

## **Annex XII**

### **Mid- and long-term strategies of CEARAC and goals of NOWPAP Working Group 3 and Working Group 4**

#### **1. Background**

The 10<sup>th</sup> Intergovernmental Meeting (IGM) (Toyama, Japan, 24-26 November 2005) of NOWPAP approved the new direction for the NOWPAP RACs including the new activities of CEARAC such as Marine Litter and Land Based Sources of Pollution (LBS). Following the 10<sup>th</sup> IGM, workplan and budget of CEARAC for the 2006 - 2007 biennium including the above new activities were submitted and approved at the 4<sup>th</sup> CEARAC Focal Point Meeting (FPM) (Toyama, Japan, 8-9 March 2006). The 4<sup>th</sup> CEARAC FPM made a suggestion that long-term objectives be documented in workplan of CEARAC in the future.

In response to the suggestion made at the 4<sup>th</sup> CEARAC FPM, CEARAC has prepared mid- and long-term strategies of CEARAC and goals of NOWPAP WG3 and WG4 for discussion at the 3<sup>rd</sup> meeting of NOWPAP WG3 / WG4 (Toyama, Japan, 6-7 July 2006) which were jointly organized. An unofficial meeting (Busan, Korea 3 August) was also organized right after the 4<sup>th</sup> International Workshop on Remote Sensing of Marine Environment in the Northwest Pacific Region in order to further discuss mid- and long-term strategies of CEARAC and goals of NOWPAP WG3 and WG4 with experts centering on WG3 and WG4 members gathered to this meeting.

Considering the result of these discussions and the responsibility of CEARAC which was initially given at its inception, the CEARAC Secretariat prepared mid- and long-term strategies of CEARAC and goals of NOWPAP Working Group 3 (WG3) and Working Group 4 (WG4) as guidance to conduct future activities.

#### **2. Mid- and long- term strategies of CEARAC**

CEARAC was established on 17 July 2002 under the Memorandum of Understanding (MOU) between UNEP and the Northwest Pacific Region environmental Cooperation Center (NPEC) in Toyama, Japan.

The MOU defines the responsibility of CEARAC as coordination of regional activities for assessment of the state of the marine, coastal and associated freshwater environments, including assessment of pollutant input for the purpose of comparison with the monitoring results. CEARAC is also expected to develop tools for environmental assessment including special techniques for monitoring and assessment, which can be used and shared among the

#### NOWPAP Member States.

In accordance with the given responsibility and in consideration of accommodating a new direction and activities, CEARAC proposes the following strategies for implementation of its future activities.

##### 2.1 Guiding principles of the strategy

The strategy will use the following principles as a guide:

- a To focus on assessment of the state of the marine, coastal and associated freshwater environments
- b To make the best use of accumulated experiences and achievements gained from the past activities
- c To make the best use of ongoing CEARAC activities
- d To be able to accommodate new activities
- e To lead to a positive outcome in the greatest synergy and a non-duplicating way, through cooperating with other NOWPAP RACs and relevant national /regional/international institutions/organizations

##### 2.2 Mid-term strategy of CEARAC

As main activities of CEARAC scheduled for the 2006-2007 biennium, Booklet of countermeasures against HABs, Eutrophication Monitoring Guidelines by Remote Sensing will be made, and Remote Sensing training course on data analysis will be implemented. The outcomes of these activities will lead to promote the coastal environment assessment with HAB (red tide and harmful algal blooms) as an indicator and to disseminate the usefulness of remote sensing data for coastal zone eutrophication monitoring. Marine litter related activity (MALITA) will also be implemented under the initiative of NOWPAP RCU. As part of its MALITA activities, CEARAC is responsible for developing guidelines and booklets. "Guidelines for Monitoring Marine Litter on the Beaches and Shorelines of the Northwest Pacific Region" was made in 2006 and some others will be developed in 2007. CEARAC also organized the 2nd NOWPAP Workshop on Marine Litter.

Through the implementation of the above activities for the 2006–2007 biennium, it is anticipated that CEARAC will gain extensive knowledge and know-how on establishing a cooperative monitoring and assessment program of the coastal environment in cooperation with the NOWPAP Member States, which will be a fundamental factor to develop common tools for environment assessment. Therefore, bearing in mind the given responsibility of CEARAC at its inception and considering Marine Litter and Land Based

Source for pollution as one of indicators for the state of the marine, coastal and associated freshwater environments, CEARAC will take a mid-term strategy for the 2008-2009 biennium.

Mid-term strategy of CEARAC will be to develop tools for environmental assessment with enhancing ongoing activities and initiate a new activity on eutrophication, which is to develop the common procedure for assessment of eutrophication status including impact of LBS of nutrients. The developed tools will be disseminated through CEARAC website and through implementation of training programs which will contribute to capacity buildings of the NOWPAP Member States

### 2.3 Long-term strategy of CEARAC

Upon the development of the tools for environmental assessment, CEARAC will take a long-term strategy to establish environmental assessment methods to be shared among the NOWPAP Member States. The environmental assessment methods that CEARAC aims to establish can be achieved by combination of developed tools by CEARAC and other national/regional/international programmes, expecting that it will contribute to conservation of the marine environment in the NOWPAP region.

To implement the above strategies in the greatest synergy, CEARAC will form strategic partnerships with other relevant environmental assessment programs from inside and outside of the NOWPAP region to incorporate latest findings to our programme and to maintain the quality of the environmental assessment methods.

As a consequence, outcomes of CEARAC activities will contribute to progress of global environment assessment programs.

## 3. Objectives and goals of NOWPAP WG3

Based on mid- and long-term strategies of CEARAC, WG3 will coordinate development of assessment tools for costal environment with HAB (red tide and harmful algal blooms) as an indicator.

To achieve this objective, it is important to understand interaction between HAB occurrence and oceanic and meteorological condition, and the understanding should lead preventive measures.

As a specific workplan, WG3 will conduct case studies to collect information on HAB occurrence and oceanic and meteorological condition under HAB events. These case studies

are to be initiated in some selected hot regions in the NOWPAP region, where HAB monitoring is already implemented because of its high frequency of red tide occurrence or strong concern of red tide occurrence in the near future. The collected information will be published as reports on HAB case studies, and will be posted on HAB Integrated Website that is developed using existing WG3 activities such as HAB Reference Database and *Cochlodinium* Homepage and new activities and topics. These activities are expected to promote understanding, sharing, preventing and mitigating HAB events

Information of the HAB Integrated Website will be updated as necessary with taking into account of latest scientific findings and developments in other regional seas. In 2011, 5 years after the 1st issue of the Integrated Report on HAB for the NOWPAP region, CEARAC will review and update the report based on information updated in the HAB Integrated Website. NOWPAP HAB Integrated Website will collaborate with existing databases (such as in PICES, EASTHAB, Asian GEOHAB and so on), and information provided in the website will be a part of worldwide HAB information network.

WG3 will aim to establish a system for providing this necessary information to the NOWPAP Member States including local agencies and researchers and lay out the framework for effective and laborsaving information update under cooperation with other regional seas and international organizations.

#### **4. Objectives and goals of NOWPAP WG4**

Based on mid- and long-term strategies of CEARAC, WG4 will coordinate the development of environment assessment tools utilizing remote sensing techniques, with focusing on the assessment of eutrophication, realizing that eutrophication is a basic indicators for water quality of the region.

To achieve this objective, WG4 will coordinate requirements of remote sensing for the NOWPAP Member States for establishing such environmental assessment tools by taking into account of technological development of the members and other regional seas.

As a specific workplan, NOWPAP WG4 will develop educational materials for utilization of remote sensing data for marine environment conservation for the 2008-2009 biennium. Following the development of the educational materials, WG4 will cooperate organization of the second NOWPAP training course on remote sensing data analysis in 2009. This training will facilitate the usefulness of the developed educational materials, so to contribute to establishment of environmental assessment tools that can be shared among the NOWPAP Member States.

In 2011, 5 years after the 1st issue of the Integrated Report on Ocean Remote Sensing for the NOWPAP Region, CEARAC will review and update the report based on outcomes of

the activities implemented after publication of the 1st issue.

WG4 will aim to develop remote sensing techniques to serve environmental monitoring and assessment in the Northwest Pacific region under synergetic activities with other innovative technologies.

### 5. Joint activity of NOWPAP WG3 and WG4

Although there are many activities planned in WG3 and WG4 as previously mentioned, CEARAC assumes that each activity will lead to establishment of assessment method of coastal environment. To accelerate these activities, CEARAC will launch a new joint activity of WG3 and WG4 to develop the common procedure utilizing remote sensing data for assessment of eutrophication status including evaluation of LBS of nutrients.

### 6. Implementation structure of NOWPAP WG3 and WG4

CEARAC is aware that each activity should be implemented under collaboration between WG3 and WG4 (Table 1), while restructuring of implementing structure of WG3 and WG4 may be required considering limited budget of NOWPAP.

Table 1. Workplan of WG3 and WG4

	2006-2007	2008-2009	2010-
WG3	<ul style="list-style-type: none"> <li>• Publication of booklet of countermeasures against HABs</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of HAB Case Studies</li> <li>• Establishment of HAB Integrated Website</li> </ul>	<ul style="list-style-type: none"> <li>• Operation of HAB Integrated Website</li> <li>• Revision of the Integrated Report</li> </ul>
WG4	<ul style="list-style-type: none"> <li>• Publication of eutrophication monitoring guidelines by remote sensing</li> <li>• 1<sup>st</sup> training course on remote sensing data analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Educational materials for utilization of remote sensing data for coastal environment</li> <li>• 2<sup>nd</sup> training course on remote sensing data analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment and operation of integrated RS database</li> <li>• Revision of the Integrated Report</li> </ul>
Joint activity		<ul style="list-style-type: none"> <li>• Procedures for assessment of eutrophication status</li> </ul>	<ul style="list-style-type: none"> <li>• Development of environment assessment method for NOWPAP</li> </ul>

Therefore, though WG3 and WG4 will remain the same structures for the 2008-2009 biennium, it is necessary to initiate a discussion on establishing and disbanding of these working groups based on guidelines on establishing and disbanding working groups (CEARAC), which is presented at the 5<sup>th</sup> CEARAC FPM. The new implementation structure might be applied from 2010 depending on the result of discussion at the CEARAC FPM.

## 7. Alliance with relevant organizations

In order to further develop assessment method for the coastal environment, CEARAC will try to form strategic alliances with relevant organizations and to share information with them. Fig 2 shows a conceptual diagram of a strategic alliance with relevant organizations for WG3 and WG4 in mid- and long-terms.

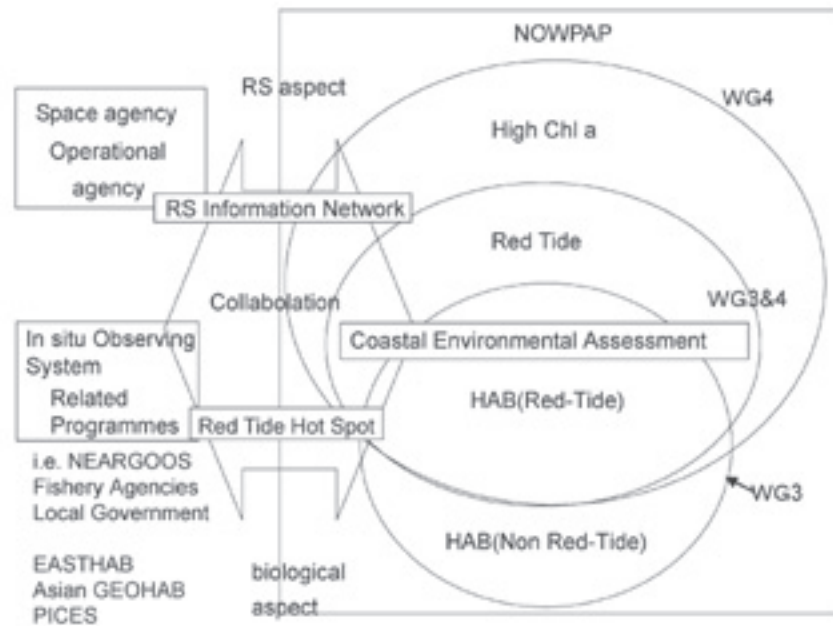


Figure 2 Conceptual diagram of strategic alliance with relevant organization for WG3/WG4 in mid and long term

## 8. Expected role of CEARAC in NOWPAP

Activities of CEARAC will be implemented based on the principle that the scope of responsibility is given as coordination of regional activities for assessment of the state of the marine, coastal and associated freshwater environments. Along with the mid- and long-term strategies, CEARAC will pursue the goal of developing environment assessment tools for the NOWPAP Member States. Through developing these tools, CEARAC will contribute to provide essential information for proper management of the marine and coastal environment, especially to POMRAC that initiated activities related to Integrated Coastal and River Basin Management.

As a whole, all CEARAC activities will contribute to achieve the overall goal of the Northwest Pacific Action Plan, "the wise use, development and management of the marine and coastal environment so as to obtain the utmost long-term benefits for the human populations of the region, while securing the region's sustainability for future generations"