

1. General Briefing

Background

The Special Monitoring and Coastal Environmental Assessment Regional Activity Centre (CEARAC) is one of the four Regional Activity Centres (RACs) to coordinate activities relevant to specific components of the Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Action Plan (NOWPAP). CEARAC was founded in 1999 and is hosted by the Northwest Pacific Region Environmental Cooperation Center (NPEC), which was established in 1998 in Toyama, Japan, under the auspices of the Ministry of the Environment.

Following the Resolution of the 7th Intergovernmental Meeting (IGM) (Vladivostok, Russia, March 2002), which allows NOWPAP to evolve toward a RAC-based rather than an Activity-based structure, the CEARAC Focal Points Meeting (FPM) was established in order to promote smooth and effective implementation of special monitoring and assessment of the marine and coastal environment. The First CEARAC FPM (Toyama, Japan, February 2003) defined the priorities and initial steps of CEARAC activities. Following the decision of the First CEARAC FPM, CEARAC has been working on monitoring and assessing Harmful Algal Blooms (HAB) under Working Group 3 (WG3), and developing new monitoring tools using Remote Sensing (RS) under Working Group 4 (WG4).

Activities of CEARAC in the workplan such as CEARAC Focal Points Meetings, WG3/WG4 meetings, specific activities for WG3/4, and other intersessional work are funded by the NOWPAP Trust Fund and supported by in-kind contribution by NPEC, originated from the Ministry of the Environment, Japan and Toyama Prefectural Government, and operation of CEARAC is financially supported by Toyama Prefectural Government, including the personnel salaries and other miscellaneous costs.

Staff

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2. Major activities of CEARAC carried out for the 2006-2007 biennium

2.1 NOWPAP CEARAC Focal Points Meetings

2.1.1 The Fourth NOWPAP CEARAC FPM

The 4th CEARAC FPM was held on 8-9 March 2006 in Toyama, Japan. The implementation of CEARAC activities in 2005 and the expenditure for the 2004-2005 biennium were reported as well as those of WG3 and WG4. The meeting acknowledged all of these reports.

The CEARAC workplan and budget for the 2006-2007 biennium which had been adopted by the 10th NOWPAP IGM (Toyama, Japan, 24-26 November 2005) were reported. Following these reports, detailed activities of WG3 and WG4 were explained. Main activity of WG3 was to make a booklet on countermeasures to terminate red tides; main activities of WG4 were to prepare Eutrophication Monitoring Guidelines by RS for the NOWPAP Region and to conduct a RS training program on data analysis. Based on these reports, the workplan and budget of CEARAC including those of WG3 and WG4 were adopted. Workplan for MALITA assigned to CEARAC was also explained and adopted.

The revised TORs for the CEARAC FPM, WG3 and WG4 were explained. The revised TOR for CEARAC FPM was agreed to be submitted to the 11th NOWPAP IGM. Guidelines on establishing and disbanding of Working Groups were asked to be prepared for the 5th CEARAC FPM. The revised TORs for the WG3 and WG4 were adopted with minor changes.

There was a request that regardless of budget, long-term objectives of CEARAC would be documented in a workplan, and it was decided to discuss this issue in WG meetings and the 5th CEARAC FPM.

2.1.2 The Fifth NOWPAP CEARAC FPM

The 5th CEARAC FPM was held on 18-19 September 2007 in Toyama, Japan, The implementation and expenditure of CEARAC activities for the 2006-2007 biennium were reported. As for undecided Intersessional Work, the Secretariat proposed to prepare the documents for the 6th FPM. The meeting approved this proposal and agreed on the entire report.

After the draft workplan including 5 proposals of new activities and budget of CEARAC activities for the 2008-2009 biennium were explained, the meeting requested some changes during the discussion and agreed on submission of them to the 12th NOWPAP IGM.

The draft mid- and long-term strategies of CEARAC and goals of NOWPAP WG3 and WG4 were presented based on the request at the 4th CEARAC FPM, and the meeting agreed on the documents in general. The draft guidelines on establishment and disbanding of Working Groups of CEARAC, which had also been requested for its preparation in the 4th CEARAC FPM, were presented. After discussion, the meeting agreed on the draft guidelines. Discussion on the operation of the present WG3 and WG4 will be scheduled for the next biennium.

2.2 NOWPAP WG3 and WG4 Meetings

The 3rd WG3 and WG4 Meetings were jointly held on 6-7 July 2006 in Toyama Japan. Activities and budget for both WGs for the 2004-2005 biennium were reviewed and the details of new activities for the next biennium were discussed.

The achievements of the meeting related to WG3 were a change of the title of the booklet to “Countermeasures against HABs” and addition of a new chapter about toxic producing algal blooms. Also, publishing *Cochlodinium* pamphlets in four languages (Chinese, Japanese, Korean and Russian) was agreed.

Related to WG4, publishing Eutrophication Monitoring Guidelines by RS for the NOWPAP Region through refining “NPEC Eutrophication Monitoring Guideline by RS” by the NOWPAP Members in 2006 and conducting a RS training program on data analysis in 2007 were agreed.

Besides the issues above, the mid- and long-term strategies of CEARAC and mid- and long-term objectives of WG3 and WG4 were discussed, and the meeting confirmed to continue discussing these issues.

2.3 Implementation of CEARAC Projects

2.3.1 Working Group 3

1) Booklet of “Countermeasures against HABs”

According to the workplan approved at the 4th CEARAC FPM (UNEP/NOWPAP/CEARAC/FPM 4/13) and the discussion at the 3rd NOWPAP Working Group 3 Meeting, CEARAC took several steps to develop a booklet of “Countermeasures against HABs.” At first, experts of the member states collected and compiled information on countermeasures against HABs respectively and submitted it to CEARAC. Next, a Japanese consultant harmonized the information in the submitted reports and made a draft booklet. Then, the draft was refined by review and comments from WG3 experts.

The booklet was published in print after approval by CEARAC FPs and WG3 experts and circulated to WG3 experts and HAB related agencies in December 2008. In addition to that, CEARAC made a CD version of the booklet with financial support from NOWPAP RCU for wider dissemination, and circulated the CDs to other regional seas programmes and other international projects.

2) Activity on *Cochlodinium*

In the Third Meeting of NOWPAP Working Group 3 (HAB), the Secretariat proposed to make the *Cochlodinium* pamphlets in each language of the NOWPAP Member States, targeting general public including fishermen and students as their users. This proposal was approved and translation of the pamphlet from English to each language was done by WG3 experts voluntarily.

These pamphlets were published and circulated through WG3 experts to related

persons and agencies in March 2007.

2.3.2 Working Group 4

1) Eutrophication Monitoring Guidelines by RS for the NOWPAP Region

In accordance with the agreement at the 3rd NOWPAP WG4 Meeting, “NPEC Eutrophication Monitoring Guideline by Remote Sensing” was reviewed and refined by the experts of the NOWPAP member states. With the comments and suggestions from the experts, CEARAC revised this NPEC guideline with a national consultant and compiled “Draft Eutrophication Monitoring Guidelines by Remote Sensing for the NOWPAP Region”. This draft was reviewed and refined by experts of WG3 and WG4 of each NOWPAP Member State.

These Guidelines were published and circulated through WG4 experts to related persons and agencies in December 2007.

2) RS Training

CEARAC organized the first NEAR-GOOS - NOWPAP Joint Training Course on Remote Sensing Data Analysis at Nagasaki University, Nagasaki, Japan from 3-7 September 2007 jointly with IOC/WESTPAC.

The course consisted of lectures by specialists and hands-on practical sessions on the analysis of satellite data. The course provided an overview of remote sensing with special emphasis on applications of ocean color relevant to the Northwest Pacific region. The course was designed for postgraduate students, professional researchers and local government officers working in the areas of marine sciences and coastal-zone management in the Northwest Pacific region. Participants in the training program were selected by CEARAC, IOC/WESTPAC and experts of WG4 based on the experiences of applicants.

The materials used at the Training are uploaded onto CEARAC website.

3) Development of RS information network

Several areas in the NOWPAP region were added to marine calendar of Marine Environmental Watch Project website for wide use of the system.

It has also been registered as one of the databases of NEAR-GOOS, which is one of the regional GOOSs (Global Ocean Observing System) sponsored by Intergovernmental Oceanographic Commission of UNESCO (IOC).

2.3.3 CEARAC Activities on Marine Litter

Based on the workplan for MALITA approved in the 10th NOWPAP IGM, activities related to marine litter issues and implementation of the MALITA project by CEARAC were discussed in the 4th CEARAC FPM. Workplan of CEARAC for MALITA was approved by the meeting. Consulting with NOWPAP RCU, CEARAC prioritized related activities and has conducted them.

1) Monitoring Guidelines on the Beaches and Shorelines

CEARAC developed “Guidelines for Monitoring Marine Litter on the Beaches and Shorelines of the Northwest Pacific Region” in March 2007, which was designed as a tool for the NOWPAP Member States, including local governments, volunteers and NGOs, to monitor marine litter on their beaches and shorelines.

These guidelines were circulated to related persons and international agencies at an occasion such as a workshop and/or International Coastal Cleanup Campaign.

2) Tourism Guidelines

Taking into consideration of the fact that tourists are one of the sources of marine litter, CEARAC developed tourism guidelines to reduce waste generation targeting tourist themselves and tour designers.

After approval by MALITA FPs and NOWPAP RCU, these guidelines were uploaded onto CEARAC website.

3) The 2nd NOWPAP Workshop on Marine Litter

CEARAC organized the 2nd NOWPAP Workshop on Marine Litter on 28-29 March 2007 with in-kind support from the Ministry of the Environment, Japan. This workshop was held to explore effective countermeasures against marine litter and to contribute towards the establishment of the Regional Action Plan on marine litter management in the NOWPAP region.

The workshop report is uploaded onto CEARAC website (<http://www.cearac-project.org/2ndMLWS/WSweb.htm>)

4) Pamphlet for reduction of marine litter

CEARAC made a pamphlet which promotes reduction of marine litter in August 2007. This pamphlet targets general public including the youth, and aims to raise public awareness and to change their attitudes toward their daily lives.

This pamphlet was circulated to related persons and international agencies at occasions such as a workshop and/or International Coastal Cleanup Campaign.

5) Booklet on recycling of plastic marine litter

CEARAC made a booklet on recycling of plastic marine litter in 2007. This booklet introduces technologies of plastic recycling implemented in Japan, and it is expected to disseminate useful recycling technologies among the NOWPAP Member States.

This booklet is uploaded onto CEARAC website.

6) Monitoring survey to raise public awareness

CEARAC and NPEC conducted a monitoring survey during the 5th CEARAC FPM (19 September 2007). In order to raise public awareness and promote an educational campaign on marine litter issues, CEARAC FPs and local school students jointly participated in this

annual monitoring survey carried out by NPEC.

7) Summary of the results of the marine litter monitoring on the beaches and shorelines of the Northwest Pacific region

Based on a summary of the results of the marine litter monitoring on the beaches and shorelines of the Northwest Pacific region which was developed by Northwest Pacific Region Environmental Cooperation Center (NPEC), a hosting organization of CEARAC, CEARAC made an English version to share the information not only among NOWPAP member states but also among other Regional Seas and organizations.

This summary is uploaded onto CEARAC website.

2.4 Intersessional Activities

2.4.1 Website on oil spill monitoring by remote sensing

Website on oil spill monitoring by remote sensing was updated by the end of 2006 based on the proposal from Pacific Oceanological Institute of the Far Eastern Branch of Russian Academy of Sciences. More synthetic aperture radar images of oil spills will be added to the website.

2.4.2 Preparing documents for 6th FPM

With the approval of the 5th CEARAC FPM, CEARAC made a contract with a Japanese consultant to prepare a workplan of HAB case studies and a workplan for the development of procedures for assessment of eutrophication status including evaluation of land based sources of nutrients, which are part of new activities to be implemented for the 2008-2009 biennium.

2.5 Regional Cooperation with UNEP, NOWPAP RACs and other organizations

2.5.1 Participation in NOWPAP IGM, Workshop and other RACs FP Meetings

1) 1st NOWPAP Workshop on Marine Litter and 1st NOWPAP Regional Meeting on Marine Litter

CEARAC staff participated in the 1st NOWPAP Workshop on Marine Litter (Incheon, Korea, 8-9 June 2006) and the 1st NOWPAP Regional Meeting on Marine Litter (Incheon, Korea, 10 June 2006). At the meeting, CEARAC staff introduced current progress of collection of existing data/information, fundamental concepts of monitoring guidelines and a strategy on integrated management.

2) PICES 15th Annual Meetings

CEARAC staff participated in PICES 15th Annual Meeting (Yokohama, Japan, 13-22 October 2006) and introduced the activities of WG3 and CCG for sharing information not only in the NOWPAP Region but also in the North Pacific region.

3) 4th Korean-Japan Workshop on Ocean Color Remote Sensing

CEARAC staff participated in the 4th Korean-Japan Workshop on Ocean Color Remote Sensing (Cheju, Korea, 19-20 December 2006) and discussed implementation plan of the 1st RS Training Course on data analysis with remote sensing experts from IOC/WESTPAC and YSLME.

4) 1st COBSEA Marine Litter Workshop

CEARAC staff participated in the First COBSEA Marine Litter Workshop (Jakarta, Indonesia, 8-9 May 2007) and made a presentation. He introduced Monitoring survey carried out by Northwest Pacific Region Environmental Cooperation Center (NPEC), a hosting organization of CEARAC, NOWPAP Monitoring Guidelines published in March 2007, and the future prospects for solution of marine litter issues.

5) NOWPAP International Coastal Cleanup (ICC)

CEARAC staff participated in the NOWPAP ICC held in Sakata, Japan (29-30 September 2006) and in Rizhao, China (27-28 June 2007). In Rizhao ICC, CEARAC staff introduced the results of monitoring survey carried by NPEC and NOWPAP Monitoring Guidelines. CEARAC staff also participated in NOWPAP ICC in Busan, Korea (29-30 September 2007).

6) Advances on Satellite Oceanography: Understanding and Monitoring of Asian Marginal Seas (50-th Sputnik Anniversary)

CEARAC staff participated in the conference, "Advances on Satellite Oceanography: Understanding and Monitoring of Asian Marginal Seas (50-th Sputnik Anniversary)" held in Vladivostok, Russia (3-6 October 2007) and introduced the activities of NOWPAP WG4.

7) RACs Focal Points Meetings

CEARAC has kept a close contact with the other three NOWPAP RACs in order to promote protection and management of the coastal and marine environment in the NOWPAP region. The Director of CEARAC and the staff attended Focal Points Meetings of the other RACs.

2.5.2 Cooperation with other RACs and Organizations

1) The 4th International Workshop on Remote Sensing of the Marine Environment in the Northwest Pacific Region

The 4th International Workshop on Remote Sensing of the Marine Environment in the Northwest Pacific Region was co-organized by NPEC and Pukyong National University on 1-2 August 2006 in Busan, Korea, aiming at providing an opportunity for experts to present their latest research results and to exchange information on ocean remote sensing applications.

2) The State of Marine Environment Report in the NOWPAP Region

CEARAC contributed articles such as Harmful Algal Blooms, marine litter and persistent toxic substances in some chapters in the State of Marine Environment Report in the NOWPAP Region under the MoU with POMRAC in 2006-2007.

3) Assistance to POMRAC for organizing ICARM

CEARAC assisted POMRAC to smoothly organize the First Meeting of ICARM Working Group (Toyama, Japan, 10-11 July, 2007).

2.6 Publication of CEARAC Newsletter

The 3rd issue of CEARAC Newsletter was published in November 2006, which introduces implementation status of CEARAC activities and future workplan and budget of CEARAC for the 2006-2007 biennium. NOWPAP RCU and some experts of Working Group kindly contributed articles to this newsletter.

The 4th issue was published at the end of 2007. Besides contributed articles by NOWPAP RCU, a WG Expert and some FPs, CEARAC introduced its workplan and budget for the 2008-2009 biennium in the newsletter.

CEARAC Newsletters are distributed free of charge to people who are interested in CEARAC activities and special monitoring and coastal environmental assessment.

3 The use of the 2006-2007 budget

The 10th NOWPWP IGM (Toyama, Japan, November 2005,) approved the allocation of the budget of CEARAC for the 2006-2007 biennium. Following the approval at the NOWPAP IGM, the 4th CEARAC FPM (Toyama, Japan, March 2006,) approved the workplan and budget of CEARAC for the 2006-2007 biennium (UNEP/NOWPAP/CEARAC 4/12).

Table 1 shows planned budget and paid expenditure of CEARAC for the 2006-2007 biennium. Each expenditure was reported to UNEP through NOWPAP RCU in accordance with the Project Document that was signed between UNEP and NPEC.

Table 1 Workplan and budget of CEARAC for the 2006-2007 biennium
 (as of 31 December, 2007)

Activity	Date& Venue	Planned Budget US\$	Expenditure US\$
Organization of CEARAC 4 th Focal Points Meeting	March 2006		
-organizing the meeting		21,000	17,560
-publishing the meeting report		2,000	1,908

Organization of CEARAC 5 th Focal Points Meeting -organizing the meeting -publishing the meeting report	September 2007	21,000 2,000	20,650 2,000
Organization of 3 rd Meetings of WG3 (HAB) and WG4 (RS) -organizing the meeting -publishing the meeting report	July 2006	26,000 4,000	27,679 4,000
WG3(HAB) -Making a Booklet of "Countermeasures against HABs" -Publication of <i>Cochlodinium</i> pamphlet in four languages	Throughout 2006 and 2007	22,000 4,000	22,000 4,245
WG4(RS) -Eutrophication Monitoring guideline by RS - RS training	Throughout 2006 and 2007	15,000 15,000	14,800 16,300
Intersessional work -Website on Oil spill monitoring by remote sensing -Preparing documents for 6th FPM	Throughout 2006 and 2007	3,000 3,000	3,000 3,000
Cooperation, coordination of CEARAC activities -2006 -2007	Throughout 2006 and 2007	4,300 3,700	4,400 4,550
Publication of CEARAC Newsletter -Third issues -Fourth issue	Autumn 2006 and 2007	2,000 2,000	1,908 2,000
Sub-total		150,000	150,000
MALITA -Monitoring Guideline -Tourism Guideline -Pamphlet for the reduction of marine litter -Booklet on recycling of plastic marine litter -Summary of the result of marine litter monitoring	Throughout 2006 and 2007	} 19,500	3,594 6,000 2,906 4,000 3,000
Sub-total		19,500	19,500
TOTAL		169,500	169,500