meeting 3	0	0	0	
			3325	RWG-E Meeting 4	0	0	0	
			3326	RWG-E Meeting 5	0	0	0	
	<b>Sub Total</b>					<b>167,979</b>	<b>-10,074</b>	<b>157,905</b>
	3E	UNOPS Project Supporting Cost	5306	Operation cost	0	0	0	
			1310	Staff Charges	57,415	-39,697	17,717	
			5610	Reimbursement Costs	0	-372	-372	
			5804	PO Accrual & Reversal	0	0	0	
5603			UNOPS Project Supporting Cost (6%)	13,524	-550	12,974		
<b>Sub Total</b>					<b>70,938</b>	<b>-40,619</b>	<b>30,319</b>	
<b>3.Ecosystem Total</b>					<b>238,917</b>	<b>-50,693</b>	<b>188,224</b>	
4.Pollution	4A	Contaminant Inputs (Critical Spots)	1211	Regional data synthesis - consultant	0	0	0	
			1224	Visiting Scientist Programme	0	0	0	
			2111	Institution Contracts - nat'l data & info collection	0	0	0	
			5206	Publish report-reg'l data synthesis-Printing costs	0	0	0	

## Data from Atlas System on 7 Feb. 2011

Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	FY 2010		
					Yr 2010	Total Expenditure	Balances
			3355	Technical co-operation for QA/QC (monitoring nutrient loads)	10,000	0	10,000
			3356	Assessment & estimation of N (modelling nutrient loads)	10,000	0	10,000
	4B	Contaminant Levels	1212	Reg'l monitoring guidelines; indicators to assess convention implementation-consultant (IAEA)	0	0	0
			2112	Institution Contracts for cooperative study cruise	0	0	0
			2113	Institution Contracts for Intercalibration exercise (QHSS+IAEA)	0	0	0
			2157	Institution contract for IC nutrients Rd 3	0	0	0
			2156	Institution contract for IC metals org Rd2	0	0	0
			3206	Training on contaminant monitoring (phytotoxin)	0	0	0
			3218	Training Course assessing marine environment quality	0	0	0
			3219	Level 2 Training Courses (Joint with AMETEC)	0	0	0
	3339	Intercalibration Summary Workshop	0	0	0		
	4C	Analysis of the Fate and Transport of Contaminants to Facilitate SAP Analysis	2115	Institution Contracts for Practice & Intercalibration - fate & transport of contaminants	0	0	0
			2116	Institution Contracts for ICM actions for controlling discharge of contaminants and nutrients	0	0	0
			5210	Publish report-Fate and transport of contaminants-Printing costs	0	0	0
	4.Pollution	4D	Regional Strategy Pollution Control	1213	Reg'l synthesis contaminant fate and transport-Consultant (IC)	0	0
1215				Reg'l investment strategy & imp. plan pollution control - Consultant (IAEA)	0	0	0
2114				Institution Contracts to implement regional pollution control strategies	0	0	0
2117				Institution Contracts to implement contaminant remediation/prevention	0	0	0
2158				Demo - Institution contract for atmosphere deposition	0	0	0
2159				Demo - Institution contract for HS nutrient load	0	0	0
2160				Demo - Institution contract for Public awareness	0	0	0
2161				Demo - Institution contract for recreational waters management	0	21	21
2162				Demo - Institution contract for sea-based nutrient source	0	0	0

Data from Atlas System on 7 Feb. 2011

					FY 2010		
Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	Yr 2010	Total Expenditure	Balances
			2174	Other Contracts-Pollution	54,570	0	54,570
			3346	Experience exchange for LME visit	0	0	0
			5207	Publish regional invest. strategy-Printing costs	3,000	0	3,000
			5209	Publish reg'l strategy activity results-Printing costs	3,000	0	3,000
	4E	Meetings	3316	RWG-P Meeting 1	0	0	0
			3317	RWG-P Meeting 2	0	0	0
			3318	RWG-P Meeting 3	0	0	0
			3319	RWG-P Meeting 4	0	0	0
			3320	RWG-P Meeting 5	0	0	0
			3321	RWG-P Meeting 6	0	0	0
			<b>Sub Total</b>		<b>80,570</b>	<b>21</b>	<b>80,591</b>
	4F	UNOPS Project Supporting Cost	1311	Staff Charges	55,718	-38,524	17,194
			5307	Operation cost	0	0	0
			5611	Reimbursement Costs	0	0	0
			5805	PO Accrual & Reversal	0	0	0
			5604	UNOPS Project Supporting Cost (6%)	8,177	-6	8,171
			<b>Sub Total</b>		<b>63,895</b>	<b>-38,530</b>	<b>25,365</b>
			<b>4.Pollution Total</b>		<b>144,465</b>	<b>-38,509</b>	<b>105,956</b>
5.Investment	5A	Stakeholders & Public Awareness	1227	Public awareness assistant	0	0	0
			2123	Institution Contracts for Governance analysis	0	0	0
			2124	Institution Contracts for the Yellow Sea and Youth	8,000	0	8,000
			2125	Institution Contracts to Organize regular stakeholders conference (1/yr)	4,000	0	4,000
			2130	Institution Contracts to Organize public awareness conferences	3,500	0	3,500
			2131	Institution Contracts to Prepare public awareness materials	2,426	-4,826	-2,400
			2132	Institution Contracts to Produce multi-media, e.g., project pins, mouse pads, posters, etc.	0	0	0
			2138	Partnership Workshop	1,000	0	1,000
			2139	EAS Congress Workshop and Joint Session	0	0	0
			2140	Parliamentary Workshop	0	0	0
			2145	Regional governance analysis	0	0	0
			2175	Other Contracts-Investment	54,570	-20,000	34,570

Data from Atlas System on 7 Feb. 2011

Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	FY 2010		
					Yr 2010	Total Expenditure	Balances
			2176	Preparation of commision document	0	0	0
			3101	Associate expert	0	0	0
			3210	Training for decision makers	0	0	0
			3211	Training for community trainers	0	0	0
			3212	Training for local governmental officers	0	0	0
			3216	Public awareness training	0	0	0
			3340	2nd Training for local governmental officers	0	0	0
			3341	2nd Partnership Workshop	0	0	0
			3342	2nd Parliamentary Workshop	0	0	0
			5214	Print newsletters	1,000	-1,172	-172
			5223	Print the CBA of demonstration	2,000	0	2,000
5.Investment			1219	Prepare TDA-Consultant	0	0	0
			1220	Prepare regional SAP-Consultant	0	0	0
			1706	TDA NPPP	0	0	0
			2126	Institution Contracts to Prepare NYSAP	20,000	-19,660	340
			2141	Regional valuation guideline	0	0	0
			2163	Case study	0	0	0
			2165	Political social acceptance analysis	0	0	0
			2164	CBA of demonstration	0	-9,108	-9,108
			3343	SAP consultation	0	0	0
			3357	Promote economic tools in decision making	60,000	0	60,000
			3358	YSLME Commission	15,000	0	15,000
			3347	SAP drafting group	0	0	0
			3348	Special PSC for SAP	0	0	0
			5215	Print the final TDA	0	0	0
			5216	Print NYSAP	6,000	0	6,000
			5217	Print regional SAP	3,000	-3,080	-80
			1704	NCU Coordinator (K)	24,800		24,800
			1705	NCU Coordinator (C)	0	0	0
			2127	Institution Contracts to analyse institutional arrangements	0	0	0
			2133	National co-ordinating mechanism (C)	0	0	0
			2134	National co-ordinating mechanism (K)	10,400	0	10,400
			3213	Training on Project document preparation	0	0	0
			3214	Training on Fund raising	20,000	-13,786	6,214

## Data from Atlas System on 7 Feb. 2011

Data from Atlas System on 7 Feb. 2011					FY 2010		
Activity	Sub Act.	Sub Act. Des	IMIS	IMIS Code Description	Yr 2010	Total Expenditure	Balances
	5D	Data and Information Management	1222	Develop regional data & info systems-Consultant	0	0	0
			1707	DIM Consultants	0	0	0
			2143	Maintenance of Meta and GIS Databases	5,000	-8,000	-3,000
			3215	Training on DIM	0	0	0
			4103	GIS Software	0	0	0
			4202	GIS workstation	0	0	0
			4209	Equipment for DIM	0	0	0
	5E	Meetings	3328	RWG-I Meeting 1	0	0	0
			3329	RWG-I Meeting 2	0	0	0
			3330	RWG-I Meeting 3	0	0	0
			3331	RWG-I Meeting 4	0	0	0
			3332	RWG-I Meeting 5	0	0	0
			3333	RWG-I Meeting 6	0	0	0
<b>Sub Total</b>					<b>240,696</b>	<b>-79,632</b>	<b>161,064</b>
5. Investment	5F	Financial Sustainability (Instruments)	2129	Demonstration projects on sustainable investment	0	0	0
			2142	Small Grants Projects	0	-4,350	-4,350
	5G	UNOPS Project Supporting Cost	1312	Staff Charges	69,316	-135,835	-66,518
			5308	Operation cost	0	0	0
			5612	Reimbursement Costs	0	-28	-28
			5806	PO Accrual & Reversal	0	0	0
			5605	UNOPS Project Supporting Cost (6%)	18,601	-759	17,842
<b>Sub Total</b>					<b>87,917</b>	<b>-140,971</b>	<b>-53,054</b>
<b>5. Investment Total</b>					<b>328,613</b>	<b>-220,603</b>	<b>108,010</b>
<b>Grand Total</b>					<b>2,224,142</b>	<b>-1,190,212</b>	<b>1,033,930</b>

Note: \* The amount of USD 53,147 for UNOPS Project Supporting Cost for PMO activity includes Project Supporting Costs for the other activities' staff charges

Period	PROJECT EXPENDITURE						EXPENDITURE AMOUNT		Authorization	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	3,361.82	34	
Dec.04	4205	72800	Office Equipment	Scanner	O-04-002	EPSON Perfection 1270	KRW 102,000	96.87	34	
Dec.04	4201	72800	IT Equipment	Lap-top Computer	I-04-001	Toshiba	KRW 1,960,000	1,861.35	34	Including OS Software(130,000)
Dec.04	4201	72800	IT Equipment	Lap-top Computer	I-04-002	Toshiba	KRW 1,960,000	1,861.35	34	Including OS Software(130,000)
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF124 * 2	KRW 354,400	336.56	34	
Jul.05	4302	72200	Furniture	Partition	F-04-001	(KF124 * 2)	-KRW 91,314	(89.17)		Disposal on 2005
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF104W * 5	KRW 775,500	736.47	34	
Jul.05	4302	72200	Furniture	Partition	F-04-001	(KF104W * 5)	-KRW 28,904	(28.23)		Disposal on 2005
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF084W *2	KRW 266,000	252.61	34	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF5214 T * 2	KRW 35,800	34.00	34	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF5114 L * 1	KRW 15,200	14.43	34	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF6014 * 6	KRW 49,800	47.29	34	
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF126 * 5	KRW 1,055,000	1,001.90	34	
Jul.05	4302	72200	Furniture	Partition	F-04-001	(KF126 * 5)	-KRW 42,527	(41.53)		Disposal on 2005
Dec.04	4302	72200	Furniture	Partition	F-04-001	KF106 * 2	KRW 357,200	339.22	34	
Jul.05	4302	72200	Furniture	Partition	F-04-001	(KF106 * 2)	-KRW 15,649	(15.28)		Disposal on 2005
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF5216 T * 1	KRW 21,400	20.32	34	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF5116 L * 1	KRW 20,000	18.99	34	
Dec.04	4302	72200	Furniture	Connector	F-04-001	KF6016 * 5	KRW 48,500	46.06	34	
Jul.05	4302	72200	Furniture	Partition	F-04-001	(KF6016 * 4)	-KRW 5,706	(5.57)		Disposal on 2005
Dec.04	4302	72200	Furniture	Multi-Bar	F-04-001	KA0012 * 6	KRW 103,200	98.01	34	
Dec.04	4302	72200	Furniture	Multi-Bar	F-04-001	KA0008 * 1	KRW 12,400	11.78	34	
Dec.04	4302	72200	Furniture	Horizontal Shelf	F-04-001	KA0101 * 7	KRW 28,700	27.26	34	
Dec.04	4302	72200	Furniture	Supplies Shelf	F-04-001	KA0104 * 7	KRW 24,500	23.27	34	
Dec.04	4302	72200	Furniture	Pencil Case	F-04-001	KA0106 * 7	KRW 14,700	13.96	34	
Dec.04	4302	72200	Furniture	Shelve	F-04-001	KT3312 * 3	KRW 429,000	407.41	34	
Dec.04	4302	72200	Furniture	Chair	F-04-002	CH2301	KRW 112,500	106.84	34	
Dec.04	4302	72200	Furniture	Shelve	F-04-001	KT3010 * 3	KRW 130,200	123.65	34	
Dec.04	4302	72200	Furniture	Cabinet	F-04-003	SC0085W5 * 2	KRW 252,400	239.70	34	
Dec.04	4302	72200	Furniture	Cabinet	F-04-004	SB0082W2 * 2	KRW 95,400	90.60	34	
Dec.04	4302	72200	Furniture	Cabinet	F-04-005	SC0085W5 * 4	KRW 505,200	479.77	34	
Dec.04	4302	72200	Furniture	Cabinet	F-04-006	SC0082W2 *1	KRW 86,900	82.53	34	
Dec.04	4302	72200	Furniture	Cabinet Door	F-04-004	SB0082W2 * 5	KRW 238,500	226.50	34	
Dec.04	4302	72200	Furniture	Conference Table	F-04-007	SR118	KRW 214,500	203.70	34	
Dec.04	4302	72200	Furniture	Chair	F-04-008	CH0011AF * 6	KRW 605,400	574.93	34	
Dec.04	4302	72200	Furniture	Folding Table	F-04-009	CR9006 * 1	KRW 116,800	110.92	34	
Dec.04	4302	72200	Furniture	Cabinet	F-04-0010	SC982F 800	KRW 111,000	105.41	34	
Dec.04	4302	72200	Furniture	Cabinet	F-04-0011	SC982C 800	KRW 367,600	349.10	34	
Dec.04	4302	72200	Vehicle	Motor Vehicle	V-04-001	Hyundai Trajet 2.0 A/T	KRW 24,094,000	22,881.29	30	
Jul.05	4104/4201	72800	IT Equipment	Office Software	I-05-001	Windows XP Pro (Kor)	355,000	354.65	PO%19281-44,4	krw 355,000 * 1ea
Jul.05	4104/4201	72800	IT Equipment	Office Software	I-05-002	MS windows XP Pro (Eng)	1,155,000	1,153.85	PO%19281-44,4	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	3,386.61	PO%19281-44,4	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	455.54	PO%19281-44,4	krw 456,000 * 1ea
Jul.05	4104/4201	72800	IT Equipment	Office Software	I-05-005	Acrobat 7.0 Std (Eng)	900,000	899.10	PO%19281-44,4	krw 300,000 * 3ea
Nov.05	4104	72800	IT Equipment	Office Software	I-05-006	MS Project 2003 Std - OLP NL (Eng)	650,000	623.20	PO#29386-14	1ea
Nov.05	4201	72800	IT Equipment	Lap-top Computer	I-05-007	Fujitsu S6240-SDM16	1,700,000	1,629.91	PO#29386-13	
Apr.05	4201	72800	IT Equipment	Portable Hard Disk	I-05-008		CNY 640	77.91	PO#19281-44	
May.05	4201	72800	IT Equipment	Lap-top Computer	I-05-009	Fujitsu S7011SF16	KRW 1,760,000	1,777.60	PO#19281-44	
Jun.05	4201	72800	IT Equipment	DVD Read/Writer	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	

Period	PROJECT EXPENDITURE						EXPENDITURE AMOUNT		Authorization	Ref
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION				LC	US\$ equi		
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 II ESD-104A(Digital Double Locking)	KRW 299,000	301.99	PO#19281-38	
May.05	4210	72200	Office Equipment	Conference 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
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 Camcorder	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 Camcorder	O-06-001	Headphone_Sennheiser HD202 Closed back monitor	NZD 56.00	41.35	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	Video Camcorder	NZD 4,747.50	3,505.55	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	Video Light HVL20DW2	NZD 112.50	83.07	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	Battery Pack - NPF970	NZD 483.76	357.21	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	AC Adaptor and Power Charger ACVQ1050D	NZD 237.96	175.71	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	Wireless Lavalier Mike Kit UWPC1	NZD 686.25	506.73	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	Tripod/Stand	NZD 151.88	112.15	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	DVCAM Tapes VF58CPKS	NZD 239.00	176.48	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	IEEE DV Cable	SGD 145.00	89.51	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	Headphone port adaptor	SGD 12.00	7.41	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	Memory Stick	SGD 95.00	58.64	PO#35736-10	
Mar.06	4210	72200	Office Equipment	SONY Camcorder	O-06-001	Rain Cofer + Shipping		99.90	PO#35736-10	
Feb.06	4201	72800	IT Equipment	Lap-top Computer	I-06-001	Toshiba M50-03601S	KRW 1,400,000	1,452.28	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	4,252.95	PO#41557-12, PO#35736-15	
Dec.06	4104	72800	IT Equipment	Office Software	I-06-003	Expert Choice Software	KRW 3,900,000	4,190.98	PO#53903-03	
Nov.06	4205	72200	Office Equipment	LCD Projector	O-06-002	Sony CX20		1,560.00	PO#46928-08	
Nov.06	4203	72200	Office Equipment	Printer	O-06-003	Cannon I90 Printer		250.00	PO#46928-08	
Nov.06	4210	72200	Office Equipment	Scanner	O-06-004	Scanner HP Scanjet7650	KRW 653,600	688.00	PO#46928-08	
Jun.07	4302	72200	Furniture	Shelves	F-07-001	Shelving units for container	KRW 170,000	184.78	PO#61923-16	
Jun.07	4302	72200	Furniture	Container	F-07-002	Container	KRW 1,200,000	1,304.34	PO#61923-16	
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



Period	PROJECT EXPENDITURE						EXPENDITURE AMOUNT		Authorization	Ref
	BUDGET LINES	ACCOUNT	ACCOUNT DESCRIPTION				LC	US\$ equi		
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
Aug.08	4201	72800	IT Equipment	Lap-top Computer	I-08-001	Lenovo Thinkpad	KRW 1,145,400	1,150.00	PO#101563-03	
Aug.08	4201	72800	IT Equipment	Lap-top Computer	I-08-002	Lenovo Thinkpad	KRW 1,145,400	1,150.00	PO#101563-03	
Jul.09	4201	72800	IT Equipment	Lap-top Computer	I-09-001	Toshiba Portege A600 PPA60K-01C00R	KRW 1,690,000	1,328.62	PO#147291-01	
Jun.10	5101	73400	IT Equipment	Copy machine	I-10-001	Copy Machine (SCX-5635FNK)	KRW 629,110	503.29	PO#147291-01	
<b>Total Amount as of May 2010</b>								<b>\$78,301.60</b>		
							IT Equipment	\$28,308.17		
							Furniture	\$13,924.50		
							Vehicle	\$22,881.29		
							Office Equipment	\$13,187.65		
								<b>TRUE</b>		



**Appendix VI List of acronyms**

CKJORC	China-Korea Joint Ocean Research Centre
DPRK	Democratic People's Republic of Korea
EAS Congress	East Asian Seas [EAS] Congress
FIO	First Institute of Oceanography
GEF	Global Environment Facility
IMTA	integrated multi-trophic aquaculture
IOC`	Intergovernmental Oceanographic Commission
IW: LEARN	International Waters: Learning Exchange and Resource Network
KMI	Korea Maritime Institute
KMUN	Korea Model United Nations
KOEM	Korea Marine Environment Management Corporation
KORDI	Korea Ocean Research and Development Institute
LME	large marine ecosystem
LOFSRI	Liaoning Ocean & Fisheries Science Research Institute
MoU	memorandum of understanding
MPA	marine protected area
NGO	non-governmental organisation
NOWPAP	Northwest Pacific Action Plan
NMEMC	National Marine Environment Monitoring Centre
NPC	National Project Co-ordinator
PIR	Project Implementation Review
PIF	Project Identification Form
PML	Plymouth Marine Laboratory
PMO	Project Management Office
PSC	Project Steering Committee
ROK	Republic of Korea
RSTP	Regional Scientific and Technical Panel
SAP	Strategic Action Programme
TDA	Transboundary Diagnostic Analysis
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	UN Educational, Scientific and Cultural Organization
UNOPS	United Nations Office for Project Services
WESTPAC	Sub-Commission for the Western Pacific
WSMRC	West Sea Mariculture Research Centre
WWF	World Wide Fund for Nature
YSESP	Yellow Sea Ecoregion Support Project
YSFRI	Yellow Sea Fisheries Research Institute - China
YSLME	Yellow Sea Large Marine Ecosystem