

Socialist republic of Viet nam



**NATIONAL STRATEGY FOR
NATURAL DISASTER
PREVENTION, RESPONSE AND
MITIGATION
TO 2020**

HANOI - November 2007

PRIME MINISTER

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom – Happiness

No: 172/2007/QĐ-TTg

Hanoi, 16 November 2007

DECISION

**TO APPROVE THE NATIONAL STRATEGY FOR NATURAL DISASTER
PREVENTION, RESPONSE AND MITIGATION TO 2020**

THE PRIME MINISTER

Pursuant to the Law on Organization of Government dated 25th December 2001;

Pursuant to the Law on Water Resource dated 20th May 1998;

Pursuant to the Law on Dyke dated 29th November 2006;

Pursuant to Ordinance on Flood and Storm Control dated 20th March 1993 and the amended and revised Ordinance on Flood and Storm Control dated 24th August 2000;

Pursuant to Decree 86/2003/NĐ-CP dated 18th July 2003 of the Government stipulating functions, duties, authority and organizational structure of the Ministry of Agriculture and Rural Development;

Considering the request of Minister of Ministry of Agriculture and Rural Development cum Chairman of Central Committee for Flood and Storm Control,

DECIDES

Article 1. To approve the National Strategy for natural disaster prevention, response and mitigation to 2020 with the main contents as follow:

I. GENERAL PERSPECTIVE

1. Disaster management includes preparedness, response to and recovery of consequences caused by disasters in order to ensure the sustainable socio-economic development and national security and defense.

2. Government agencies, social organizations, economic organizations, armed forces, citizens, and foreign organizations and individuals living in the territory of Vietnam all are duty-bound to disaster prevention, response and mitigation.

3. Disaster prevention, response and mitigation are joint actions of Government and citizens that effectively utilize state resources as well as take

advantage of all possible resources of the community, national and international organizations and individuals.

4. Disaster prevention, response and mitigation shall be integrated into socio-economic development master planning and plans of every region, sector, and nation-wide.

5. Disaster prevention, response and mitigation shall be giving priority to disaster preparedness, keeping studying on impacts of the global climate change, storm surge and other extreme climate phenomena for appropriate response actions.

6. Disaster prevention, response and mitigation shall be succeeding and unleashing traditional experience, learnt lessons and combining them with modern knowledge and technologies through international cooperation..

II. GUIDING PRINCIPLES

1. Government consolidates the State management on disaster prevention, response and mitigation nationwide; Ministry of Agriculture and Rural Development is the standing agency and to cooperate with relevant agencies to support Government in executing the state management in the field of DM.

2. Ensure to follow the directions of the ruling Party and the policies, and legislation of the State. Improve the effectiveness and efficiency of the state management and increase the responsibility of every organization and individual for disaster prevention, response and mitigation. Step by step complete institutions and organizational mechanisms from central to local levels Raise awareness and disseminate experience on disaster prevention, response and mitigation, especially at commune, village, and hamlet level.

3. The National Strategy for disaster prevention, response and mitigation must be implemented in synchronous, period-based and priorities-based manners, responsive to both intermediate and long-term purposes. The principles used for disaster prevention, response and mitigation in Vietnam is the “four-on-the-spot” (command on the spot, man-power on the spot, materials on the spot and logistics on the spot) and proactive prevention, timely response, quick and effective recovery. Disaster recovery should be combined with reconstruction and upgrading to ensure sustainable development of each area and sector.

4. Investment for disaster prevention, response and mitigation is critical to ensure a sustainable development. Government shall ensure the availability of necessary resources and mobilize the contribution of community and the whole society for disaster prevention, response and mitigation. Investment for disaster prevention, response and mitigation must combine both structural and non-structural measures, for multipurpose, and be harmonized with the nature, and environment.

5. Ensure the implementation of international commitments in the field of disaster prevention, response and mitigation.

III. GOALS

1. General goal:

Mobilize all resources to effectively implement disaster prevention, response and mitigation from now up to 2020 in order to minimize the losses of human life and properties, the damage of natural resources and cultural heritages, and the degradation of environment, contributing significantly to ensure the country sustainable development, national defense and security.

2. Specific objectives:

a) Enhance the capacities of forecasting flood, storm, drought, seawater intrusion, of informing earthquake, of warning tsunami and extreme hydro-meteorology phenomena, of which the focus is given to increase the early warning of storm and tropical depression to 72 hours in advance.

b) Ensure that the development planning and building codes of socio-economic structures and residential areas in places frequently affected by disaster suit to regional standards for flood and storm control; and socio-economic development plans and sectoral plans are integrated with the strategy and plans of disaster prevention, response and mitigation for a sustainable development.

c) Ensure 100% of local staffs who directly work in the field of disaster prevention, response and mitigation at all levels to be trained and strengthened of capacities for disaster prevention, response and mitigation; ensure more than 70% of population living in disaster prone areas to be disseminated of knowledge on disaster mitigation.

d) Complete the relocation, arrangement and stabilization of the life for people in disaster prone areas according to the planning approved by authorized government agencies. Up to 2010, manage to relocate all population from flash flood and land slide high-risk areas and dangerous areas to safety places.

d) Direct the collaboration and cooperation among forces of search and rescue to take initiative in responding to emergency situations; ensure adequate investment for construction of technical infrastructure and facilities, for procurement of equipment and for human resource development to deal with disaster search and rescue in line with the Master Planning for Search and Rescue to 2015, with vision up to 2020 approved by Prime Minister on Decision 46/2006/QĐ-TTg on 28th February 2006.

e) Ensure safety for the dyke systems at provinces from Ha Tinh province up to the North of the country; improve the flood-resistant capacity of embankment systems in the Coastal Central region, Central Highlands and the Eastern South; complete the consolidation and upgrading of seadyke systems all over the country to protect population, develop the sea economy, and ensure national security and defense in coastal areas.

g) Ensure safety for reservoirs, especially the large reservoirs and the ones related to crowded residential areas, to politically, economically, culturally sensitive areas, and to important structures of national security and defense downstream.

h) Complete 100% of construction of storm shelters for boats and ships according to the planning approved by authorized agencies.

i) Complete the fishery communication system; ensure that 100% of offshore fishing boats and ships have sufficient communication equipment; sign treaties on sea rescue with other nations and territories in the region.

IV. RESPONSIBILITIES AND SOLUTIONS

1. General responsibilities and solutions

a) Consolidate the system of laws, policies and mechanisms

- Go forward to formulate the Law on natural disaster prevention and response based on the existing Ordinance on Flood and Storm Control, suiting the national socio-economic development. Promulgate policies on disaster relief and recovery for each region: living with flood, flood diversion and retention, flash-flood and landslide vulnerable areas etc.

- Integrate natural disaster prevention, response and mitigation into social-economic development planning and plans

- Stipulate policies encouraging research activities, investment attraction, international cooperation, and resources mobilization ... for disaster management.

- Produce plannings, plans, zonings and conduct disaster risks assessments to formulate suitable policies for each region, locality, and critical zone, and to found bases for a proactive disaster preparedness; stipulate criteria and technical instructions of construction in disaster prone areas; revise and supplement standards and regulations on disaster forecast and warning.

b) Consolidate organizational structure

- Continue to strengthen the leading bodies of disaster management at ministries and sectors, and at both central and local levels.

- Review and complement to improve the functions, duties of and cooperation mechanisms among the Committees for Flood and Storm Control, Committees for Search and Rescue at central, ministerial and local levels.

- Professionalize the staffing for disaster prevention, response and mitigation. Upgrade working places for steering agencies/bodies in the field of disaster prevention, response and mitigation at all levels with appropriate equipments and technologies.

- Encourage the establishment of organizations supporting disaster management, of coaching and training centers, and public service organizations for disaster prevention, response and mitigation.

c) Human resources development and social mobilization

- Adopt socialization policies in disaster prevention, response and mitigation in which favorable conditions are created for the participation of local residents in formulating legislation, plans and programs, in managing and monitoring the implementation of local programmes and projects.

- Promote community awareness raising and information dissemination. Build the resilience to disaster and promote the tradition of mutual support in disaster situation. Organize self-response forces in communities for active emergency search and rescue. Promote the role of social organizations and associations in disaster response and recovery. Develop volunteer networks for disaster propaganda, advocacy, recovery and production rehabilitation... Encourage national and international organizations and individuals to develop diverse and efficient ways of support for disaster affected people and areas.

- Increase the training of the human resource to meet requirements for disaster prevention, response and mitigation, especially human resources for relevant advisory and administration agencies.

d) Financial resources

- The State budget ensures the investment for natural disaster prevention, response and mitigation projects and the contingency for disaster relief and recovery. The reserved state budget can be used for disaster prevention, response and mitigation if necessary. Take advantage of ODA and FDI for disaster prevention and mitigation projects, giving priority of non-refundable ODA utilization for capacities strengthening and technological and management experience transfer.

- The State decentralizes to People's Committees of provinces and districts in investment and mobilization of legitimate resources for disaster prevention, response and mitigation.

- Gradually increase the annual budget for strengthening the management capacities, implementing new construction projects, upgrading and maintaining structures; and for projects of planning, of improving equipment and facilities for disaster forecast, warning, rescue, relief, recovery and production rehabilitation.

- The State has policies to provide preferences and to protect legitimate interests of organizations and individuals investing in disaster prevention, response and mitigation, to encourage national and international organizations and individuals to invest in researching and applying science and modern technologies in the combination with traditional methods.

- Encourage national and international organizations and individuals to finance activities of disaster prevention, response and mitigation and conduct humanitarian and charity activities for disaster affected localities. Conduct studies to establish disaster insurance regimes and disaster self-financing funds.

d) Community awareness raising

- Promote activities for information dissemination, education, awareness and disaster response capacity raising for communities. Include basic knowledge about natural disaster prevention, response and mitigation into school curriculum to help children know how to respond to and support their family and community in disaster situations;

- Provide training for those who are directly involved in disaster prevention and mitigation, especially for decision-makers, managers, planners, practitioners, and local officers;

e) Develop science and technologies related to natural disaster prevention, response and mitigation.

- Promote basic investigation and investment for scientific research and new technology application in disaster prevention, response and mitigation.

- Modernize early warning systems from Central, regional to local levels, focusing on efficient communication methods especially for mountainous areas, territorial water and remote areas.

- The State encourages the application of advanced scientific and technological achievements to improve capacities of disaster forecast, prediction, warning, and communication; to improve research capacities to observe the Earth's variability and natural changes in the region and territory; encourages the application of advanced technology and new materials for disaster prevention, response and mitigation

- Step by step develop scientific sectors related to disaster: emergencies, disaster management, sustainable development, health care, post-disaster environmental and production recovery.

g) Ensure safety for dyke, reservoir and dam systems

- Build, strengthen and upgrade river and sea dyke systems to meet the design standards, and to be suitably used for multi-purposes of social-economic development.

Focus on enhancing quality of dykes, preventing dyke degradation, and reducing the number of weak sections on dyke foundation and sluices underneath the dykes; Complete designed dyke cross-sections, and harden of dyke surface to serve for rural traffic.

Increase investment for dyke protection replantation; consider the tending and protection of dyke protection trees as permanent duties in the dyke protection

- Review plannings, and invest to increase flood drainability of flood retention and divergence structures approved by authorized state agencies.

- Regularly inspect and evaluate the situation of the existing reservoirs, repair, upgrade and newly build emergency spillways to ensure safety for reservoirs; complete the reservoirs' operation procedures for multi-usability, particularly in cases of large reservoirs involving to regulate water levels in flood and dry seasons for downstream areas.

h) Enhance the search and rescue capacities:

Enhance the search and rescue capacities of specialized and semi-specialized forces and local people; regularly organize exercises of disaster prevention, response and mitigation at all levels and localities. Enhance disaster emergency information and communication; improve on-site response capacities for local organizations, individuals, and communities especially those in mountainous, remote and border regions, in islands and water areas.

i) Promote international cooperation and integration

Boost regional and international cooperation in disaster warning, forecast, in education, training and technology transfer, in sharing of information, experience and practical lessons to build up agreements, and conventions for disaster prevention, response and mitigation, especially for emergency search and rescue; Cooperate with international organizations to implement the UN Convention for Climate Change, the Kyoto Protocol, Hyogo Framework for Action and other programmes; Work in collaboration with countries in the region on water resources exploitation, protection and management.

2. Natural disaster prevention, response and mitigation responsibilities and solutions for each region

a) The Red River Delta and the North Central

The approach applied for the areas is to radically prevent floods, and to take initiatives in prevent and respond to storm, drought and storm surge, for which the following solutions must be taken in places in the same time:

- Enhance flood-prevention capacity for river dyke systems, conduct in a synchronous manner solutions including making flood control plannings for river systems, reviewing and adjusting dyke system plannings as bases for activities of dyke construction, upgrading, protection, and management; strengthening of under-dyke structures; treatment of weak dyke foundation; and hardening of dyke surface for rural traffic.

- Continue constructing new reservoirs and establish operation procedures of the existing large reservoirs to regulate water levels for the downstream areas, preventing flood, drought and salt intrusion; reforest to protect upstream watersheds.

- Improve the flood discharge capacity for river channels through removal of obstructions on the river plain and river bed; dredging channels and completing flood divergence projects.

- Implement programs to restore and upgrading sea dykes, to plant mangrove and protection forests, to plant grass to prevent dyke erosion, and to build bank protection structures in coastal provinces.

b) The Central Coast, the Eastern South and Islands

The approach applied for the areas is "Proactiveness in disaster prevention, and adaptation for development", for which following solutions are considered as priorities:

- Establish plannings of residential, industrial and tourism areas; plan and construct disaster prevention and mitigation structures, and transportation infrastructures ensuring a flood resilience and flood drainability.

- Transform crops and animal husbandry structures to suit the regional disaster characteristics and make full use of favorable natural conditions for development; prevent the invasion of sand dunes to plain areas and the desertification.

- Strengthen dykes, take advantage of and preserve natural sand dunes for prevention of tsunami, sea water rise, and salinity intrusion; build reservoirs, increase forestation, conduct solutions to increase run-off and underground water in dry season, build structures to control drought and inundation; build bank protection structures, dredge river channels; build storm shelters for boats and ships; establish and upgrade coastal communication stations for typhoon, sea rise and tsunami warning.

- Promote research to find out solutions to prevent river mouth deposition, to dredge river channels for enhancing flood discharge and waterway transportation.

c) The Mekong River Delta

The approach of natural disaster prevention, response and mitigation applied for the Mekong river delta is "living with flood", ensuring safety for a sustainable development; and taking initiatives to prevent storm, thunderstorm, whirlwind, salinity intrusion, drought at the same time, for which the following solutions are to be focused:

- Establish plannings of flood control, to be proactive in flood prevention, reasonably use land and forest resources and favorable natural conditions of the region.

- Specific measures for flood and salination control include: Construction of residential clusters and infrastructure above flood level, improvement of flood discharge for rivers and canals, construction of sea dykes, estuary dykes, embankments, reservoirs, and other structures for salinity prevention and fresh water preservation.

- Proactively take advantages of flooding; research and invest to explore the flooding environment: alluvium, reduced acidity and salinity, aquaculture, fisheries, ecotourism, water transport, cultural and sports activities which are typical for the flooding region.

- Enhance international cooperation with countries in the Mekong river basin to reasonably use and protect water resources. Continue researching, coordinating with upstream countries to find out solutions for flood control in rainy season, run-off maintaining in dry season to prevent saline intrusion; and for response to the sea level rise.

d) Mountainous areas and Central Highlands

The approach applied for the areas is to "proactively prevent natural disasters", for which following solutions are focused:

- Define and map areas highly prone to flash floods, landslides, geological hazards; make residential planning, evacuate population in dangerous areas, make land use planning, restructure crops, manage mineral exploitation to prevent harmful impacts on the environment and landslide risks, properly plant and exploit forests.

- Establish warning and communication systems down to commune and village levels; build structures to prevent landslides and flash floods; expand flood discharge openings of sluices and bridges on traffic roads to ensure flood drainability; build reservoir system for both flood and drought control.

- Strengthen the cooperation with bordering countries in disaster forecasting, warning, search and rescue.

d. Sea areas

The approach applied for disaster prevention, response and mitigation in sea areas is "proactive prevention and response," to ensure the safety for human life and activities, and take advantages of resources to develop the sea economy, for which the following solutions are focused:

- Establish a management system of vehicles and boats operating at sea, giving priorities for management of fisherfolk before and during disaster.

- Establish communication systems in combination with delivery of disaster forecasts and warnings to vehicles and structures operating at sea. Establish professional search and rescue forces, enhance rescue capacities for semi-specialized forces among fishermen on ships and boats.

- Strengthen the cooperation with other countries and territories in disaster forecasting, warning, communication, search and rescue, storm shelter provision and reasonable exploitation of natural resources at sea.

V. ACTION PLAN

Focus to implement the following target programs up to 2020:

1. Non-structural measures

a) The program on improvement of legislation and policies

- Promulgate the Law on disaster prevention, response and mitigation.
- Review, amend, supplement related legal documents.
- Promulgate disaster relief and recover policies, preventing speculation and price increase, and supporting the environment and production rehabilitation after disaster.
 - Promulgate assistance policies for disaster prone areas.
 - Establish financially self-reliant fund for disaster prevention, response and mitigation.
 - Implement disaster risk insurance in some sectors

b) The program on consolidation of organizational structures

- Annually, consolidate the steering mechanism for disaster prevention, response and mitigation at all levels.
 - Provide training courses to enhance capacities for staff working in the field of disaster prevention, response and mitigation.
 - Establish organizations supporting disaster management.

c) The programme to make and review plannings

- Define and map areas highly prone to flash floods, river and sea erosion, storm, earthquake, sea level rise, tsunami. Map out the flood areas to assess risks of flood and drought.
 - Review and amend the flood prevention and control plannings of the Red River and Thai Binh River systems, of the Mekong River Delta, of rivers in the Central region, from Khanh Hoa to Thanh Hoa provinces, rivers in the South Central and the Eastern South of Viet Nam.
 - Review and amend river and sea dyke system plannings
 - Review and amend the residential plannings in flash flood and landslide-prone mountainous areas and in erosion prone areas along riverbank, river mouth and coastal areas.

- Review and amend the land use plannings to link with disaster prevention and control.
- Review and amend plannings to protect and develop mangrove forests for sea dyke systems and in coastal areas.
- Review and amend the construction plannings in disaster prone areas.
- Review and amend the integrated exploitation and management plannings of river basins.

d) The programs on strengthening of disaster warning and forecast capacities

- Strengthen flood warning and forecast capacities for the Red River Delta, Mekong River Delta, rivers in the Central region, Central Highlands and the Eastern South of Viet Nam.
- Strengthen capacities to forecast and warn storm, flood, earthquake, drought, salty intrusion, and to warn tsunami.
- Strengthening flash flood warning and forecast capacities for mountainous provinces

e) The programs on community awareness raising

- Include disaster knowledge into school programmes
- Conduct trainings for and disseminate information/knowledge/experience on disaster prevention, response and mitigation to communities living in disaster prone areas.
- Disseminate information and propagandize on natural disaster issues via mass media.

f) The programs on forestation and protection of upstream forests:

- Establish, manage, protect, develop and sustainably use 16.24 million ha of forestry land; increase the area of forest coverage to 42-43% by 2010 and to 47% by 2020.
- Pay attention to develop and explore non-wood forestry products in the areas of protection forests to make forests protection beneficial to local people.
- Plant trees to protect dyke systems.

g) The program on strengthening of disaster management capacities and science and technology application

- Strengthen capacities for disaster management agencies from the central to local level, and for search and rescue forces.
- Review and amend/supplement building codes in line with natural disaster characteristics in each region.

- Apply scientific and technological advances as well as new techniques and materials for natural disaster prevention, response and mitigation.
- Improve information and communication systems and management of boats and ships at sea
- Establish procedures to ensure safety for children, old and disabled people in disaster prone areas:
 - Establish volunteer networks for natural disaster prevention, response and mitigation

2. Structural measures

- The programme to review, upgrade and newly build natural disaster prevention, response and mitigation structures matching the designed standards and each region's disaster characteristics.
- The programme to construct reservoirs and establish operation procedures of reservoirs to effectively explore water resources and regulate water levels for downstream areas to respond to flood and drought.
- The programme to expand flood discharge openings of bridges and sluices along road and railroad systems.
- The programme to construct erosion prevention structures
- The programme to enhance dyke systems, to upgrade sluices underneath the dykes, and to harden surface of dykes of grade 3 upward.
- The programme to construct storm shelters for boats and ships.
- The programme to construct residential clusters for flood and storm avoidance.

The list of programs and projects, of implementing organizations, collaborating organizations and durations are stipulated in Annex I attached to this Decision.

VI. EVALUATION OF THE STRATEGY IMPLEMENTATION

Criteria to evaluate the strategy implementation include:

- The legal documents, mechanism, policies related to disaster prevention, response and mitigation.
- The disaster forecast and warning capacities.
- The organizational mechanism for disaster prevention, response and mitigation at all levels (4 levels).
- The search and rescue capacities of specialized and community forces
- The integration of natural disaster prevention, response and mitigation into overall planning as well as specific projects and programmes for socio-economic development in ministries, sectors and localities.

- Activities for education, information dissemination, community awareness raising on disaster prevention, response and mitigation.
- The community participation in formulating legal documents, in planning, managing and monitoring the implementation of programs, projects at local level.
- The self-preparedness, and response to disaster.
- The efficiency of constructed disaster prevention and control structures.
- The sustainable development of each region, locality under disaster impacts.
- The efficiency of investments for disaster prevention and response.
- The science and technology application in disaster prevention and response.
- International cooperations in the field of disaster prevention, response and mitigation.

Article 2. Organization for the strategy implementation

1. Ministry of Agriculture and Rural Development and the Central Committee for Flood and Storm Control will preside over the implementation of the National Strategy for natural disaster prevention, response and mitigation to 2020:

- Guide, inspect and urge the implementation of the Strategy in ministries, sectors, localities; and act as the national focal point with international communities in the field.

- Base on the attached annex of the list of programs and projects, establish specific programs and action plans, identify priorities, and assign the implementation responsibilities for ministries, sectors, and localities.

- Inspect, examine and assess the Strategy implementation of ministries, sectors, and localities. Conduct review of the Strategy implementation every year and every five years to draw out experience, and recommend to Prime Minister suitable adjustments to the contents, and solutions of the Strategy.

2. According to their own functions and duties, ministries, sectors and localities are responsible for effectively implementing relevant contents, objectives, duties and solutions stated in the Strategy.

3. Ministry of Planning and Investment takes lead and works in collaboration with Ministry of Finance, Ministry of Agriculture and Rural Development, Central Committee for Flood and Storm Control, National Committee for Search and Rescue and other relevant ministries and sectors to balance and arrange annual investment resources in accordance with the Law on State Budget and other funding resources to effectively implement the Strategy.

4. People's Committees, Committees for Flood&Storm Control and Search&Rescue at provincial and city levels steer its departments to implement the National Strategy, in which priorities are given to strengthen and newly build disaster mitigation, prevention and response structures, to organize disaster prevention, response and mitigation forces, to set plans protecting human life; at the same time, disaster prevention, response and mitigation is integrated into local socio-economic development planning; and report the implementation results to Ministry of Agriculture and Rural Development and Central Committee for Flood and Storm Control on annual basis.

Article 3. This Decision takes effect 15 days after its publication on the Official Gazette.

Article 4. Ministers, heads of ministry-level agencies, directors of Government departments, and chairmen of People's Committees of provinces and central cities are responsible for executing this decision./.

CC.

- Central Party Secretariat;
- Prime Minister, Deputy Prime Ministers;
- Central ministries, ministry-level agencies, Government agencies;
- Office of Central Committee for Corruption prevention;
- People's Councils, People's Committees of provinces and central cities;
- Central Government Office and Party Committees;
- President Office;
- Ethnic Council and National Assembly Committees;
- National Assembly Office;
- People's Supreme Court;
- People's Supreme Procuracy;
- State Audit;
- The Viet Nam Fatherland Front Central Committee
- Central agency of mass organizations;
- Government office: Chairman, Deputy chairmen, Government website, Prime Minister spokesman, Departments, affiliated units , Official Gazette;
- Filing: NN (5b) A.

PRIME MINISTER

(Signed)

Nguyễn Tấn Dũng

Annex I
List of programs promulgated as attachment to the
National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020
(Promulgated as attachment to the DECISION No. 172/2007/QĐ-TTg
on 16 November 2007 of Prime Minister)

Order	Content of program/project	Leading organisation	Cooperated organisation	Time frame	Remarks
I.	COMPLETE THE SYSTEM OF LEGAL DOCUMENTS				
1.	Natural Disaster Prevention, Response and Mitigation Law	Ministry of Agriculture and Rural Development (MARD)	Relevant ministries, industries and locals	2010-2012	
2	Review, amend and supplement relevant legal documents	MARD	Relevant ministries, industries and locals	frequent, annual	
3	Promulgate polices on disaster relief and recovery after the disaster	Ministry of Labour, Invalids and Social Affairs (MOLISA)	MARD and relevant Ministries, industries and locals	frequent, annual	
4	Promulgate assistance policies for disaster prone areas	MOLISA	MARD and relevant ministries, industries and locals	frequent, annual	
5	Establish Financial self-reliant Fund for natural disaster prevention, response and mitigation	Ministry of Finance (MOF)	MARD and relevant ministries, industries and locals	2007-2020	
6	Implement disaster risk insurance in some sectors	MOF	MARD and relevant ministries, industries and locals	2007-2020	
II	STRENGTHEN ORGANISATIONAL MECHANISM				
1	Strengthen the steering mechanism for natural disaster prevention, response and mitigation at all levels	Central Committee for Flood and Storm Control (CCFSC)	Relevant ministries, industries and locals	frequent, annual	

Order	Content of program/project	Leading organisation	Cooperated organisation	Time frame	Remarks
2	Provide training courses to improve the capacity of staff in charge of natural disaster prevention, response and mitigation	MARD	Relevant ministries, industries and locals	frequent, annual	
3	Establish organisations supporting natural disaster management	Ministry of Home Affairs (MOHA)	MARD and relevant ministries, industries and locals	frequent, annual	
III. NON-STRUCTURAL MEASURES					
Program of establishing and reviewing plans					
1	Create a zoning map of flash-flood risk	Ministry of Natural Resources and Environment (MONRE)	Relevant ministries, industries and locals	2007-2010	
2	Create a flood zoning map to assess risks caused by flood	MARD	Relevant ministries, industries and locals	2007-2010	
3	Create a zoning map of evaluating risks caused by drought	MONRE	Relevant ministries, industries and locals	2007-2012	
4	Create a map of identifying risks of earthquake and tsunami	Vietnamese Academy of Science and Technology	Relevant ministries, industries and locals	2007-2015	
5	Create a map of identifying risks of storm and storm surge	MONRE	Relevant ministries, industries and locals	2007-2010	
6	Create a map of identifying risks of erosion in river bank or seaside	MARD	Relevant ministries, industries and locals	2007-2010	
7	Review, complement plans of flood preparedness in Mekong River Delta	MARD, locals	Relevant ministries, industries and locals	once every 5 years	
8	Review, complement plans of flood preparedness in rivers of Central regions, from Thanh Hoa to Khanh Hoa provinces	MARD, locals	Relevant ministries, industries and locals	once every 5 years	

Order	Content of program/project	Leading organisation	Cooperated organisation	Time frame	Remarks
9	Review, complement plans of flood preparedness in rivers of South Central and East South regions	MARD, locals	Relevant ministries, industries and locals	once every 5 years	
10	Review, complement plans of river and sea dyke systems	MARD, locals	Relevant ministries, industries and locals	once every 5 years	
11	Review, complement plans of protecting and maintaining protective forests on the sea-shore and the coastal areas	MARD, locals	Relevant ministries, industries and locals	once every 5 years	
12	Review, complement residential plans of flash-flood and landslide-prone mountainous areas	People's Committee of mountainous provinces	MONRE, MARD, Vietnamese Academy of Science and Technology	once every 5 years	
13	Review, complement residential plans of erosion-prone areas on rivers bank, river mouths and coastal region	People's Committee of provinces	MONRE, MARD, Ministry of Science and Technology (MOST)	once every 5 years	
14	Review, complement plans of land use, linking with disaster preparedness	MONRE, locals	Relevant ministries, industries and locals	once every 5 years	
15	Review, complement construction plans in disaster-prone areas	Ministry of Construction (MOC)	Relevant ministries, industries and locals	once every 5 years	
16	Review, complement plans of integrated management and exploitation river basins	MONRE	Relevant ministries, industries and locals	once every 5 years	
Program of enhancing forecast and warning capacity					
17	Strengthen capacity of storm forecast and warning	MONRE	Relevant ministries, industries and locals	frequent, annual	
18	Strengthen capacity of flood forecast and warning in Red River Delta	MONRE	Relevant ministries, industries and locals	frequent, annual	

Order	Content of program/project	Leading organisation	Cooperated organisation	Time frame	Remarks
19	Strengthen capacity of flood forecast and warning in Mekong River Delta	MONRE	Relevant ministries, industries and locals	frequent, annual	
20	Strengthen capacity of flood forecast and warning in rivers of Central and Central Highlands, East South regions	MONRE	Relevant ministries, industries and locals	frequent, annual	
21	Strengthen capacity of flash-flood forecast and warning in mountainous provinces	MONRE	Relevant ministries, industries and locals	frequent, annual	
22	Strengthen capacity of earthquake, tsunami informing	MONRE, Vietnamese Academy of Science and Technology	Relevant ministries, industries and locals	frequent, annual	
Program of improving the community awareness					
23	Include knowledge related to natural disasters into curriculums of secondary schools	Ministry of Education and Training (MOET)	Relevant ministries, industries and locals	2007 - 2020	
24	Conduct training on natural disasters for communities living in disaster-prone areas	CCFSC, Committee for Flood and Storm Control in all levels	National and international organizations and individuals	frequent, annual	
25	Propagandize and disseminate information on natural disaster via mass media	Ministry of Information and Communications (MIC), Radio, Television	Relevant ministries, industries and locals	frequent, annual	
Program of planting and preserving protective forest					
26	Plant and preserve upstream forests	MARD, locals	Relevant ministries, industries and locals	2007-2020	
27	Plant trees against sea waves to protect dyke systems	MARD, locals	Relevant Ministries, industries and locals	2007-2020	

Order	Content of program/project	Leading organisation	Cooperated organisation	Time frame	Remarks
	Program of enhancing disaster management and science and technology application capacity				
28	Strengthen capacities of disaster management agencies from central to local levels	MARD	Relevant ministries, industries and locals	2007-2020	
29	Strengthen capacities of the rescue and search forces	Ministry of Defense	Relevant ministries, industries and locals	2007-2020	
30	Review, complement building codes in line with natural disasters characteristics in each region	MOC	Relevant ministries, industries and locals	2007-2010	
31	Apply advanced technology, science and technique as well as use new materials for natural disaster prevention, response and mitigation	MOST	Relevant ministries, industries and locals	2007-2020	
32	Complete communication system and manage ships/boats operating on the sea	MARD	Relevant ministries, industries and locals	2007-2010	
33	Establish programs to ensure safety for children, the old and the disabled in disaster-prone areas	Locals	National and international organizations and individuals	frequent, annual	
34	Establish volunteer networks for natural disaster prevention, response and mitigation	Ho Chi Minh Communist Youth Union	National and international organizations and individuals	frequent, annual	

Order	Content of program/project	Leading organisation	Cooperated organisation	Time frame	Remarks
IV	STRUCTURAL MEASURES				
1.	The program to review, upgrade and build structures for natural disaster prevention, response and mitigation in line with designed standards and natural disaster characteristics of each region, each local	MARD	Relevant ministries, industries and locals	frequent, annual	
2	The program to build erosion prevention structures	People's Committee of provinces	Relevant ministries, industries	Frequent, annual	
3	The program to strengthen and upgrade sea dyke systems	People's Committee of coastal provinces and cities	Relevant ministries, industries	2007-2015	
4	The program to establish systems of structures prevent salt but preserve fresh water	MARD	Relevant ministries, industries and locals	2007-2020	
5	The program to build systems of storm shelters for boats, ships	MARD	Relevant ministries, industries and locals	2007-2015	
6	The program to upgrade dyke systems of Red river and Thai Binh river	MARD	Relevant ministries, industries and locals	2007-2015	
7	The program expand flood discharge openings of bridges and sluices along road and railroad systems	Ministry of Transportation	Relevant ministries, industries and locals	2007-2020	
8.	Continue to build reservoirs for water flow adjustment and flood drainage	MOC, MARD	Relevant ministries, industries and locals	2007-2020	

ANNEX II
NATURAL DISASTER
AND DISASTER PREVENTION, RESPONSE AND MITIGATION
IN VIETNAM

(Promulgated as attachment to the DECISION No. 172/2007/QĐ-TTg
on 16 November 2007 of the Prime Minister)

I. NATURAL DISASTER IN VIETNAM

1. General context

In recent decades, natural disasters have increasingly happened in terms of severity over the world, causing serious consequences to human life, especially to the poor. Disasters are natural phenomena, however their magnitude and consequences have been exacerbated due to human activities during the process of socio-economic development, with technologies, urbanization, population boom, and natural resources and environmental degradation. In the past 2 decades, more than 200 million people on average directly suffered from the consequences of natural disasters every year.

Vietnam is located in the tropical monsoon area, one of the five storm-prone areas of the Asia Pacific region. Therefore the country often faces natural disasters of various types. In recent years, disasters have continually occurred all over the country, causing vast losses in human life, property, socio-economic and cultural infrastructure as well as environmental degradation. In the recent decade (1997-2006), natural disasters such as typhoons, floods and droughts have caused significant losses, including 7500 missing and dead people, and asset damage equivalent to 1.5% of GDP. Natural disasters in Vietnam have been increasingly severe in terms of magnitude, frequency and volatility.

2. Geographical and socio-economic background of Vietnam

a. Geographical location and topography

The territory of Vietnam stretches across 15 north latitude degrees (from 8°30' to 23°20') and 7 east longitude degrees (from 102° 10' to 109° 20'), bordering China in the North, Laos and Cambodia in the West, and facing the East Sea in the East and the South.

With the total territory area of 329,241 km² and a coastal line of 3,260 km, every 100 km² of land has 1 km of coastline averagely. Its width is about 600 km at the widest part and 50 km at the narrowest point.

Viet Nam has a relatively diverse topography. The country's territory is made up of mountains, highlands, deltas, rivers, coastline, islands and peninsulas. Hills and mountains cover 3/4 of land area. Mountain ranges tend to have North-West to

South-East direction and perpendicular to the direction of the North East - South West tropical monsoon. Parallel mountains separate the country and make up North West – South East direction rivers. Most of rivers flow into the East Sea. High, steep and separated mountains scattered all over the country, and blended with dense river networks.

Plains account for $\frac{1}{4}$ of the territorial area, consisting of the Red River delta, the central coastal plains, the Southeast plains and the Mekong River delta.

The territory is divided into seven economic and sub-climate zones, namely the Northern Mountains, the Red River Delta, the North Central Coast, the South Central Coast, the Central Highlands, the Eastern South and the Mekong River delta.

With the above mentioned features, Vietnam frequently suffers from storms, floods, and other types of natural disasters.

b. Soil conditions and vegetation cover

The North region has the most complicated geological structure compared with other regions in the country. One third of the northern mountains consist of rock with a thin weathered layer, which is infertile and poorly water-absorption. Black soil is often distributed in calcareous areas which are rich in calcium and magnesium. Mountains and hills occupy 80% of the regional land area. The forest coverage in this region is lowest in the country. The northern mountains and highlands still have much bare land and hills. Alluvial land area in the Red River delta only accounts for 14% of the total area of the North. The ancient alluvial soil in this region is often characterized by the yellow and brown color, small amount of clay, poor in water absorption, and prone to drought and erosion.

The North Central Coast has a large proportion of mountains and hills, small and narrow plains with unfertile soil and limited alluvial land area. The most common types of soil in this region are light yellow soil in high mountains, red soil, brown-red soil, yellow-red soil, depleted grey soil, erosion prone soil. The forest coverage in the region is 28%. Bare land and hills account for 3.4% of the natural land area.

The South Central Coast has a complex and diverse geological structure with various types of soil including alluvial soil, coastal sandy soil, and exhausted soil, etc. The forest coverage is relatively high (34.5%).

The geological structure in **the Central Highlands** is made of 2 covering layers: a soft covering layer and a weathered layer. Alluvial soil in the region only accounts for 2.8% of the natural land area, black soil accounts for 1.86%, and depleted grey soil 10%. The yellow red soil accounts for a large proportion of 68.2%. The forest coverage in the region is considerably high at about 60%.

The Eastern South has a relatively similar geological structure as the Central Highlands with two major types of soil, namely grey soil and red soil. The forest coverage is about 19.5%.

The Mekong river delta has a homogenously geological structure. Alluvial soil makes up 31.4% of the natural land area, acid soil 41.1%, saline soil 19.1% and grey soil 3.5%...

In general, the geological structure in Vietnam is relatively stable with many high mountain ranges scattered in every regions; the territory is separated by dense river systems. Earthquake occurs in the Western North region though it is at low frequency and magnitude. Additionally, high and steep mountain ranges make the region very vulnerable to landslides and flash floods.

c. Climate

There is a great difference in **temperatures** amongst regions, seasons and between day and night in each region. The North has 4 distinct seasons, whereas the South has only the dry season and rainy season, and the Central is affected by the South West monsoon.

Evaporation is relatively high and different amongst the regions, of those the South East and the Mekong River Delta have the highest evaporating level.

Humidity is also high and fluctuated between the regions and seasons. The South is often less humid than other regions in the country.

Rainfall: Vietnam is located at the edge of South East Asia where is bordered by the Pacific and the Indian Oceans. It is also influenced by various continental and ocean air blocks. Therefore, the rainfall is high but fluctuated and varied throughout the country. The average annual rainfall is approximately 2,000 mm. The Middle Central Part of VN is often observing the highest average annual rainfall, while the South Central Part has the lowest rainfall.

1.2.4. Hydrology

As its territory is separated by mountain ranges, Vietnam has dense river networks. There are 2,360 rivers of 10 km and above length. 13 river systems have the basin area of 3000 km² and above, in which 9 river systems have the basin area of more than 10,000 km², namely Mekong river, Red river, Ca river, Ma river, Thai Binh river, Dong Nai river, Ba river, Bang Giang – Ky Cung river and Thu Bon river.

The catchments area of Vietnam river systems is 1.167 million km², of which 835,000 km² outside its territory (71.5%). The average flow is 835 billion m³ for years, of which 313 billion m³ (37.5%) is originated in Vietnam territory

1.2.5. Socio-economic conditions

Rapid population growth and urbanization have caused serious pressure, causing the natural resources and environment degraded. The total population in the country has reached more than 85 million people now. In the near future, the population of Vietnam will be about 100 million people (as reported at APEC 2006). The rapid

population growth in the areas of potential productiveness has led to land shortages, for both residential and cultivation purposes. The human being has encroached the river channels, river estuaries, coastline, river and stream sides; exploited natural resources and minerals in an uncontrollable manner, as well as cut down and burnt forests, and increased the amount of wastes.... These are the factors that constraint the water flow, impoverish the land, silt reservoirs, cause landslides in the mountainous and hilly areas, as well as mud and rock floods. As a result, natural disaster risks have risen.

The average economic growth was beyond 7%/year in the 1990s and will be even higher in the next 2 decades. If there is no integration of natural disaster prevention, response and mitigation in the development process, this growth may cause more environmental pollution and break the ecological balance, resulting in increased disaster risks and an unsustainable development.

3. Typical natural disasters in Vietnam

a. Typhoon

Vietnam is located in the northwest of the Pacific Ocean, one of the storm-prone areas with a vast and violent number typhoons and an increasing trend especially in the recent 3 decades. Typhoon is one of the major and dangerous types of natural disasters in Vietnam. In more than 50 years (1954-2006), there were totally 380 typhoons and tropical depressions in Vietnam, of which 31% hit the North, 36% to the Northern Central and Middle Central Part and 33% to the South Central and the South. Typhoon's landfalls usually accompany with high tide and heavy rain, thus resulting in heavy and long rains and floods. It is estimated that up to 80-90% of the Vietnam's population are affected by typhoons.

b. Floods

Floods in Northern river systems

The basin areas of the Red River-Thai Binh River are 164,300 km², in which 87,400 km² are on the territory of Vietnam, crossing 23 provinces and cities and accounting for 75.7% of the natural land area of the North.

Flood season in the Red river and Thai Binh river system normally occurs from May to September, earlier than that in other regions. On average, there are about 3 to 5 floods within the region annually, each of them may last from 8 to 15 days, depending on its scale and strength. Major floods in the Red river are often generated from 3 rivers of Da, Thao and Lo, of which the Da River plays a decisive role contributing 37%-69% of the flood flow in Son Tay (49.2% on average), while the Lo river contributes 17%-41.5% (28% on average) and the Thao river contributes the lowest proportion – 13%-30% (19% on average). Floods in the Thai Binh River are often generated from 3 rivers of Cau, Thuong and Luc Nam and partly from the Red river through the Duong river.

Flood amplitude is high on the Red river system, above 10m in Hanoi. Whereas that of the Thai Binh river is above 6m in Pha Lai.

Floods on rivers in the Central

The flood season on the rivers from Thanh Hoa to Ha Tinh is from June to October every year. Floods on these rivers generally occur on main streams thanks to the dyke systems preventing the overflow. Flood amplitude is above 7m on the Ma river system and above 9m on the Ca river system.

On the rivers from Quang Binh to Binh Thuan, the flood season is from September to December. This region is characterized by short and steep river systems with rapid flows. Dyke systems in this region are relatively low or uncompleted. Therefore, floods not only occur on the mainstreams but also spread across the floodplains with the amplitude of above 8m.

Floods on rivers in the Central Highlands

There is no major river system in the region, and annual precipitation is low. The influenced area of floods in this region is narrow and characterized by mountainous and flash floods. Flood amplitude at Dabla bridge on the Dabla river is 10m.

Floods in the Eastern South rivers

Since rainfall is not very high plus a thick and diverse vegetation cover forests, floods in the Dong Nai river are not strong but long-lasting. Nevertheless, historical floods were seen such as in October 1952, the flood discharge crest in Bien Hoa was 12,500 m³/s.

Floods in the Mekong River Delta

The flooding level in the Mekong river delta is generated from upstream floods and also directly influenced by tides and water reserving capacity of Tonle Sap. The progress of floods in the Mekong river delta is slow and floods last for a long period of 4 to 5 months annually, causing inundation in almost areas of the Mekong river delta.

c. Flash floods and mud floods

Flash and mud floods are often found in mountainous and hilly areas where are characterized by steep slopes, heavy rains and disadvantaged drainage conditions. Flash floods also may occur due to the failures of small reservoirs or landslides blocking up flows, etc. Flash floods have occurred and threatened in all 33 mountainous provinces of the 4 regions, namely the Northern Mountains, the Central, the Central Highlands and the Eastern South of VN. Due to climate changes in recent years, flash floods have become more frequent in Vietnam with 2 to 4 flash floods on average happen every year during the flood season. In many cases, flash floods happen frequently at a same location. The occurrence of flash floods is usually sudden and within a small area, but very severe and often causes tremendous human and asset

losses. Some typical flash floods are the one happened in Son La town on 27 July 1991, in Muong Lay and Lai Chau in 1994, in Ha Tinh on 20 September 2002, in Yen Bai in 2005, etc. Currently flash floods are unpredictable but can be proactively prevented by zoning high risk areas and establishing warning systems.

d. Inundation

Inundation in Vietnam is usually caused by heavy rains and it last for long time in some areas. Although resulting in limited human loss, it causes remarkably negative impacts on agricultural production and the ecological environment.

d. Droughts and desertification

Drought is a common type of disaster in Vietnam, which causes the 3rd greatest losses, following typhoons and floods. In recent years, drought continuously happens throughout the country. In some particular years, droughts reduced 20-30% of the food productivity, thus severely threatening people's livelihoods and daily life. Drought control is difficult due to water shortage and depleted upstream reservoirs. Prolonged droughts result in desertification risks in several regions, especially the South Central, sandy coastal areas and slope lands in the highlands and mountain areas.

e. Salinity intrusion

The coastline of Vietnam is 3,260 km long with many river estuaries, therefore salinity intrusion is found along the entire coastline at different rates. Three zones at higher risks of salinity intrusion are the South West coastal provinces, Central coastal provinces and the downstream part of the Dong Nai River. The South West coastal region is the most severely affected by salinity intrusion with 1.77 million ha of salinity land, accounting for 45% of the total area. Salinity intrusion prevention and fresh water reservation in this area are usually very costly.

g. Whirlwind and cyclone

Whirlwind is a phenomenon of accidental strong wind within a narrow extent generated by extremely strong developing thunderclouds. A whirlwind may have sudden change of direction, and the wind velocity is from Grade 8 or more. Accompanying whirlwinds are usually showers, or even hails in some cases.

Cyclone, also called tornado is a whirlwind in a narrow area but has a very powerful strength (equivalent to a strong windstorm), formed by a strong and specially structured thundercloud. A thundercloud may form two or three tornado at the same time, which are then combined into a cyclone. A cyclone often goes with showers, rainstorm or hails with dusts and sand ...

Both whirlwind and cyclone are violent types of natural disaster. They happen suddenly and are not yet forecasted, therefore they cause vast and unpredictable consequences but that of cyclone is considerably more serious. Whirlwinds are often accompanied by strong winds that pull down trees and houses, destroy communication

and power systems, as well as sink small boats and ships ... Cyclones, due to stronger winds, high velocity and frequent directional changes, often cause violent damages. Whirlwinds and cyclones are common phenomena in Vietnam, and their frequency has increased in recent years.

h. Landslide and erosion

Landslide is a common type of disasters in Vietnam, consisting of river bank erosion, coastline erosion, and landslides on mountain slopes, land subsidence, etc. Landslides are usually caused by external factors (water), internal factors (geological changes) and human activities (unplanned mineral exploitation or construction), etc.

River bank erosion is very common throughout the country. It causes remarkable losses of residential and cultivated land area and destroys many villages along riverbanks.

Coastline erosion happens due to waves, tides, seawater rise and sea currents. Coastline erosion has led to sea intrusion, causing lost land and destroyed environment, etc.

Landslides in hill and mountain slopes are usually caused by heavily concentrated rains combining with weak geological structure and human impacts like mountain destruction for roads, forest destruction, etc. Landslides often come with mud floods and cause serious damage to the human life and assets.

i. Earthquake and tsunami

Earthquake is the phenomenon of ground surface vibration, caused by the sudden movements of geological blocks in the earth's womb, volcanic eruptions, landslides, cave collapses, etc. Earthquakes have happened in Vietnam though in a limited strength.

Tsunami is the phenomenon of long circle ocean waves at a high-propagated speed. When reaching the coastline, depending on the depth of the sea and the topography of the coastal area, these waves can be tens of meters high and travel deeply into the land, causing vast catastrophes. Tsunami is the result of earthquakes in the ocean bed. Though tsunami has not yet happened in Vietnam, many coastal areas of Vietnam may be affected by tsunami due to earthquake potentials in some neighboring countries.

k) Sea surge

Sea surge is the phenomenon of annual average of sea level in recent years higher than the multi-year average of sea level, resulted from the effects of global climate change.

4. Consequences of natural disasters to socio-economic development

a) Socio-economic consequences

Natural disaster in Vietnam is the direct impediment to the economic development, sustainable development and poverty reduction; the huge obstacle to the process of striving for the Millennium Development Goals.. Vietnam has more than 80% of its population living at risk of direct impacts of natural disasters.

Natural disaster has taken away many achievements of the national socio-economic development. In the last 5 years (2002-2006), natural disaster has killed 1,700 people and caused losses of estimated VND75,000 billion of assess.

Natural disaster intensifies the division in residents' living standard; hinders and lowers the hunger eradication and poverty alleviation, especially in areas frequently at risk of disaster. On average, millions of people are in need of assistance due to natural disasters every year. Many of them, who have just escaped from poverty, are re-impooverished due to the disasters.

Natural disaster affects educational development, destroys educational infrastructure and interrupts school time, especially in mountainous areas and the Mekong River Delta.

Natural disaster also causes negative impacts on vulnerable groups such as the old, the disabled, women, and children.

b) Environmental consequences

- Natural disaster destroys, degrades and pollutes environment and negatively affects production and community's life.

- Consequences of natural disaster result in water pollution, disease generation.

c) Consequences of natural disasters to national defence and public security

- Destroy constructions for defence and security

- Reduce the national reserve

- Cause social instability

- Cause chaotic in social security and order

II. NATURAL DISASTER PREVENTION, RESPONSE AND MITIGATION IN VIETNAM

Throughout the course of development, natural disaster prevention, response and mitigation in Vietnam have always been considered as a struggle for life and closely

linked with the founding and defence of the country. Disaster prevention, response and mitigation in Vietnam have made great progress throughout the history.

1. Course of development

Since last thousands of years, Vietnamese ancestors have seen natural disasters as one of the “4 biggest dangers to mankind”: water (floods), fire, robbers, and invaders.

Dyke constructions for flood prevention were implemented many centuries ago. By 1248, the Red river dyke system had formed. At present, the system of river and sea dykes of the nation is thousands of kilometres long.

No sooner had the Democratic Republic of Vietnam been established than President Ho Chi Minh signed Order No. 70/SL on 22 May 1946 to establish a Central Committee for Dyke Maintenance, the predecessor of the current Central Committee for Flood and Storm Control.

During the period of 1945-1954, Vietnamese people had both to fight against invaders and to prepare for and respond to natural disasters. Northern provinces built nearly 7 million m³ of dykes to strengthen critical dyke sections.

During the period of 1955-1975, flood and storm control got new further development step with the establishment of the Ministry of Water Resources, the promulgation of the Regulation on Dyke Protection and many other directives and resolutions in order to improve the capacity of flood and storm control... In this period, Northern provinces built millions of cubic meters of dykes, hundred thousands of cubic meters of stone embankments; built flood retarding zones, renovated flood diversion systems, and planted trees for wave resistance.... During this period, the North suffered many heavy floods that broke dykes in some areas. However, production and social stability were soon restored thanks to prompt recovery activities.

During the period of 1976-present, flood and storm prevention and response have been regarded as one of the particular important measures for socio-economic development. The State has promulgated these following legal documents: the Ordinance on Dykes (1989) and Ordinance on Flood and Storm Control (1993), amendments to these two ordinances (2000), the Strategy for Water Disasters (1994), the Law on Dykes (2006) and decrees to guide the implementation of these laws and ordinances. Policies on natural disaster prevention, response and mitigation have been promulgated such as policies for the ‘living with floods’ areas (Mekong River Delta), flood diversion and retarding areas (Northern region) and “avoidance and adaptation” areas (Central region). Many structural solutions have been carried out such as reservoir building, dyke upgrading, boat and ship shelter building, etc. Non-structural solutions have included forest rehabilitation, communication systems renovation, forecast, warning, international cooperation, community awareness raising, step-by-step consolidation of organizational mechanism for flood, storm control and search and rescue...

2. Achievements and limitations

a) Remarkable achievements

- ***Step-by-step accomplish legal documents***; create a legal corridor for natural disaster prevention, response and mitigation. In recent years, Vietnam has developed and promulgated relevant legal documents, such as Law on Dyke, Water Resources Law, Law on Forest Protection and Development, Law on Environment Protection, Land Law, Law on Natural Resources and Minerals, Law on Fisheries, etc., Ordinance on Flood and Storm Control, Ordinance on Exploitation and Protection of Water Resources Structures, Ordinance on Exploitation and Protection of Hydro-meteorological Structures, etc. Promulgate decrees to guide the implementation of laws and ordinances.

- ***Step-by-step strengthen the organizational mechanism; enhance the capacities, equipment and physical infrastructures*** for the direction of flood and storm control, natural disaster mitigation as well as search and rescue activities from the central to local levels.

- ***Develop and implement socio-economic development programs related to flood and storm control and natural disaster mitigation*** such as Plantation of upstream forests, protective forests, mangrove forests program; reservoirs for flood drainage and drought resistance program; “living with floods” program, safety for fishing boats and ships program, dyke reinforcement and renovation program, etc.

- ***Research and apply science and technology*** for flood and storm control as well as natural disaster prevention, response and mitigation, such as:

- + Research on prevention and control of river bank and coastline erosion;
- + Research on extreme flood preparedness for the Red River Delta;
- + Research on 12 types of natural disasters;
- + Research on the establishment of self-help financial funds;
- + Models of safe-in-disaster houses;
- + Methodology for damage and disaster relief assessment;
- + Research on flood zoning in Central provinces;
- + Research on flash flood prevention planning;
- + Apply new technologies to disaster forecast, warning and management;
- + Apply new materials and technologies to construction of several disaster prevention and mitigation structures.

- International cooperation

+ Participate in international and regional organizations for natural disaster mitigation, for example Asian Disaster Reduction Center (ADRC), Asian Disaster Preparedness Center (ADPC), ASEAN Committee on Disaster Management (ACDM), World Meteorological Organization (WMO), Typhoon Committee (TC), Natural Disaster Mitigation Partnership (NDM-P), International Strategy for Disaster Reduction (ISDR), etc.

+ Cooperate with international organizations, nations and non-government organizations in disaster mitigation such as UNDP, UNESCAP, WB, ADB, etc.,

- Search and Rescue: Establish the National Committee for Search and Rescue, strengthen the organization mechanism from central to local levels; enhance facilities and equipment for search and rescue activities; develop a master plan for search and rescue up to 2015.

- Relief and recovery activities: The State annually allocates a certain proportion of budget and reserves some essential commodities for emergency relief and prompt damage recovery. When disasters occur, political and social organizations such as the Vietnam Fatherland Front, Trade Union, Youth and Women Associations, etc. have taken the initiative to organize donation activities, supporting affected areas for quick stability. Relief and recovery efforts have also come from on-site sources, taking advantage of the mutual support tradition.

- Training, propagandizing and awareness raising: Thanks to the mass media, activities of training, propagandizing and awareness raising have been improved. Training in communities have been provided at grass-root level as well as to officers related to disaster mitigation in ministries, sectors and localities. As a result, the awareness of authorities and the residents have increased. Poor families in coastal areas have been supplied with equipment to be able to obtain information and prepare for natural disasters proactively.

- Resources for natural disaster prevention, response and mitigation

+ Every year, the government has given preference and gradually increased budget for natural disaster prevention, response and mitigation; given prior investment in specific programs and projects: The forest plantation programs, dyke upgrade programs, reservoir programs, landslide prevention programs, “living with floods” program, safety for boats and ships program.

+ Provinces have mobilized the on-site resources, taken advantage of the contributions of the people, social and political organizations, and international organizations in natural disaster prevention and damage recovery.

+ Annual Official Development Assistance (ODA) has been supplemented

b) Limitations

In recent years, we have made considerable efforts; physical and technical infrastructures for disaster preparedness have been improved; the leadership and coordination in response to natural disasters from central to local levels have made substantial progress. However, with regards to the consequences of natural disasters and the socio-economic development goals in the near future, the following shortcomings and limitations need to be addressed:

- Disaster prevention, response and mitigation activities are passive and mainly focus on addressing specific problems;
- The response to disasters is slow due to objective and subjective reasons;
- Unstable production system, inappropriate production structure;
- Infrastructure is poor and vulnerable to disaster;
- Forecast and warning systems do not meet the requirements, particularly with regards to disasters like flash floods, landslides, whirlwinds, etc;
- Emergency relief, damage recovery and rehabilitation are limited, sometimes disconcerted and lack of cooperation;
- Search and rescue activities are limited due to lack of equipments and facilities, unprofessional operations and not bringing the combined strengths of all forces and communities into full play.

c) Reasons

- Awareness
 - + Inadequate awareness of natural disasters and sustainable development, especially the approach of living in harmony with the nature is insufficiently implemented;
 - + Dependent and inactive attitude; disregard of and inexperience in natural disasters preparedness;
 - + Disseminating, training and raising community awareness of disaster prevention, response and mitigation are infrequent and unsystematic, mostly implemented throughout the mass media and training programs of natural disaster preparedness have not been included in school curriculum.
- Planning
 - + Lack of synchronous planning and short of coordination among ministries, sectors and localities. Lack of due attention to the integration of natural disaster

prevention, response and mitigation into local and sector's socio-economic development programs;

- + In construction planning, lack of due attention to safety and flood and storm avoidance, particularly in industrial zones, tourism areas, urban areas of coastal regions, mountainous areas, residential areas and transportation roads;

- + The encroachment on sea and rivers for construction or setting construction projects in areas highly prone to floods, flash floods, storms, sea surge and landslides make structures always at risks, resulting in costly for protection and maintenance;

- + Development planning has not been linked with environment and landscape protection and preservation. For example, natural sand dunes on the sea shore, upstream protective forests and mangrove forests have been destroyed for aquaculture.

- Policy and mechanism

- + Lack of penalties for failure to obey legal regulations, and the orders of relevant authorities;

- + Overlaps of functions and duties and lack of clear responsibilities;

- + Lack of policies to encourage disaster-related insurance purchases;

- + Lack of policies to encourage individuals and organizations volunteering and participating in search, rescue and response activities to natural disasters.

- Lack of regulations for organizations on the appeal, collection, receipt and distribution of disaster relief in good and cash.

- Lack of timely adjustment in policies on the mobilization of resources for disaster prevention and mitigation.

- Investment

- + Investment in natural disaster prevention, response and mitigation has been non-synchronous and not met the requirements and the given situation of disaster;

- + Investment in the maintenance, management and utilization of existing structures is not correspondent to the new construction investment;

- + Financial allocation to some critical, approved projects such as reservoirs, shelters of boats and ships, dyke system, etc. is slow and does not meet current requirements.

- Direction and management

- +The directions and orders in response to natural disasters have not yet been seriously executed; the implementation is slow; dependence on leaders still exists;

+The inspection and direction of four “on-the-spot” principles are not determinedly;

+There have been wrong directions of economic development without linking with natural disaster prevention, response and mitigation. For instance, coastal protective forests were destroyed for aquaculture while watershed protective forests were cleared for crop productions.

+ The lax management and protection of watershed forests, coastal and riverside protective forests have led to the degradation of forest coverage in some areas, restraining the effectiveness of flood, storm and drought control and causing unexpected dangers;

+ The lax management of sand exploitation on rivers and other activities on river banks have resulted in harmful impacts on flood discharge and caused erosion;

+ The shortcomings of vehicle management on rivers and at sea, particularly pelagic fishing boats have resulted in damages when disasters occur;

+ The quality control in some particular structures was insufficient, hence, damaged structures even in case of low intensity disaster. Some structures have even hindered flood discharge or made flood more serious.

+ Management of implementing progress and operation of disbursement’s procedures are still slow, especially ODA;

+ The management and utilization of resources for disaster recovery are sometimes lax, lack of transparency or for inappropriate purposes.

3. Tendency of natural disaster changes and challenges

All over the world, natural disasters are forecasted to happen more regularly in terms of types and frequency, more complex in terms of developments and more serious in terms of consequences. Global warming, climate changes, El Nino, La Nina phenomena and increase of typhoon and drought, etc., occurring recently in the world and in the region, have caused direct impacts on the climate and natural disasters in Vietnam.

The territory of Vietnam extends over 15 latitudes with 3,200 km coastline and locates in the area of humid tropical monsoon, complex topography and dense river network. These leads to many different sub-climate zones, ecologies and various types of natural disasters including typhoons, floods, flash floods, droughts, landslides, etc. Affected directly by the Pacific Ocean typhoon centre, Vietnam is hit by about 6-7 typhoons and tropical depressions every year.

Moreover, on the subjective side, the rapid industrialization and modernization in the country have resulted in comprehensive development, but at the same time, led to the increase of disaster risks. Because of human’s activities with an aim at socio-

economic development such as not disobeying natural norms or losing environmental and natural resource management in combination with population pressure, it is recognized that there were inappropriate behaviors such as mountain destruction for roads, encroachment on sea and rivers, leveling hills and mountains for construction, forest destruction, etc. These resulted in increased unsafe in case of disaster and negative impact on the economic development and destroyed environment.

Obviously, natural disasters have been making vast effects on the human's life and the sustainable development of the country.

Every effort has been made to provide a complete and accurate translation of this document; however, in all cases, the original Vietnamese language document is the official statement

実施協議報告書

目 次

実施協議報告書 本文

【付属資料】

6. 事業事前評価表

7-1. 討議議事録 (R/D)

7-2. 討議議事録 (M/M) (実施協議ミニッツ)

2008年6月から8月にかけて実施した事前調査により、ベトナム国の協力対象分野・地域に係る基礎情報を収集し、協力計画を作成したうえで、ベトナム国政府関係機関と合意形成した。その後、プロジェクトの事前評価をおこない（事前評価表は付属資料6を参照）、JICA内部の案件審査、及びJICAベトナム事務所を通じた追加情報収集、先方政府との追加的な協議を経て、2008年12月15日に討議議事録（R/D）、及び討議議事録の内容を補足するミニッツ（M/M）（以下、「実施協議ミニッツ」と呼ぶ）を取りまとめ、署名をおこなった（付属資料7参照）。

事前調査の段階から討議議事録の署名までに加えられた協力計画の主な変更内容について以下に記述する。

1. 成果レベルの主な修正事項

事前調査では、成果2を「コミュニティ防災のモデルが構築される」としていたが、モデルが指すものに曖昧さがあることから、コミュニティ防災を推進するためのプロセスやノウハウを体系的にまとめた「コミュニティ防災の推進マニュアルが作成される」ことを新たに成果2とした。

2. 活動レベルの主な修正事項

(1) 成果2に関連した活動

活動の手順をより詳しく・具体的にするため、活動の2-3として、コミュニティ防災の活動計画を作成するという項目を追加した。また、コミュニティ防災推進マニュアルを活用して、フエ省、クアンナム省内で具体的なコミュニティ防災の推進活動の実施を促進するため、活動2-6として、コミュニティ防災推進計画を策定することを追加した。

(2) 成果3に関連した活動

活動の手順をより詳しく・具体的にするため、成果3-3において対策工の施工を行う前に、対象サイトに適した工法を選定するというステップを付け加えた。

(3) 成果4に関連した活動

事前調査の段階では、活動4-2としてMARD及び中央レベルの防災関係機関のスタッフに対する研修を行うという項目を入れていたが、これは活動4-1の組織強化活動に一部含まれることと、成果1に関連する地方行政機関への能力強化支援活動を中央政府防災関係機関の参加を得ながら実施することを通じて中央政府防災関係機関の実践訓練を行うことができることから、当初の成果4-2は削除した。

(4) PDM及びPOについて

事前調査のミニッツには、暫定的なPDMとPOを添付し、これらについては継続協議をおこなうこととしていたが、最終的に、付属資料7の実施協議ミニッツに添付のとおりPDM、POを作成し合意した。

事業事前評価表（技術協力プロジェクト）

作成日：平成20年10月1日

担当部・課：地球環境部防災第一課

<p>1. 案件名</p> <p>ベトナム国中部地域災害に強い社会づくりプロジェクト</p>
<p>2. 協力概要</p> <p>(1) プロジェクト目標とアウトプットを中心とした概要の記述</p> <p>本プロジェクトは、ベトナム国中部のトゥア・ティエン・フエ省及びクアンナム省において、コミュニティを中心とした水関連災害への防災体制を強化することを目標として実施する。この目標を達成するため、コミュニティの災害対応を支える地方行政機関（地方省（中央政府の省庁と区別して地方省と表記）、郡、コミューンの各レベル）の防災能力強化を図るとともに、本プロジェクト対象地域で選定するパイロット・サイト^注において、地方行政機関と協働でコミュニティ防災事業を実施して他のコミュニティに適用可能なコミュニティ防災推進マニュアルを作成する。また、経済的損失を軽減するための河岸侵食対策を目的とした小規模・低コスト対策工について標準設計及び施工マニュアルを作成する。さらに、本プロジェクトの成果が活用されるように中央政府で防災行政の中核となる農業農村開発省の地方への防災支援能力強化を本プロジェクトの活動に組み込む。</p> <p>注) パイロット・サイトは、トゥア・ティエン・フエ省、クアンナム省で各3サイト、クアンガイ省で2サイトの計8サイト。</p> <p>なお、クアンガイ省のプロジェクトサイトにおけるプロジェクト活動は、計画中の無償資金協力案件「クアンガイ省小規模貯水池修復計画」（仮称）との連携を図り相乗効果を高める観点から、同案件対象地域から2サイトを選定してコミュニティ防災事業だけを実施するもの。</p> <p>(2) 協力期間</p> <p>2009年2月から2012年2月（3年間）</p> <p>(3) 協力総額（日本側）</p> <p>4.65億円</p> <p>(4) 協力相手先機関</p> <p>実施機関：トゥア・ティエン・フエ省人民委員会、クアンナム省人民委員会 調整機関：農業農村開発省</p> <p>クアンガイ省における活動は、連携案件である無償資金協力案件「クアンガイ省小規模貯水池修復計画」（仮称）の実施機関であるクアンガイ省人民委員会、及びクアンガイ省農業農村開発局を通じて行う。</p> <p>(5) プロジェクト対象地域</p> <p>省レベル：トゥア・ティエン・フエ省、クアンナム省 コミュニティレベル：トゥア・ティエン・フエ省、クアンナム省、及びクアンガイ省のコミュニティ防災活動パイロット・サイト（集落）</p> <p>(6) 国内協力機関</p> <p>国土交通省等</p>

(7) 裨益対象者及び規模

(直接的裨益対象者)

ア. トゥア・ティエン・フエ省及びクアンナム省の防災関係者、並びに農業農村開発省を中心とする中央政府の防災関係者

イ. コミュニティ防災活動を実施するパイロット・サイトの住民、及びコミューン・郡人民委員会防災関係者

(間接的裨益対象者)

トゥア・ティエン・フエ省、クアンナム省の住民 (合計人口約 260 万人)

3. 協力の必要性・位置付け

(1) 現状及び問題点

ベトナム中部地域は、熱帯低気圧 (台風を含む) 及び季節風の影響とラオスとの国境に沿って続く脊梁山脈の影響が相まって豪雨が多発する地域である。加えて、ラオスとの国境沿いの山脈と海岸が近接しており、降雨が河川に流出するまでの時間が短いことから、下流域では急激な増水による洪水被害が多発し、また、地形の急峻な中上流域では地すべり、斜面崩壊、土石流、フラッシュ・フラッドなどが発生する。このような気候・地形条件によって、ベトナム中部地域は毎年のように風水害、土砂災害の被害に見舞われ続けてきた。さらに、ベトナムにおいては、気候変動の影響によると考えられる台風等の熱帯低気圧による被害の大幅な増加、豪雨の多発とそれに伴う洪水被害の増加の傾向が見られ、中部地域においても今後ますます水関連災害による被害が深刻化、多発化する恐れがある。近年における特に大きな被害は、1999年11月初旬の豪雨による洪水災害によるもので、約800人の死者、3億ドルもの経済被害をもたらした。

このような風水害、土砂災害の高いリスクに対して、ベトナム国の中央、地方政府は災害リスクを軽減するべくダム、堤防、護岸等による構造物対策を進めているが、災害リスクを充分軽減するまでには至っていない。また、救命・救助体制整備、災害予警報・避難体制整備など非構造物対策にも取り組んでいるものの、災害の現場では予警報情報がコミュニティまで確実に届かない、コミュニティ住民の災害に関する知識や災害への備えが不足しているなど、様々な問題を抱えている。かかる状況に鑑み、ベトナム政府は日本政府に対し、中部地域における風水害、土砂災害のリスクを軽減するため、中部地域に広く適用可能な、コミュニティを中心としつつ地方・中央政府や研究機関が適切に支援しながら地域社会の災害対応力を高めていく仕組みづくりを主たる目的とした技術協力プロジェクトを2007年に要請してきた。

(2) 相手国政府国家政策上の位置付け

ベトナム政府は、2007年に国家防災戦略を策定した。同戦略には、災害に強いコミュニティづくりの推進、中央・地方の防災関係機関の災害対応能力強化などが謳われており、本プロジェクトの趣旨と整合している。

(3) 我が国援助政策との関連、JICA 国別援助実施方針上の位置付け (プログラムにおける位置付け)

我が国は、2005年1月に政府開発援助を通じた防災分野における開発途上国支援の基本方針等を示した「防災協カイニシアティブ」を発表し、その中で我が国の経験、知識及び技術を活用した協力の推進、ソフト面 (非構造物対策) の支援重視、個人や地域社会の防災能力強化重

視などを掲げており、本プロジェクトの方向性はこれと合致している。また、本プロジェクトは、JICA の対ベトナム協力において、「中部地域災害に強い地域づくり」プログラムの中核を成すプロジェクトとして位置づけられている。

(4) 他の援助機関による協力との関連

世界銀行は、借款と日本社会開発基金（JSDF）、開発政策・人材育成基金（PHRD）、オランダ政府資金を組み合わせ、2005年9月から2010年6月までの計画で、自然災害リスク管理プロジェクトを実施している。同プロジェクトは、①災害の予防と軽減のためのインフラ整備（ダム改修、堤防建設、洪水予警報システム構築など）、②コミュニティ防災（JSDF 及びオランダ資金により全国の約 25 コミュニティで活動実施）、③被災地の復興支援（被災した学校、病院、道路、橋、上下水道施設などの復旧・再建）、④中央・地方政府の防災力強化（地方政府についてはトゥア・ティエン・フエ省、クアンナム省を含む 10 地方省を対象）の 4 つの構成要素から成る。国連開発計画は、防災関連の法制度整備、及び中央政府と 3 つのモデル地方省（本プロジェクトの対象地方省は含まない）における災害マネジメントセンター設立・強化を柱とする 4 年間のプロジェクトを間もなく開始予定である。オーストラリア国際開発庁（AusAID）は、クアンガイ省において 2003 年 2 月から 2008 年 6 月まで、流域管理計画の策定能力強化（氾濫シミュレーション技術の移転など）、コミュニティ防災活動、防災インフラ整備（護岸、漁船避難所、塩水遡上防止水門、等）、地方省・郡レベルの防災センター建設など、構造物対策と非構造物対策を組み合わせた総合的なプロジェクトを実施した。

本プロジェクトでは、これらの関連プロジェクトの成果・経験を最大限に活用し、かつ事業の重複を避けると共に、防災先進国である我が国の知見・技術を生かした協力を実施する。具体的に、中央政府レベルの活動においては、実施中の世界銀行及び UNDP のプロジェクトと協力して中央政府の防災体制・組織のキャパシティアセスメントを実施し、特定された問題点・課題に対して、他の援助機関と役割分担をしたうえで能力強化活動を実施する。また、地方レベルの活動においては、世界銀行プロジェクトが計画しているトゥア・ティエン・フエ省、クアンナム省での省レベルの防災計画作成に対して、我が国の知見を活かした協力を行う他、同計画の実施モニタリング・改善を支援するとともに、同じく世界銀行プロジェクトが計画しているクアンナム省のトゥボン河流域の氾濫シミュレーションモデルを活用し、気候変動の影響を考慮した統合洪水管理計画の作成を行う。

4. 協力の枠組み

本プロジェクト対象地域においてコミュニティを中心とする水関連災害への防災体制を強化するというプロジェクト目標を達成するため、①対象地域の地方行政機関の地域防災計画策定や災害緊急対応などについての防災能力強化を図り、②コミュニティ防災事業の普及モデルを構築し、③経済被害軽減のために河岸侵食対策を中心とした小規模・低コストの対策工の標準設計及び施工方法を確立するとともに、④本プロジェクト成果の有効活用を担保するために中央政府における防災の中核機関である農業農村開発省の地方政府への防災支援能力強化を行う。

〔主な項目〕

(1) 協力の目標（アウトカム）

- ① 協力終了時の達成目標（プロジェクト目標）と指標・目標値

<目標>

プロジェクト対象地域において、コミュニティを中心とする水関連災害への防災体制が強化される。

<指標・目標値>

- ア. 対象地域のパイロット・サイト（集落）住民の災害リスク、災害前後に取るべき行動、避難所、避難ルートに関する理解度（目標値：住民の70%が十分に理解）
- イ. 対象地域における省、郡、コミューンの行政機関の防災能力（ハザードマップ整備、防災関連計画整備、災害予警報避難、防災施設整備、コミュニティ防災推進の各側面について、スコアリングにより数値化した防災能力）のレベル（目標値はベースライン調査時に設定）
- ウ. 中央政府による地方政府への防災関連支援能力（ハザードマップ整備、防災関連計画整備、災害予警報避難、防災施設整備、コミュニティ防災推進の各側面について、スコアリングにより数値化した支援能力）のレベル（目標値はベースライン調査時に設定）

② 協力終了後に達成が期待される目標（上位目標）と指標・目標値

<目標>

ベトナム中部地域において、水関連災害対策及び気候変動によって増大する水関連災害リスクへの適応策が強化される。

<指標・目標値>

- ア. 中部地域の各地方省における気候変動の影響を考慮したハザードマップの有無
- イ. 中部地域の各地方省における水関連災害に対する地域防災計画の有無
- ウ. 中部地域の各地方省における防災専門部局の有無
- エ. 中部地域の各地方省におけるコミュニティ防災推進活動の有無

(2) 成果（アウトプット）と活動

成果1：地方省、郡、コミューンの各レベルの行政機関において、防災能力が強化される。

活動：1-1 2020年までの国家防災戦略に対応した地方省レベルのアクションプランを策定し、実施状況をモニタリングする。

1-2 地方省政府内の防災担当部局の役割・責任を明確化し、組織強化を図る（防災担当部局の組織規定の策定支援、標準作業手順（SOP）の整備、職員の研修、等）。

1-3 地方省風水害対策委員会及びパイロット・サイト（8箇所）の所在する郡・コミューン風水害対策委員会の能力を強化する（活動対象の省、郡、コミューンの地域防災計画策定支援、災害シミュレーション訓練の実施、防災関係機関間の調整メカニズムの見直しと改善、防災関係機関職員の研修、等）。

1-4 8箇所のパイロット・サイトの所在する郡を対象に土砂災害のハザードマップを、クアンナム省のトゥボン河流域及びトゥア・ティエン・フエ省のフォン河流域を対象に洪水、河岸侵食のハザードマップを作成する。

1-5 気候変動による影響を考慮した統合洪水管理計画を策定する（気候変動によ

る予測降雨量変動を折り込んだ氾濫シミュレーションの実施、その結果を踏まえた河川施設整備・管理計画、都市開発計画、土地利用計画、各種インフラ開発計画への反映、等)。

- 1-6 早期警報避難システムを改善する（洪水警報基準、警報伝達経路、警報情報の内容の見直し・改善、及び警報伝達訓練の実施）。

<指標・目標値>

- ア. トゥア・ティエン・フエ省及びクアンナム省の人民委員会における防災専門部局の有無
- イ. 協力対象の省、郡、コミューンにおける地域防災計画、統合洪水管理計画の数（目標値：地域防災計画は各省、郡、コミューンで1つ、統合洪水管理計画は各省で1つ）
- ウ. 協力対象地域のハザードマップの数（目標値：洪水ハザードマップが2つ、河岸侵食ハザードマップが2つ、土砂災害ハザードマップが4つ）
- エ. 洪水災害情報のパイロット・サイト住民への確実な伝達の達成度（目標値はベースライン調査時に設定）

成果2：コミュニティ防災の推進マニュアルが作成される。

- 活動：2-1 協力対象コミューンとパイロット・サイト（集落）を選定する（トゥア・ティエン・フエ省、クアンナム省で各3サイト、クアンガイ省で2サイトを選定予定）。
- 2-2 現地で従来からなされている災害対策を調査する。
 - 2-3 上記2-2の調査結果を踏まえ、大学、NGO等の知見を活用し、パイロット・サイトにおけるコミュニティ防災の活動計画を作成する。
 - 2-4 大学、NGO等と共にパイロット・サイトでコミュニティ防災活動（参加型災害リスク評価、コミュニティ防災マップ作り、コミュニティ防災計画作り、防災教育、等）を実施する。
 - 2-5 パイロット・サイトでの活動から得られた教訓・手法から他のコミュニティに適用可能なコミュニティ防災推進マニュアルを作成する。
 - 2-6 トゥア・ティエン・フエ省及びクアンナム省の防災部局がコミュニティ防災推進計画を策定する。

<指標・目標値>

- ア. コミュニティ防災推進マニュアルの有無

成果3：河岸侵食対策のための小規模・低コスト対策工の標準設計と施工マニュアルが作成される。

- 活動：3-1 対策工の施工候補サイトの状況を調査する。
- 3-2 施工候補サイトから、2カ所程度の試験施工サイトを選定する。
 - 3-3 対象試験施工サイトの状況に適した小規模・低コストの対策工を選定し、施工する。
 - 3-4 対策工の評価を行い、必要に応じて工法に改善を加える。

3-5 小規模・低コスト対策工の標準設計と施工マニュアルを作成する。

<指標・目標値>

ア. 小規模・低コスト対策工の標準設計と施工マニュアルの有無

成果4：中部地域の各地方省をはじめとした地方政府に対する中央政府の防災関連支援能力が強化される。

活動：4-1 農業農村開発省の防災に関する組織機能を改善する（組織能力分析の実施、中央と地方の機能と役割の再検討、改善点・改善計画の検討、等）。

4-2 成果3で作成される標準設計と施工マニュアルを基に河川構造物の技術基準をレビューし、改定案を作成する。

4-3 成果1から3で得られた知見を活用し、地方行政機関の防災担当者向け防災研修コースを計画すると共に教材を作成する。

4-4 農業農村開発省が中心となって地方行政機関の防災担当者向け防災研修コースを実施する。

<指標・目標値>

ア. 小規模・低コストの河岸侵食対策工を盛り込んだ河川構造物技術基準改訂案の有無
イ. 地方政府の防災担当者向け研修コースの数（目標値：3コース以上の増加）

(3) 投入（インプット）

① 日本側（総額4.65億円）

ア. 専門家派遣

チーフ・アドバイザー、防災行政、コミュニティ防災、地域防災計画、治水計画、砂防計画、水文、河川改修、早期警報・避難システム、組織開発・訓練

イ. 供与機材

氾濫シミュレーション用ソフトウェア、解析用コンピュータ、救命用資機材、水位標、等

ウ. 研修員受入

9～12名程度（3～4名/年×3年間）防災行政分野等

② ベトナム国側

カウンターパート人件費、専門家執務室と付帯施設・設備、構造物の建設用地、及びプロジェクトの運営経費

(4) 外部要因（満たされるべき外部条件）

ア. 前提条件

・プロジェクトが、関係機関及びパイロット・サイトの郡・コミューン人民委員から協力を得られる。

イ. 成果達成のための外部条件

・中央・地方政府が大規模災害により機能停止に陥らない。

・プロジェクト対象地域の省人民委員会が財政危機に陥らない。

ウ. プロジェクト目標達成のための外部条件

- ・カウンターパートの大幅な人員交替・離職が起こらない。
- ・中部地域における防災の政治的重要性が低下しない。
- ・他援助機関によるプロジェクトが大幅な遅延なく実施される。

エ. 上位目標達成のための外部条件

- ・農業農村開発省及び他援助機関が、中部各省への防災力強化支援を継続する。

5. 評価 5 項目による評価結果

(1) 妥当性

ア. 現場ニーズとの整合性

ベトナム国では、従来から全土において台風や豪雨による水関連災害の高いリスクを抱えており、さらに気候変動に関する政府間パネル（IPCC）の第 4 次評価報告書によると、ベトナムにおいて気候変動の影響によると考えられる台風等の熱帯低気圧による被害の大幅な増加、豪雨の多発とそれに伴う洪水被害の増加の傾向が見られることが報告されている。この傾向は、気候変動の影響が大きくなるにつれて、今後さらに深刻化する恐れがあり、ベトナム政府は、水関連災害に対する構造物対策と非構造物対策を大幅に強化していく必要性に迫られている。

本プロジェクトは、ベトナム国の中でも特に水関連災害リスクの高い同国中部地域において、非構造物対策及び構造物対策の強化に資するものであり、ベトナム国及び協力対象地域のニーズに合致しており、実施の必要性は高いと判断される。

イ. 相手国の開発政策、日本の援助政策との整合性

ベトナム国全体の開発計画である社会経済開発 10 ヶ年戦略（2001-2010）では、中部地域における重点戦略のひとつとして自然災害対策を挙げている。また上記 3.（3）に述べたとおり我が国援助政策との整合性もあることから本プロジェクトの優先度は高いと判断される。

ウ. 協力計画の適切性

本プロジェクトの主たる対象地域となるトゥア・ティエン・フエ省とクアンナム省は、ベトナム中部地域の中でも、近年における水関連災害による被害が特に大きい 2 省であり、地理的に隣接するクアンガイ省も水関連災害が多いことから、対象地域の選定は適切である。また、本プロジェクトは、世界銀行の支援により実施中の自然災害リスク管理プロジェクト及び UNDP が計画中の防災プロジェクトと協力して中央・地方政府の防災関係者向け研修事業の計画・実施を行う計画であり、世界銀行のプロジェクトとの協力による省レベルの地域防災計画や、世界銀行プロジェクトにより作成されるトゥボン河流域の氾濫シミュレーションモデルを活用しての活動実施を予定している。さらに、アジア開発銀行が、トゥボン河流域において、流域管理委員会の設立・運営支援等を通じて推進してきた統合流域管理の流れを汲みながら本プロジェクトで作成する統合洪水管理計画を、統合流域管理にフィードバックすることとし、他援助機関による協力との相乗効果を発揮するべく計画されている。我が国

は、防災先進国であると同時に、ベトナム中部地域と類似した急流河川が多く、度重なる水関連災害に見舞われながら対策を進歩させてきた歴史・経験を有することから、この分野における我が国の比較優位性は高いと判断される。特に、1995年の阪神淡路大震災を契機に、コミュニティの防災能力強化の必要性が強く認識されるようになり、地方自治体とコミュニティとの協働による防災への取組みが強化され、防災マップ・防災計画作り、防災教育・防災知識の普及、防災無線等を通じた災害関連情報の提供など、プロジェクト対象地域が抱える諸問題に対して適用し得る知見・手法の蓄積は豊富である。

以上の点から、本プロジェクトの協力計画は適切であると判断される。

(2) 有効性

プロジェクト目標は、「プロジェクト対象地域において、コミュニティを中心とする水関連災害への防災体制が強化される」ことであるが、これはコミュニティが単独で災害に対応する体制を築くことを意図したものではなく、コミュニティを中心としつつも、コミュニティの災害対応に対し、地方行政機関、中央政府機関、大学等が直接・間接的に適切な支援をおこなう体制の構築を意図したものである。この目標に向け、本プロジェクトでは、対象地域の地方行政機関及び中央政府の防災中核機関である農業農村開発省の能力強化に取り組むと同時に、対象地域内で選定するパイロット・サイトにおいてコミュニティの防災力強化を実現しながら、防災力強化支援の有効な手法や技術を地方及び中央の行政機関に提案するものであり、これらの取り組みの結果として、プロジェクト目標が達成される可能性は高いと判断される。従って、プロジェクトの有効性は高いと考えられる。

(3) 効率性

本プロジェクトでは、世界銀行、UNDP、AusAID、国際赤十字等の他の援助機関・NGOによるプロジェクトの成果（シミュレーションモデル、マニュアル、教材、等）を最大限に活用すると同時に、中央・地方政府の防災関係者向け研修事業の計画・実施については世界銀行、UNDPプロジェクトと協調して実施する計画であり、また、コミュニティでの活動を実施するにあたっては、地元の大学やNGOの協力を得る計画である。これらの方針によって、コストを削減しつつ、質の高い協力が可能と考えられる。

(4) インパクト

本プロジェクトでは、ベトナム中部地域の3つの省を対象として、水関連災害に対する防災体制の強化を図る。その結果として、地域の防災体制強化に活用し得る手法や技術が見出され、これらが農業農村開発省による地方行政機関職員向けの防災研修コースを通じて中部地域の各地方省に提供される計画である。また、プロジェクトで取り組む農業農村開発省の地方政府に対する支援能力強化により、研修以外にも、助言・指導等を通じた中部地域各省への防災力強化支援が改善される見通しである。

さらに、本プロジェクトでは、気候変動が洪水に及ぼす影響の評価と、その影響を考慮した洪水管理計画策定手法も対象地域に導入する計画であり、その手法を農業農村開発省が活用できるようにすることで、中部地域の各地方省への適用が可能となる。

従って、本プロジェクト目標の達成が、「ベトナム中部地域において、水関連災害対策及び気候変動によって増大する水関連災害リスクへの適応策が強化される」という上位目標の達成に向けて貢献できることが見込まれ、本プロジェクトのインパクト（効果）の発現が期待される。

(5) 自立発展性

ア. 政策面

ベトナム政府が 2007 年に策定した国家防災戦略は、2020 年を目標年度とした長期戦略であり、本プロジェクトは同戦略の実施を部分的に支援する内容となっている。ベトナム政府は、2020 年まで同戦略を推進する計画であり、政策面では、プロジェクトの自立発展性は確保される。

イ. 組織面

ベトナムでは、中央、地方省、郡、コミューンというそれぞれの行政レベルにおいて、防災関係機関の代表から構成される風水害対策委員会が組織されている他、中央の農業農村開発省、地方省の農業農村開発局に、それぞれ防災担当部局が設置されており、いずれもプロジェクト終了後も存続する。本プロジェクトを通じた能力開発は、これら持続性の高い組織を主たる対象としている。また、パイロット・サイト（集落）でコミュニティ防災活動を実施するにあたっては、児童を含む幅広い層の住民を対象とした防災教育に力を入れることで住民の防災意識をプロジェクト終了後の将来にわたって高く維持することを図るとともに、防災に特化しない既存のコミュニティ組織（例えば婦人会、青年団など）による防災活動を促進するなど、プロジェクト終了後もパイロット・サイトにおける防災能力向上への取組みが持続するための工夫を盛り込んでいく。したがって、組織面の自立発展性についても確保される見通しである。

ウ. 財政面

ベトナム国は経済成長が著しく、政府歳入が 2000 年の約 91 兆ベトナムドンから 2006 年には 279 兆ベトナムドンと、同期間の物価上昇率約 35%を考慮しても大幅に増加しており、水関連災害対策への関心の高まりとともに投入可能な資源の増加が期待されることから、プロジェクトの財政面における自立発展性も期待できる。

エ. 技術面

技術面においては、現地で調達可能な資機材で施工可能な河岸侵食対策工法の提案やベトナム国の行政の仕組みに合わせた防災体制構築の助言指導を行うなど、現地の経済・社会状況や技術レベルに配慮した協力を行う計画であることから、現時点で技術面での自立発展性についても確保される見通しである。

6. 貧困・ジェンダー・環境等への配慮

貧困層は、経済的な理由から急傾斜地及びその周辺や河川敷など災害リスクの高い地域に住せざるを得ない場合が多く、自然災害に被災しやすい。また、性別、年齢（高齢者、子供を

含む)、障害の有無などによって、被災のリスクやパターンが異なることに留意が必要である。

従って、本プロジェクトの実施にあたっては、コミュニティ内の構成員間で異なる被災リスクと支援ニーズに配慮した活動を実施するとともに、そのような配慮の必要性について、相手国防災関係者に充分説明し理解促進を図る。また、防災ワークショップや避難訓練などへの災害弱者の参加を促進し、女性組織や学校児童を対象とした防災教育活動を取り入れるなど、女性、男性それぞれに行き渡るような活動を実施する。地域防災計画の策定にあたっては、計画策定プロセスへの災害弱者の参画を促進するなどして、災害弱者への配慮が地域の防災計画に適切に盛り込まれるようにする。

7. 過去の類似案件からの教訓の活用

調査研究「キャパシティ・ディベロップメントの観点からのコミュニティ防災」の報告書には、JICA 及び他の援助機関・NGO によるコミュニティ防災関連プロジェクトの分析に基づく教訓がまとめられている。本プロジェクトでは、例えば以下のような教訓を、協力計画作成にあたって参考とした。また、プロジェクトの実施段階でも留意する。

- ・コミュニティ防災事業の持続性と他地域への普及を確保するためには、コミュニティのみならず、中央・地方の行政機関を支援対象に含めることが有効である。
- ・大学や研究機関などの第三者機関と連携し、関連する分野の現地専門家や研究者の協力を得ることにより、行政機関の防災担当者の防災意識向上、技術的な能力強化を効果的に達成することが可能となる。
- ・洪水予警報は、観測、予警報、避難の一連のコミュニケーションが完全につながっていることが重要で、このつながりが一箇所でも途切れていると予警報の効果が発揮されなくなる。

8. 今後の評価計画

終了時評価 2011年9月頃

事後評価 協力終了3年後を目処に実施予定

**RECORD OF DISCUSSIONS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY VIETNAM OFFICE
AND
AUTHORITIES CONCERNED OF THE SOCIALIST REPUBLIC OF VIETNAM
ON JAPANESE TECHNICAL COOPERATION
FOR THE PROJECT
FOR BUILDING DISASTER RESILIENT SOCIETIES
IN CENTRAL REGION IN VIETNAM**

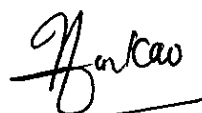
Resident Representative of Japan International Cooperation Agency (hereinafter referred to as "JICA") in the Socialist Republic of Vietnam exchanged views and had a series of discussions with the Vietnamese authorities concerned with respect to desirable measures to be taken by JICA and Vietnamese authorities concerned for the successful implementation of the Project for Building Disaster Resilient Societies in Central Region in Vietnam (hereinafter referred to as "the Project").

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of the Socialist Republic of Vietnam, signed in Hanoi on October 20, 1998 (hereinafter referred to as "the Agreement"), the Resident Representative of JICA and Vietnamese authorities concerned agreed on the matters referred to in the document attached hereto.

Hanoi, December 15, 2008



Mr. Motonbri Tsuno
Chief Representative
Japan International Cooperation Agency
Vietnam Office



Mr. Nguyen Van Cao
Vice Chairman of the People's Committee of
Thua Thien Hue Province



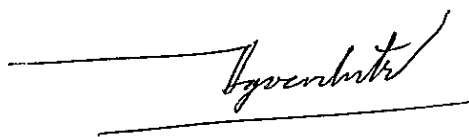
Mr. Nguyen Xuan Dieu
Acting Director General
Department of Dyke Management and Flood
Storm Control
Ministry of Agriculture and Rural Development



Mr. Nguyen Ngoc Quang
Vice Chairman of the People's Committee of
Quang Nam Province



Mr. Tran Kim Long
Deputy Director General
International Cooperation Department
Ministry of Agriculture and Rural Development



Mr. Truong Ngoc Nhi
Vice Chairman of the People's Committee of
Quang Ngai Province



Mr. Nguyen Xuan Tien
Deputy Director General
Department of Foreign Economic Relations
Ministry of Planning and Investment

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND VIETNAMESE AUTHORITIES CONCERNED

1. The Vietnamese authorities concerned will implement the Project for Building Disaster Resilient Societies in Central Region in Vietnam (hereinafter referred to as “the Project”) in cooperation with JICA.
2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article of the Agreement, JICA, as the executing agency for technical cooperation by the Government of JAPAN, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS

JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Articles V, VI, and VII of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as “the Equipment”) necessary for the implementation of the Project as listed in Annex III. The provision of Article VIII of the Agreement will be applied to the Equipment.

3. TRAINING OF VIETNAMESE PERSONNEL IN JAPAN

JICA will receive the Vietnamese personnel connected with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE VIETNAMESE AUTHORITIES CONCERNED

1. The Vietnamese authorities concerned will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
2. The Vietnamese authorities concerned will ensure that the technologies and knowledge

acquired by the Vietnamese nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of Vietnam.

3. In accordance with the provisions of Article VI of the Agreement, the Vietnamese authorities concerned will grant in Vietnam privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.
4. In accordance with the provisions of Article VIII of the Agreement, the Vietnamese authorities concerned will take the measures necessary to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.
5. The Vietnamese authorities concerned will take necessary measures to ensure that the knowledge and experience acquired by the Vietnamese personnel from technical training in Japan will be utilized effectively in the implementation of the Project.
6. In accordance with the provision of Article V (b) of the Agreement, the Vietnamese authorities concerned will provide the services of Vietnamese counterpart personnel and administrative personnel as listed in Annex IV.
7. In accordance with the provision of Article V (a) of the Agreement, the Vietnamese authorities concerned will provide the buildings and facilities as listed in Annex V.
8. In accordance with the laws and regulations in force in Vietnam, the Vietnamese authorities concerned will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.
9. In accordance with the laws and regulations in force in Vietnam, the Vietnamese authorities concerned will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Vice Chairmen of Provincial People's Committees of Thua Thien Hue and Quang Nam, as the Project Directors, will bear overall responsibility for the administration and implementation of the Project.

2. Deputy Directors of the Departments of Agriculture and Rural Development in Thua Thien Hue and Quang Nam Provinces, as the Project Managers, will be responsible for the managerial and technical matters of the Project.
3. Disaster management divisions of Thua Thien Hue and Quang Nam Provinces will function as project management organizations.
4. The Japanese Chief Advisor will provide necessary recommendations and advice to the Project Directors and the Project Managers on any matters pertaining to the implementation of the Project.
5. The Japanese experts will give necessary technical guidance and advice to Vietnamese counterpart personnel on technical matters pertaining to the implementation of the Project.
6. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee and Provincial Steering Committees will be established whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Vietnamese authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VII of the Agreement, the Vietnamese authorities concerned undertake to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Vietnam except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Vietnamese authorities concerned on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE

PROJECT

For the purpose of promoting support for the Project among the people of Vietnam, the Vietnamese authorities concerned will take appropriate measures to make the Project widely known to the people of Vietnam.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be three (3) years starting from the date when the first Japanese expert arrives in Vietnam.

ANNEX I	MASTER PLAN
ANNEX II	LIST OF JAPANESE EXPERTS
ANNEX III	LIST OF MACHINERY AND EQUIPMENT
ANNEX IV	LIST OF VIETNAMESE COUNTERPART AND ADMINISTRATIVE PERSONNEL
ANNEX V	LIST OF BUILDINGS AND FACILITIES
ANNEX VI	JOINT COORDINATING COMMITTEE AND PROVINCIAL STEERING COMMITTEES

MASTER PLAN OF THE PROJECT

Super goal

Measures against water-related disasters and adaptation to the increasing risk caused by the climate change are strengthened.

Overall goal

Measures against water-related disasters adapted to the exacerbating effects by the global climate change are strengthened in Central Vietnam.

Project purpose

Community-centered disaster management (CCDM) systems are strengthened in the project area.

Outputs

1. Organizational capacities of disaster management at provincial, district, and commune levels are developed.
2. A manual for promoting CCDM is developed.
3. Appropriate technologies of low-cost small-scale structural measures against river bank erosion are developed.
4. MARD's supporting capacities in disaster management to local governments are developed.

Activities

- 1-1. To formulate/update and monitor the action plans of provinces according to the national strategy for natural disaster prevention, response and mitigation to 2020
- 1-2. To consolidate disaster management divisions within Departments of Agriculture and Rural Development and make them effectively function
- 1-3. To strengthen the capacities of provincial committees of flood and storm control (CFSC) and district and commune CFSC of pilot sites
- 1-4. To produce hazard maps on sediment disasters, floods, and bank erosion
- 1-5. To formulate integrated flood management plans considering climate change effects
- 1-6. To improve early warning and evacuation systems

- 2-1. To select target communes and pilot sites (hamlets)
- 2-2. To evaluate existing coping mechanisms
- 2-3. To formulate plans of CCDM activities in pilot sites utilizing expertise of local universities and NGOs
- 2-4. To conduct activities of CCDM in collaboration with local universities and NGOs
- 2-5. To produce a manual for promoting CCDM, reflecting lessons and practices of pilot activities
- 2-6. To formulate CCDM promotion programs

- 3-1. To survey the conditions of candidate sites
- 3-2. To select two construction sites
- 3-3. To determine suitable low-cost small-scale works for each construction site, and implement the works
- 3-4. To evaluate the works and make necessary modifications
- 3-5. To produce standard designs and construction manuals of low-cost small-scale structural measures

- 4-1. To improve institutional functions of disaster management of MARD
- 4-2. To review technical guidelines of countermeasures and submit them for approval
- 4-3. To plan training programs for local government officials in charge of disaster management, and produce training materials
- 4-4. To conduct training courses of disaster management for local government officials in charge

LIST OF JAPANESE EXPERTS

Fields of expertise to be covered by the Japanese experts are as follows:

1. Chief advisor
2. Disaster management administration
3. Community-centered disaster management
4. Local disaster management planning
5. Planning for water-related disaster management
6. Planning for sediment disaster management
7. Hydrology
8. River improvement works
9. Early warning and evacuation system
10. Institutional development and training
11. Urban planning

LIST OF MACHINERY AND EQUIPMENT

1. Equipment related to early warning and evacuation
2. Equipment related to training
3. Office equipment
4. Other equipment mutually agreed upon as necessary for the implementation of the Project

LIST OF VIETNAMESE COUNTERPART AND ADMINISTRATIVE PERSONNEL

1. Project Directors

Mr. Nguyen Ngoc Quang, Vice Chairman, Provincial People's Committee of Quang Nam

Mr. Nguyen Van Cao, Vice Chairman, Provincial People's Committee of Thua Thien Hue

2. Project Managers

Mr. Nguyen Van Tien, Deputy Director of the Department of Agriculture and Rural Development in Quang Nam Province

Mr. Tran Kim Thanh, Deputy Director of the Department of Agriculture and Rural Development in Thua Thien Hue Province

3. Counterparts

(1) MARD

Mr. Nguyen Xuan Dieu, Acting Director General, Department of Dyke Management and Flood and Storm Control (DDFSC)

Mr. Le Xuan Truong, Deputy Director, Disaster Management Center - DDFSC

(2) Quang Nam Province (responsible areas are indicated in parentheses)

Mr. Nguyen Minh Tuan, Water Resource Engineer, Manager of Water Resources Sub-Department of Quang Nam province cum Manager of Standing Office of Flood and Storm Control Committee of Quang Nam province (Disaster management)

Mr. Huynh Tan Tuan, Water Resource Engineer, Expert of Water Resources Sub-Department of Quang Nam province (Hydrology)

Mr. Nguyen Hoai Phuong, Vice Manager of Water Resources Sub-Department of Quang Nam province cum Vice Manager of Standing Office of Flood and Storm Control Committee of Quang Nam province (Structure)

Mr. Nguyen Van Phuc, Msc. in Water Resources, Expert of Water Resources Sub-Department of Quang Nam province (Community support)

Mr. Le Van Thu, Water Resource Engineer, Head of Irrigation - Flood and Storm Control Division (to be changed to Natural Disaster Management Division) under Water Resources Sub-Department of Quang Nam province (Training and institution)

(3) Thua Thien Hue Province (responsible areas are indicated in parentheses)

Mr. Dang Van Hoa, Head of DMD (Disaster management)

Ms. Tran Diem Ly (Hydrology)

Mr. Le Ke Binh (Structure)

Ms. Nguyen Thai Nam Phuong (Community support)

Mr. Nguyen Xuan Duyen (Training and institution)

Note: Counterpart and administrative personnel in Quang Ngai Province will be determined in conjunction with the planned Japanese grant aid project for restoration of small reservoirs.

LIST OF BUILDINGS AND FACILITIES

1. Permanent office spaces in Hue and Tam Ky, and a provisional office space in Hanoi, with basic furniture, facilities of communication and public utilities, and meeting rooms necessary for Japanese experts to undertake project activities
2. Space for the construction of small scale infrastructure
3. Other facilities mutually agreed upon as necessary for the implementation of the Project

JOINT COORDINATING COMMITTEE AND PROVINCIAL STEERING COMMITTEES

1. Joint Coordinating Committee

The Joint Coordinating Committee (hereinafter referred to as “JCC”) will be organized and meet at least once a year and whenever necessity arises, in order to fulfill the following functions;

- (1) To formulate the annual work plan of the Project
- (2) To review the progress of the annual work plan
- (3) To review and exchange opinions on major issues that may arise during the implementation of the Project
- (4) To discuss any other issue(s) pertinent to the smooth implementation of the Project

The JCC members will be the following

Vietnamese side:

Director General of Department of Dyke Management and Flood Control of MARD
(Chairperson)

Director General of International Cooperation Department of MARD

Director General of Hydro-Meteorology Service

Project Directors

Project Managers

Japanese side:

Resident Representative of JICA Vietnam Office

Japanese experts

Note: Disaster management division of MARD will be the secretariat of JCC

Representative(s) of the Embassy of Japan may participate in the JCC as observer(s)

2. Provincial Steering Committee

For the smooth implementation of the project, provincial steering committees will be organized in Quang Nam Province and Thua Thien Hue Province. The committees meet every 6 months or whenever necessity arises in the respective provinces to discuss and resolve technical and operational issues of the Project. Committee members are as follows:

Chairperson: Vice-chairman of Provincial People’s Committee (PPC)

Members: Director of the Department of Agriculture and Rural Development (DARD)

Director of Planning and Investment (DPI)

Director of Finance (DOF)

Director of Natural Resources and Environment (DONRE)

Director of Hydro-meteorology Center in the province

Deputy Director of DARD

Chairmen of District People’s Committees of target districts

Japanese experts


Note: The members of the committee may appoint their substitution to attend the committee meeting.

**MINUTES OF MEETINGS
BETWEEN
THE RESIDENT REPRESENTATIVE OF JICA VIETNAM OFFICE
AND
AUTHORITIES CONCERNED OF THE SOCIALIST REPUBLIC OF VIETNAM
ON
THE JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR BUILDING DISASTER RESILIENT SOCIETIES
IN CENTRAL REGION IN VIETNAM**


The Resident Representative of the Japan International Cooperation Agency (hereinafter referred to as "JICA") in the Socialist Republic of Vietnam had a series of discussions with authorities concerned with respect to the planning of the Project for Building Disaster Resilient Societies in Central Region in Vietnam (hereinafter referred to as "the Project").

As a result of the discussions, the Resident Representative of JICA and Vietnamese authorities concerned agreed on the matters referred to in the document attached hereto as supplement to the Record of Discussions of the Project.


Hanoi, December 15, 2008




Mr. Motohori Tsuno
Chief Representative
Japan International Cooperation Agency
Vietnam Office




Mr. Nguyen Van Cao
Vice Chairman of the People's Committee of
Thua Thien Hue Province



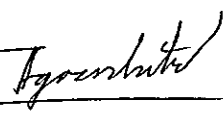
Mr. Nguyen Xuan Dieu
Acting Director General
Department of Dyke Management and Flood
Control
Ministry of Agriculture and Rural Development



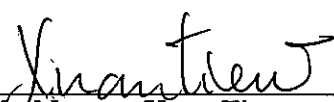
Mr. Nguyen Ngoc Quang
Vice Chairman of the People's Committee of
Quang Nam Province



Mr. Tran Kim Long
Deputy Director General
International Cooperation Department
Ministry of Agriculture and Rural Development



Mr. Truong Ngoc Nhi
Vice Chairman of the People's Committee of
Quang Ngai Province



Mr. Nguyen Xuan Tien
Deputy Director General
Department of Foreign Economic Relation
Ministry of Planning and Investment

THE ATTACHED DOCUMENT

I. PROJECT DESIGN MATRIX AND TENTATIVE PLAN OF OPERATION

Both sides agreed to adopt the Project Design Matrix (hereinafter referred to as “PDM”) shown in ANNEX I as a tool for effective and efficient management as well as evaluation of the Project. The Tentative Plan of Operation in accordance with the PDM is shown in ANNEX II.

ANNEX I PROJECT DESIGN MATRIX (PDM)
ANNEX II TENTATIVE PLAN OF OPERATION (PO)

Project Design Matrix (PDM)

Project title: the Project for Building Disaster Resilient Societies in Central Region in Vietnam
 Implementing agencies: Provincial People's Committees of Thua Thien Hue, Quang Nam, and Quang Ngai
 Coordinating agency: Ministry of Agriculture and Rural Development Target area: Thua Thien Hue, Quang Nam, and Quang Ngai Provinces
 Cooperation period: 3 years from the Japanese fiscal year 2008 Version 1.0 Date: December 2008

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
<p>Super Goal Measures against water-related disasters and adaptation to the increasing risk caused by the climate change are strengthened.</p>	<ol style="list-style-type: none"> 1. Existence of flood hazard maps, taking the effects of climate change into consideration, in all provinces 2. Existence of provincial DMPs for water-related disasters in all provinces 3. Existence of specialized DMDs in the governments of all provinces 4. Existence of activities led by provincial governments for promotion of CCDM in all provinces 	<ol style="list-style-type: none"> 1. Survey of the availability and contents of flood hazard maps in all provinces 2. Survey of the availability and contents of provincial disaster management plans for water-related disasters in all provinces 3. Verification of the organization of provincial governments of all provinces 4. Survey of provincial government activities for promotion of CCDM in all provinces 	
<p>Overall Goal Measures against water-related disasters adapted to the exacerbating effects by the global climate change are strengthened in Central Vietnam.</p>	<ol style="list-style-type: none"> 1. Existence of flood hazard maps, taking the effects of climate change into consideration, in central provinces 2. Existence of provincial DMPs for water-related disasters in central provinces 3. Existence of specialized DMDs in the governments of central provinces 4. Existence of activities led by provincial governments for promotion of CCDM in central provinces 	<ol style="list-style-type: none"> 1. Survey of the availability and contents of flood hazard maps in central provinces 2. Survey of the availability and contents of provincial disaster management plans for water-related disasters in central provinces 3. Verification of the organization of provincial governments of central provinces 4. Survey of provincial government activities for promotion of CCDM in central provinces 	<ol style="list-style-type: none"> 1. MARD and international development partners continue to provide assistance to all provinces for strengthening their disaster management capacities. 2. The effects of climate change on each region of Vietnam are analyzed.

<p>Project Purpose Community-centered disaster management (CCDM) systems are strengthened in the project area</p>	<p>1. Level of awareness and knowledge of the residents in pilot sites (hamlets) about disaster risks, measures to be taken before and after disasters, location of evacuation shelters, and evacuation routes (target value: 70% of residents have sufficient knowledge)</p> <p>2. Level of disaster management capacities of target provincial, district and commune governments (target value will be determined at the time of a baseline survey)</p> <p>3. Level of central government's capacities of the disaster management support for local governments (target value will be determined at the time of a baseline survey)</p>	<p>1. Field survey in pilot sites</p> <p>2. Comparison of the results of the capacity assessment of target provincial, district and commune governments at the beginning and the end of the Project</p> <p>3. Comparison of the results of capacity assessment of the central government at the beginning and the end of the Project</p>	<p>1. MARD and international development partners continue to provide assistance to the central provinces for strengthening their disaster management capacities.</p>
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<p>Output 1 Organizational capacities of disaster management at provincial, district, and commune levels are developed.</p>	<p>1-1. Existence of specialized DMDs in Quang Nam and Thua Thien Hue Provinces 1-2. Number of DMPs and integrated flood management plans (target value: 1 DMP for each target province, district and commune, and 1 integrated flood management plan for each target province) 1-3. Number of hazard maps in the project target area (target value: 2 flood hazard maps, 2 river bank erosion maps, and 4 sediment disaster maps) 1-4. Level of achievement of the delivery of flood information to every resident in pilot site (target value will be determined at the time of a baseline survey)</p>	<p>1-1. Organizational charts of provincial governments 1-2. Survey of availability of DMPs and integrated flood management plans 1-3. Survey of availability of hazard maps 1-4. Comparison of the results of interview surveys to the residents of pilot sites at the beginning and the end of the Project</p>	<p>1. There is no substantial turn over and/or redistribution of counterpart personnel 2. The political significance of disaster management in central region does not decline. 3. Projects supported by other development partners will be implemented without delay.</p>
<p>Output 2 A manual for promoting CCDM is developed.</p>	<p>2-1. Existence of the manual for promoting CCDM</p>	<p>2-1. Verification of the availability of the manuals</p>	
<p>Output 3 Appropriate technologies of low-cost small-scale structural measures against river bank erosion are developed.</p>	<p>3-1. Existence of the standard designs and construction manuals for the low-cost small-scale river structure</p>	<p>3-1. Verification of the availability of the standard designs and construction manuals</p>	

<p>Output 4 MARD's supporting capacities in disaster management to local governments are developed.</p>	<p>4-1. Existence of draft new technical guidelines for river structures integrating low-cost small-scale structural measures for bank erosion</p> <p>4-2. Number of disaster management training courses for local government officials (target value: 3 courses are newly established)</p>	<p>4-1. Verification of the contents of the draft new technical guidelines for river structures</p> <p>4-2. Verification of the availability of the new training courses for local government officials</p>	
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<p>Activities</p> <p>1-1. To formulate/update and monitor the action plans of provinces according to the national strategy for natural disaster prevention, response and mitigation to 2020</p> <p>1-2. To consolidate DMDs within Departments of Agriculture and Rural Development and make them effectively function</p> <p>1-3. To strengthen the capacities of provincial committees of flood and storm control (CFSC) and district and commune CFSC of pilot sites</p> <p>1-4. To produce hazard maps on sediment disasters, floods, and bank erosion</p> <p>1-5. To formulate integrated flood management plans considering climate change effects</p> <p>1-6. To improve early warning and evacuation systems</p>	<p>Inputs of Japanese side:</p> <p>1. Dispatch of experts</p> <p>Fields of expertise to be covered by Japanese experts</p> <p>(1) Chief advisor</p> <p>(2) Disaster management administration</p> <p>(3) CCDDM</p> <p>(4) DMP</p> <p>(5) Planning for water-related disaster management</p> <p>(6) Planning for sediment disaster management</p> <p>(7) Hydrology</p> <p>(8) River improvement works</p> <p>(9) Early warning and evacuation system</p> <p>(10) Institutional development and training</p> <p>(11) Urban planning</p> <p>2. Training in Japan: 3-4 counterparts/year</p> <p>3. Provision of equipment:</p> <p>(1) Equipment related to early warning and evacuation</p> <p>(2) Equipment related to training</p> <p>(3) Office equipment</p> <p>(4) Other equipment mutually agreed upon as</p>	<p>Inputs of Vietnamese side:</p> <p>1. Assignment of counterpart personnel and administrative personnel</p> <p>2. Permanent office spaces in Hue and Tam Ky, and a provisional office space in Hanoi, with furniture, facilities of communication and public utilities, and meeting rooms</p> <p>3. Space for the construction of small scale infrastructure</p> <p>4. Machinery, equipment, instruments, vehicles, tools, and spare parts</p> <p>5. Running expenses</p>	<p>1. The functions of central and local governments are not paralyzed by the occurrence of natural disasters of enormous scale.</p> <p>2. The fiscal state of the Provincial People's Committees of project target area does not fall into crisis.</p>
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<p>2-1. To select target communes and pilot sites (hamlets)</p> <p>2-2. To evaluate existing coping mechanisms</p> <p>2-3. To formulate plans of CCDM activities in pilot sites utilizing expertise of local universities and NGOs</p> <p>2-4. To conduct activities of CCDM in collaboration with local universities and NGOs</p> <p>2-5. To produce a manual for promoting CCDM, reflecting lessons and practices of pilot activities</p> <p>2-6. To formulate CCDM promotion programs</p>			
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<p>3-1. To survey the conditions of candidate sites</p> <p>3-2. To select two construction sites</p> <p>3-3. To determine suitable low-cost small-scale works for each construction site, and implement the works</p> <p>3-4. To evaluate the works and make necessary modifications</p> <p>3-5. To produce standard designs and construction manuals of low-cost small-scale structural measures</p>		
<p>4-1. To improve institutional functions of disaster management of MARD</p> <p>4-2. To review technical guidelines of countermeasures and submit them for approval</p> <p>4-3. To plan training programs for local government officials in charge of disaster management, and produce training materials</p> <p>4-4. To conduct training courses of disaster management for local government officials in charge</p>		<p>Pre-conditions</p> <p>1. The Project receives cooperation of the collaborating organizations of the Project, and district and commune people's committees of pilot sites.</p>

Plan of Operation (PO)

Activities	Year 1				Year 2				Year 3			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
1-1. To formulate/update and monitor the action plans of provinces according to the national strategy for natural disaster prevention, response and mitigation to 2020	■			■				■				■
1-2. To consolidate disaster management divisions within Departments of Agriculture and Rural Development and make them effectively function	■	■	■			■				■		■
1-3. To strengthen the capacities of provincial committees of flood and storm control (CFSC) and district and commune CFSC of pilot sites	■		■	■		■		■		■		■
1-4. To produce hazard maps on sediment disasters, floods, and bank erosion		■		■		■		■				
1-5. To formulate integrated flood management plans considering climate change effects		■								■		
1-6. To improve early warning and evacuation systems						■				■		
2-1. To select target communes and pilot sites (hamlets)	■	■										
2-2. To evaluate existing coping mechanisms	■	■										
2-3. To formulate plans of CCDM activities in pilot sites utilizing expertise of local universities and NGOs						■						
2-4. To conduct activities of CCDM in collaboration with local universities and NGOs					■	■			■	■		

