



Names of Participants

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Part I: Year 1 Project Document

2010 ASEAN - Korea FTA Project Document

ESTABLISHMENT OF ASEAN-ROK NETWORK ON CLIMATE CHANGE ADAPTATION IN AQUACULTURE

Project Description

This project aims to establish a continuing network between the Republic of Korea (ROK) and ASEAN-member countries on countering possible impacts of climate change in aquaculture. It will give ASEAN participants as well as Korean counterparts the opportunity to share and to be informed of strategies and options to reduce/mitigate the impact of *Climate Change in Aquaculture* in the region based on observation and experiences in the irrespective countries. Information gathered will be used during regional workshops to come up with guidelines to address and lessen the negative effects of climate change in aquaculture production.

Proponent's name and address

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1. Problem to be addressed

Member Countries of the ASEAN and the Republic of Korea, entitled “Agriculture, Fisheries, Livestock, Plantation commodities and Forestry” under the areas of cooperation on 2(a) information exchange and 2(b) capability building, in the form of 3(a) promoting exchange of information and sharing experiences related to the climate change adaptation in aquaculture including new technologies and 3(e) conducting seminars, training and workshops.

Climate change is a compounding threat to the sustainability of capture fisheries and aquaculture development. Impacts occur as a result of gradual warming at the global scale and associated physical changes, as well as consequences of the increased frequency of extreme weather events. These take place in the context of other global social and economic pressures on natural resources and ecosystems. In addition to action to mitigate the factors driving climate change, urgent adaptation measures are required in response to opportunities for and threats to food and livelihood provision arising from climate variations.

The aquaculture sector that supply cheap and healthy food protein to people worldwide is one that would be severely affected by Global Warming and/or climate change. Coastal resources are being eaten-up by extreme high tides, many fishponds both freshwater and brackishwater are overflowing because of frequent typhoons and flashfloods. These and many more are threats that hinder continuous supply of fish.

Internationally, networks should be created or developed that encourage and enable regional or global exchanges of information and experiences, linking fisheries issues with those of other sectors such as water management, community development, trade and food security, hence this proposal for ASEAN-member countries and ROK.

Climate change is “real”. As early as 2001, some countries were already experiencing its early stages, rising sea levels, frequent flooding, extremely hot weather, drought, etc. and many more are expected to come. Climate change is projected to impact broadly across ecosystems, societies and economies, increasing pressure on livelihoods and food supplies, including those in the fisheries and aquaculture sector.

Worldwide, hundreds of millions of people are directly and indirectly dependent on fisheries and aquaculture, with the great majority in developing countries. FAO’s Kevern Cochrane reported that the world fisheries production reached a new high of 143.6 million tonnes in 2006 (92 million tonnes from capture fisheries, 51.7 million tonnes aquaculture). Of that, 110.4 million tonnes were used for human consumption, while the rest were used as livestock feed and fishmeal for aquaculture. The production increases came from the aquaculture sector, which now accounts for 47% of all fish consumed by humans as food.

2. Background

The following tables will reflect the share of some top ASEAN countries contributing to aquaculture production.

World Fisheries Production by Capture and Aquaculture, 2006

Major Countries	Capture	Aquaculture	Total
1. China	17,092,146	34,429,122	51,521,268
2. Peru	7,017,491	28,393	7,045,884
3. Indonesia*	4,759,080	1,292,899	6,051,979
4. India	3,855,467	3,123,135	6,978,602
5. Chile	4,168,461	802,410	4,970,871
6. Japan	4,186,980	733,891	4,920,871
7. USA	4,859,872	465,061	5,324,933
8. Philippines*	2,318,984	623,369	2,942,353
9. Thailand*	2,776,295	1,385,801	4,162,096
10. Viet Nam*	1,959,900	1,657,727	3,617,627
11. Russian Fed	3,284,126	105,525	3,389,651
12. Norway	2,255,513	708,780	2,964,293
13. Korea Rep.	1,749,929	513,568	2,263,497
14. Other Countries	31,710,077	5,783,648	37,493,725
TOTAL	91,994,321	51,653,329	143,647,650

World Aquaculture Production of Fish Crustaceans, Molluscs, etc. by Principal Producers, 2006

Major Countries	Volume (MT)	Value (US\$'000)
1. China	34,429,122	38,422,593
2. India	3,123,135	3,431,010
3. Vietnam*	1,657,727	3,316,142
4. Thailand*	1,385,801	2,220,012
5. Indonesia*	1,292,899	2,254,855
6. Bangladesh	892,049	1,359,104
7. Chile	802,410	4,428,299
8. Japan	733,891	3,098,904
9. Norway	708,780	2,715,593
10. Philippines*	623,369	981,504
11. Egypt	595,030	951,035
12. Myanmar*	574,990	1,785,120
13. Other Countries	4,834,126	13,794,216
Total	51,653,329	78,758,387

The fact that fish is the cheapest available animal protein to feed more than 2.8 billion people in the globe, the importance of aquaculture cannot be denied. Unfortunately, for the next century, climate change is unavoidable. The impact on fish supply is very critical in addition to the 43.5 million people who are directly involved, either full or part time in capture fisheries and aquaculture, 86% of this people live in Asia. An

additional 4 million are engaged in the sector on occasional basis. Another half billion people are employed in fish processing, marketing and service industries including the families of all people directly or indirectly employed from fisheries and aquaculture.

World Aquaculture Production of Aquatic Plants by Principal Producers, 2006

Major Countries	Volume (MT)
1. China	10,867,410
2. Philippines*	1,468,410
3. Indonesia*	910,636
4. Korea Rep.	765,595
5. Japan	490,062
6. Korea D P Rp.	444,300
7. Chile	33,586
8. Malaysia*	30,000
9. Vietnam*	30,000
10. Other Countries	35118
Total	15,075,612

The future impacts of climate change on fisheries and aquaculture are still poorly understood. The key to minimizing negative impacts and maximizing opportunities will be understanding and promoting the wide range of creative adaptive strategies - implemented by public institutions or the private sector - and their interactions with existing policy, legal and management frameworks.

Addressing the potential complexities of climate change interactions and their possible scales of impact requires the mainstreaming of cross-sectoral responses into governance frameworks. Responses are likely to be more timely, relevant and effective where they are brought into the normal processes of development and engage people and agencies at all levels. This requires not only the recognition of climate-related vectors and processes, and their interaction with others, but also the availability of sufficient information for effective decision-making and approaches that engage the public and private sectors.

The potential for the spatial displacement of aquatic resources and people as a result of climate change impacts and the impacts on transboundary resources requires that existing regional structures, such as the ASEAN, and processes be strengthened or given more specific focus.

ASEAN-member countries should join together to come up with concerted effort in looking for measures to mitigate or at least reduce the impact of climate change in fish production. The most that the region can do in the urgency of addressing this are through information dissemination/information exchange and possible options how we can adopt the changes related to culture/growing of fish and to mitigate/reduce the impact of climate change in fish production.

3. Objectives

The project aims to establish a network among ASEAN and ROK in countering possible impacts of climate change in aquaculture. Specifically, it aims to:

- 1) Gain information from experts on climate change; impacts on aquaculture, measures to mitigate, and options to be able to adopt changes;
- 2) Share within ASEAN and ROK the impact of climate change in their aquaculture based on their experience and observations;
- 3) Present actions taken to address or prepare for the impact;
- 4) 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
- 5) Come up with unified guidelines from the participants applicable to the region or some participating countries in addressing climate change.

4. Expected outputs

- 1) Participants will be equipped with further knowledge on the possible impact of climate change in aquaculture specifically in ASEAN countries and ROK through the invited experts, information exchange and sharing of experiences among the participants;
- 2) Awareness/Preparedness of the impact of climate change in aquaculture in ASEAN countries and ROK and how they address it by adopting the output of the participants workshops;
- 3) Establishment of regional network where information among ASEAN countries and ROK on the impact of climate change in aquaculture will be updated and shared;

- 4) Possible guidelines and action plans in addressing the impact of climate change in aquaculture in the region; and
- 5) To come up with possible technologies in aquaculture that could be applicable in addressing climate change.

5. Indicative work plan and time line

The project will be initially implemented for two years that could possibly be a continuing activity within ASEAN and ROK to sustain this initiative.

No	Components/ Activities	Year 1												Year 2														
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
1	Gathering of data on the effects of climate change that may affect aquaculture production based on observation and experience																											
2	Preparation of Program Package in Korea (venue, accommodation, resource persons, etc.)																											
3	Actual Seminar/Workshop																											
4	Implementation, monitoring of action plans																											
5	Regional Consultation Meeting																											
6	Networking and Correspondence																											

- On the initial year of this Program, participants from ASEAN and ROK will be invited to a seminar workshop, entitled “*ASEAN-ROK Information Exchange on the Impact of Climate Change in Aquaculture*” which will serve as venue for information exchange and sharing of experience within ASEAN and ROK. Participants will be drawn from primarily senior government officials of ASEAN Member Countries and ROK involved in the field of aquaculture programs/projects.
- Resource persons from ROK and United Nation’s Inter-governmental Panel on Climate Change (UNIPCC) and Economic and Environmental Program for Southeast Asia or EEPSEA will provide the participants the general knowledge and global insights on the impact of climate change in aquaculture. They are expected to have very critical experience/observation on the impact of climate change in aquaculture production and knowledgeable of the strategies or possible mitigating measures to address it.
- During the 10-day seminar-workshop, participants from each country will present to the group the effect/impact of climate change in aquaculture and possible plans to address it.
- Identify aquaculture technologies applicable in reducing/mitigating the impact of climate change in aquaculture production
- After the information exchange in Korea the participants will present the output of the seminar/workshop in addressing the impact of climate change and come up with a possible program how it can be implemented/adapted in their respective countries.
- Implementation of adaptation plans and monitoring of effect of climate change in each country’s aquaculture sector will be observed and recorded for a year.
- On the 2nd year, there will be a follow-up regional consultation meeting among ASEAN and Korea to share the strengths and weaknesses of the previous seminar workshop on “Climate Change in Aquaculture”. The meeting will discuss further the most effective strategies implemented in addressing the impact of climate change and issues related ASEAN and next steps to climate change adaptation in aquaculture in ASEAN and Korea.

6. Management and implementation arrangements

This proposed Program Korean Special Fund for ASEAN is deemed implementable through Korea's Ministry of Maritime Affairs and Fisheries (MOMAF), as the proper authority in-charge of aquaculture sub-sector.

Two speakers with expertise on the "Impact of Climate Change in Fisheries Resources" will be invited as lecturers. Possible resource speakers can be from United Nation's Inter-governmental Panel on Climate Change (UNIPCC) and Economic and Environmental Program for Southeast Asia (EEPSEA).

Attachment 1 shows the proposed Seminar Workshop Module.

A total of twenty (20) participants are expected to attend the information exchange in Korea, with 3 representatives each from Philippines, Vietnam and Indonesia, and 2 representatives each from Malaysia, Thailand, Cambodia, Myanmar and ROK. One observer from the AKFTA-WGEC will be also invited to this seminar workshop. Details are shown in Attachment 2.

After the information exchange, participants will brief the government institution in their respective country responsible in fisheries/aquaculture with regards to the seminar on climate change and the adoption of the output from the workshop to reduce/mitigate the impact of climate change.

However, the implementation of this very important activity will require immediate funding from participants' respective government.

Participants will monitor, evaluate the effectiveness of the prepared guidelines, and keep records of relevant/significant observation, problems during its implementation, action taken, etc. to be reported during the consultation meeting. In between, any country that have possibly implemented/adapted that helped the said country in addressing the impact of climate change, should update ROK-MOMAF then ROK will be responsible in disseminating the information to the other concerned ASEAN Countries.

During the Regional Consultation Meeting, the participants will assess and evaluate the guidelines previously prepared and should correct/recommend improvement to make it more effective in reducing/mitigating impact of climate change. One focal person from each ASEAN country and two from Korea, designated during the information exchange seminar workshop, are expected to participate in

this Consultative meeting.

Mutual benefits among ASEAN countries and KOREA

The project will:

1. Enhance cooperation and collaboration within ASEAN-member countries and the Republic of Korea;
2. Establish network to share experiences and information among ASEAN-member countries and ROK in mitigating possible negative impacts of climate change in aquaculture production;
3. Climate change adaptation policies, action plans and guidelines be formulated through the regional network;
4. Help contribute in helping resolve the global issue that would affect the supply of fish worldwide; and
5. Promotion of trade in aquaculture among ASEAN and ROK through mitigating impact of climate change

7. Budget and funding arrangements

A total of USD 144,200.00 will be required to implement the project in two years. Attachment 3 shows the detailed breakdown of budgetary requirement.

8. Attachments

- Attachment 1. Proposed Seminar Workshop Module
- Attachment 2. Number of Participants by Country
- Attachment 3. Detailed Budgetary Requirement

(Attachment 1)

PROPOSED SEMINAR WORKSHOP MODULE*

ASEAN - ROK Information Exchange on the Impacts of Climate Change
in Aquaculture Production

Activities/Topics	Duration	Description of Activities/Topic
Welcome and Opening Program	½ day	Opening program to welcome the participants
Lecture and Open Forum	1 day	Resource Person UNIPCC AND EEPCC with Knowledge on Climate Change will lecture on topics that will answer "Mitigating the Impact of Climate Change in Aquaculture Production" with open forum
Presentation of Country Reports	2 days	Representatives from the participating countries will present their reports following a report outline. It will basically deal with the changes occurring in their countries brought about by climate change and how they address it to assure continuous supply of fish. Question and answer follows after each presentation
Workshop Proper	1 day	Workshop on how to address climate change in aquaculture in the region, Identify aquaculture technologies and prepare guidelines that can to adopt climate change and other relevant issues
Plenary	1 day	Presentation of output/Additional suggestions/Recommendations/Finalization of guidelines
Action Planning	1 day	Participants will prepare an action plan on how they can implement the output of their workshop.
Observation Tour/Field Trip	3 days	Participant will be given the chance to visit some areas or aquaculture farms affected by climate change
Closing Program	½ day	During this occasion, few participants will give share their impressions on the program and how it could be implemented in their countries.
	10 days	

*For further enhancement with ASEAN and Korea

(Attachment 2)

Number of participants by country by activity

Country	Number of Participants
SEMINAR WORKSHOP (Year 1)	
Philippines	4
Vietnam	3
Indonesia	2
Malaysia	2
Thailand	2
Cambodia	2
Myanmar	2
Republic of Korea	2
Observer - WGEC	1
TOTAL	20

Country	Number of Participants
REGIONAL CONSULTATION MEETING (Year 2)	
Philippines	2
Vietnam	1
Indonesia	1
Malaysia	1
Thailand	1
Cambodia	1
Myanmar	1
Republic of Korea	2
TOTAL	10

(Attachment 3)

BREAKDOWN OF BUDGETARY REQUIREMENT

No.	Component Activities	Estimated Cost (USD)*
SEMINAR WORKSHOP (Year 1)		
1	Plane Fare	
		14,000.00
		2,000.00
2	Accommodation	
		1,600.00
		20,000.00
3	Daily allowance (@ \$160/day for 20 participants)	32,000.00
4	Seminar Expense	
		3,500.00
		3,000.00
		4,000.00
		10,000.00
5	Contingency	3,000.00
Sub-Total		93,100.00
REGIONAL CONSULTATION MEETING (Year 2)		
1	Plane Fare	
		5,600.00
2	Accommodation	
		20,000.00
3	Meeting Expense	
	(\$100/day @ 10 @ 2days)	20,000.00
4		3,000.00
		1,000.00
5	Contingency	1,500.00
Sub-Total		51,100.00
TOTAL		144,200.00

**For finalization with ROK*

Workshop Program

Workshop Plan

“ESTABLISHMENT OF ASEAN-ROK NETWORK ON CLIMATE CHANGE ADAPTATION IN AQUACULTURE”

16-25 August, Busan, NOVOTEL

Date/Time	Activities	Facilitator
1 st day(16.Aug)	Arrival to Korea (Busan Gimhae Airport)	
2 nd day(17.Aug)	09:00-12:00 Visit NFRDI 12:00-13:00 Lunch 13:00-18:00 Sightseeing Busan 18:00 Novotel Hotel (Welcome reception; Dinner)	Director ARI (Aquaculture Research Institute)
3 rd day(18.Aug)	Breakfast (Novotel Hotel) 09:00-09:30 Registration Open forum 09:30-10:00 Greeting from President NFRDI Introduction of NFRDI 10:00-12:00 Topic 1: 12:00-13:00 Lunch time (Novotel Hotel) 13:00-15:00 Topic 2: Prof. Bae Seung Cheol (Ex. President WAS) 15:00-15:15 Coffee break 15:15-17:15 Topic 3: Mr. KIM Kih-Wan Comment and Discussion 17:15-18:00 Dinner (Korean traditional restaurant)	Chairman: NFRDI Dr. Jang In Kwon Korea (Bukyoung Univ.) MIFAFF(Policy)
4 th day(19.Aug)	Country Report 09:00-09:45 Cambodia Presentation Mr. Ouch Lang 09:45-10:30 Indonesia Presentation Dr. Sunoto 10:30-10:45 Coffee break 10:45-11:30 Malaysia Presentation Dr. Mohd F. bin Othman 11:30-13:00 Lunch (Novotel Hotel) 13:00-13:45 Myanmar Presentation Mr. Htun Win 13:45-14:30 Korea Presentation Dr. Shin Yun Kyung 14:30-15:15 Philippines Presentation Ms. Irma F. Ortiz 15:15-15:30 Coffee break 15:30-16:15 Thailand Presentation Dr. Saksit Triedech	Chairman: BFAR-IFAD Chief Dr. Nelson A. Lopez Chairman: Bukyong Uni. Pr. Jo Jae Yoon

17:00-18:00 18:00	Vietnam Presentation Dr. Ngo Van Hai Comment and Discussion Dinner and free time	
5 th day(20.Aug) 09:00-12:00 12:00-13:00 13:00-17:00 17:00-	Plenary Lunch Action Planning Closing Program with Dinner	Chairman: Director of ARI Lee Jung Uie Chairman: Asst. Director (BFAR) Mr. Gil A. Adora
6 th day(21.Aug)	Field trip Aquaculture Facilities (Oyster aquaculture) Aquaculture facilities (Marine aquaculture) in Tongyoung Overnight in Jinhae	ARI
7 th day(22.Aug)	Field trip Aquaculture facilities (Inland aquaculture) In Jinhae Fishery industry in changwon Overnight in Kyoung Ju	ARI
8 th day(23.Aug)	Tour in Kyoung Ju/Dae Jeon Overnight in Seoul	
9 th day(24.Aug)	Sightseeing (traditional village, Namdaemun open market) Overnight in Seoul	
10 th day(25.Aug)	Departure from Incheon Airport	