VIETNAM
Vietnam National Committee for International Decade for Natural Disaster Reduction

---

ASIAN NATURAL DISASTER REDUCTION CONFERENCE

(December 17 - 18, 1995 in Kobe, Japan)

Statement by Mr. NGUYEN CANH DINH
Minister,
Chairman of Central Committee for Flood and Storm Control of Vietnam,
Chairman of Vietnam National Committee for International Decade for Natural Disaster Reduction

Ladies and gentlemen,

I am very glad to have chance to make a presentation on natural disasters and activities to mitigate damages caused by natural disasters in Vietnam at this very important Conference.

I. TYPES OF NATURAL DISASTERS IN VIETNAM

Vietnam situated in the tropical area with high humidity and monsoon, adjacent to the sea, between continent and ocean and on the two dynamic rings of Atlantic and Pacific. Therefore, various types of natural disasters occur every year in the country, especially typhoons and floods.

- *Typhoons* - Vietnam located in one of the five typhoon centers in the earth.
- *Floods* are considered as one of the most serious disaster. For the last 600 years, there have been 127 large floods occurring in Vietnam. Floods are divided into three types: river floods; floods from the sea; and flash floods in highly mountainous areas due to quick accumulation of flows in combination with heavy rains.
- *Cyclones,* sometimes, occur in Vietnam, destroying houses.
- *Land slide, erosion of river banks* occur annually.
- *Water logging and drought* are also very common types of disaster in Vietnam.

(See Attachment 1: types and severity of natural disasters in Vietnam).

II. CHARACTERISTICS OF NATURAL DISASTERS IN VIETNAM

1. Typhoons

From 1954 to 1991, there have been 234 typhoons, storms and low pressures hitting or effecting directly to Vietnam. Averagely, there are 6 typhoons per year. But there can also be 11 or 12 typhoons reaching Vietnam in one year, focusing in the period of June to November. Strong typhoons often occur in August, September and October between latitudes 16^0N and 22^0N. Typhoons cause negative impacts to 62.5% of the population and 44.31% of the total area of the country.

Typhoons which strike Vietnam are formed or developed at the western Pacific Ocean or on the China Sea. There have been 136 typhoons occurring in China Sea during the period of 1960 - 1989, of which 136 had been formed on China Sea (accounting for 40.7%) and 198 had been formed at the western Pacific Ocean (accounting for 59.3%), 184 typhoons of these arrived or impacted directly to Vietnam (88 from China Sea and 96 from western Pacific Ocean). The highest number of typhoons reaching Vietnam within one year from China Sea was 6 and from western Pacific Ocean was 8.

Time distribution of typhoons in Vietnam

- There are no typhoons in January, February and early half of March.
- By end of March, April and May, there may be some early-coming storms which often reach the coastal zones of the Central Region of Vietnam upwards.
- In June, July and August, strong typhoons followed by heavy rains mainly reach the coastal zones of the Central Region of Vietnam upwards, as well.
- In October, typhoons often strike the Central Region of Vietnam.
- In November, the areas between the Central Region and the South of Vietnam often receive typhoons.

However, the mentioned-above time distribution of typhoons is not very regular. The typhoon season of Vietnam lasts from June to November, but 70% of the typhoons occur in August, September and October.

2. Floods

Flood often occurs simultaneously with typhoon or low pressure. In the Red River Delta (at the North) and Mekong River Delta (at the South), typhoons often occur in combination with cool weather and tropical cyclone.

For the last 600 years, we have recorded large floods in main rivers as follows:

- 1400 - 1775: Large floods occurred for 75 years
- 1776 - 1890: Large floods occurred for 24 years
- 1891 - 1945: Large floods occurred for 18 years
- 1946 - 1971: Large floods occurred for 7 years
- 1972 - present: Large floods occurred for 4 years

Floods occurring in the North of Vietnam

The Northern delta was formed with sedimentation brought back by Red and Thai Binh rivers. Floods in the North are caused by accumulation of torrential rainfall on the catchments of Red and Thai Binh rivers. These two rivers have surrounding dike systems to control flood water. They can work very well to prevent small or medium-scale floods, but when peak floods occur, the dike systems are facing with risk of breaches, that may cause serious disasters.

Floods occurring in the Central Region

Flood in the Central Region results from typhoon, low pressure and turbulence of atmosphere. Especially when the north-east wind combines with low pressure or typhoon, they will then cause very heavy rains, reaching up to 500 - 700 mm a day. Due to particularly topographical features in the Central Region, all the rivers there are short and steep, therefore floods can develop quickly with intense rainfall.

Floods occurring in the South

As before, there are mostly no flood-prevention structures in the South, flood water is regulated naturally. Local residents are familiar and adapted with flood conditions. In the west area of the South, floods and typhoons are very severe but their occurring time is short. Mekong River Delta within the territory of Vietnam covers only a portion of the whole Mekong River Delta.

Every year, Mekong river discharges 500 billion m^3 of water to the sea. Its catchment area is very large, including the Great Lake, low lying plains in Laos, in the north-east area of Cambodia and in Vietnam, playing a very important role in regulation of flood water. Therefore, the flood water level does not vary greatly, increasing or decreasing from 5 to 10 cm/day, the recorded maximum change of flood water level was only 28 cm/day. Flood water usually overtops the embankments, resulting in inundation of large areas of 1.8 million ha totally of forest in Vietnam. It is surprising that greatest losses do not go along with highest peak floods according to the statistic data of losses of agricultural production caused by floods in the Mekong River Delta. Severity of losses depends much on coming time, intensity of floods and especially occurring time of peak flows. We can learn from our experiences that in some years, though the peak flow was high but because of its late occurring, losses were not so severe as other floods when their peak flow came early. However, exploitation of the Delta needs more and more integrated solutions since population is denser and denser in the region, requiring development of houses and infrastructure. But at the same time the development of the area will result in serious damages due to increasing of flood level such as loss of people's lives, devastation of infrastructures and failure of crops.

3. Flash floods in mountainous areas

These are floods of short duration with a relatively high peak discharge and very quick development. During storms, heavy rains can accumulate rapidly, forming flash floods. The formation of flash floods closely relates to torrential rains, climate conditions, topographical features, people's activities and local drainage conditions.

Main characteristics of flash flood are that intensity of flood increases rapidly, velocity of flood waves is incredibly high causing severe and sudden destruction. Lots of human's lives are lost, infrastructures are collapsed, local residents' daily life and economic development are negatively impacted.

Flash floods often occur in mountainous areas. At present, with the development of economics, living standards and conditions are improved in the whole country in general and in mountainous areas in particular. Recently, some mountainous areas, however, were still inundated by floods, flash floods, resulting in serious losses of lives and properties .

III. INSTITUTIONAL ARRANGEMENTS FOR MITIGATING NATURAL DISASTERS IN VIETNAM

A. Institutional system

In Vietnam, institutional system for flood and typhoon control has been established for a very long time at different levels: centre, provinces, districts and communes, and regulated in the Law of Vietnam since 1946. Flood and typhoon control at central level is participated by many sectors. Each sector has its own Committee for Flood and Typhoon Control, and its members in the Central Committee for Flood and Typhoon Control and Vietnam National Committee for International Decade for Natural Disaster Reduction.

At provincial and district levels, flood and typhoon control is conducted by Committee for Flood and Typhoon Control. Those Committees are relied on Provincial Water Resources Services and Irrigation Management Companies. In the regions where the dike systems are located, we have specialized staff responsible for maintaining and repairing the dikes periodically, monitoring certain portions of the dike system, and giving technical instructions for dike protection. The activities of repair and protection of dike systems are done by mobilizing labour from local people living in the protecting areas of the dike systems. Those people are grouped and trained annually in short courses. The number of people mobilized for flood control during flood season are subject to the flood levels.

B. Structural measures

1. Dike systems

Dike systems of Vietnam have been constructed and upgraded gradually for centuries, we are now having 5,000 km of river dikes and 2,000 km of sea dikes. They are the main structures to protect our country from flood and inundation.

2. Reforestation

This measure is placed priority for implementation, and included in Strategies for Mitigation of Water Disasters in Vietnam.

3. Flood ways

All the obstacle objects on the flood ways are cleared up and sedimentation deposited at the river estuaries is dredged.

4. Reservoirs

Reservoirs are used to regulate flood water especially when the flood water level increases highly.

B. Non-structural measures

In addition to structural measures that have been used successfully, non-structural measures have been researched and applied, as follows:

1. Cropping schedules and people's lives are organized adaptably with flood conditions.
2. Improvement of reliability of flood forecasting.
3. Improvement of communication system in the warning system.
4. Support and subsidy for flooded areas.
5. Protection of forest and land.
6. Strengthening of public education on flood and typhoon control.
7. Establishment of Ordinance on Flood and Storm Control.

IV. POLICIES AND LEGISLATION OF VIETNAM ON NATURAL DISASTERS REDUCTION

The Government of Vietnam issued Ordinance of Dike Protection and Management in 1990 and Ordinance on Flood and Storm Control in 1993. In parallel with issuance of those Ordinances, we are also having by laws which detail guidelines for implementation of the Ordinances as well as decentralization of specific responsibilities of each level and each sector in the reduction of damages caused by natural disasters.

Besides, Vietnam has many policies which encourage organizations and individuals to contribute to the movement of natural disaster reduction. A Fund for Flood and Typhoon Control has been set up, making contribution to the activities relating to flood and typhoon control and enhancing responsibilities of people in protection of dike systems and other flood control structures, as well.

V. ON-GOING ACTIVITIES

In response to the International Decade for Natural Disaster Reduction, Vietnam National Committee for International Decade for Natural Disaster Reduction and Central Committee for Flood and Typhoon Control had been founded. These two organizations have made efforts for the sake of mitigation of damages caused by natural disasters in Vietnam.

The Strategy for Mitigation Water Disasters in Vietnam has been prepared and implemented.

Herein below are some on-going projects addressing at reducing natural disasters:

- Loan No.1259 funded by ADB
- Project under financial assistance of UNDP
- VIE/88/015: Technical Assistance for Repair and Upgradation of River Dike System
- VIE/92/023: Technical Assistance for Sea Dike System
- VIE/93/031: Strengthening Capability for Committee of Natural Disaster Reduction
- Project of Repair and Upgradation of Sea Dike System, under the finance of the World Food Program

Particularly, Project VIE/93/031 assisted us in non-structural measures. With the Project implementation, an Information Center for Management of Natural Disasters and a computer network connecting the Central Committee for Flood and Typhoon Control to 17 provinces where typhoons and floods often occur have been established.

VI. ANNUAL DAMAGES

Despite of efforts made in the activities to mitigate natural disasters, Vietnam has to suffer from lots of damages caused by natural disasters every year. *(Please refer Attachment 2 - Estimates of Damages caused by Floods and Typhoons from 1971 to 1994 in Vietnam).*

VII. PROPOSALS

In order to control floods and typhoons more effectively, Vietnam has to mobilize internal investment capital as well as to seek for assistance from external resources like organizations of the United Nations, Non-Governmental organizations so as to rehabilitate existing structures and to construct the new ones that can be used to reduce natural disasters and to control floods and typhoons. For instance:

- Construction of

    1. Pumping stations
    2. Measuring stations of sea water levels
    3. Flood warning systems from main stream of Mekong river to its tributaries in the low lying areas of the Mekong Delta

- Rehabilitation of the dike systems

- Connection of communication network from Vietnam to other Natural Disaster Control Centers in the Region as well as in the worldwide

- Forecasting of typhoons when they are reaching the China Sea towards the inland of the country.

Thank you very much for your attention.

ATTACHMENT 1

TYPES AND SEVERITY OF NATURAL DISASTERS IN VIETNAM

High severity	Medium severity	Low severity
Flood	Rainfall	Earthquake
Typhoon	Drought	Accident (in industrial production)
Inundation	Land slide	
Cyclone	Burning	
	Deforestation	

ATTACHMENT 2

ESTIMATES OF DAMAGES CAUSED BY FLOODS & TYPHOONS FROM 1971 TO 1994 IN VIETNAM

Year	Value of damages (US$)	Number of lives lost	Inundated area (km^2)	Failure of crops (km^2)	Loss of paddy (1,000 tons)	Destroyed houses (1,000 units)
1971	78	594			288.7	158
1973	57				400	18
1977	5	153	928		222.6	163
1978	20	676	12,976	6,359	1,343.4	652
1979		46	1,642	1,076		35
1980	10	403	27,738	1,864	324	225
1981		274	1,056	404		49
1982		97	1,044	704		175
1986	19	818	3,932	798	186.8	357
1984		464	4,174	2,284		282
1985		1013	5,304	2,195		344
1986	110	797	3,543	321	1,097.8	787
1987	28	140	1,332	78	166	242
1988	35	292	1,429	626	169.5	284
1989	74	484	6,428	1,642	805.5	1,290
1990	17	354	1,722	455	169.4	220
1991	44	480	2,019	767		398
1992	62	352		456		277
1993	82	387	2,300	896		257
1994	259.8	507	5,739	892	1,000	634