

# SECOND ROUND TABLE DISCUSSION ON THE DEVELOPMENT OF GENETICALLY IMPROVED STRAIN OF MACROBRACHIUM

A Collaborative Research under the Aquaculture Component  
of the ASEAN-SEAFDEC Special Five-Year Program on Sustainable Fisheries  
for Food Security in the ASEAN Region

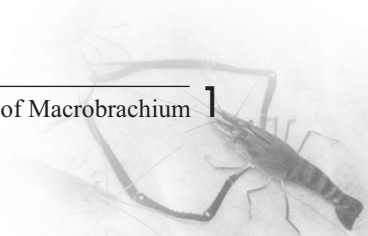
Dagupan City and Science City of Muñoz, Philippines  
16-21 September 2004

## Background

Adopting the Conference Resolution and Plan of Action during the ASEAN-SEAFDEC Millennium Conference held in Bangkok, Thailand in 2001, the Special Five-Year Program on Sustainable Fisheries for Food Security in the ASEAN Region was implemented in the ASEAN region. The aquaculture component, which is the Integrated Regional Aquaculture Program (IRAP) aims to (1) assure a supply of quality seeds stocks of various aquatic commodities; (2) promote environment-friendly aquaculture; and (3) assure that the development of aquaculture will benefit the rural populace through consultation, demonstration and dissemination of specific aquaculture technologies. The Program consists of two projects: (1) Aquaculture for Rural Development, and (2) Supply of Good Quality Seeds. Under the Supply of Good Quality Seeds Project, a collaborative research on the Development of Genetically Improved Strain of Macrobrachium, is being coordinated by the Aquaculture Department (AQD) of the Southeast Asian Fisheries Development Center (SEAFDEC). The participating countries of the collaborative research are Indonesia, the Philippines and Thailand.

In order to plan the detailed activities of the collaborative research and for the delineation of role and coverage of the activities in the participating countries, the First Round Table Discussion on the Development of Genetically Improved Strain of Macrobrachium was convened at the Freshwater Aquaculture Development Center, Sukabumi, West Java, Indonesia from 16 to 19 November 2003. The specific objectives of the First Round Table Discussion were to: (1) adopt common criteria for “good quality Macrobrachium seed”; (2) standardize methodology and approach in developing a genetically improved strain of Macrobrachium among the participating countries; (3) formulate definite work plan for the collaborative research project; and (4) agree on the mechanisms for sharing of results and genetic materials in Macrobrachium. The representative from Indonesia, *Dr. Ketut Sugama* was elected Chairperson of the First Round Table Discussion.

One of the recommendations during the First Round Table Discussion was to conduct an annual evaluation of the progress of activities under the collaborative research, which are being carried out by the participating countries. It was also agreed that such evaluation be discussed during the Second Round Table Discussion. The roundtable discussion will enable the participants to update each other of their activities and evaluate the status of the projects that have been conducted to draw recommendations from experiences and problems encountered during the implementation of the project. The responsibilities of the participating countries in the collaborative research as recommended during the First Roundtable Discussion held in Indonesia from 16 to 19 November 2003 are shown in Table 1.



**Table 1.** Responsibilities of the participating countries in the collaborative research as recommended during the First Round Table Discussion, 16-19 November 2003.

Responsibilities/ Activities	Participating Countries		
	Indonesia	Philippines	Thailand
1. Selective Breeding	* Develop appropriate selective breeding protocols complementing with those of the Philippines and Thailand	* Develop appropriate selective breeding protocols complementing with those of Indonesia and Thailand (after the results of the population genetic studies)	* Develop appropriate selective breeding protocols complementing with those of the Philippines and Indonesia
	* Continue family selection combined with hybridization	* Design within family selection with rotational mating with BFAR Center in Muñoz	
		* Develop a modified mass selection with collimation and rotational mating at the BFAR Center in Dagupan	
2. Population Genetics		* Start characterization of local strains of <i>Macrobrachium</i> using molecular genetics techniques and morphological and morphometric measurements	
		* Study the genetic structure of the Philippine <i>Macrobrachium</i> which is different from Thailand, Indonesia and Borneo stocks	
3. Transfer of <i>Macrobrachium</i> Stock	* Adopt much greater precaution in transferring <i>M. rosenbergii</i> from Thailand and the rest of Southeast Asia to the Philippines to prevent genetic introgression of the Philippine strain	* Adopt much greater precaution in transferring <i>M. rosenbergii</i> from Thailand and the rest of Southeast Asia to the Philippines to prevent genetic introgression of Philippine strain	* Adopt much greater precaution in transferring <i>M. rosenbergii</i> from Thailand and the rest of Southeast Asia to the Philippines to prevent genetic introgression of Philippine strain
	* Observe precaution in transferring <i>Macrobrachium</i> stock from the Philippines to the rest of Southeast Asia	* Observe precaution in transferring <i>Macrobrachium</i> stock from the Philippines to the rest of Southeast Asia	* Observe precaution in transferring <i>Macrobrachium</i> stock from the Philippines to the rest of Southeast Asia
4. Strain Evaluation in Different Environments	* Adopt similar protocol as GIFT tilapia with caution since <i>Macrobrachium</i> is crustacean	* Adopt similar protocol as GIFT tilapia with caution since <i>Macrobrachium</i> is crustacean	* Adopt similar protocol as GIFT tilapia with caution since <i>Macrobrachium</i> is crustacean
5. Estimates of Heritabilities	* Design experiment to estimate heritabilities of traits under selection	* Design experiment to estimate heritabilities of traits under selection	* Design experiment to estimate heritabilities of traits under selection



Responsibilities/ Activities	Participating Countries		
	Indonesia	Philippines	Thailand
6. Control	* Develop proper control line to measure the genetic gains after selection	* Develop proper control line to measure the genetic gains after selection	* Develop proper control line to measure the genetic gains after selection
7. Criteria for Quality Seeds	* Establish criteria for good quality seeds to guide farmers when purchasing seeds for culture	* Establish criteria for good quality seeds to guide farmers when purchasing seeds for culture	* Establish criteria for good quality seeds to guide farmers when purchasing seeds for culture
8. Specific Research Studies	* Genetic improvement of <i>Macrobrachium rosenbergii</i>	* Genetic characterization, domestication and genetic improvement of <i>Macrobrachium rosenbergii</i>	* Selective breeding programs for genetic improvement of <i>Macrobrachium rosenbergii</i>

### Objectives of the Second Roundtable Discussion

The Second Round Table Discussion was convened in Dagupan City and the Science City of Muñoz, Philippines from 16 to 21 September 2004. The general objective of the 2<sup>nd</sup> Roundtable Discussion was to evaluate the activities implemented in the participating countries under the collaborative research. The specific objectives were as follows:

1. To assess the progress of activities of the collaborative research;
2. To identify problems encountered in the implementation of the research activities;
3. To develop training and information components in relation with the research activities; and
4. To recommend future course of action for the implementation of the collaborative research.

### Participants in the Second Roundtable Discussion

Thirty-four participants from Indonesia, Thailand and the Philippines attended the Second Roundtable Discussion. Researchers from AQD who are involved in the collaborative research also attended the Second Round Table Discussion.

