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

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UNDP/GEF/YS/RWG-P.2/3  
Date: 9 November 2005  
English only

**Second Meeting of the Regional Working Group  
for the Pollution Component**  
*Busan, Korea, 7-9 November 2005*

**Meeting Report**



## **1 OPENING OF THE MEETING**

### **1.1 Welcome addresses**

1.1.1 On behalf of the United Nations Development Programme (UNDP) and United Nations Office for Project Services (UNOPS), Mr. Yihang Jiang, Project Manager, opened the meeting and welcomed the members of the Regional Working Group-Pollution (RWG-P) to Busan. Mr. Jiang stated that the meeting would focus on the review of the data and information collection activity, and also on providing guidance to upcoming activities that would contribute to the Transboundary Diagnostic Analysis (TDA).

### **1.2 Introduction of members**

1.2.1 Members and other participants were invited to introduce themselves and give a brief introduction on their background and roles in the Project. The list of participants is attached to this report as [Annex I](#).

## **2 ORGANISATION OF THE MEETING**

### **2.1 Documentation Available to the Meeting**

2.1.1 Mr. Wen Quan, Chairperson of the RWG-P, invited the Secretariat to introduce this agenda item. Ms. Connie Chiang of the Project Management Office (PMO) introduced the Meeting's working and information documents prepared by the PMO, with emphasis on activity progress reports, activities to be implemented, and the governance analysis document.

### **2.2 Organisation of Work**

2.2.1 The PMO presented the provisional working programme for the Meeting.

2.2.2 The Chairperson informed the Meeting about the organisation of work. It was agreed that, due to the nature of the agenda items to be discussed, the Meeting would be organised in plenary as far as possible. Sessional working groups would be formed if deemed necessary.

2.2.3 The meeting was conducted in English.

## **3 ADOPTION OF THE MEETING AGENDA**

3.1 The Chairperson introduced the Provisional Agenda and Provisional Annotated Agenda prepared by the Project Management Office.

3.2 Some members requested clarifications on a few agenda items, namely, additional details on how to proceed for some agenda items and the objectives of a few of the items.

3.3 Following clarifications by the PMO, the meeting adopted the agenda, without change, that is attached as [Annex II](#) to this report.

#### **4 EXPECTED OUTPUTS FROM THE 2<sup>ND</sup> RWG-P MEETING**

- 4.1 The Chairperson invited the Secretariat to present the expected outputs of the Meeting. Ms. Chiang presented a list of the outputs expected to be achieved, and provided some details for each agenda item's objective.
- 4.2 Questions were raised about the format to present data for the Geographic Information System (GIS) database and the co-operative study cruise's final arrangements for the Pollution Component. The PMO clarified that the database development would be undertaken by a separate group that would be able to transfer data from spreadsheets into GIS format. The pollution group would not need to be concerned with this, but would need to agree on the types of GIS outputs that they would like to present for the final results of the activity.
- 4.3 The PMO further clarified that, during this Meeting, the Pollution Component also needs to finalise their requirements and operational procedures for the co-operative study cruises.
- 4.4 The meeting noted the expected outputs for the meeting, and agreed to keep these expected outputs in mind during the discussion of the relevant agenda items.

#### **5 CONSIDERATION OF ON-GOING ACTIVITIES UNDER THE POLLUTION COMPONENT**

##### **5.1 Data and Information Collection**

- 5.1.1 Mr. Huo Chuanlin presented the progress report for the data and information collection activity by China. He presented the background, development of the project, implementation progress to date, upcoming activities, and visits to the owners/authors of the data.
- 5.1.2 Mr. Oh Jae Ryoung presented some of the Korean data that is accessible through internet at the National Fisheries Research and Development Institute's (NFRDI) website. He showed the monitoring stations of NFRDI and 40 year's historical data for some parameters in seawater from the Korea Ocean Data Center. Finally, Mr. Oh also proposed some ways to present data graphically, using examples from a North Sea study.
- 5.1.3 As there are still limitations to open marine environmental data from the participating countries, not all the raw data were presented. The Chinese members informed the Meeting that they are seeking government approval to share some of the collected data.
- 5.1.4 Mr. Oh asked about data quality assurance and quality control (QA/QC) methods employed for survey and data analyses. Mr. Wen informed that China has national standard methods for oceanographic survey and marine environment monitoring, but necessary attention is still needed for QA/QC procedures.
- 5.1.5 In order to collect more data and information for the preparation of TDA, and considering the limitations of fully opened marine environmental data in this process, the meeting discussed extensively on the possible means to present current scientific understanding of marine pollution status and trends. Members agreed that while the teams would continue with the current data and information collection activity, they

should also consider how they will provide marine environment status and trends in certain formats to illustrate the data products.

5.1.6 As the information provided from these activities should be synthesised to provide a regional picture, members divided into two groups, by country, to agree on describing how each parameter will be shown graphically, by temporal and spatial scales.

5.1.7 Upon return to the plenary, members discussed and **agreed on the following:**

- **The data products generated from the marine environment data should be provided in graphic formats, and should be shown, as much as possible, by the seasons of winter (February), spring (May), summer (August), and autumn (November);**
- **Horizontal distribution of the environmental elements, as agreed by the Regional Working Group, will be shown at the surface and bottom of the Yellow Sea;**
- **The vertical profile of pollutants in sea water will be illustrated according to monitoring transects;**
- **The data products showing graphical trends and ranges for maximum, minimum, and average values in the open sea will be grouped into “regions.” According to the hexagon distribution method, the “regions” in the offshore areas of the Yellow Sea were divided (see Annex III). In Korea’s coastal area, 4 “region’s” data and data products will be provided from the estuaries of the 4 major rivers. Chinese members will discuss their coastal area division with relevant entities and will inform the PMO.**
- **As one hexagonal area lies in the area where both China and Korea have monitoring stations, this area will be a co-operative data presentation section, with both sides taking joint responsibility to collect and present the data. The Chairpersons of the National Working Groups for Pollution will be in charge to co-ordinate the data collection and presentation of this area.**

## 5.2 Regional Pollution Monitoring Guidelines

5.2.1 Mr. Wen gave the progress report for this activity, explaining the existing monitoring programmes in the region, suggesting parameters and places that should be monitored, and additional work that needs to be done. He also provided a draft outline of the regional pollution monitoring guidelines.

5.2.2 The ensuing discussions resulted in the following information and suggestions for improvement of the final guidelines and topics that could be considered in the final output:

- Consider how to co-ordinate existing monitoring programmes into the regional guidelines, including how to use remote sensing as a monitoring tool.
- Consider how the guidelines could link with existing monitoring programmes and geographic areas. Additionally, provide recommendations on how to link

existing data systems and exchange of information gathered from future monitoring programmes. Also consider incorporating existing inter-governmental agreements on data exchange.

- Ms. Choi Hee-Gu from NFRDI introduced her institute's two monitoring programmes that take place six times a year in the open sea, and four times a year in coastal areas. She offered to provide additional information for this activity and exchange ideas with Mr. Wen.
- Mr. Zhong Xiaodong from NOWPAP informed the meeting of the activities carried out by the two NOWPAP working groups on harmful algal bloom and remote sensing, as well as two other working groups on contaminants from rivers and from atmospheric deposition. The full set of draft reports from these working groups should be available by the end of the year. In addition, a marine environmental legislation review activity carried out in Year 2000 may provide some useful information. Mr. Zhong also informed the meeting that the legislation review is planned to be updated.

5.2.3 The Meeting took note of the suggestions for the improvement of the regional guidelines, and Mr. Wen took note of incorporating the suggestions into the final product.

### 5.3 Co-operative Study Cruises

5.3.1 Ms. Chiang explained the need to re-visit the pollution component's requirements for the co-operative study cruises, and to finalise the outstanding issues.

5.3.2 Members reviewed the logistical requirements, particularly the responsibilities related to equipment that need to be readied for the survey. **It was agreed that:**

- **The Chinese scientists will contact the First Institute of Oceanography, China, to acquire details about the CTD and its sensors;**
- **A chlorophyll sensor will no longer be needed, as the Ecosystem Component will carry out chlorophyll a analysis using HPLC;**
- **Chinese scientists will provide a UV-Vis Spec for on-board nutrient analysis; and**
- **Both Korean and Chinese scientists will provide necessary equipment for organic pollutant sampling. Chinese experts will assist to check the procedures for customs clearance for equipment brought from Korea.**

5.3.3 The final list of equipment required and responsible personnel is attached as [Annex IV](#).

5.3.4 Members then finalised their group's respective budget for the winter cruise. The main change was a switch from using acetate fibre filters to nuclepore membranes, as the latter will provide more accurate results when carrying out heavy metal analysis. The final budget is attached as [Annex V](#).

5.3.5 Ms. Wang Juying suggested that marine litter should be included as a useful element of the co-operative study cruise, and that an experimental marine litter survey could

be carried out since the Fisheries Component will be providing samples through their bottom trawls.

**5.3.6 Members agreed that a log of the cruise should be recorded. As Ms. Wang had these templates, she agreed to translate them into English and distribute to the relevant experts for use by all interested parties. Ms. Wang also agreed to share her library of analytical methods with Korean scientists, so that both parties can come to conclusion on the way to record the survey and analytical methods to be used.**

**5.3.7 Members also agreed to provide to the PMO, within one week after the end of the Meeting, the remaining information for finalising the contracts, namely:**

- **list of on-board personnel;**
- **list of samples that need to be transported to Korea; and**
- **contracted institute's details.**

#### **5.4 Inter-calibration Exercises**

5.4.1 Ms. Chiang presented the progress-to-date of the development of this activity and also the expected outputs for this agenda item. She mentioned that a preliminary list of parameters to be inter-calibrated had been decided shortly after the 1<sup>st</sup> RWG-P Meeting, and some discussions were held with potential standard reference material (SRM) suppliers. However, as certain developments had occurred between then and now, members were asked to review the list of parameters and provide guidance on how the activity should be implemented.

5.4.2 Members re-visited the list and re-prioritised the parameters, based on the known available sources of SRMs, and the times in which the activity could be carried out. The final list of parameters to be included in the activity is attached as [Annex VI](#).

5.4.3 Members emphasised the importance of carrying out inter-calibration for nutrients in sea water before the winter cruise so that post-cruise analysis of samples would be more consistent by both sides. This could also provide the selection process where labs that produce “good” results may be selected to analyse the post-cruise samples.

5.4.4 Members also noted that the laboratories that will participate in the activity will be based on their strengths and focus of work. After discussing the modality to implement the activity, **members agreed that:**

- **A neutral institute(s) or person(s) will be contracted to oversee the operation of the activity;**
- **Mr. Oh will provide the IAEA Monaco Laboratory with a list of sediment and biota inter-calibration parameters to obtain a price list for the SRMs;**
- **Mr. Oh will also contact a lab in Australia to gauge their interest in organising the sea water nutrient part of the activity; and**
- **Mr. Oh will provide the outcomes of his correspondences to the members of the regional working group and the PMO.**

5.4.5 The description of the activity and proposed time line is attached as [Annex VI](#).

## **6 ACTIVITIES TO BE IMPLEMENTED DURING 2005 TO 2006**

- 6.1 Before members began discussing any of the upcoming activities, Ms. Chiang explained the general UNOPS contracting procedures, in order to provide members with a better understanding of the different types of contracts and responsibilities of all contracting parties. Ms. Chiang emphasised that the PMO should be copied on all correspondence between the contractor and UNOPS, when contracts are directly executed by UNOPS. This will enable the PMO to keep track of the implementation process, and to follow up if problems arise with the contracts.
- 6.2 Members took note of the information provided, and will follow the procedures in due course.

### **6.1 Regional Data and Information Synthesis**

- 6.1.1 Members reviewed the draft job description and qualifications for the consultant to carry out this task, and suggested minor changes. Members also suggested persons that are qualified to carry out this task. The PMO will contact the suggested consultants, and ask them to bid for the work that will be carried out from January to June 2006.
- 6.1.2 The meeting agreed with the job description that is attached as [Annex VII](#).

### **6.2 Assessing Pollution Convention Implementation**

- 6.2.1 Ms. Chiang explained that, with the assistance and recommendation by Korean members of the RWG-Investment, the PMO had already identified a consultant to carry out this work. The consultant had already submitted a proposal and budget to the PMO which was very well written and in line with the requested task.
- 6.2.2 Members reviewed the job description and added one more item to the tasks, which is shown in [Annex VII](#). The PMO will contact the consultant to inform him of the additional task, and then will proceed with issuing the contract.

### **6.3 Inter-calibration of Fate and Analysis of Pollutants**

- 6.3.1 There was extensive discussion to understand and agree on the objective of this activity, and to confirm exactly what this activity is supposed to achieve. Members who were involved with the PDF-B phase of the project seemed to recall that the original intention of this activity was to address modelling fate and transport of pollutants. However, members felt that the activity should focus on the understanding of the fate and transportation of pollutants, and further understand pollutants discharged to the marine and coastal environment. It was deemed more appropriate to change the title to, "Review Existing Data and Information and Comparison of Procedures to Analyse Fate and Transport of Pollutants."
- 6.3.2 **Members agreed that the general implementation modality would be to:**

- 1) **review data and information provided from national data and information collection activity reports;**



- 2) **organise an expert technical workshop to discuss and compare existing procedures and data relevant to fate and transport of pollutants; and**
- 3) **present the workshop's outcomes for TDA.**

6.3.3 The meeting suggested, for the approval of the Project Steering Committee (PSC), that the workshop should be organised shortly after the national data and information are available.

## 6.4 Capacity Building

6.4.1 Under this agenda, members discussed necessary activities needed for upgrading capacity in the participating countries regarding marine pollution research and monitoring. The suggested list was divided into two levels. Activities under Level 1 will target the current members and partners of the project, while Level 2 activities will be held in conjunction with other on-going activities, and include a wider range of participants.

6.4.2 Suggested Level 1 activities include:

- A follow-up workshop after the first round of inter-calibration exercises
- A Visiting Scientist or technical exchange programme to be co-funded by the PMO and the host laboratory/institute
- A training course on methods to assess marine environment quality

6.4.3 Mr. Oh suggested that Level 2 activities could be held in conjunction with the APEC Marine Environmental Training and Education Center (AMETEC) training courses that he will organise next year.

6.4.4 The PMO will review the budget and try to accommodate as many of the suggested activities as possible.

6.4.5 **The meeting carefully discussed the requirements on capacity building, and agreed on the list.** The meeting instructed the PMO to include the list of activities in the budget revision, and submit to the PSC for consideration and approval, for the suggested new activities.

## 6.5 Preparation of the Pollution Component in the Draft TDA

6.5.1 As the data and information collection activities are still on-going in the participating countries, the Meeting could not refine the preliminary causal chain and governance analysis using available data. Instead, members discussed how they should carry out these tasks when enough data and information are collected.

6.5.2 Mr. Jiang reminded members that the original data collection table does not include collecting data on legal, institutional or stakeholder analyses, which are required for the governance analysis. These additional information should be included in the national reviews in order to carry out the causal chain and governance analyses. Mr. Oh informed the Meeting that NOWPAP is producing a series of reports titled, "National Report on River and Direct Inputs of Contaminants into the Marine and Coastal Environment in the NOWPAP Region," that will contain socio-economic

information, and the reports can be an important source of information for the analyses.

6.5.3 Members recommended that:

- Institutional analysis should focus on the decision making process and weaknesses in institutional structures;
- stakeholder analysis should contain information on affected populations; and
- legal and policy analysis should focus on the current legal status and identify reasons for lack of implementation or enforcement of regulations.

6.5.4 **Members agreed that:**

- **Socio-economic data and information necessary for the causal chain and governance analysis should be collected by each participating country; and**
- **Each national report should include a refined causal chain and governance analysis which will be supported by the data and information collected. The information will be available for the integrated governance analysis that will be guided by the RWG-Investment Component.**

7 WORKPLAN FOR 2005 TO 2006

7.1 Members reviewed the workplan for 2005 to 2006. **The meeting agreed to compile a table showing the agreements, actions and deadlines for the activities.** The table of actions, responsible persons and deadlines was discussed and agreed, and is shown below.

<b><u>Agreement / Action</u></b>	<b><u>Responsible Party</u></b>	<b><u>Deadline</u></b>	<b><u>Status of Action (as of 9 Nov 2005)</u></b>
<b>Data &amp; Information Collection</b>			
<b>Action:</b> Provide graphical outputs, data & info tables	Data and information collection contractors	Draft reports 27 Jan 06  Final report 31 Mar 06	
Discussion on data presentation formats	Wen Quan, Oh Jae Ryoung, Yihang Jiang	4 Jan 06	
<b>Guidelines for regional monitoring</b>			
<b>Action:</b> incorporate comments from meeting into final report	Wen Quan	31 Dec 05	
<b>Joint Co-operative Study</b>			

<u>Agreement / Action</u>	<u>Responsible Party</u>	<u>Deadline</u>	<u>Status of Action (as of 9 Nov 2005)</u>
<p><b>Cruises</b></p> <p><b>Action:</b> acquire CTD details from FIO; confirm calibration will be done in Tianjin before cruise</p>	Chinese scientists	17 Nov 05	
<p><b>Joint Co-operative Study Cruises</b></p> <p><b>Action:</b> provide a UV-Vis Spec for on-board nutrient analysis</p>	Wang Juying	30 Nov 05	
<p><b>Joint Co-operative Study Cruises</b></p> <p><b>Action:</b> provide organic pollutant and heavy metal samplers, as well as relevant sampler bottles and supplies</p>	China and Korea pollution cruise members	30 Nov 05	
<p><b>Joint Co-operative Study Cruises</b></p> <p><b>Actions:</b> log template for the cruise translated into English and distributed to the relevant experts</p> <p>Share analytical methods with Korean scientists, so that both parties will use common analytical methods.</p>	Wang Juying	30 Nov 05	Done (9 Nov 05)
<p><b>Joint Co-operative Study Cruises</b></p> <p><b>Actions:</b> names of on-board personnel</p> <p>list and number of each sample that need to be transported to Korea</p> <p>contracting institute's details – institute name, contract signatory, contract contact person, bank information, justification for waiver</p>	<p>Wen Quan Oh Jae Ryoung</p> <p>Oh Jae Ryoung</p> <p>Wen Quan Oh Jae Ryoung</p>	<p>17 Nov 05</p> <p>17 Nov 05</p> <p>14 Nov 05</p>	China side done
<b>Inter-calibration exercises</b>			

<u>Agreement / Action</u>	<u>Responsible Party</u>	<u>Deadline</u>	<u>Status of Action (as of 9 Nov 2005)</u>
<b>Agreed:</b> Contract to neutral institute(s) or person(s) to oversee the operation of the activity	PMO	1 Dec 05	
<p><b>Inter-calibration exercises</b></p> <p><b>Actions:</b> Provide the IAEA Monaco Laboratory with a list of sediment and biota inter-calibration parameters to obtain a price list for the SRMs</p> <p>Contact a lab in Australia to gauge their interest in organising the sea water nutrient part of the activity</p> <p>Provide the outcomes of his correspondences to the members of the regional working group and PMO</p>	Oh Jae Ryoung	17 Nov 05  17 Nov 05	
<p><b>Fate &amp; Transport of Pollutants</b></p> <p><b>Agreed:</b> review data and information provided from national data and information collection activity reports</p> <p>organise an expert technical workshop to discuss and compare existing procedures and data relevant to fate and transport of pollutants</p> <p>present the workshop's outcomes for TDA</p>	China & Korea data collection teams  PMO  PMO	31 Mar 06  May/June 06  Sept 06	
<p><b>Capacity Building</b></p> <p><b>Agreed:</b> 2 levels of capacity building activities and additional activities suggested to be implemented</p>	PMO	As funds are available	
<p><b>Pollution Component of TDA</b></p> <p><b>Agreed and Actions :</b> Additional socio-economic data should be</p>	Data collection teams	31 Mar 06	

<u>Agreement / Action</u>	<u>Responsible Party</u>	<u>Deadline</u>	<u>Status of Action (as of 9 Nov 2005)</u>
<p>collected</p> <p>Each national report should include a refined causal chain and governance analysis with the additional collected data and information</p> <p>Socio-economic data should be sought out from existing reports</p> <p>Provide revised governance analysis guidelines to all members</p>	PMO	30 Nov 05	
<b>Agreed:</b> 3 <sup>rd</sup> RWG-P Meeting will be held in Dandong, China, 28 to 31 August 2006	RWG members and PMO	10 Nov 05	PMO will make arrangements in mid 2006

## 8 OTHER BUSINESS

- 8.1 The Chairperson invited members to raise any other issues that need to be considered by this meeting.
- 8.2 Mr. Jiang mentioned that for the second round of RWG Meetings, 4 of 5 Components had to change their previously agreed dates. This caused extra work and delay in implementation of activities. Mr. Jiang asked all members to keep to the agreed meeting dates. Mr. Jiang also informed members that last minute changes in RWG membership due to their conflicting schedules also created lots of additional work for the PMO to arrange the meeting and accommodations.

## 9 DATE AND PLACE FOR 3<sup>RD</sup> RWG-P MEETING

- 9.1 The Chairperson invited members to consider the date and place for the 3<sup>rd</sup> RWG-P Meeting.
- 9.2 **Members agreed to have the Third RWG-P Meeting in Dan Dong, China, from 28-31 August 2006.**

## 10 ADOPTION OF THE MEETING REPORT

- 10.1 The Chairperson led the discussion of the draft meeting report prepared by the Secretariat. The report was reviewed, amended, and adopted by the Meeting.

## **11 CLOSURE OF THE MEETING**

- 11.1 Mr. Jiang thanked all participants and the Chairperson for their hard work during the Meeting, and asked all members to carry on the Implementation Plan according to schedule.
- 11.2 On behalf of NFRDI, Mr. Kim Sangsoo thanked participants for collaborating with NFRDI and holding the meeting in Busan.
- 11.2 Mr. Wen thanked NFRDI and all participants for their hard work and closed the Meeting at 1700 hours on 9<sup>th</sup> November 2005.

## Annex I

## List of Participants

<b>People's Republic of China</b>	
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<b>Republic of Korea</b>	
<p><b>Mr. OH Jae Ryoung</b> Head, Marine Environmental Risk Assessment Research Division South Sea Institute, KORDI 391 Jangmok-ri, Jangmok-myon Geoje, Gyeongnam 656-830 Tel: 82-55-639-8670 Fax: 82-55-639-8689 Email: <a href="mailto:jroh@kordi.re.kr">jroh@kordi.re.kr</a></p>	<p><b>Ms. CHOI Hee-Gu</b> Senior Scientist National Fisheries Research &amp; Development Institute (NFRDI) 408-1, Sirang-Ri, Gijang-eup, Gijang-gun Busan, 619-902 Tel. 82-2-3674-6561 Fax. 82-2-3674-6565 Email: <a href="mailto:hqchoi@momaf.go.kr">hqchoi@momaf.go.kr</a></p>
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<b>Observers</b>	
<b>United Nations Environment Programme – Northwest Pacific Action Plan (NOWPAP)</b>	<b>Yonsei University</b>
<p><b>Mr. ZHONG Xiaodong</b> Deputy Coordinator UNEP/NOWPAP Busan Office 408-1 Shirang-ri, Gijang-eup, Gijang-gun Busan 619-902 Republic of Korea  Tel: 82-51-720-3000 Fax: 82-51-720-3009 Email: <a href="mailto:xiaodong.zhong@nowpap.org">xiaodong.zhong@nowpap.org</a></p>	<p><b>Mr. PARK Hyun-jin</b> Professor, Division of International Study Yonsei University 134 Sinchon-dong, Seodaemun-gu Seoul 120-749 Republic of Korea  Tel: 82-2-798-6744; 82-10-7131-6744 Email: <a href="mailto:hjpark222@hanmail.net">hjpark222@hanmail.net</a></p>
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## **Annex II**

### **Agenda**

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- 10. ADOPTION OF THE MEETING REPORT**
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**Annex IV**

**Final Equipment and Personnel Manifest for Co-operative Study Cruises –  
 Pollution Group**

<b><u>SAMPLING ACTIVITY</u></b>	<b><u>EQUIPMENT REQUIRED</u></b>	<b><u>PERSONNEL</u></b>	<b><u>SOURCE</u></b>
<b>Routine Parameters</b>			
temperature	CTD sensor	RWG-P Chinese members to co-ordinate with FIO	FIO
salinity	CTD sensor		
pH	pH sensor		
transparency	Turbidity meter		
DO	DO sensor, Titrator, magnetic stirrer, sample bottles		
COD	sample bottle		
SS	SS sensor		
chlorophyll a	Chlorophyll a sensor, Fluorescence sensor	N/A	HPLC analysis by Ecosystem Component
<b>Nutrients</b>			
nitrate	Technicon, FIA, UV-Vis Spec	Jiang Yuewen	NMEMC
nitrite			
ammonium			
phosphate			
silicate			
<b>Organic Pollutants</b>	Sampler and sample bottles, acid, filtration system, shaker, separatory funnels, glass bottle	all on-board personnel	NMEMC / KORDI
<b>Heavy metal</b>	sampler, sample bottles, acids, filtration system, LDPE or teflon bottles	all on-board personnel	NMEMC / KORDI



**Annex V**

**Final Cruise Budget (US Dollars) – Pollution Group**

		China			Korea			Total			
Item		Unit Cost (US \$)	Units	Sub-total	Unit Cost (US \$)	Units	Sub-total	Unit Cost (US \$)	Units	Sub-total	Remarks
cost of samples analysis in laboratory	metals	100	25	2500	100	25	2500	<b>100</b>	<b>50</b>	<b>5000</b>	Cu, Pb, Zn, Cd, Cr, Hg and As
	TOC	20	50	1000	20	50	1000	<b>20</b>	<b>100</b>	<b>2000</b>	
	TPH	20	25	500	20	25	500	<b>20</b>	<b>50</b>	<b>1000</b>	
	PAHs	150	50	7500	150	50	7500	<b>150</b>	<b>100</b>	<b>15000</b>	
	PCBs	150	50	7500	150	50	7500	<b>150</b>	<b>100</b>	<b>15000</b>	
	OCPs	150	50	7500	150	50	7500	<b>150</b>	<b>100</b>	<b>15000</b>	
analysis of nutrients		80	75	6000	80	75	6000	<b>80</b>	<b>150</b>	<b>12000</b>	5 nutrients
Analysis of Organics	PAHs	220	15	3300	220	15	3300	<b>220</b>	<b>30</b>	<b>6600</b>	
	PCBs	220	15	3300	220	15	3300	<b>220</b>	<b>30</b>	<b>6600</b>	
	OCPs	220	15	3300	220	15	3300	<b>220</b>	<b>30</b>	<b>6600</b>	
Analysis of Metals	metals	100	15	1500	100	15	1500	<b>100</b>	<b>30</b>	<b>3000</b>	
Communication (including phone and cable) cost				150			150			<b>300</b>	
filtration membrane (for heavy metals)		200	3	600	200	3	600	<b>100</b>	<b>6</b>	<b>600</b>	nuclepore membrane
filtration membrane		150	3	450				<b>150</b>	<b>3</b>	<b>450</b>	Glass Fiber Filter
hardship allowance		30	63	1890	30	63	1890	<b>30</b>	<b>126</b>	<b>3780</b>	3 persons/country, 21 days,

Item		China			Korea			Total			Remarks
		Unit Cost (US \$)	Units	Sub-total	Unit Cost (US \$)	Units	Sub-total	Unit Cost (US \$)	Units	Sub-total	
before and after cruise costs		30	27	810	30	27	810	30	54	1620	costs incurred before and after boarding the ship
personnel transportation costs	China	200	3	600				200	3	600	3 persons 1 round trips (Dalian-Qingdao-Dalian)
	Korea				450	3	1350	450	3	1350	3 persons 1 round trips (Korea-Qingdao-Korea)
equipment transportation costs	China	350	1	350				350	1	350	spectrometer, sensor, pH meter, sampler, samples containers, 1 round trips (Dalian-Qingdao-Dalian)
	Korea				500	1	500	500	1	500	1 round trips (Korea - Qingdao-Korea)
samples transportation costs	China	450	1	450				450	1	450	deliver samples to laboratories, once per cruise
	Korea				750	1	750	750	1	750	deliver samples from Qingdao to Korean laboratories, once per cruise
PC Software		300	2	600				300	2	600	
<b>Grant Total</b>				<b>49,800</b>			<b>49,950</b>			<b>99,150</b>	

## Annex VI

### Description of and Parameters for Inter-calibration Activity

The contracted institution(s)/consultant(s) to implement the inter-calibration activity will carry out the following tasks:

1. Together with RWG-P members and the Project Management Office (PMO), identify and invite appropriate laboratories to participate in the inter-calibration exercises.
2. With assistance from the PMO, obtain the standard reference materials and distribute to participating labs.
3. Co-ordinate and monitor the inter-calibration exercises of the participating laboratories.
4. Collect, collate, and synthesise the results of inter-calibration from the laboratories, for submission to the PMO and RWG-P.
5. Prepare a report containing an analysis of the results, problems, and recommendations for improvement and problem solving for future inter-calibration exercises.

### Duration and Timing

The commissioned assignment is expected to be carried out from November 2005 through May 2006, according to the following schedule:

<u>Task</u>	<u>Deadline</u>
Contract signature	November 2005
Identify and contact labs to participate	November 2005
Obtain the inter-calibration standards and distribute to participating labs	November 2005
Inter-calibration exercises: nutrients – by Dec 05. Sediment/biota – Nov 05 to April 06	November 2005 – April 2006
Progress report on status of calibration exercises	31 March 2005
Final synthesis report and financial statement submitted to UNOPS	mid-May 2006

## Parameters for Inter-calibration.

		Original Priorities (decided after 1 <sup>st</sup> RWG-P Meeting)						Re-prioritised parameters at 2 <sup>nd</sup> RWG-P Meeting
Medium	Target Pollutants	Korea	China	Regional	Korea	China	Regional	
Water	NO2	●	●	●	1	1	1	*@
	NO3	●	●	●	1	1	1	*
	Ammonia	●	●	●	1	1	1	
	Total dissolved N							
	Total particulate N							
	Total dissolved P							
	Phosphate	●	●	●	1	1	1	*
	Total particulate P							
	Silicates	●	●	●	1	1	1	*
Sediment	Trace metals (Zn, Cd, Pb, Cu, Cr, Hg, As)	●	●	●	3	2	2	*
	PCBs - see table below	●	●	●	2	2	2	*
	OCPs - see table below	●	●	●	2	2	2	*
	PAHs - see table below	●	●	●	2	2	2	*
	Organotins	●	○	○	4	4	4	
	Phenolic compounds	●	○	○	5	5	5	
	PBDEs	●	○	○	6	6	6	
	Organic carbon							
	Grain size							
	Oil	●	●					
Biota (bivalves)	Trace metals (Zn, Cd, Pb, Cu, Cr, Hg, As)	●	●	●	3	2	2	*
	PCBs - see table below	●	●	●	2	2	2	*
	OCPs - see table below	●	●	●	2	2	2	*
	PAHs - see table below	●	●	●	2	2	2	*
	Organotins	●	○	○	4	4	4	
	Phenolic compounds							
	PBDEs	●	○	○	5	5	5	
	Lipid							
Note	● : Compulsory ○ : Optional 1 = high priority; 6 = low @ = if SRMS for nutrients in sea water are available							



<b><u>Priority PAHs (16)</u></b>	<b><u>OCPs (16)</u></b>	<b><u>PCBs (10)</u></b>
Naphthalene	Aldrin	CB 52
Acenaphthylene	Chlordane	CB 101
Acenaphthene	DDT and metabolites (4)	CB 105
Fluorene	Dieldrin	CB 110
Phenanthrene	Endrin	CB 118
Anthracene	Heptachlor	CB 128
Pyrene	Heptachlor epoxide	CB 138
Benzo[a]anthracene	Hexachlorbenzene	CB 153
Chrysene	Hexachlorocyclohexanes (4)	CB 180
Benzo[b]fluoranthene	Pentachloronitrobenzene	CB 189
Benzo[k]fluoranthene		
Benzo[a]pyrene		
Indeno[1,2,3-cd]anthracene		
Benzo[ghi]perylene		



## **Annex VII**

### **Upcoming Activities in 2006**

#### **Consultant for Pollution Component's Regional Data and Information Synthesis**

##### **Description of Required Services**

A consultant will be hired to carry out the main responsibility of preparing a regional synthesis report containing an assessment of the national pollution information collected from China and Korea. The report should contain:

- 1) A scientifically-sound assessment of the national pollutant data and information collected from China and Korea and the national review reports;
- 2) A synthesis and summary of the national data to provide a regional picture of pollutants in the Yellow Sea (illustrated through appropriate tables and graphics);
- 3) Based on the available information and the available data generated through the cooperative study cruises, a determination of the Yellow Sea's critical pollution spots and rank the spots;
- 4) Based on the national reports, recommendations for baseline contaminant levels for the region; and
- 5) Results for the development of the Transboundary Diagnostic Analysis.

#### **Consultant for Assessing Pollution Convention Implementation**

##### **Description of Required Services**

A consultant will be hired to carry out the main responsibility of preparing a report containing indicators and their use in assessing the region's implementation of international conventions related to pollution. The report should contain:

- 1) a list of existing pollution-related bilateral and multilateral conventions, noting the ones to which the Project participating countries (China, Republic of Korea) are signatories, and the relevance of each convention to the Yellow Sea;
- 2) specific achievements and/or milestones of the region in implementing the conventions;
- 3) implementation gaps;
- 4) recommendations on filling the implementation gaps;
- 5) natural and socio-economic indicators that may be applied to assess the region's implementation of conventions;
- 6) guidelines for using each indicator;
- 7) inputs for governance analysis and the Strategic Action Programme; and

- 8) recommendations for interventions that may be taken under each convention to address the root causes of pollution in the Yellow Sea.