

NARBO
Network of Asian River Basin Organizations

NETWORK OF ASIAN RIVER BASIN ORGANIZATIONS
Thematic Workshop on Water-Related Disaster
and Its Management in Asian Countries
Yogyakarta - Indonesia, 26th Nov - 29th Nov, 2007

MINISTRY OF AGRICULTURE
AND RURAL DEVELOPMENT OF VIETNAM
General Office for RIBOs in Vietnam

**NATURAL DISASTERS IN VIET NAM
AND NATIONAL STRATEGY FOR
PREVENTION RESPOND & MITIGATION**

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MAIN CONTENTS

- I. Introduction of Natural Disasters & Water-related Disaster in Viet Nam
- II. Brief Introduction of MARD.
- III. National Strategy on Prevention Respond & Mitigation
- IV. Conclusion and Recommendations

VIETNAM

Area 333,000 km²
 Population 84 million (roughly)
 Population Density 226 persons/km²
 Urban Area Percentage 20%
 Rural Area Percentage 80%
 Long coastal: 3,200 km

- A. INTRODUCTION OF NATURAL DISASTER IN VIETNAM**
- The change of global weather and climate resulted in increment of natural disasters.
 - Affected annually by water-related disasters:
 1. Floods
 2. Typhoons
 3. Storm Surges
 4. Flashfloods
 5. Drought
 Others: Landslides, saline intrusion, etc...
 causing losses of human life and properties.

A. INTRODUCTION OF NATURAL DISASTER IN VIETNAM

River Flooding
 Flash floods
 Typhoons
 Storm Surges

- ADB suggestion: 11 types.
 - Not included in map:
 Droughts; Salt water intrusion; Landslide; Earthquake; Ecological; fire/arson; coastal erosion.

Natural Disasters in Viet Nam

TROPICAL STORMS:

Record to remember:
 ✓ Historical flood event of 1945 & 1971 on the Red river system.

Present design water levels based on flood levels of 1971

Natural Disasters in Viet Nam

TROPICAL STORMS (Cont.):

Record to remember:

- ✓ Linda Storm 1997; Xangsen Typhoon 2006
- ✓ Flash floods in Lai Chau Province 1996
- ✓ Flooding in Central Vietnam 1999 (E.g of Vu Gia- Thu Bon RB,ect)
- ✓ Flooding in MeKong River 2000, 2001,2002
- 1961-2002: 413 Tropical cyclones (TCs) in South China Sea, 192 TCs (48.2%) formed in the Northwest Pacific, the rest were originated in the South China Sea
 - Average: 10.24 tropical storms/typhoons and 2.24 tropical depressions (TDs).
 - TCs season: from June to November with maximum in August and September.

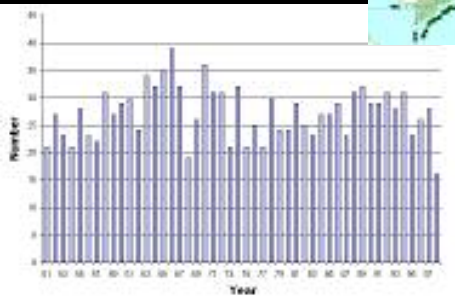
Natural Disasters in Viet Nam

TROPICAL STORMS:

- The active region: 15°N - 22°N and 110°E - 120°E
 - The typhoon usually were originated from the Northwest Pacific
 - The TSs in South China Sea: less strong, have unusual track
 - Every year, Viet Nam has affected by 5-6 TSs and 2-3 TDs;
- Tropical storms Frequency in the South China Sea

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
0.07	0.05	0.05	0.14	0.40	1.0	1.62	1.74	1.74	1.64	1.33	0.45	10.24

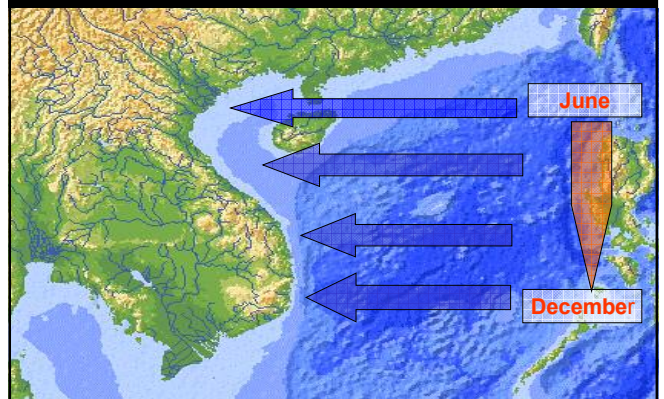
Number of storm track to Vietnam in 2000



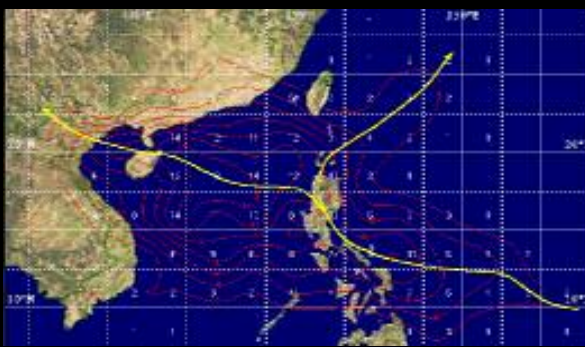
Number of storms in northwest of Pacific Ocean from 1951 to 1998

Natural Disasters in Viet Nam

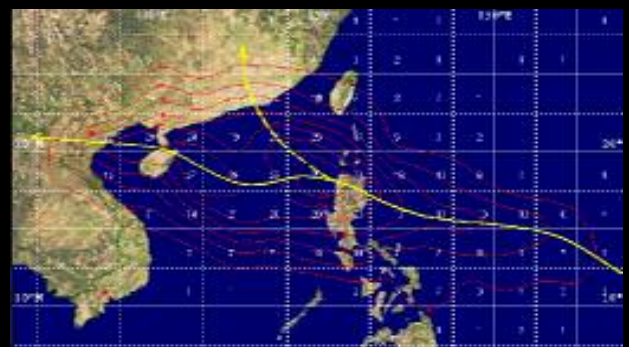
TYPHOONS & STORMS TRACKS :



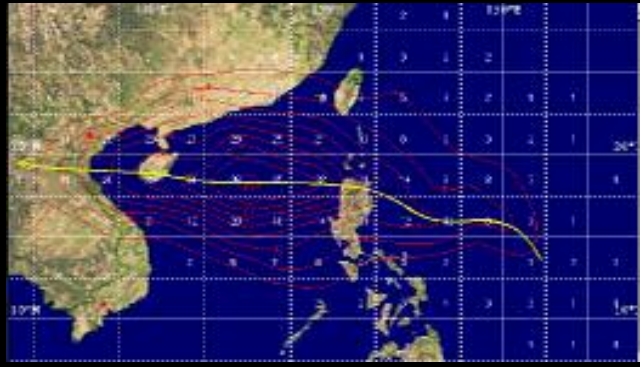
Average track in June (1961 - 2000)



Average track in July (1961 - 2000)



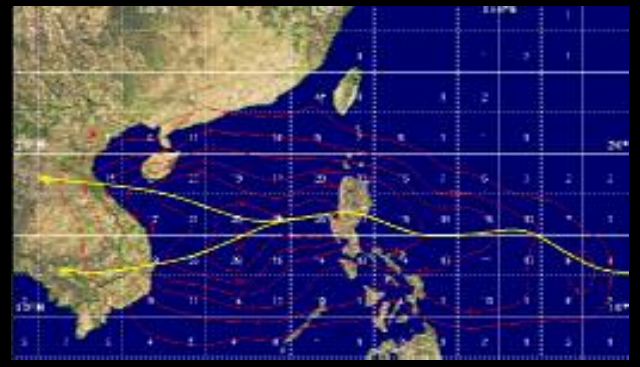
Average track in August
(1961 - 2000)



Average track in September
(1961 - 2000)



Average track in October
(1961 - 2000)



Average track in November and December
(1961 - 2000)



SPECIAL TRACKS



Wayne (8614)

SPECIAL TRACKS



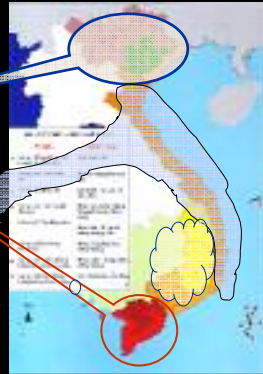
Willie (9604)

Natural Disasters in Viet Nam

FLOODs (cont.)

➤ 4 Typical flood Regions are:

1. Red river Delta
2. Mekong river Delta
3. Central part
4. Mountainous and Tay Nguyen regions



Natural Disasters in Viet Nam

FLOODs – Some characteristics

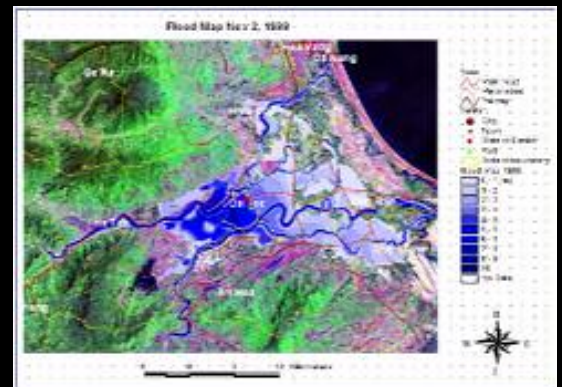
- The flow distribution is not homogeneous in flood season and usually accounts for 20-30% the yearly average flow.
- The floods usually occur in Jul - Aug for the North and Sep - Oct in the Southern part of Viet Nam.
- The flood intensity may reach to 2 - 5m/h in mountainous areas and 5 - 20cm/h for downstream areas.
- Flood amplitude may reach to 10 – 20m, some places 30m (Lai Chau) in mountainous region; 3 – 8 m in plain areas.

Natural Disasters in Viet Nam

FLOODs - Some characteristics (cont.)

- The inundation usually persists for several days in the North and for several months in Mekong river delta with inundation depth of about 2 - 4m.
- Floods are extremely dangerous when there is a combination with typhoon, storm surge, heavy rain and tide.
- Tropical cyclone caused flood and inundation

INUNDATION- Vu Gia- Thu Bon RB 1999, the historical Inundation by Flood in the last 60 years



FLOODING & INUNDATION IN CENTRAL PROVINCES



In November 1999, severe floods occurred in the Central Provinces from Quang Binh to Binh Dinh



More than 600 people were killed or reported missing and the value of the loss of property was approx. \$US 300 Mil.

Natural Disasters in Viet Nam

FLOODs (cont.)

- Flooding in Mekong River : In November 2000, the Mekong River Delta suffered the harshest flooding in over 40 years.



Losses

- + No. of people killed: **481**
(of which 335 were children)
- + Households affected: **888,000**
- + Economic Loss: **US\$ 280 Mil.**

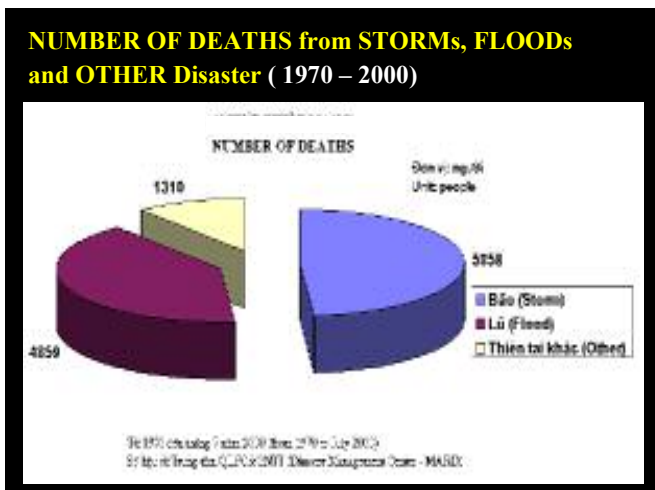
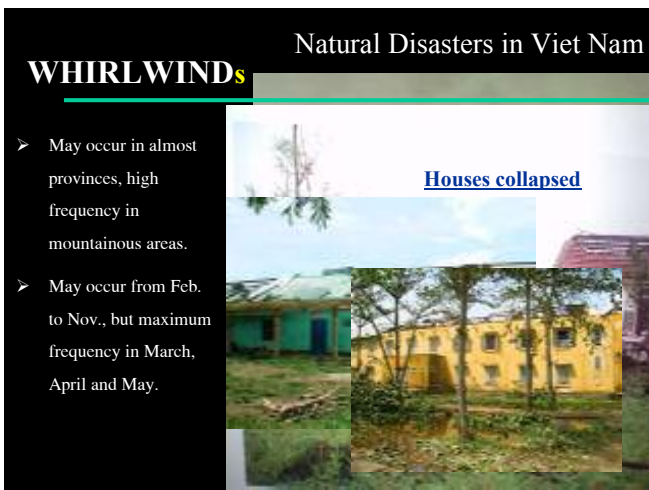
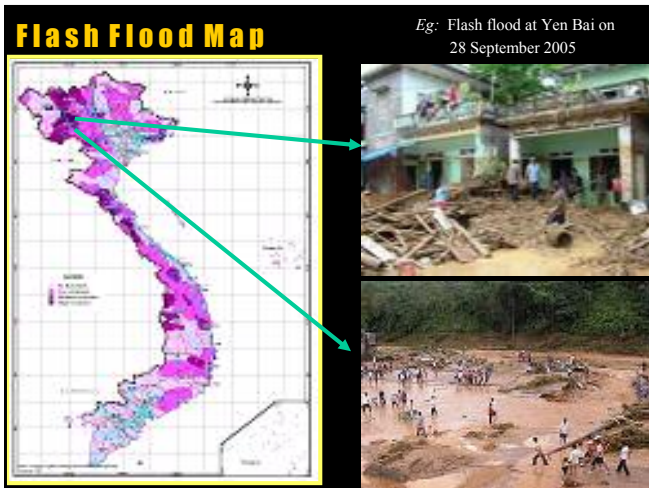




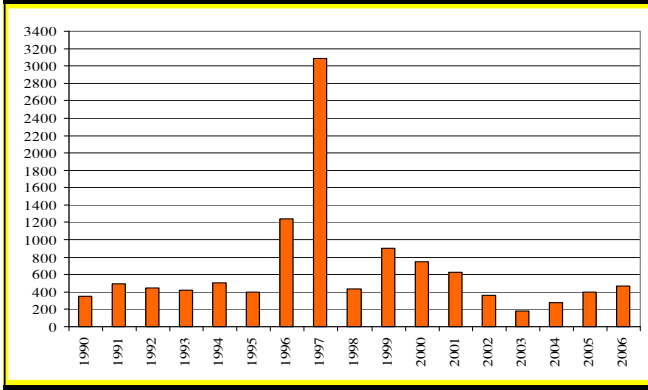

Natural Disasters in Viet Nam

FLASH FLOODs

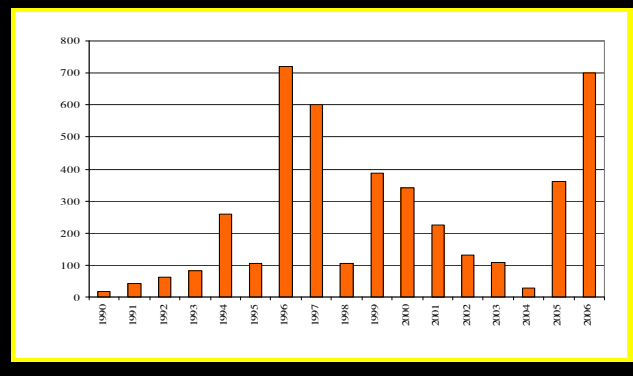
- Has a tendency to increase in the frequency as well as in intensity in recent years.
- Study shows that most of flash flood occurs in mountainous regions with basin slope of 30% and small vegetation coverage (under 10%)
- Some flash floods occurred due to the human activities producing landslides, as a result blocked the flows in valleys at upper streams, and when suddenly released, it produced floods.



HUMAN LOSS RECORDED FROM 1990 TO 2006

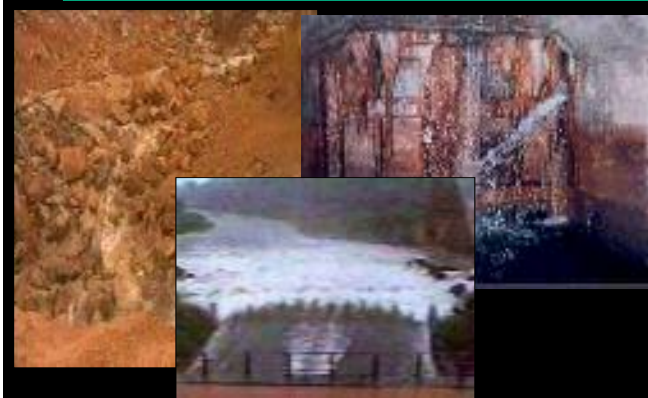


ECONOMIC LOSS RECORDED FROM 1990 TO 2006



Natural Disasters in Viet Nam

RESERVOIR PROBLEM



Natural Disasters in Viet Nam

DROUGHTS

- Occur every year in different areas
- Cause severe damage to agriculture.



Natural Disasters in Viet Nam

DROUGHTS



Natural Disasters in Viet Nam

LANDSLIDE, RIVER BANK & COASTAL EROSION AND TSUNAMI

Landslide: is a common type of disaster in Vietnam, consisting of river bank erosion, coastline erosion, and landslides on mountain slopes, land flooding, etc. Landslides are usually caused by natural factors (water), natural factors (geological changes) and human activities (uncontrolled 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 rising and sea currents. Coastline erosion has led to sea intrusion, caused house losses and destroyed the environment, etc.

Landslides in hill and mountain slopes are usually caused by concentrated heavy rains combined 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.

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 deep 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 at risk of tsunami effects due to earthquake potentials in near neighboring countries.

Natural Disasters in Viet Nam

SALT WATER 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 risk 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 salinized land, accounting for 45% of the total area. Salinity intrusion prevention and water freshening in this area are usually very costly.

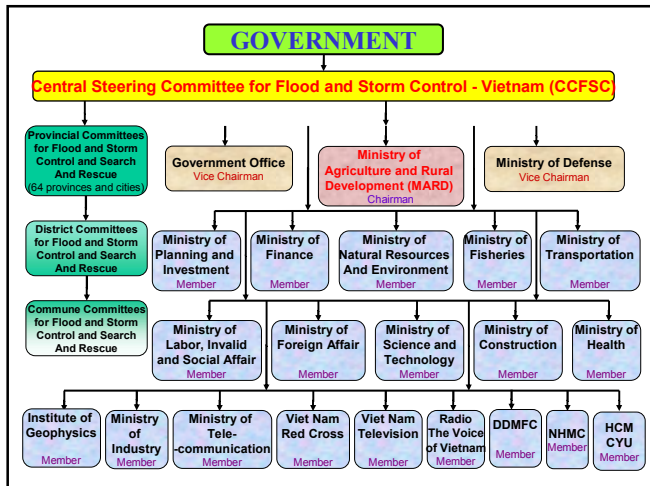
- More than 3200km of coastal line
- Potential of many issues related to saline intrusion:
- Water supply;
- Continuing conflict between growing fish, shrimp and rice growing....



B- BRIEF INTRODUCTION ABOUT MARD

MARD- The Ministry of Agriculture and Rural Development of Vietnam:

- ✓ The biggest Ministry: Administrative reform, a combination of 7 ministries in the past.
- ✓ Main functions: Play state management of Agriculture, Forestry, Water Resources (including RB Mgmt.), Fishery, Food Processing, Rural water supply, etc...
- ✓ Standing Office of National Central Steering Committee for Flood and Storm Control – CCFSC. Minister of MARD cum Chairman of CCFSC.
- ✓



VIETNAMESE STRATEGY FOR NATURAL DISASTER PREVENTION RESPOND AND MITIGATION

The strategy has just been approved by H.E. Prime Minister of Vietnam. The reference number of the decision is 172/2007/QĐ-TTg on the 16th November, 2007.



NATIONAL STRATEGY CONTENTS

- I. GENERAL PERSPECTIVES
- II. GUIDING PRINCIPLES
- III. OBJECTIVES
- IV. RESPONSIBILITY AND SOLUTIONS
- V. ACTION PLAN
- VI. THE RESPONSIBILITIES TO IMPLEMENT THE STRATEGY (The focal agencies, related and most related agencies: MOF & MPI, Provincial People committees, etc...)

I. GENERAL PERSPECTIVES

(6 general perspectives)

1. Disaster management includes preparedness, response to and recovery of consequences caused by disasters in order to ensure the sustainable socio-economic development, and ensure national security and defence.
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 proactive disaster prevention, response and mitigation .
3. Disaster prevention, response and mitigation are joint actions of the Government and citizens .

I. GENERAL PERSPECTIVES (cont.)

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

5. Disaster prevention, response and mitigation shall give 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. Natural disaster prevention, response and mitigation should bring into play traditional experience, combined with knowledge, modern technologies and enhance international cooperation.

II. GUIDING PRINCIPLES (5 basic guiding principle)

1. Government consolidates the State management on disaster prevention, response and mitigation nationwide
2. Ensure to follow the directions of the ruling Party and the policies, and legislation of the State.
3. The National Strategy for disaster prevention, response and mitigation must be implemented in synchronous manner per periods and priorities. Grasp thoroughly the "four-on-the-spot" principle: proactive prevention, timely response, quick and effective recovery.
4. Investment for disaster prevention, response and mitigation is critical to ensure a sustainable development.
5. Ensure the implementation of international commitments in the field of disaster prevention, response and mitigation.

III. OBJECTIVES

General objectives:

-Mobilize all resources to effectively implement disaster prevention, response and mitigation in order to minimize the losses of human life and properties

Specific objectives (9 objectives)

- Improve forecasting and warning capacity
- Ensure that development planning, building codes of socio-economic structures suited to regional standards for flood and storm control
- Ensure 100% of local staffs who directly work in disaster prevention, response and mitigation at all levels to be trained and strengthened of capacities; ensure more than 70% of population living in disaster prone areas to be disseminated of knowledge on disaster mitigation.

III. OBJECTIVES (Cont.)

- Complete the relocation, arrangement and stabilization of the life for people in disaster prone areas according to the planning approved by authorized government agencies.
- Closely cooperation among forces of search and rescue to gain initiative in responding.
- Ensure the safety of dyke systems at provinces from Northern provinces to Hn Tinh province; improve the flood/resistance capacity of embankment system in the Central Coast, Central Highlands and the South East; complete the consolidation and upgrade of sea dyke system.
- Ensure the safety of reservoirs.
- 100 percents of construction of parking space for boats and ships will have been completed in line with the plan approved.
- Complete the fishery communication system.

IV. RESPONSIBILITIES AND SOLUTIONS

General responsibilities and solutions

a. Complete the system of laws, policies and mechanisms

- Law on natural disaster prevention, response
- Integrate natural disaster prevention, response and mitigation into social-economic development plan.
- Encourage research activities, investment, international cooperation.
- Plan, map and assess natural disaster risks to produce suitable policies for each region, locality.

b. Complete organizational and management structure

- Keep strengthening the leading government bodies
- Complete functions, responsibilities, operational regulations
- Professionalize the staff
- Encourage the establishment of organizations supporting disaster management

IV. RESPONSIBILITIES AND SOLUTIONS

I. General responsibilities and solutions (Cont.)

e. Raise community's awareness

- Improve information dissemination, education, community awareness raising.
- Develop training programme

f. Develop science and technologies

- Promote basic investigation and investment for science research and new technology application
- Modernize the early warning system from Central, regional to local levels.
- The State encourages the application of advanced science and technology achievements
- Step by step develop sciences on disaster.

IV. RESPONSIBILITIES AND SOLUTIONS

General responsibilities and solutions (Cont.)

- g. Consolidate dyke and reservoir system
- h. Enhance the search and rescue capacity
- i. Improve international cooperation and integration

IV. RESPONSIBILITIES AND SOLUTIONS

(Cont.)

2. Responsibilities and solutions for each region

a. The Northern plains and the North Central

- Enhance flood-prevention capacity for river dyke system
- Continue constructing reservoir system
- Improve the flood discharge capacity for river bed
- Implement programs such as restoring and upgrading sea dykes, plantation of watershed forest and protective forest

IV. RESPONSIBILITIES AND SOLUTIONS

(Cont.)

b. The Central Coast, South East and Islands

“Proactive in prevention, avoidance and adaptation to develop”

- Plan residential, industrial and tourism areas
- Shift the crop and animal husbandry structure
- Promote research and suggest solutions on preventing the river mouth area extension, enhancing flood discharge and combining with water traffic
- Strengthen and upgrade dykes, preserve natural sand dune; build reservoirs, afforest and; build parking space for boats and ships

IV. RESPONSIBILITIES AND SOLUTIONS

(Cont.)

c. The Mekong River Delta

“Live together with floods ”

- Planning to control flood
- Construction of residential clusters and infrastructure for the population to flood resistance
- Proactively take advantage of floods
- Enhance international cooperation with countries in Mekong basin

IV. RESPONSIBILITIES AND SOLUTIONS

(Cont.)

d. Mountainous areas and Central Highlands

“Proactively prevent natural disasters ”

- Define and map areas highly prone to flash floods, landslides
- Establish warning and communication systems
- Strengthen the international cooperation in natural disasters forecasting, warning

IV. RESPONSIBILITIES AND SOLUTIONS

(Cont.)

e. Offshore areas

“Proactively prevent and response ”

- build management system for pelagic fishing boats and ships
- Establish communication system
- Strengthen the cooperation with other countries and border localities in region

V. ACTION PLAN

1. Non-structure measures

- a. Complete system of legal documents
- b. Complete the organization's structure and mechanism
- c. A program of master plan making and reviewing
- d. A program of capacity building, forecasting and warning
- e. Improve the communities' awareness
- f. Develop forests and protect upstream forests
- g. Improve the management capacity

V. ACTION PLAN (continued)

2. Structure measures

- a. A program to build and upgrade structures for disaster mitigation and preparedness in line with each region's features
- b. A program to build reservoirs in upstream
- c. A program to expand apertures of bridges and sluices for road and railway transportation
- d. A program to build works for land slide preparedness
- e. A program to upgrade the dike system
- f. A program to construct works for ships and boats shelters from storm
- g. A program to develop communities coming over flood and preparing for storm

VI. THE RESPONSIBILITIES TO IMPLEMENT THE STRATEGY

1. In Article 2 in Decision on the Strategy approval, each ministry/sector and People's Committee, CFSC of all levels are assigned to implement the Strategy within their functions. MARD and CCFSC is the focal point with following responsibilities:

- Give guidelines, inspect and urge the implementation of the Strategy
- Based on projects, programs as well as guidances of ministries, locals build concrete plans, programs
- Evaluation, recommendation annually and every 5 years

VI. THE RESPONSIBILITIES TO IMPLEMENT THE STRATEGY

2. Decision accompanied by 2 basic annexes:

- Annex 1: List of projects, programs to be implemented from now upto 2020
- Annex 2: Disaster and activities of disaster mitigation and preparedness in Vietnam

D- CONCLUSION & RECOMMENDATION

1. In the last few decades, floods and storms have affected Vietnam very strongly. Therefore, improvement of the capacities for forecast and prevention measures will reduce considerably the damage caused by disasters in Vietnam.
2. To prevent disaster can not be done individually, it must be done by community. Cooperation is the most important.
3. The research on characteristics of storms, tropical depressions and floods across the country combined with senior experience on disaster prevention should be continued to improve disaster prevention and mitigation approach in coming future.
4. NARBO should conduct some cooperation activities. At least, a research on "Existing situation of water-related disasters in Asian countries and its management" should be done to promote A regional project on "Improving mitigation capacity building" among NARBOs community with cooperation from its members.

Working together to have disasters mitigated in the region!



THANK YOU FOR YOUR ATTENTION!