



CAPaBLE TRAINING PROGRAM

Guidelines for:

**Capacity Building of Biodiversity Research in Coastal
Zones of the Asia Pacific Region:
Phycology Taxonomy Analysis Training
Using Genetic Marker**

From July 3 to July 13, 2010

**By International EMECS Center
Sponsored by APN**

Chief Project Leader:

Prof. Hiroshi Kawai (Kobe University)

Collaborative Project Leaders:

Prof. Takeo Horiguchi (Hokkaido University)

Prof. Kazuhiro Kogame (Hokkaido University)

Prof. Mitsunobu Kamiya (Fukui Prefectural University)

1. Concept

1. Aim of the project

Taxonomy is regarded as one of the bases of Biodiversity, and is required to establish certain objective standards to identify any alien species, together with conventional morphological approaches. In this sense, identification methodology using genetic markers is recognized these days to reinforce the shortcomings of traditional approaches.

This project aims to contribute to the United Nations Convention of Biodiversity (UNCBD) through,

- Facilitating taxonomical information exchange among young researchers from South East Asian countries who master this capacity building course.
- Promoting networks with groups engaged in traditional morphological taxonomy.
- Seeking involvement with the network of PICES, for example, to foster information exchange.

In order to improve the identification precision, it is important to use not only conventional morphology but also the genetic marker approach. As such, applying both methods can effectively develop taxonomy synergistically.

2. Links to Sustainable Development

In order to conserve Marine Biodiversity, preventing the spread of alien species is an effective method and, for that purpose, this project plays a significant role in the field of monitoring and rapid assessment. Through capacity building of young researchers among APPA countries in the field of taxonomy identification using genetic marker is estimated to cultivate the monitoring network background for the rapid assessment of alien species from other regions.

For example, let's imagine that once alien species has arrived and started reproduction, resulting in the virtually impossible task of elimination because they rapidly increase in number. Therefore, a rapid assessment to identify and monitor the alien species is crucial. In this sense, we hope this project will be useful for researchers to conduct rapid assessments with a newly developed skill of taxonomy identification with genetic marker.

II. Outline

1. Title of the Training Course:

Capacity Building of Biodiversity Research in Coastal Zones of the Asia Pacific Region: Phycology Taxonomy Analysis Training Using Genetic Marker

2. Training Period (Year 1): July 3 to July 13 2010

3. Target Regions or Countries:

Cambodia, China, Indonesia, Malaysia, Philippines, Thailand and Vietnam

4. Expected Results:

(1) The development of trainee skills

Trainees will:

- Learn the basic skill for developing their systematic work including molecular phylogenetic techniques through discussing mutual problems in a workshop.
- Develop a Network in the Asia-Pacific region to aid the exchange of biodiversity information among countries.

Through these procedures, each country will be able to evaluate seaweed biodiversity using molecular techniques, and also be able to detect the introduced taxa in an early stage.

(2) Expected outputs of the training program will include:

- i) Establishing an information network with APPA/PICES among the trainees of young researchers.
- ii) Facilitating the exchange of alien species taxonomy information among trainees (which is a very important factor for biodiversity conservation to be able collect and monitor this information).
- iii) Transferring knowledge as trainees will become future instructors to convey and pass their skills to junior researchers when they return to their respective countries. In this project, such a good chain reaction is desirable so as to disseminate and develop suitable opportunities to share the skills and information among young researchers.
- iv) Applying the basic identification skill of genetic marker in other relevant fields such as in the analysis of bacteria, viruses and other organisms; and broadening the range of uses as a result.

* Trainees may be requested to submit some report after returning their countries.

5. Main Objectives:

Introductions of alien macro algal species associated with globalization of marine transportations, fishery activities, and global climate change, have become more frequent and are a considerable threat to local coastal ecosystems. However, the traditional taxonomy of marine macroalgae, morphological analysis, is not expected to work properly, because there are very few trained macro algal taxonomists in most countries of the Asia-Pacific region. (Requires good knowledge of algal taxonomy with long period of experience for precise identification.)

On the other hand, it has been recognized that using DNA sequence data of slowly evolving gene regions can help identify the preliminary classification of samples in higher taxonomic ranks (e.g. rbcL sequences for order and family level), and that of higher evolving genes (e.g. mitochondrial genes and their non-coding regions) and provide information for generic and species level identification.

This project is, through the above DNA analysis, targeted to cover the knowledge and experience of macro algal taxonomy to young researchers for the precise identification skill to distinguish native and alien seaweed species in the Asia-Pacific region.

6. Eligible / Target Trainees :

Young researchers (primarily postdoctoral fellows and young scholars working in university/research institutions) who could acquire the skills and produce a "chain reaction" through the transfer of their skills to junior researchers, thus creating a wide basis for mutual and interactive networking in Southeast Asian countries of the Asia-Pacific region.

7. Total Number of Participants :

6 participants in year 2010

8 . Language to be used in this project :

English

9. Main Activities of the Project:

- to learn phycology taxonomy analysis techniques using genetic marker method from the basic level to a practical level through laboratory practice.
- identify trainees from Southeast Asia developing countries through the APPA (Asia Pacific Phycology Association) Network (one or two trainee(s) from one country).
- conduct a training program consisting of 3 parts: Comprehensive lecture (one day), individual training practice (six days) and summary workshop (one day)

- i) Comprehensive lecture (one day):
Trainees are informed of the aim and purpose of the program through orientation and explanation as to the future influence and development of this program.
- ii) Individual training practice (six days):
Six days of training for mastering basic skills in identification using genetic marker from its basic to application, with one-on-one hands-on training in three institutions: Kobe University, Hokkaido University and Fukui Prefecture University.
* Due to the capacity of the laboratory, trainees are divided into three groups for their individual technical training: Kobe, Hokkaido and Fukui. The destination will be informed to trainees.
- iii) Summary workshop (one day)
To hold a summary workshop bringing together all trainees to exchange results and comments, and to hold a seminar with a guest lecturer invited from APPA, who will wish their network steadily development in the future.

III. Guidelines for Application

1. Expectations for Participating Organizations:

- (1) Applicant organizations are expected to nominate the most qualified candidates for the training program as described above.
- (2) Applicant organizations are expected to make use of the knowledge acquired by nominees for the said purpose.

2. Nominee Qualifications:

Applicant Organizations are expected to select nominees who meet the following qualifications:

(1) Essential Qualifications

- 1) Officially nominated by his/her own government/institution
- 2) Current Duties: Be an officer, technical officer, engineer, researcher, educator in an administrative body who presently requires information and/or experience on environmental management of enclosed coastal seas
- 3) Experience in relevant field: Have more than 3 years experience in the field of environmental management of enclosed coastal seas

- 4) Educational Background: Hold a minimum of a Doctor's degree (postdoctoral fellows/young scholars working in university/research institutions.)
- 5) Language: Have competent command of spoken and written English.
- 6) Age: Be between the ages of twenty-six (26) and forty (40) years of age.
- 7) Health: Be in good health, both physically and mentally, to participate in the Program in Japan.
* As training may pose risks to pregnant women, pregnancy is regarded as a disqualifying condition for participation in this training course
- 8) Must not be serving in any form of military service.
- 9) Organizational support: Those who can get assistance from their respective organizations, not only for the training period but also after the training in terms of being able to continuously convey and implement the skills imparted during the program to their juniors.

3. Required Documents for Application

- Official Application
- Part A: Information on the Applicant Organization
- Part B: Information about the Nominee
- Medical History and Examination

4. Procedure for Application and Selection:

(1) Deadline of the Application Documents:

May 31, 2010 Japan Standard Time (JST)

(2) Selection procedure:

After receiving the application document(s) at the EMECS Center, screening and selection will proceed under the supervision of the Chief Project Leader.

(3) Notice of Acceptance

Notification of results shall be informed **by June 10, 2010.**

5. Conditions for Attendance:

- (1) Observe the schedule of the program,
- (2) Refrain from bringing any members of their family,
- (3) Return to respective home country at the end of the program in Japan according to the travel schedule designated by EMECS Center,
- (4) Refrain from engaging in political activities, or any form of employment

- for profit or gain,
- (5) Observe rules and regulations of their place of accommodation and not change the accommodation designated by EMECS Center.
 - (6) Observe the regulations/ordinances/laws of Japan while residing in Japan.

IV. Administrative Arrangements

1. Organizer:

- (1) **Name:** International EMECS Center
- (2) **Contact:** Mr. Satoshi UMEMOTO (umemoto@emecs.or.jp)
- (3) **URL:** <http://www.emecs.or.jp/index-e.html>

2. Collaborators:

(1) Chief Project Leader:

Prof. Hiroshi Kawai (Kobe University, Japan)

(2) Collaborative Project Leaders:

Prof. Takeo Horiguchi (Hokkaido University, Japan)

Prof. Kazuhiro Kogame (Hokkaido University, Japan)

Prof. Mitsunobu Kamiya (Fukui Prefectural University, Japan)

3. Travel to Japan:

(1) Travelling Cost (Air Ticket):

The cost of a round-trip economy discount ticket between an international airport designated by EMECS Center and domestic travelling cost for the training program in Japan will be borne by EMECS Center.

(2) Term of Travel Insurance:

From arrival to departure in Japan.

*Traveling time outside Japan may not be covered.

4. Accommodation in Japan:

Accommodation for trainees during the training period in Japan will be reserved and covered by EMECS.

5. Expenses:

The following expenses will be provided for the participants by EMECS:

- (1) Allowances for accommodation and living expenses.
- (2) Expenses for program implementation, including materials.

V. Other Information

- (1) Participants who have successfully completed the program will be awarded a certificate by the EMECS Center.
- (2) For the next term program in 2011, trainees who can participate on a self-funded basis attendance will be highly welcome.

For Your Reference

International EMECS Center

The International EMECS Center is an organization established for promoting international exchanges on not only coastal but also catchment areas of the enclosed coastal seas in a wide range of fields such as research, policy, civic action, education and industrial activities and so forth to solve the problem on the environmental conservation of enclosed coastal seas in the world such as the Seto Inland Sea, the Chesapeake Bay (USA), the Baltic Sea (Northern Europe), and the Mediterranean Sea (Southern Europe).

The name of the Center is an acronym for Environmental Management of Enclosed Coastal Seas. The organization was established in Kobe City in 1994 after the success of the first and second International Conferences on the Environmental Management of Enclosed Coastal Seas, and became a foundation under the cojurisdiction of the Ministry of Foreign Affairs and the Ministry of the Environment Japan in 2000.

APN

The Asia-Pacific Network for Global Change Research (APN) is a network of member country governments (membership of 22 member countries as of April 2010) that promotes global change research in the region, increases developing country involvement in that research, and strengthens interactions between the science community and policy-makers.

The APN defines "global change" as the set of natural and human-induced processes in the Earth's physical, biological, and social systems that, when aggregated, are significant at a global scale.

International EMECS Center

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