

Foreword

Our oceans have long been considered limitless and thought to harbor fisheries products enough to feed an ever-increasing human population. The ocean concept of limitless supplier, however, has been altered as the demands of a growing population far outstrip the sustainable yield of the seas. In reality, ocean can be no longer a treasure house of fisheries products: in spite of sophisticated fishing activities fisheries landings have been stagnant or in some cases decreased. Capture fisheries have advanced to the point where newly discovered fish populations can be put under severe stress more quickly than regulators can collect needed biological data and impose catch limitations. Here is an appropriateness of enforced practice of aquaculture.

Since introduced, aquaculture has contributed a steadily increasing share of the world's fish supply. Scientists define the role of aquaculture in food security in three ways. First, aquaculture can improve the income of those who are in the business, either as owners or as workers, and thus improve their capacity to purchase foods of all kinds. Second, aquaculture can contribute to overall food supplies, and thus improve the quality and variety of food available to the population generally. Third, aquaculture can provide much needed food for those who are poor and thus particularly vulnerable to food insecurity and malnutrition.

Asia is the "history and home" of aquaculture. During the history in Asian aquaculture, its nature has become more intricate, combining with other sectors under the influence of socio-economic, technological, and cultural factors. Aquaculture activities inevitably come up with negative effects particularly on environmental. In the past decades, however, Asian aquaculture was pursued with nutritional and economic objectives without really taking into account the environmental and social costs. Perceiving that the negative

impact of aquaculture has already constrained the pace of its development, many countries have paid a great attention to environmentally sound aquaculture activity in the coastal zones.

Climate change caused by anthropogenic activities can be another negative factor in the fisheries and aquaculture sectors. Two negatives, environmental pollution and climate change, do not make reasons enough for abandoning aquaculture activity as it holds a good promise in terms of food security for human.

This conference entitled "Establishment of ASEAN-ROK Network on Climate Change Adaptation in Aquaculture" was administered by NFRDI-ROK, co-organized with DA-BFAR, as main activity for the project's two-year implementation. It was participated in by fisheries experts from Association of South-East Asian Nations (ASEAN) member countries such as (Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Thailand and Vietnam) and officials from international organizations such as ASEAN Secretariat Office, Food and Agriculture organization (FAO), the Worldfish Center, Network of Aquaculture Centres in Asia-Pacific (NACA), South-East Asia Fisheries Development Center (SEAFDEC), Ministry of Food, Agriculture, Forestry and Fisheries (MIFAFF) and National Fisheries Research and Development Institute of Korea (NFRDI-ROK).

For the Yr 1 implementation entitled Establishment of ASEAN-ROK Network on Climate Change Adaptation in Aquaculture, a total of 26 persons participated in the conference. They are: Ouch Lang and Chhel Phalla from Cambodia; Nalinee Thongtham from Thailand, Mohd Fariduddin bin Othman and Ismail b. Abu Hassan from Malaysia, Sunoto Mes and Syamsurizal Ivan from Indonesia, Nelson A. Lopez, Irma F. Ortiz, and Alexander Ernesto F. Estoesta from Philippines, Do Cam Tho, Ngo VanHai, Le Hong Truong, and Cao Le Quyen from Vietnam, Htun Win from Myanmar, Heinz Fred Weirowski from WorldFish Center, Jung Uie Lee, Eung Oh Kim, In Kwon Jang, Sung

Chul Bai, Jae Yoon Jo, Ki Hwan Kim, Chu Lee, Su Kyoung Kim, Yun Kyung Shin, and In Hye Kang.

In the Yr 2 conference entitled "Establishment of ASEAN-ROK Network on Climate Change Adaptation in Aquaculture Project REGIONAL RTD-CONSULTATION WORKSHOP", representatives from regional/international organization/institution were specially invited. The persons invited are Dr. Heinz Fred Weirowski of WorldFish Center, Dr. Weimin Miao FAO of Regional Office for Asia and the Pacific, Prof. Dr. Sena de Silva of NACA, and Dr. Teruo Azuma of SEAFDEC-Aquaculture Department. Delegates of ASEAN member countries are Mr. Lang Ouch from Cambodia, Dr. Sunoto Mes from Indonesia, Dr. Mohd Fariduddin Bin Othman from Malaysia, Mr. Nyunt Win from Myanmar, Dr. Nalinee Thongtham from Thailand, Mr. Van Hai Ngo from Vietnam. Dr. Somsak Pipoppinyo and Ms. Irma F. Ortiz from ASEAN Secretariat participated in the conference. Dr. Nelson A. Lopez, Dr. Qtae Jo, and Ms. Ms. Maria Alilia G. Maghirang had a hard job as an organizer of the conference. For Korean side, Eung-Oh Kim from NFRDI played a Korean representative role, and Drs. Qtae Jo and Young Sang Suh participated in the conference as a speaker. Mr. Won Chul Joo also participated in the conference as a MIFAFF representative. Other persons played an important role in the conference: Dr. Eong Jong Kang as a speaker and facilitator, Dr. Han Kyu Lim and Byul-Nim Choi as a facilitator. We would like to express our sincere thanks to all the participants through the two years.

The objectives of this conference is to gain information from experts on climate change; impacts on aquaculture, measures to mitigate, and options to be able to adopt changes; to share within ASEAN and ROK the impact of climate change in their aquaculture based on their experience and observations; to present actions taken to address or prepare for the impact; to create or develop a regional network that encourage and enable exchange/update of information and experiences

on the issues on the effects of climate change in aquaculture; and to come up with unified regional policy guidelines and harmonized efforts to address emerging issues and actions applicable to address climate change impacts in aquaculture.

In our first year conference which was held in NFRDI 2010, we recommended R&D interventions, mitigation and adaptation measures which the ASEAN-ROK alone could not in a long range pursue the deliverables unless we do a realistic networking and collaboration with other institutions.

In our second year conference, participants met together to present, discuss and evaluate Year 1 project outputs as focal subject of regional networking interventions by concerned institutions; to present regional/international priority and pipelined programs of donor institutions/agencies relative to climate change adaptation in aquaculture with the end in-view addressing emerging issues and future trends of impacts to the industry in the region; and to harmonize, consolidate and integrate all institutional intervention approach into a cohesive and concerted efforts through a regional networking.

Through the two-year's activities, we expect following outputs: evident impacts in fisheries and aquaculture; required monitoring, report validation, impact assessment, documentations, and socioeconomic study; capability building, IEC, awareness, EWS, measurements to adapt and mitigate; investment to adaptation; urgent needs for R&D interventions; maximized fund utilization to benefit farmers; and the need for an institutionalized regional networking, all of which are of preliminary necessities for realizing future study on climate change and fisheries and aquaculture.

Thank you very much.

Nelson A. Lopez and Eung Oh Kim