NATIONAL POLICIES AND ACTIONS TO MITIGATE AND ADAPT TO CLIMATE CHANGE IN AQUACULTURE SECTOR IN VIETNAM

I. Vietnam's commitment to responding to climate change

Climate change is one of the most serious challenges facing humankind in the 21st century and Vietnam, given its geography and climate pattern, is usually put in the group of most vulnerable countries. Climate change is no longer a distant threat, as there is increasing evidence that it is happening in many parts of the world, including Vietnam. IPCC's Fourth Assessment Report outlined the risks that climate change may bring to Asian countries, including Vietnam. With a long coastline and about 25% of population living in low-lying coastal areas, an anticipated sea level rise by 1 metre would translate into about 37.8% of Vietnam's land area inundated and 10% of GDP loss.

In 2009, "Climate change and Sea-level rise Scenarios for Vietnam" was published, describing possible situations for Vietnam under climate change impacts up to 2100. The publication succeeded in bringing to the public, in quantitative data, climate change implications on the climate pattern and physical map of Vietnam. The medium-scenario group predicts that Vietnam's average temperature could increase from 0.8 to 0.5 degree Celsius by 2050, and 1.6 to 2.6 degree Celsius by the end of this century in all parts of the country, with an overall increasing rainfall and inevitable invasion of sea water in coastal regions.

Acknowledging the risks of climate change, Vietnam is committed to climate change adaptation and greenhouse gas (GHG) emissions mitigation at the global, regional and national levels. On an international scale, Vietnam is a member of the United Nations Convention on Climate Change (UNFCCC) and a non-Annex I party to the Kyoto Protocol (KP). Vietnam has submitted two National Communications to UNFCC which describe its GHG emissions in 1994 and 2000. According to the Second National Communication (2010), Vietnam had a total emission of GHGs at 150,899 tonnes of CO_2 equivalent in 2000, which indicates an insignificant rise from the 1994 level (Initial National Communication) of 103,839 tCO_2e. A third national communication is in development at the moment.

At the national level, the Government of Vietnam designated the Ministry of Natural Resources and Environment (MoNRE) to be the focal point in implementing UNFCC and KP, and formed the National Target Programme to Respond to Climate Change (NTP-RCC) (*Decision No. 158/2008/QĐ-TTg dated 2 December 2008 by the Prime Minister on establishment of NTP-RCC*), which is hosted by MoNRE. Established in 2008, NTP-RCC is currently the highest-level programme to coordinate climate change activities nationwide. The strategic objectives of the NTP-RCC are to assess climate change impacts on sectors and regions in specific periods and develop feasible action plans to effectively respond to climate change in the short and long terms. This will ensure Vietnam's own efforts and adherence to the international community's efforts in mitigating climate change and protecting the climatic system.

The NTP-RCC provides for three phases of implementation:

- Phase 1- Start up (2009-2010) Key tasks include assessment of climate change impacts of climate change on different fields, sectors and localities, and development of up-to-date, solid climate change scenarios; and the launch of pilot adaptation projects in highly vulnerable areas.
- Phase 2- Implementation (2011-2015): Key tasks include the implementation of action plans of various ministries, sectors and localities, while monitoring and evaluating the outcomes.
- Phase 3- Development (Post 2015): Key tasks include extending and developing the actions for coping with climate change, based on the results and experiences of implementation phase.

The "Guiding Principles" of the NTP-RCC mandate the Ministry of Natural Resources and Environment to be the standing agency in charge of collaborating with other relevant agencies so as to assist the Government in directing the policy area of climate change. The NTP-RCC also details a series of "tasks and solutions":

1. Assessment of the extent and impacts of climate change in Vietnam;

2. Identification of measures to respond to climate change;

3. Development of a science and technology program on climate change;

4. Strengthening the capacities of organization, institutions and policy on climate change;

5. Raising awareness and human resources development;

6. Enhancement of international cooperation;

7. Mainstreaming climate change issues into socio-economic, sectoral and local development strategies, plans and planning;

8. Development of the Action Plans of ministries, sectors and localities to respond to climate change; and

9. Development and implementation of projects indicated in NTP-RCC.

Since the establishment of NTP-RCC, Vietnam's climate change action has been more coordinated and focused. However, to date, Vietnam has yet developed a comprehensive strategy for coping with climate change. Development of a national climate change strategy is in progress, with a firm, long-term view on an systematic, integrated, multisectoral, multiregional approach towards adapting to climate change impacts and mitigating GHG emissions and risk reduction. Fisheries and aquaculture are also included in the strategy and considered a key component of the action plan associated with the strategy.

While adaptation is seen as the foremost priority in responding to climate change, the Government has started to realise the importance of GHG emission mitigation in effective climate change abatement, especially in the context of Vietnam targeting green growth and sustainable development. Low-carbon economic development strategy is currently being developed by Ministry of Planning and Investment, and urges NTP-RCC to further promote mitigation actions.

II. National policies to mitigate and adapt to climate change in fisheries/aquaculture sector

Climate change widespread effects require multisectoral efforts in reducing its risks. While all sectors would be affected by climate change-related phenomena, aquaculture and fisheries are considered to be the most vulnerable. With a long coastal belt, Vietnam relies much on aquaculture and fisheries for its export revenues. Aquaculture and fisheries also provide livelihoods for about 25% of Vietnam population. Climate change-induced sea-level rise and increased saltwater intrusion may put Vietnam in the face of an economic downturn in the future. This, coupled with existing struggles for food security, poverty alleviation and energy security, also threatens to eradicate Vietnam's achievements in the last 20 years.

NTP-RCC has outlined the required coordination between sectors in adapting to climate change impacts and reducing its risks. Sectors have been trying to integrate climate change risks into their development plans. In turn, the in-progress national climate change strategy is currently trying to include different sectoral strategies to develop a comprehensive approach to climate change issues. The gap in and between sectors in terms of climate change response actions, however, is still considerable.

The Ministry of Agriculture and Rural Development (MARD) is the governmental body responsible for several sectors including aquaculture and fisheries. MARD has sufficiently participated in and actively operated on the field of climate change by:

- Establishing the Steering Committee for the Action Program to adapt to climate change (Decision No. 3665/QĐ-BNN-KHCN dated 21 November 2007 by the Minister of the Ministry of Agriculture and Rural Development);
- Establishing the Standing Office of the Steering Committee for Action Programme to Adapt to Climate Change (Decision No. 368/QĐ-BNN-KHCN dated 28 January 2008 by the Minister of the Ministry of Agriculture and Rural Development);
- Standing Office of the Steering Committee for the Action Programme to Adapt to Climate Change collaborates with an working group (according to Decision No. 1495/QĐ-BNN-KHCN dated 15 May 2008) to prepare the project "Masterplan for disaster preparedness, recovery and climate change response".

Related to the fisheries/aquaculture sector, MARD has promulgated the Action Programme Framework for Adaptation to Climate Change in the Agriculture and Rural Development sector for 2008-2020 (Decision No.2730/QĐ-BNN-KHCN dated September 5 2008). The Framework identifies aquaculture/fisheries as a priority, and specifies climate change response actions for, including technology and science research and development, climate change impact assessment and measure recommendations.

Great importance of the aquaculture/fisheries sector is recognised nation-wide through a number of projects. A joint project between MARD and MoNRE has been carried out in 2010 to assess the impacts of and find policy

solutions to reduce climate change risks to the sector. In addition, a pilot adaptation project for fisheries and aquaculture in the province of Thua Thien Hue has been conducted.

III. Study on climate change-related issues in aquaculture/fisheries

A thematic research – "Climate change impacts on coastal small-scale fishery/aquaculture and adaptation measures", a component of Project "Capacity Development for National Climate Change Focal Point in Viet Nam (CD4CCFP), was carried out to:

1. Provide an overview on coastal ecosystems and small-scale fisheries in Viet Nam

2. Assess the coastal ecosystems and fisheries vulnerabilities induced by variability in climate and sea level rise (losses in storms, coastal flooding, El-Nino, etc.)

3. Identify the impacts of climate change on fishers and their livelihoods (via a socio-economic vulnerability assessment) with a focus on small-scale fisheries

4. Find possible adaptation measures and supporting policies to address the impacts of climate change on fisheries ecosystem and fishing communities

5. Promote ecosystem-based management of small scale fisheries by incorporating incremental improvements in the understanding of climate change impacts and adaptation responses into day-to-day management.

The key findings of this thematic research are as follows:

- Vietnamese fisheries sector, especially the small scale fisheries in Viet Nam is one of the most vulnerable sectors which are threatened by the impacts of climate change.
- Climate change impacts, directly and indirectly, important coastal ecosystems and habitats critical for fisheries
- Climate change has reduced the coverage and biodiversity of coastal ecosystems, and as a result, impacted the production of the fisheries sector, especially the coastal small scale fisheries and the traditional fisher communities.
- Many traditional capture practices have disappeared due to the deterioration of the associated fisheries resources. Livelihoods and incomes of many local coastal fishermen communities have been affected significantly.
- The impacts from climate change are assessed as one of critical component influencing the growth and development of coastal habitats such as coastal lagoons, coral reef, sea grassbeds and estuaries.
- A set of adaptation measures (in terms of policy, technique, management and economy) have been developed and implemented.
- All the adaptation measures are still not systematically developed and implemented; conducted sporadically in various fields of the sector and not effective.

These findings point out some of the facts and difficulties encountered in managing climate change risks in fisheries/aquaculture. It concludes by suggesting that more efforts should be made on the relationship between the climate change and the fisheries sector building on the overall national climate change scenarios, as well as specific scenarios for the fisheries sector.

IV. Recommendations and expected supports

At the international level, international and regional cooperation in tackling climate change are necessitated by the transboundary impacts of climate change. Bilateral and multilateral cooperation must be strengthened to enhance the effectiveness and efficiency of global efforts in responding to climate change. The climate change adaptation and mitigation in the field of fisheries and aquaculture should be promoted through cooperative projects and receiving supports from donors.

At the national level, there is a gap in coordinating the governance of climate change response actions of and between sectors and ministries in Vietnam. As the national climate change strategy tries to include various climate change-related actions from different sectors, there is a strong need for institutional and policy making capacity building for Vietnam.

At the sectoral level, what the fisheries/aquaculture sector lacks are proper methodologies, accurate and plausible models and softwares to assess the impacts and vulnerability of fishing communities to climate change. There are strong needs for methodologies to formulate indicators and criteria for regularly monitoring and evaluation of the impacts of climate change on the fisheries/aquaculture sector.

At the community level, an awareness-raising and capacity-building programme needs to be implemented for local fisheries/aquaculture communities to enhance their resilience to climate change impacts, such as training courses, capacity-building courses, investment projects to provide the fisher with better fishing equipments and facilities, etc.