

UNDP/GEF Yellow Sea Large Marine Ecosystem Project

United Nations Development Programme
Global Environment Facility

**Summary Report of
“YSLME-KORDI-NMEMC Workshop
on Capacity Building for Environmental Pollution
Monitoring and Assessment”**

National Marine Environmental Monitoring Center

State Oceanic Administration

Dalian, China, April 18, 2008

1. Background

The Democratic People's Republic of Korea (DPRK) is one of the three coastal countries in the Yellow Sea, and like other countries in the region, has a long history in utilizing and impacting coastal and marine resources. The coastal and marine areas of DPRK contain valuable environmental, economic and cultural assets for the country. At the same time, urban pollution, industrialization, port development and land use change are contributing to degradation of the Yellow Sea marine and coastal environment. Observed ecological problems in coastal and marine areas include degradation of water quality, due to pollutants from land-based sources, and loss of breeding sites for key aquatic species. Additionally, local reliance on a limited range of coastal and marine resources is exceeding the ecosystem's carrying capacity, resulting in degradation of water and fisheries resources and ultimately the area's habitats and biodiversity.

DRPK plays an important role in protecting Yellow sea environment similarly as the other countries in the Yellow Sea region, China and Republic of Korea (ROK). However, contrasting with the rest of the region, there still leave more to be developed and improved for the marine monitoring system of DPRK. In order to illustrate transboundary issues integratedly and protect Yellow Sea at similar levels with the rest of the region, there is a need to enhance their knowledge and capacity of marine environmental pollution monitoring and assessment.

Therefore, co-ordinated by the **UNDP/GEF Yellow Sea Project Management Office** (hereinafter referred to as "YSLME PMO"), YSLME PMO, **Korea Ocean Research and Development Institute** (hereinafter referred to as "KORDI"), and **National Marine Environmental Monitoring Center, China** (hereinafter referred to as "NMEMC") implemented the activity entitled, "**YSLME- KORDI-NMEMC Workshop on Capacity Building for Environmental Pollution Monitoring and Assessment**".

The overall goal of the workshop is to introduce current methodologies on marine environment monitoring and assessment, in order to increase the capacity of DPRK scientists and resource managers in this field. Through classroom lectures and hands-on laboratory and field training, DPRK participants will obtain knowledge and skills on monitoring and managing pollution and subsequently, water quality characteristics. The workshop will closely cooperate with existing regional projects and bilateral initiatives to provide: (i) scientific knowledge updating pollutant and water quality monitoring, sampling and analysis; (ii) technical support and technical guidelines in designing and implementing appropriate monitoring programs in defined water bodies; and (iii) assistance in improving existing, and if necessary, establishing appropriate infrastructure for long-term monitoring of water quality in the marine environment of the Yellow Sea.

Memorandum of Agreement among the YSLME PMO, KORDI and NMEMC,

concerning the above-mentioned responsibilities was signed on 11 December 2007 and should expire before April 30, 2008. It had a budget of USD 10,300 (Appendix 1, Annex 2).

Based on the “**MEMORANDUM OF AGREEMENT**” (see Appendix 1) signed by YSLME PMO, KORDI and NMEMC, the responsibilities of NMEMC in this activity were listed as follows:

- In cooperation with KORDI and YSLME PMO, devise the activity programme;
- Provide a venue for the activity, including accommodation, laboratory, and lecture facilities;
- Provide lecturers to teach at the workshop; and
- Provide a summary of the training activity.

A working group, including lead proponents and lecturers were established in NMEMC. The lead proponents were responsible for coordination and the lecturers were composed of scientists with experienced professional background. With the hard working of YSLME PMO, KORDI, NMEMC and DPRK, the workshop finished successfully and attained the devised objectives of the workshop.

2. Summary of the workshop

2.1 Preparatory stage

Based on the “**MEMORANDUM OF AGREEMENT**”, NMEMC established working group (Table 1) including leading proponents and lecturers. All the lecturers prepared the teaching materials in details. The leading proponents drafted the proposal of the workshop and discussed with other involved parties. The final working programme was listed in Appendix 1, Annex 1.

Table 1 Name List of working Group

No.	Name	Title	Specialty	Responsibility
1	HUO Chuanlin	Director of Project Management Department NMEMC, SOA	Environmental Chemistry	Leading proponent
2	Wang Juying	Director of Marine Environ. Chemistry Department NMEMC, SOA	Marine Chemistry	Leading proponent
3	YAO Zhiwei	Deputy Director of Quality Assurance Department NMEMC, SOA	Analytical Chemistry	Leading proponent
4	LIN Xinzhen	Head, International Cooperation Office NMEMC, SOA	English	Leading proponent
5	WEN Quan	Research Professor NMEMC, SOA	Environmental Ecology	Lecturer on monitoring designing
6	Hu Yingying	Research Associate NMEMC, SOA	Environmental Chemistry	Contact person and lecturer on auto-analysis of nutrients
7	Jiang Yuewen	Researcher NMEMC, SOA	Marine Chemistry	Lecturer on sampling
8	He Guangkai	Engineer NMEMC, SOA	Analytical Chemistry	Lecturer on QA/QC
9	Chen Shumei	Engineer NMEMC, SOA	Analytical Chemistry	Lecturer on nutrients analysis
10	Wang Lijun	Research Assistant NMEMC, SOA	Environmental Chemistry	Lecturer on metals analysis
11	Jin Hongtai	NMEMC, SOA	Hydrology	Translator
12	Xu Yilie	NMEMC, SOA	Analytical Chemistry	Translator

2.2 Implementation stage

“Capacity Building for Environmental Pollution Monitoring and Assessment” workshop was held at the National Marine Environmental Monitoring Center (NMEMC), in Dalian, China, from 17-21 March 2008. The detailed agenda was listed in Appendix 2.

The participants from YSLME PMO, KORDI, NMEMC, and State

Hydrometeorological Administration, DPRK (hereinafter referred to as “SHMA”) attended the opening ceremony. The participants were listed in Appendix 3. Mr. HUO Chuanlin, director of Project Management Department, NMEMC, chaired the ceremony. On the behalf of the NMEMC, Mr. WANG Yuyin, Director of NMEMC, welcomed to every participant from each side. Mr. JIANG Yihang on the behalf of YSLME PMO and Dr. HUH Sik on the behalf of KORDI addressed respectively.

Professor WEN Quan, the senior scientist of NMEMC, gave a lecture entitled “Review of marine environmental monitoring and assessment” which focused on marine environment monitoring framework building, monitoring project designing. With case studies of marine environmental monitoring and assessment in China and other countries, the lecture introduced the outline of marine environmental monitoring technologies, monitoring objectives, monitoring system and assessment methodology clearly.

The remaining lectures of the workshop attached importance to the analysis methodologies of heavy metals and nutrients in marine environment. Combined with the traditional analysis methods, the updating instruments for nutrients and metals analysis, including nutrients automatic analyzer and ICP-MS were introduced to the trainee.

During the workshop, the scientists from each side got a good chance to communicate. The DPRK scientists showed great interests in Chinese Sea Use Management System and Marine Environmental Monitoring Network. They had a general understanding through visiting related labs and communicating with NMEMC scientists.

2.3 Outcomes

This effective workshop actually increased the capacity of DPRK scientists in marine environment monitoring and assessment to a certain extent. The DPRK scientists obtained knowledge and skills on monitoring marine pollution, and also updated their knowledge on water quality monitoring, sampling and analysis.

Secondly, the workshop provided a good platform for each party to communicate each other. YSLME PMO, KORDI, NMEMC and SHMA improved understanding and friendship. And this will be the basis for the future cooperation.

In the meanwhile, we are looking forward to the further production of this workshop. We expect the DPRK scientists will design a National Marine Environmental Monitoring Strategy and upgrade national monitoring programme. We believe that all these will contribute to illustrate an entire picture of the Yellow Sea transboundary issues.

2.4 Gaps

This workshop was designed to be a somewhat chemical series lectures. Thus, it was too specialized for trainees with non-chemical background. In fact, most of the trainees had no chemical background. They needed more general introduction of marine environmental monitoring and assessment methodology.

Appendix 2 Workshop Agenda



YSLME-Workshop on Capacity Building for Environmental Pollution Monitoring and Assessment

17-21, March 2008,

Dalian, China

Programme of Activities

16 March, Sunday (Xin Ban Dao Hotel)

Arrival of Participants

18: 30 Welcome Reception hosted by YSLME and NMEMC

17 March, Monday, Morning (NMEMC Main Building, Meeting Room 306)

08: 15~08: 30 Registration of Participants

08: 30~09: 00 Opening Ceremony

Welcome address--

Mr. Wang Yuyin
Director of NMEMC

Address--

Mr. Yihang Jiang
Project Manager
UNDP/GEF Yellow Sea Project

Address--

Dr. Sik Huh
Head
International Cooperation Division
Korean Ocean Research
& Development institute

09: 00~10: 00 Review of Marine Environmental Monitoring and Assessment
-- Professor Quan Wen

10: 00~11: 30 Visit NMEMC's Labs

12: 00~14: 00 LUNCH BREAK

17 March, Monday, Afternoon (NMEMC, Environmental Chemistry Laboratory)

14: 00~14: 45 Introduction of collection, storage and transportation methods of
samples

14: 45~15: 30 Exhibition of samplers

- 15: 30~15: 45 COFFEE BREAK
- 15: 45~16: 30 Quality Assurance /Quality Control (QA/QC)
- 16: 30~18: 00 Introduction of sediment and organism tissues digestion

18 March, Tuesday (NMEMC, Environmental Chemistry Laboratory)

- 08: 30~09: 00 Digestion of sediment and organism tissues
- 09: 00~10: 00 Introduction of ICP-MS
- 10: 00~10: 30 COFFEE BREAK
- 10: 30~11: 30 Demonstration of ICP-MS
- 11: 30~12: 00 Digestion of sediment and organism tissues—*con't*
- 12: 00~14: 00 LUNCH BREAK
- 14: 00~16: 00 Operation of ICP-MS
- 16: 00~16: 30 COFFEE BREAK
- 16: 30~17: 30 Operation of ICP-MS—*con't*
- 17: 30~18: 00 Digestion of sediment and organism tissues—*con't*

19 March, Wednesday (NMEMC, Environmental Chemistry Laboratory)

- 08: 30~10: 00 Pre-treatment of sea water samples for metals analysis
- 10: 00~10: 30 COFFEE BREAK
- 10: 30~12: 00 Determination using AAS
- 12: 00~14: 00 LUNCH BREAK
- 14: 00~15: 00 Analytical Quality Control Procedures of nutrients analysis in laboratory
- 15: 00~16: 00 Manual analysis of phosphate in sea water
- 16: 00~16: 30 COFFEE BREAK
- 16: 30~18: 00 Manual analysis of silicate in sea water

20 March, Thursday (NMEMC, Environmental Chemistry Laboratory)

- 08: 30~10: 00 Manual analysis of nitrite in sea water
- 10: 00~10: 30 COFFEE BREAK
- 10: 30~12: 00 Manual analysis of ammonium in sea water
- 12: 00~14: 00 LUNCH BREAK
- 14: 00~15: 30 Manual analysis of nitrate using zinc- cadmium
- 15: 30~16: 00 COFFEE BREAK
- 16: 00~18: 00 Manual analysis of nitrate using cadmium-copper column

21 March, Friday (NMEMC, Environmental Chemistry Laboratory)

- 08: 30~10: 00 Introduction of automated analysis of nutrient in sea water
- 10: 00~10: 30 COFFEE BREAK
- 10: 30~12: 00 Demonstration of AA3 autoanalyzer
- 12: 00~14: 00 LUNCH BREAK
- 14: 00~16: 00 Operation of AA3 autoanalyzer
- 16: 00~16: 30 COFFEE BREAK
- 16: 30~18: 00 Discussion on analysis of metals and nutrients and QA/QC

Appendix 3 List of participants

Mr. Kang Kil Ryong

Head
Ocean-physical Laboratory, West Sea
Oceanographical Research Institute
SHMA, DPRK

Mr. Baek Yerng Il

Reseracher
Ocean-Chemical Laboratory West Sea
Oceanographical Research Institute
SHMA, DPRK

Mr. Song Yong Chol

Reseracher
Ocean-forecast Laboratory Central
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