

SOCIALIST REPUBLIC OF VIETNAM



**NATIONAL STRATEGY
FOR NATURAL DISASTER PREVENTION
RESPONSE AND MITIGATION**

HANOI - JANUARY 2007

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FOREWORDS

Natural disasters have serious impacts on the development of every nation and individual. According to UNDP's global report on disaster risk reduction in 2004, 85% of global population suffer from natural disasters. The annual average damage is estimated at above US\$700 billion. Disaster prevention, response and mitigation become critical important to every country, family, individual, and essential for the sustainable development of communities.

Vietnam is a one of disaster-prone countries, particularly storms and floods. However, the government's care, the people's disaster prevention tradition, and international support have significantly helped alleviate the consequences of natural disasters.

Global climate change has increased natural disaster phenomena in both terms of frequency and seriousness. Vietnamese Government and people have taken appropriate prevention, response and mitigation measures to aim at following objectives:

1. To minimize human loss.
2. To reduce the loss of the state and people's assets.
3. To eliminate hunger and alleviate poverty.
4. To protect environment.
5. To ensure sustainable development.
6. To contribute to natural disaster mitigation in the region and over the world.

To achieve these objectives, there needs to be an integrated strategy as the requirement of this strategic document which can be adaptable to each type of disaster in each area of the country. This strategy also includes an action plan until 2020 as the basis for policy planning; integration of disaster reduction into socio-economic development programs in each region and sector; planning and development of infrastructure; mobilization of domestic and international investment and resources as well as taking advantages of international support in natural disaster mitigation.

The development of this Strategy is based on the integration of Vietnamese tradition in natural disaster prevention, response and mitigation, national socio-economic development strategy, international and regional frameworks and action plans for disaster reduction.

During its implementation, the Strategy will be possibly updated, supplemented, and adjusted to ensure its alignment to the national development context.

PART 1

NATURAL DISASTERS AND DISASTER PREVENTION AND MITIGATION IN VIETNAM

CHAPTER 1

NATURAL DISASTER IN VIETNAM

1.1. General context

In recent decades, natural disasters have happened at an increasingly serious level over the world. The disasters have caused severe consequences to human life, especially the poor. Disasters are natural phenomena; their magnitude and consequences have increased due to human activities in the socio-economic growth, technological development, urbanization, population boom, 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 drought have caused significant losses, including 7500 missing and dead people, asset damage equivalent to 1.5% of GDP. Natural disasters in Vietnam have been increasing in terms of magnitude, frequency and volatility.

1.2. Geographical and socio-economic background of Vietnam

1.2.1. 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 to the North, Laos and Cambodia to the West, and facing the East Sea to the East and the South.

With the total territory area of 329.241 km² and a coastal line of 3260 km, every 100 km² of land has 1 km of coastline. 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 ¾ of land area. Mountain ranges tend to have North-West to South-East Direction and perpendicular to the direction of North East - South West tropical monsoon. Parallel mountains separate the land 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 the remaining 25% of the territorial area, consisting of the Red River delta, the central coastal plain, the Southeast plain 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 South East and the Mekong River delta.

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

1.2.2 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 lands 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 covered layers: a soft covered layer and a weathered covered 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 South East 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. There are high rainfall areas such as the North and the Central Coast. High and steep mountain range plus high rainfall make these regions vulnerable to landslides and flash floods. In addition, earthquake occurs in the North East region though it is at low frequency and magnitude.

1.2.3. Climate

There is a great difference in **temperatures** amongst regions and between day and night. 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 evaporated 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 to 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 Coast is often observed the highest average annual rainfall, where as South Central Coast is the lowest rainfall region.

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

1.2.5. Socio-economic conditions

Rapid population growth and urbanization have caused serious pressure and made 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 cultivated purposes. The human being has encroached the flows, river estuaries, coastline, river and stream sides; they have also exploited natural resources and minerals in an uncontrollable manner, as well as cut down and burnt forest trees, which consequently increased the amount of wastes.... These are the factors that limit the flow, impoverished the land, silted reservoirs, caused 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 not combined with natural disaster prevention, response and mitigation, this growth may cause more environmental pollution and ecological unbalance, which in turn increasing disaster risks and unsustainable development.

1.3. Major types of natural disasters in Vietnam

1.3.1. Typhoons

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% hitting the North, 36% in the North and Middle Central Coast and 33% in the South Central Coast. Typhoon's landfalls usually accompany with high tide and heavy rain, thus resulting in and floods. It is estimated that up to 80-90% of the Vietnam's population are affected by typhoons.

1.3.2 Floods

Floods in Northern river systems:

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

Flood season in the Red river system 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 originated in the 3 rivers of Da, Thao and Lo, of which the Da River plays a major role. It often accounts for 37%-69% of the flood flow in Son Tay (49.2% on average), while the Lo river accounts for 17%-41.5% (28% on average) and the Thao river accounts for the lowest proportion – 13%-30% (19% on average). Floods in the Thai Binh River are often originated in the 3 rivers of Cau, Thuong and Luc Nam and partly from the Red river through 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 in the period June to October every year. Floods on these rivers generally occur on main streams because of 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 plains with the amplitude of above 8m.

Floods on rivers in the Central Highlands

This region does not have a major river system with a relatively low annual rainfall precipitation. 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 South East

Since rainfall is not very high plus a thick and diverse vegetation cover forests, floods in the Dong Nai river are not considerably strong but long-lasting. Nevertheless, history has seen some unusual and extremely strong floods, such as in October 1952, the highest flow at the flood crest in Bien Hoa is 12,500 m³/s.

Floods in the Mekong delta

Floods are usually caused by the Mekong river upstream floods. The flood water level in the Mekong river delta is also directly influenced by tides and water regulations 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 most areas of the Mekong river delta.

1.3.3. Flash floods and mud floods

Flash and mud floods are often found in mountainous and hilly areas where characterized by steep slopes, heavy rains and disadvantaged drainage conditions. Flash floods also occur due to breakages 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 South East. Due to climate changes in recent years, flash floods have become much more popular in Vietnam. On average, there are 2 to 4 flash floods every year during the flood season. In many cases, flash floods happen frequently at the 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 ones 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 difficult to predict but can be proactively prevented by zoning high risk areas and establishing warning systems.

1.3.4. Inundation

Inundation in Vietnam is usually caused by heavy rains and it is long lasting in some areas. Although causing limited human loss, it causes remarkably negative impacts on agricultural production and the ecology.

1.3.5. Droughts and desertification

Drought is a common type of disasters in Vietnam, which causes the 3rd greatest losses, following typhoons and floods. In recent years, droughts have continually happened throughout the country. In some particular year, droughts reduced 20-30% of the food productivity, thus severely threatening people's livelihoods. Drought control is difficult due to water source shortage and depleted reservoirs. Prolonged droughts result in desertification in several regions, especially the South Central, sandy coastal areas and steep land in the highlands and mountains.

1.3.6. 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 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.

1.3.7. Squalls and cyclone

A **squall** is a phenomenon of accidental strong wind within a narrow extent due to extremely strongly developed thunderclouds. A squall may have sudden change of direction, and the wind velocity is from Grade 8 or more. Accompanying squalls 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 squalls and cyclones are violent types of natural disasters. They happen suddenly and are not yet forecasted, therefore they cause vast and unpredictable consequences but that of cyclone is considerably more serious. Squalls are often accompanied by strong winds that pull down trees and houses, destroy communication and power lines, as well as sink small boats and ships ... Cyclones, due to stronger winds, high velocity and frequent directional changes, often cause violent damage. Squalls and cyclones are common phenomena in Vietnam, and their frequency has increased in recent years.

1.3.8. Landslides

Landslide is a common type of disasters in Vietnam, consisting of river bank erosion, coastline erosion, and landslides on mountain slopes, land fissuring, etc. Landslides are usually caused by external factors (water), internal 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 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.

1.3.9. Earthquakes and tsunami

Earthquake is the phenomenon of ground surface vibrations, 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 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 some neighboring countries.

1.4. Consequences of natural disasters to socio-economic development

a) Socio-economic consequences:

Natural disasters in Vietnam are the impediment to the economic development, sustainable development, and poverty reduction. Therefore, they have become major constraints to the accomplishment of the Millennium Development Goals. Vietnam has more than 80% of its population living at risk of direct impacts of natural disasters.

Natural disasters have taken away many achievements of the national socio-economic development. In the last 5 years (2002-2006), natural disasters have cause a vast losses of human life and assets which are about 1,700 people and VND75,000 billion.

Natural disasters intensify the rich-poor gap and impede the hunger eradication and poverty alleviation, especially in disaster-prone areas. 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 disasters affect educational development such as destroying educational infrastructure and interrupting school time, especially in mountainous areas and the Mekong river delta.

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

b) Environmental consequences:

Natural disasters cause environmental destruction and pollution and harmful influence on production and people's life.

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

- Destroy defence and security constructions.
- Reduce the national reserve.
- Cause social instability.
- Cause problems in public security and order.

CHAPTER II

NATURAL DISASTER PREVENTION, RESPONSE AND MITIGATION IN VIETNAM

Throughout the course of development, natural disaster prevention, response and mitigation in Vietnam has always been a fight for life and closely linked with the founding and defence of the country. Disaster prevention and mitigation in Vietnam has made great progress throughout the history.

2.1. Course of development

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

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

No sooner had the Democratic Republic of Vietnam been founded 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, the Vietnamese people had to fight against invaders and natural disasters at the same time. Northern provinces used nearly 7 million m³ of soil to strengthen critical sections of dykes.

During the period of 1955-1975, the establishment of the Ministry of Water Resources and the promulgation of regulations on dyke protection, other directives and resolutions have become major steps in flood and storm control. In this period, Northern provinces built millions of cubic metres of dykes, hundred thousands of cubic metres of stone embankments, built flood retarding zones, renovated flood diversion systems, and planted trees for wave resistance.... During this period, the North suffered many destructive floods that broke dykes in some areas. However, production and social stability were soon restored thanks to prompt damage recovery actions.

During the period of 1976-present, flood and storm prevention and response have been regarded as one of the important measures for socio-economic development. The following legal documents have been issued: the Ordinance on Dykes (1989), Ordinance on Flood and Storm Control (1993), the amendments to these two ordinances (2000), the Strategy for Water Disasters (1994), the Law on Dyke (2006), and decrees to guide the implementation of these laws and ordinances. Many policies on natural disaster prevention, response and mitigation have been issued, such as policy for the ‘living with floods’ areas in the Mekong river delta; policy for flood diversion and retarding areas in the North; policy for “avoidance and adaptation” areas in the Central region. Many structural solutions have been carried out, such as building reservoirs, renovating dykes, building parking place for boats and ships, etc. Non-structural solutions include forest rehabilitation, renovating communication systems, forecasting, warning, international cooperation, raising community awareness, strengthening institutional capacity and organizational capacity for flood and storm prevention, response and search and rescue network.

2.2. Achievements and limitations

2.2.1. Remarkable achievements

- **Step by step improving legal documents**, creating a legal corridor for natural disaster prevention, response and mitigation. In recent years, Vietnam has developed and issued relevant legal documents, such as Dyke Management Law, Water Resources Law, Law on forest protection and development, Law on Environmental Protection, Land Law, Law on Natural Resources and Minerals, Law on Fisheries, etc., Ordinance on dyke management, Ordinance on flood and storm control, Ordinance on exploitation and protection of water resources structures, Ordinance on the protection of hydro-meteorological surveying structures, etc. Decrees to guide the implementation of laws and ordinances have been promulgated.

- **Strengthening and refining the organizational structure, enhancing the capacities, equipments and facilities** for the direction of natural disaster prevention, response and mitigation activities from the central to local levels.

- **Developing and implementing relevant socio-economic development programs**, such as the plantation of watershed forests, protective forests, mangrove forests, reservoir construction for flood and drought reduction, “Living With Floods” Program, Safety for Fishing Boats and Ships Program, Dyke Reinforcement and Renovation Program, etc.

- **Conducting research, applying technologies to flood and storm control as well as natural disaster prevention, response and mitigation**

- + Research on river bank and coastline erosion prevention and control.
- + Research on extreme flood prevention for the Red river delta.
- + Research on 12 types of natural disasters.
- + Research on the establishment of self-help funds.
- + Models of disaster-safe houses.
- + Methodology for damage and relief need assessment.
- + Flood mapping in central provinces.
- + Research on flash flood prevention planning.
- + Applying new technologies to disaster forecast, warning and management.
- + Using new materials and technologies in building disaster prevention and mitigation structures.

- **International cooperation:**

+ Integrate in international 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 such as UNDP, UNESCAP, WB, ADB, etc., foreign agencies and NGOs in disaster mitigation.

- **Search and Rescue:** Establishing the National Committee for Search and Rescue, strengthen organization structure from central to local levels; enhancing facilities and equipments for search and rescue activities; developing an overall plan for search and rescue until 2015.

- **Relief and recovery activities:** The government annually allocates a certain proportion of budget and essential commodities for emergency relief and prompt damage recovery. When disasters happen, political and social organizations such as the Fatherland Front, Trade Union, Youth and Women Associations... have actively organized donation activities for victims in affected areas. Relief and recovery efforts also come from on-site sources, taking advantage of the people's mutual support tradition.

- **Training and advocacy activities:** thanks to the mass media, training and advocacy on activities to raise public awareness have been improved. Training and exercises have been provided at grassroot level as well as for responsible officers in ministries, sectors and localities. As a result, the awareness of government officers and the people have increased. Poor families in coastal areas are supplied with equipments to obtain information and prevent natural disasters proactively.

- **Resources for natural disaster prevention, response and mitigation**

+ The government gives preference and annually increases funding for natural disaster prevention, response and mitigation. The investment is given priority to specific programs and projects which aims at these objectives such as the forest plantation program, dyke upgrade program, reservoir program, landslide program, "living with floods" program, safety for boats and ships program.

+ Provinces mobilize local resources, the contributions of the people, social and political organizations, and international organizations in natural disaster prevention and damage recovery.

+ Supplementarily allocate Official Development Assistance (ODA).

2.2.2. Limitations

In recent years, considerable efforts have been made for natural disaster prevention; infrastructure, facilities and technical capacity have been improved; the leadership and coordination in response to natural disasters at central and local levels have had substantial progress. However, with regard to the consequences of natural disasters and the socio-economic development goals, the following shortcomings and limitations need to be addressed in the near future:

1. Disaster prevention, response and mitigation activities are reactive and mainly focus on problem response.
2. The response to disasters is slow due to objective and subjective reasons.
3. Unstable production system, inappropriate production structure.
4. Poor infrastructure results in vulnerability to disaster risks.
5. Forecasting and warning systems do not meet standard requirements, particularly with regard to such disasters as flash floods, landslides, whirlwinds, etc.
6. Emergency relief, damage recovery and reconstruction are insufficient, lack of direction and coordination.
7. Search and rescue operations are unprofessional and limited due to lack of equipments and facilities, thus they cannot take advantage of the combined strengths of all forces and people.

2.2.3. Reasons

1. Awareness

- Inadequate public awareness of natural disasters and sustainable development, especially living in harmony with the nature.

- Dependent and reactive attitude, disregard and inexperience in facing natural disasters.

- Dissemination activities to raise community awareness of disaster prevention, response and mitigation are infrequent and disorganized. The knowledge on disaster prevention is mostly spread throughout the mass media and has not been included in school curriculum.

2. Planning

- Lack of integrated planning and 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 flood and storm avoidance and safety, particularly in industrial zones, tourism areas, urban areas, coastal and mountainous areas, residential areas and roads.

- The encroachment on sea and rivers for construction or setting structured projects in areas highly prone to floods, flash floods, storms, sea water rising and landslides make them more vulnerable. Therefore, it is costly for protection and maintenance.

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

3. Policy and mechanism

- Lack of penalties for failure to obey laws, regulations, and the orders of relevant authorities.

- Overlaps of functions and duties amongst different agencies, and lack of clear responsibilities.

- Lack of measures to encourage disaster-related insurance purchases.

- Lack of encouragement and incentives for individuals and organizations volunteering and participating in search, rescue and response activities in natural disasters.

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

- Lack of improved policies on the mobilization of resources for disaster prevention and mitigation.

4. Investment

- Investment in natural disaster prevention, response and mitigation is scattered and has not satisfied the requirements of disaster mitigation.

- Investment in the maintenance, management and utilization of existing structures is not corresponding to that in new construction.

- Disbursement for some critical, approved projects such as reservoirs, parking place for boats and ships, dyke protection, etc. is slow and does not meet current requirements.

5. Direction and management

- The directions and orders in response to natural disasters have not yet been seriously executed. The implementation is slow and dependent way of thinking still exists.

- The direction and implementation of four "on-the-spot" principles are not serious.

- There have been inappropriate directions where economic development was separated from natural disaster prevention, response and mitigation. For instance, coastal protective forests were destroyed for aquaculture while watershed protective forests were cleared for crop production.

- Ineffective management and protection of watershed forests, coastal and riverside protective forests led to the degradation of forest coverage in some areas. As a result, the effectiveness of flood, storm and drought prevention and control was limited. Consequently, this resulted in unexpected dangers.

- The poor management of sand exploitation and other activities on river banks have led to harmful impacts on flood discharge and caused erosion.

- The shortcomings of vehicle management on rivers and at sea, particularly pelagic fishing boats resulted in unexpected damage when disasters occur.

- The effectiveness of quality control in some particular construction project was limited. Therefore, they were damaged by disaster though at low intensity. Some structures even prevent flood discharge or make flood worse.

- Slow project progress and disbursement, especially ODA.

- The management and utilization of disaster recovery resources are limited, lack of transparency or for inappropriate purposes.

CHAPTER III

NATURAL DISASTER TRENDS AND REQUIREMENTS OF DISASTER PREVENTION IN THE NEW PERIOD

3.1. Natural disaster trends and challenges

Natural disasters are forecasted to happen more regularly in terms of types and frequency over the world, more complex in terms of developments and more serious in terms of consequences. Global warming, climate changes, El Nino, La Nina phenomena and typhoon and drought increase, etc. over 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 is located in the humid tropical monsoon area. In addition, the country has a complex topography and dense river network. These make up different sub-climate zones, ecologies and, as a result, 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 6-7 typhoons and tropical depressions every year.

Moreover, on the subjective side, the rapid industrialization and modernization over the country have resulted in comprehensive development, at the same time this lead to the increase of disaster risks. Due to disobeyed natural norms, loose environmental and natural resource management and population pressure, it is recognized that there were inappropriate behaviours such as mountain destruction for roads, encroachment on sea and rivers, leveling hills and mountains for construction, forest destruction, etc. These resulted in the increase of disaster risks and negative impact on the economic development and destroyed the environment.

Obviously, natural disasters have had vast influences on the people's life and the sustainable development of the country.

3.2. Requirements of natural disaster in the coming period

Ensure the implementation of commitments between Vietnam and the international and regional communities in natural disaster prevention, response and mitigation.

Follow the contents of the Strategy for socio-economic development until 2020 to carry out solutions for natural disaster prevention, response and mitigation.

Abide by the laws concerning natural disaster prevention, response and mitigation.

Execute the policies of the Party and the state on natural disaster prevention, response and mitigation in each sector and area.

PART 2
GUIDING PRINCIPLES, OBJECTIVES, TASKS AND SOLUTIONS FOR
NATURAL DISASTER PREVENTION, RESPONSE AND MITIGATION
UNTIL 2020

CHAPTER IV
GUIDING PRINCIPLES

4.1. General principles

- Natural disasters always accompany the existence and development of the human being. Natural disasters are of natural origin; however, they are affected and induced by the human. People cannot conquer disasters, but can prevent disasters, control their own behaviors and be prepared to mitigate consequences.

- The principles for natural disaster prevention, response and mitigation in Vietnam are four-on-the-spot principle (materials, man-power, facilities, leadership) and “proactive prevention, timely response, quick and effective recovery”, in which prevention is the critical point. Disaster recovery should closely connect with reconstruction and upgrade and ensure sustainable development planning in each area and sector.

4.2. Specific guiding principles:

4.2.1. Natural disaster prevention, response and mitigation is one of the top priorities in the socio-economic development in Vietnam.

4.2.2. The organizational structure of natural disaster prevention must be strengthened, improved and united at the central and local level to ensure capability, especially at grassroot level, i.e. villages and communes.

4.2.3. Natural disaster prevention, response and mitigation should be for the people and comply with the laws, strategies, programs and plans of the nation, localities and sectors.

4.2.4. Disaster-resistant constructions should meet technical standards, be harmony with the nature, environment and be multipurpose. Structural and non-structural solutions should be combined and integrated into the development programs of each region and sector.

4.2.5. Natural disaster prevention, response and mitigation should be the common duties of both the government and the people; effective utilization state resources as well as mobilize resources from the community, organizations and individuals at home and abroad.

4.2.6. Public awareness should be raised to enhance proactive preparedness and response to natural disaster.

4.2.7. Natural disaster prevention, response and mitigation activities should take advantage of traditional experience, apply modern knowledge and technologies and enhance international cooperation.

CHAPTER V GOALS AND OBJECTIVES

5.1. Overall goals:

- To minimize the loss of human and assets.
- To ensure the sustainable development of the country.

5.2. Specific objectives by the year 2020

- Ensure the safety of dyke systems at the designed level from level 3 to “special”.
- Ensure the safety of large and medium reservoirs at the designed level.
- All parking space for boats and ships will have been constructed as in the approved plan.
- Establish and improve the fisheries communication system, ensure that 100% of pelagic fishing boats and ships have sufficient communication equipments.
- Complete the evacuation of residents in areas highly prone to flash floods and landslides.
- Obtain sufficient equipments and facilities for rescue mission as in the approved planning.
- 100% of ministries, sectors and localities integrate natural disaster prevention, response and mitigation into their socio-economic development programs.
- Sign sea rescue agreements with neighboring countries.
- 100% of provincial officers and 50% of district officers receive training in natural disaster prevention, response and mitigation.
- 70% of communes along dykes and in estuary and coastal areas have knowledge of flood and storm control and disaster mitigation.
- Establish 72-hour storm forecast.
- Formulate laws on disaster prevention and mitigation.

CHAPTER VI MAJOR TASKS

6.1. Preparedness and prevention phase

6.1.1. Non-structural methods:

6.1.1.1. Early forecast and warning:

- Enhance the quality of the forecast of storms, floods and other natural disasters in line with forecast capacities in the region and over the world.

- Map disaster risks in areas, provinces, districts and critical zones for proactive prevention, disaster risk assessment and policy formulation. Preference will be given to highly flash flood prone areas.

- Modernize early warning systems from central to local level. Ensure quick emergency response and coordination. Enhance the effective means of communication in the mountains, sea and remote areas. Central-level warning system is responsible for nationwide monitoring and provides general orientation. Regional warning systems monitor large areas and critical zones. Local warning systems are tailored to meet specific characteristics of localities, i.e. villages, communes and resident areas.

- Install more equipment to monitor the developments of storms, floods and other natural disasters. Apply modern technologies to the management, monitoring and control of storms, floods, coastline and river bank erosion, landslides, etc., particularly in the Mekong River Delta and central provinces.

6.1.1.2. Legal documents

- Review and amend legal documents and policies on natural disaster prevention, response and mitigation, make preparations for the law on natural disasters.

6.1.1.3. Government's direction

- Strengthen the capacity of relevant government bodies in ministries and sectors, at both central and local level, especially in communes and villages.

- Improve the preparedness according to the principle four on-the-spot principle, especially in communes and villages.

- Develop short-term and mid-term plans for disaster prevention and mitigation in the nation and critical zones and localities.

6.1.1.4. Search and rescue capacities

- Enhance the on-the-spot rescue capacity of organizations, individuals and communities, especially those in mountains, remote and border regions, islands and vehicles at sea and on rivers.

- Gradually improve capacities and facilities for professional search and rescue forces. Pay attention to ensure smooth communication.

- Participate in regional and international cooperation in search and rescue.

6.1.1.5. Integrate natural disaster prevention, response and mitigation into socio-economic development programs.

- Integrate natural disaster prevention, response and mitigation content into development programs, plans and strategies of sectors and localities. It must be in line with sector, regional

and national development strategies, appropriate for local disaster features and ensure safe and sustainable development.

- Constructions must satisfy safety requirements, at the same time be environmentally friendly, help to mitigate disaster risks and will not provide any agent for more risks.

- Include natural disaster risk assessment in the design and appraisal of all investment projects. The projects can only be accepted after providing safe solutions against disaster risks.

- Pay attention to simultaneous implementation of safety programs for high-risk residential areas, such as mountainous, riverside, coastal and flooding ones. Attach much importance to land use planning and production structure shift.

6.1.1.6. Raise community awareness of natural disaster prevention, response and mitigation.

- Implement simultaneous measures and methods to raise social awareness and capacities to respond to natural disasters:

- Include basic knowledge about natural disaster prevention, response and mitigation in the school curriculum; carry out practical activities in schools to help students know how to respond to disaster situations and support their family and community.

- Provide training for those directly involving in disaster prevention and mitigation activities, especially decision-makers, managers, planners, practitioners, and local officers.

- Frequently carry out such exercises as search, rescue, evacuation, dyke protection, etc. for responsible officers in localities and sectors.

- Expand television and radio networks to remote areas, increase broadcast time, diversify means of communication in order to spread knowledge on disaster prevention and mitigation throughout communities.

- Encourage cultural and arts organizations to raise public awareness as well as promote natural disaster prevention, response and mitigation by their art works and programs.

6.1.1.7. Socialization of natural disaster prevention, response and mitigation

- Promote the community involvement in formulating relevant laws, regulations, programs and plans. Disclose these documents after they have been approved.

- Promote the community involvement in managing and monitoring the implementation of programs and projects.

- Develop and multiply the model “disaster safe villages” in which the communities are aware of potential disaster risks and consequences. Collect human resources and facilities, establish funds for disaster prevention and mitigation and other humanitarian foundations.

- Develop the self-preparedness capacity in the community, mobilize on-site resources for proactive search and rescue.

- Promote mutual help and protection against disasters, encourage organizations and individuals to participate in relief efforts for affected localities by various efficient ways.

6.1.1.8. Information sharing and international cooperation

The following information is shared among different sectors, localities, regional countries and over the world:

- Types of natural disasters.

- Forecasts and warnings.

- Information on search, rescue, and relief needs.

- Experience in organization, management, direction, preparedness, response, recovery and reconstruction.

International cooperation in:

- Forecast technologies.
- Research on disaster prevention solutions for each area.
- Search and rescue missions, especially those at sea and in flash flood regions.
- Training, experience sharing, adoption of criteria and methods for disaster risk assessment.
- Financial support for programs and projects on disaster prevention and mitigation.

6.1.2. Structural methods:

6.1.2.1. Dyke systems, flood diversion and retarding structures:

- Ensure safety for river and sea dykes at the designed flood level. Strive for river dyke safety at the historically high flood level.
- Enhance quality of dykes, prevent degradation, and improve such critical zones as dyke foundation and sluices underneath the dykes.
- Complete designed dyke cross-sections, reinforce surface of dykes at level III and above.
- Use modern technologies and new materials for the construction, repair, upgrade and reinforcement of dyke systems.
- Continue to plant trees to resist waves in suitable places.
- Flow clearance for flood discharge.
- Continue to build flood diversion and retarding structures as planned.

6.1.2.2. Reservoir and dam systems

- For existing reservoirs: inspect their conditions, repair and upgrade them to ensure safety. Build spillways for reservoirs lacking them, or those whose spillways do not ensure designed flood discharge. Inspect and improve their operation to ensure safety, particularly in case of heavy rains and floods.
- For reservoirs under construction: Concentrate resources to hasten the construction progress and ensure quality.
- Continue reservoir planning for flood cutting and multi purposes. Make preparations for building approved reservoirs.

6.1.2.3. Socio-economic infrastructure:

- Constructions must meet requirements for flood discharge, safe from floods, storms and other types of disasters.
- Reinforce road system in flood areas with suitable materials.
- Use multistorey buildings for government offices, hospitals and healthcare centers, schools and kindergartens, especially in communes and wards so that they can act as shelters if necessary.
- The planning and construction of information and electricity systems, warehouses, harbours must ensure safety standards in case of floods and storms.

6.1.2.4. Civil buildings:

- Encourage private houses by providing support and low-interest loan programs. Each family should have at least a room safe from floods and storms.

6.1.2.5. Parking space and shelters for boats and ships

- Continue the planning and hasten the progress of making shelters and parking space for boats and ships.

6.2. Response phase:

- Collect and process information from affected areas.
- Make timely decisions for specific situations.
- Establish forefront commands and task forces.
- Evacuate residents in dangerous areas.
- Deploy human resources, equipments and facilities for disaster response.
- Carry out search and rescue operations. Follow the four on-the-spot principles. Leadership, human resources, facilities and logistics must be adequate for rescue mission.
- Good coordination and cooperation among forces, ministries, sectors, localities and people.

6.3. Recovery and reconstruction phase:

- Continue search and rescue and collect damage information.
- Assess damage and emergency relief needs.
- Carry out emergency relief with focus on vulnerable groups, including the elderly, the disabled, women, children, etc.
- Mobilize resources for relief efforts.
- Reconstruct and restore production, ensure sanitation and prevent epidemics.
- Recovery activities should be combined with sustainable development planning.
- Promote community self-help and the involvement of international organizations in disaster recovery.

CHAPTER VII MAJOR SOLUTIONS

7.1. General solutions

7.1.1. Develop relevant laws, regulations and policies

- Create a law on natural disaster prevention, response and mitigation based on the Ordinance on Flood and Storm Control. The law must be in accordance with national socio-economic development programs.
- Regularly revise and amend existing laws on flood and storm control and disaster mitigation.
- Promulgate decrees and circulars to provide law implementation instructions.
- Issue policies on disaster relief, recovery and production development as well as policies for areas living with floods, flood diversion and retarding areas, and those highly prone to floods, storms and other disasters.
- Issue policies to encourage research activities, investment, international cooperation, disaster insurance and mobilize resources.
- Issue regulations and technical instructions for planning, defining high-risk zones, establish building codes in high-risk areas, revise regulations on disaster forecast and warning.

7.1.2. Improve organizational structure and management

7.1.2.1. Strengthen the effectiveness of the current organizational structure:

- Review and revise the functions, duties of and cooperation mechanism among the Committees for Flood and Storm Control, Committees for Search and Rescue at central, ministerial and local levels.
- Modernize facilities: upgrade offices, invest in new equipments and technologies to meet the requirements of natural disaster prevention, response and mitigation activities.
- Complete regulations on the operation of the committees of different levels and ministries.
- Professionalize the officers in charge of natural disaster prevention, response and mitigation activities.

7.1.2.2. Establish specialized agencies for natural disaster prevention, response and mitigation.

- Develop a proposal for the establishment of a specialized a specialized agency to assist the Prime Minister in performing the state management function in natural disaster prevention, response and mitigation, and to assume the role of flood and storm control, search, rescue and management of other types of disasters.
- Develop a proposal for the establishment of specialized agencies to assist the President of People's Committee at various levels in natural disaster prevention, response and mitigation and work under the direction of a higher management agency.
- Develop a proposal for the establishment, and encourage the establishment of organizations to support disaster management, training centers, public service units, etc.

7.1.3. Human resources development

- Strengthen human resources in advisory and administration agencies in disaster prevention and mitigation.

- Develop human resources for disaster prevention and mitigation.
- Create professional response forces.
- Organize self-response units in communities.
- Enhance the role of the Vietnam Fatherland Front and other mass organizations in disaster preparedness, response and damage recovery.
- Develop a volunteer network in training and information dissemination activities, relief and recovery.

7.1.4. Financial resources

- State budget ensures the implementation of natural disaster prevention, response and mitigation projects and disaster recovery.
- The national reserve can be used for natural disaster prevention, response and mitigation if necessary.
- The state delegates provincial and district people's committees to mobilize legal resources and invest in natural disaster prevention, response and mitigation.
- Gradually increase the budget for strengthening management capacity, new construction projects, planning, upgrade and maintenance of constructions and facilities for disaster warning, forecast, rescue and disaster recovery.
- Take advantage of ODA and FDI for disaster prevention and mitigation projects.
- The government gives preference to and ensures lawful interests of organizations and individuals investing in natural disaster prevention, response and mitigation.
- Encourage organizations and individuals at home and abroad to invest in research and apply modern technologies, together with traditional methods. Strive for proactive planning.
- Encourage organizations and individuals at home and abroad to carry out humanitarian and charity activities targeting people and localities affected by natural disasters.
- Establish disaster insurance and self-help funds.
- Encourage financial institutions to support disaster prevention and mitigation activities.

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

- Focus on multidisciplinary approach, systematic approach, integrated multi-risk approach and multi-use approach in researching and resolving practical issues.
- Encourage the application of new science and technology achievements in the world to forecast, warning, communication system and decision making process.
- Improve the capability of studying and monitoring the earth's changes and natural changes within the region and territory of Vietnam.
- Encourage the application new technologies and materials, enhance the quality, appearance and environmental friendliness of constructions.
- Develop sciences related to natural disasters, e.g. science on emergency situations, science on natural disaster management, science on natural disaster and sustainable development, science on disaster health care, science on post-disaster environmental recovery.

7.1.6. Strengthening international cooperation and integration

- Diversify forms of cooperation, increase international and regional integration in terms of natural disaster mitigation.
- Cooperate with neighboring countries in the establishment of agreements on water resources exploitation, protection and management, information sharing and rescue.
- Cooperate with countries in the region and the world in disaster warning, technology transfer, information and experience sharing and practical lessons; then establish agreements and conventions, especially those on search and rescue.
- Strengthen cooperation with such international organizations as UNDP, ADB, WB... governmental and nongovernmental organizations in providing financial assistance, humanitarian aids, training and education, research and human resources.
- Closely cooperate with international organizations in implementing the International Strategy on Natural Disaster Mitigation, Hyogo Framework for Action and other programs.

7.2. Solutions for each region

Natural disaster prevention, response and mitigation are important tasks of the government, organizations and local people. Main solutions for each region include:

7.2.1. The Northern plains and the North Central

The principle of natural disaster prevention, response and mitigation for the whole Northern plains and the North Central is to “prevent and control floods in a comprehensive manner”, thus ensuring safety for sustainable socio-economic development and national defense.

The major solutions for the entire region are to strengthen the flood control capacity for the dyke systems, reduce and regulate flood, increase the management and leadership capacities, timely problem solving, raise public awareness and improve laws and policies.

Solutions related to dykes must be simultaneously taken, including dyke planning, construction, maintenance, upgrade, management and protection. Continue to implement the programs on sea dyke renovation and upgrade, dyke surface reinforcement together with transport programs, tree plantation to resist waves and grass plantation for erosion prevention, improvement of structures under dykes, weak dyke foundation treatment, construction of spillways in case of extreme floods, erosion prevention. Complete plans for flood diversion and retarding.

Solutions for flood discharge, reduction and regulation include removal of obstructions in the river plain and on the river bed, dredging channels, planning, construction and operation of upstream reservoirs, forest protection, plantation of watershed forests and protective forests in coastal areas.

Solutions for natural disaster prevention and sustainable development include: closely monitoring and controlling changes of floods, typhoons, droughts and critical structures; focusing on residential and economic planning for areas near river and sea dykes, reservoirs and dams with a view to natural disaster prevention and making use of typical features of the region, shifting the crop and animal husbandry structures, properly using land and water resources, natural landscapes, and architectural structures in line with different types of disasters in the region.

Management solutions include improvement of central and local organizational structures, laws and policies regarding natural disaster prevention, response and mitigation, enhancement of management quality, human resources, capacity of specialized and semi-

specialized forces as well as on-site forces for dyke protection and rescue. Establish a basin-oriented system of disaster management, prevention and mitigation.

Promote the information dissemination, training and education to raise awareness and response capacities of individuals and communities. Enhance the rescue capacity of specialized and semi-specialized forces and local people. Have policies to encourage people to participate in natural disaster prevention, response and mitigation.

7.2.2. The Central Coast and the South East:

The principle of natural disaster prevention, response and mitigation for the central coastal plains and the South East is "avoidance and adaptation".

Basic solutions for natural disaster prevention, response and mitigation include: planning and construction of residential, industrial and tourism areas, disaster prevention and mitigation structures, transportation structures, in which the capacity of flood discharge must be paid attention.

Shift the crop and animal husbandry structures and make full use of natural conditions on land and at sea.

Solutions for flood prevention, salinity prevention, water sources regulation include: strengthening dykes, taking advantage of and preserving natural sand dunes for sea and river water prevention, salinity intrusion prevention, building reservoirs and other water resources structures to prevent droughts and inundation, controlling coastline and river bank erosion, dredging channels, building parking space for boats and ships, establishing and upgrading coastal information station for storm, sea water rising and tsunami warnings.

Promote the information dissemination, training and education to raise awareness and response capacities of individuals and communities. Enhance the rescue capacity of specialized and semi-specialized forces and local people. Have policies to encourage people to participate in natural disaster prevention, response and mitigation.

7.2.3. The Mekong river delta

The principle of natural disaster prevention, response and mitigation for the Mekong river delta is to "proactively live with floods", ensuring safety for sustainable development. At the same time, take initiatives to prevent storms, thunderstorms, whirlwinds, salinity intrusion, droughts; protect ring dykes and sea dyke system.

Major solutions are to control flood, take advantage of flood, reasonably use land and forest resources and natural conditions in the region.

Specific measures for flood control and salinity control include: Construction of residential clusters and infrastructure for the population to flood resistance, enhancement of flood discharge of rivers and channels, construction of sea dykes and estuary dykes, ring dykes, regulating reservoirs, and other structures for salinity prevention and fresh water preservation.

Proactively take advantage of floods; research, invest in and use the water rising environment as a natural resource, make full use of alluvium, clear acidity and salinity, develop aquaculture, fisheries, ecotourism, water transport, cultural and sports events typical for the water rising season and flood areas.

Promote the information dissemination, training and education to raise awareness and response capacity of individuals and communities. Enhance the rescue capacity of specialized and semi-specialized forces and local people. Have policies to encourage people to participate in prevention and mitigation of such disasters as storms, floods, droughts, thunderstorms and whirlwinds.

7.2.4. Mountainous areas and Central Highlands.

The principle of natural disaster prevention, response and mitigation for the mountainous areas and the Central Highlands is to "proactively prevent natural disasters".

Define and map areas highly prone to flash floods, landslides, geological hazards; Make residential planning, evacuate population in dangerous areas, make land use planning, manage construction at hill side, mountain side along roads and on river and stream shores. Manage mineral exploitation to prevent harmful impacts on the environment and landslide risks. Plant and exploit forests properly, shift crop structure.

Establish and develop warning and communication systems to the communes and village level. Build structures to prevent landslides and flash floods, clear flood discharge ways, expand flood discharge openings of sluice and bridge systems, develop reservoir system for both flood and drought control.

Strengthen the cooperation with other countries and border localities in disasters forecasting, warning, search and rescue. Promote the information dissemination, training and education to raise the awareness and response capacities of individuals and communities. Enhance the rescue capacity of specialized and semi-specialized forces and local people. Have policies to encourage people to participate in prevention and mitigation of such disasters as storms, floods, droughts, thunderstorms and whirlwinds.

PART 3

ACTION PLAN AND IMPLEMENTATION

CHAPTER VIII

ACTION PLAN

8.1. Strengthen the organizational structure, legal documents, institutions and policies

- Enhance the capacity of existing organizational structure for natural disaster prevention, response and mitigation, develop a proposal for the establishment of a specialized agency from central to local level to help the Prime Minister and authorities perform the state administration functions in natural disaster prevention, response and mitigation, undertake flood and storm control, search, rescue and other disaster-related activities.

- Propose specific mechanisms and policies to encourage the establishment of support organizations in natural disaster management, training centers and public service units

- Issue a law on natural disaster prevention and control and by-laws.

- Review, revise and amend instructive documents to give consistent criteria for natural disaster damage assessment and principles for post-disaster damage recovery.

- Implement a pilot self-reliant fund project to for natural disaster prevention, response and mitigation.

- Implement pilot insurance programs for natural disasters.

8.2. National priority programs, projects and proposals in natural disaster prevention and control

8.2.1. Natural disaster risk mapping and assessment

- Flash flood risk mapping.

- * Leading agency: MONRE;

- * Coordinating agencies: concerned ministries, sectors and localities

- * Implementation time: 2007-2010.

- Inundation mapping and flood risk assessment

- * Leading agency: MARD;

- * Coordinating agencies: concerned ministries, sectors and localities

- * Implementation time: 2007-2010.

- Drought risk mapping:

- * Leading agency: MARD;

- * Coordinating agencies: concerned ministries, sectors and localities

- * Implementation time: 2007-2012.

- Earthquake and tsunami risk mapping

- * Leading agency: Vietnamese Academy of Science and Technology

- * Coordinating agencies: concerned ministries, sectors and localities

- * Implementation time: 2007-2015.
- Storm and rising water risk mapping
 - * Leading agency: MONRE;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2010.
- Coastline and river bank erosion risk mapping:
 - * Leading agency: MARD;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2010.

8.2.2 Planning:

- Review and amend the flood prevention and control planning for Red River and Thai Binh river system:
 - * Leading agency: MARD, localities;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007.
- Review and amend the flood prevention and control planning for Mekong river delta:
 - * Leading agency: MARD; localities
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 5 years/ time.
- Review and amend the flood prevention and control planning for rivers in the Central region, from Thanh Hoa to Khanh Hoa:
 - * Leading agency: MARD and localities;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 5 years/ time.
- Review and amend the flood prevention and control planning for rivers in the South Central Coast and the South East:
 - * Leading agency: MARD and localities;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 5 years/ time.
- Review and amend the population planning in flash flood and landslide-prone mountainous areas:
 - * Leading agency: People's committees of mountainous provinces;
 - * Coordinating agencies: MONRE, MARD, Vietnamese Academy of Science and Technology;
 - * Implementation time: 5 years/ time.
- Review and amend the population planning in riverbank and coastline erosion prone areas:
 - * Leading agency: People's committees of relevant provinces

- * Coordinating agencies: MONRE, MARD, and Ministry of Science and Technology;
- * Implementation time: 5 years/ time.
- Review and amend the land use planning in association with natural disaster prevention and control:
 - * Leading agency: MONRE and localities;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 5 years/ time.
- Review and amend the construction planning in disaster prone areas
 - * Leading agency: Ministry of Construction;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 5 years/ time.
- Review and amend the integrated exploitation and management planning in river basins
 - * Leading agency: MARD;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 5 years/ time.

8.2.3. Forecast capacity strengthening:

- Strengthening storm warning and forecast capacities:
 - * Leading agency: MONRE and CCFSC;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: Annually
- Strengthening flood warning and forecast capacities in Red river Delta:
 - * Leading agency: MONRE and CCFSC;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: Annually
- Strengthening flood warning and forecast capacities in the Mekong River Delta:
 - * Leading agency: MONRE and CCFSC;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: Annually
- Strengthening flood warning and forecast capacities in rivers of the Central region, Central Highlands and the South East:
 - * Leading agency: MONRE and CCFSC;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: Annually
- Strengthening flash flood warning and forecast capacities for mountainous provinces:
 - * Leading agency: MONRE and CCFSC;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: Annually

- Strengthening Tsunami warning and earthquake information capacities
 - * Leading agency: MONRE, Vietnamese Academy of Science and Technology and CCFSC;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: Annually.

8.2.4. Community awareness raising and non-structural measures:

- Including knowledge of natural disaster issues in school curriculum:
 - * Leading agency: Ministry of Education and Training;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2010.
- Community training on natural disaster issues
 - * Leading agency: CFSCs at all levels and CCFSC;
 - * Coordinating agencies: Organizations and individuals at home and abroad
 - * Implementation time: Annually
- Information dissemination on natural disaster issues via the mass media:
 - * Leading agency: Ministry of Culture and Information, VOV, VTV;
 - * Coordinating agencies: Concerned ministries, sectors and localities.
 - * Implementation time: Annually
- Capacity strengthening for natural disaster management agencies from the central to local level:
 - * Leading agency: MARD;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2020.
- Capacity strengthening for search and rescue forces:
 - * Leading agency: Ministry of Defense
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2020.
- Reviewing and amending building codes in line with natural disaster characteristics in each region:
 - * Leading agency: Ministry of Construction;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2010.
- Applying scientific and technological advances as well as new techniques and materials to natural disaster prevention, response and mitigation:
 - * Leading agency: Ministry of Science and Technology;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2020.
- Program on protective forest plantation and protection:

- * Leading agency: MARD;
- * Coordinating agencies: concerned ministries, sectors and localities
- * Implementation time: 2007-2020.
- Program on tree plantation for wave resistance in dyke systems:
 - * Leading agency: MARD;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2010.
- Completing information and communication system, managing boats and ships at sea:
 - * Leading agency: Ministry of Fisheries;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2010.
- Establishing welfare programs for children, the old and disabled in disaster areas:
 - * Leading agency: MOLISA;
 - * Coordinating agencies: organizations and individuals at home and abroad
 - * Implementation time: Annually
- Establishing volunteer networks in natural disaster prevention, response and mitigation:
 - * Leading agency: Ho Chi Minh Communist Youth Union;
 - * Coordinating agencies: organizations and individuals at home and abroad
 - * Implementation time: Annually.

8.2.5. Structural measures

- Improving facilities, strengthening the community's preparedness:
 - * Leading agency: People's committees at all levels
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: Annually
- Program on dyke system upgrade:
 - * Leading agency: MARD
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: Annually
- Constructing reservoirs upstream for flow regulation:
 - * Leading agency: as planned projects;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2020
- Construction of erosion prevention structures:
 - * Leading agency: MARD;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2020
- Construction of residential clusters for flood resistance and storm avoidance:

- * Leading agency: People's committees at provincial level
- * Coordinating agencies: concerned ministries, sectors and localities
- * Implementation time: 2007-2020
- Expansion of flood discharge opening for railroad bridges and sluices:
 - * Leading agency: Ministry of Transport;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2020.
- Construction and expansion of spillways for flood discharge:
 - * Leading agency: as specific projects in ministries and sectors;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2020.
- Construction of storm shelters for boats and ships:
 - * Leading agency: Ministry of Fisheries;
 - * Coordinating agencies: concerned ministries, sectors and localities
 - * Implementation time: 2007-2015.

Natural disaster prevention, response and mitigation to 2020 will be implemented through programs and projects managed by Ministries, sectors and localities. Funding for implementation is estimated at approximately 30,000 billion VND from the state budget, local budget, ODA, FDI, community's contributions and legal fund mobilized from other sources.

CHAPTER IX IMPLEMENTATION

National Strategy on Natural disaster prevention, response and mitigation until 2020 provides important orientations for natural disaster prevention, response and mitigation in Vietnam. To successfully implement the Strategy, ministries, agencies and localities are responsible for following tasks:

9.1. Ministries and agencies at central level.

9.1.1. Central Committee for Flood and Storm Control:

- Advise and make suggestions to the Government and Prime Minister for measures to prevent and control floods, storms and recover from their consequences, as well as mitigate natural disasters in the whole country.
- Monitor closely the developments of storms, floods; lead and coordinate with relevant ministries, sectors and localities to timely resolve flood and storm problems.
- Supervise relevant ministerial agencies, sectors and localities to prevent, control and recover from floods and storms.
- Give warnings and measures to cope with floods and storms.
- Propose that the Prime Minister orders mobilization of resources in emergencies to cope with natural disasters.
- Mobilize forces, equipments and facilities to cope with flood and storm issues within its mandate.
- Propose that the Prime Minister gives flood emergency alerts, flood diversion and flood retarding orders.
- Collect information on damage and relief needs, give measures and guide the damage recovery.
- Hold meetings to draw experience in flood and storm control; disseminate experience and technological advances in flood and storm control to relevant sectors and localities.
- Direct the dissemination of knowledge, experience and legal documents on flood and storm control and disaster mitigation.
- Conduct international cooperation in flood and storm control and natural disaster mitigation.
- Recommend that the Prime Minister awards organizations and individuals who have excellent contributions to natural disaster prevention and control; to propose measures against organizations and individuals who have caused severe consequences in natural disaster prevention and control.
- Supervise relevant ministries, agencies and localities to develop plans and programs to implement this Strategy.

9.1.2. National Committee for Search and Rescue

- Direct and carry out search and rescue operations in case of natural disasters, floods, storms, tsunamis.
- Mobilize and coordinate forces and equipment of relevant ministries, agencies, localities, organizations and individuals for timely search and rescue activities in case of natural

disasters and to be responsible for their decisions; to cooperate with regional countries to conduct search and rescue activities.

- Design search and rescue plans to ensure timeliness and effectiveness.
- Guide and supervise relevant ministries, sectors and localities in the implementation of regulations of the state and the National Committee for Search and Rescue.
- Recommend that the Prime Minister awards organizations and individuals who have excellent contributions to search and rescue activities; to propose measures against organizations and individuals who have caused severe consequences in search and rescue activities.
- Hold annual search and rescue exercises, provide specialized training for search and rescue forces.
- Cooperate with neighboring countries and international organizations in search and rescue.

9.1.3. Ministry of Agriculture and Rural Development

- Act as the standing unit for the Central Committee for Flood and Storm Control.
- Lead and cooperate with ministries, ministerial-level agencies in helping the Government execute state administration in flood and storm control.
- Be responsible to the Government for dyke-related issues and dyke protection.
- Direct and supervise localities to prepare plans and schemes to protect reservoirs, dams and other relevant structures under the Ministry's management.
- Guide localities to develop agricultural and forestry production structures suitable for each region's disaster characteristics.
- Collect and process information on flood and storm control and natural disaster mitigation in the whole country; to conduct research and develop technologies in flood and storm control and natural disaster mitigation.
- Lead and cooperate with ministries and ministerial-level agencies in directing localities to disseminate information, knowledge, experience and legal documents on flood and storm control and natural disaster mitigation.
- Establish and develop international cooperation in flood and storm control and disaster mitigation.
- Lead and cooperate with ministries, sectors and localities in making synthesis report on the implementation results in each period.

9.1.4. Ministry of Natural Resources and Environment

- Perform the state administration functions in hydrometeorology and tsunami warning.
- Enhance forecast capacities and technologies to enable 72 hour forecast, forecast of storm precipitation and other types of weather.
- Collect and process information; to provide warnings, forecasts, popular knowledge and timely notices of tropical depressions, storms, floods and flash floods for Committees for Flood and Storm Control at various levels, relevant ministries, agencies, and the mass media.
- Develop plans and schemes to establish more rain, storm and flood monitoring stations, pay attention to apply remote sensing technology, photographic satellites, surface radars, rainfall measuring posts in areas highly prone to flash floods, upstream flood monitoring posts. Apply new technologies to estimation, forecast and warning.

- Conduct research and apply scientific and technological advances and establish international cooperation in forecast and warning;
- Provide expertise and training for responsible officers and staff; to disseminate information, knowledge, experience and legal documents on forecast and warning.

9.1.5. Ministry of Fisheries

- Perform the state administration functions in fisheries.
- Develop plans and schemes and to guide the implementations of measures aimed at ensuring safety for human and equipments at sea and on rivers.
- Improve communication system, manage the activities of fishermen on rivers and at sea.
- Disseminate knowledge and experience on storm prevention, international laws for fishermen, especially ship owners and captains.
- Complete storm shelters for boats and ships.

9.1.6. Ministry of Defense

- Develop plans for and guide the army's participation in natural disaster prevention, response and mitigation as stipulated by the law and in accordance with the Strategy for Natural disaster prevention, response and mitigation.
- Deploy forces and logistics for search and rescue missions in response to natural disasters.
- Act as the main forces in dyke and dam protection, flood diversion, flood retarding and disaster recovery.

9.1.7. Ministry of Public Security

- Develop plans for and guide their force's participation in natural disaster prevention, response and mitigation as stipulated by the law and in accordance with the Strategy for Natural disaster prevention, response and mitigation.
- Deploy forces and logistics for public security in response to natural disasters.
- Cooperate with other forces in search, rescue and disaster recovery.

9.1.8. Ministry of Posts and Telematics:

- Perform the state administration functions in posts and telematics as stipulated by the law.
- Develop plans and schemes to ensure uninterrupted information network for natural disaster prevention, response and mitigation in all situations, particularly in remote areas, islands, flash flood prone areas.

9.1.9. Ministry of Transport

- Perform the state administration functions in transport as stipulated by the law.
- Ensure uninterrupted transport lines in the event of floods, storms and other natural disasters.
- Review and amend the planning and flood discharge structures through roads and railroads, especially in Central provinces.

- Coordinate with relevant ministries and sectors in the management of and communication with boats and ships at sea.
- Participate in search and rescue on rivers and at sea if assigned.

9.1.10. Ministry of Industry

- Perform the state administration functions as stipulated by the law.
- Ensure absolute safety for reservoirs under their management.
- Operate and regulate these reservoirs for flood and drought control downstream.

9.1.11. Ministry of Construction

- Execute the state administration in construction as stipulated by the law.
- Propose or issue building codes suitable for each region's disaster characteristics.

9.1.12. Ministry of Culture and Information, Vietnam Television, Voice of Vietnam, Vietnam News Agency, central and local information agencies and the press

- Enhance information transmission, disseminate accurately and quickly forecasts and warnings of natural disasters, policies, orders and instructions about natural disaster prevention, response and mitigation.
- Cooperate with relevant agencies to develop education and training programs in natural disasters to raise public awareness; to disseminate basic knowledge in natural disaster prevention, mitigation and recovery.

9.1.13. Ministry of Education and Training

- Perform the state administration functions in education and training as stipulated by the law.
- Design and include general knowledge of disaster prevention and mitigation in school curriculum.

9.1.14. Vietnamese Academy of Science and Technology

- Perform the tasks and functions as stipulated by the law.
- Give timely warnings of earthquakes and early warnings of tsunami.

9.1.15. Other ministries and sectors:

- According to their own functions and tasks, other ministries and sectors shall be responsible for integrating flood and storm control and natural disaster mitigation into their own development plans and projects.
- Prepare forces, facilities, materials and budget to proactively participate in natural disaster prevention, control and damage recovery in accordance with guidance of the Prime Minister.

9.1.16. Mass organizations:

- Disseminate information about natural disaster prevention, response and mitigation in communities.
- Establish volunteer teams participate in dyke protection, search, rescue and damage recovery.
- Collect money and goods for victims in affected areas.

9.2. Responsibilities of local authorities of various levels

9.2.1. People's Committees of various levels:

- Perform the state administration functions in flood and storm control and natural disaster mitigation.
- Issue resolutions, decisions, directives and instructions concerning the implementation of laws and relevant legal documents on flood and storm control and natural disaster prevention.
- Direct, organize and implement the flood and storm control, damage recovery and natural disaster mitigation in their localities.
- Integrate natural disaster prevention, response and mitigation into their overall socio-economic development planning.
- Review and amend population planning; prepare and implement evacuation plan in lowlands, landslide and flash flood prone areas and other high risk areas.
- Shift the structures of crop production and animal husbandry to adapt to local disaster characteristics.
- Plant and keep protective forests, wave-resistant trees along river banks and sea shore.
- Manage people and vehicles on rivers and at sea.
- Have plans for people and infrastructure protection, people evacuation, dyke and dam protection. Proactively apply the principle “4 ”, prepare, prevent, respond to and recover from floods, storms and other natural disasters.
- Annually strengthen the organizational structure of the committees for flood and storm control at various levels and sectors. Assign tasks to relevant organizations and individuals; supervise their implementation, especially at commune level.
- Collect and process relevant information; implement reporting regulations. Carry out damage assessments, propose and implement relief activities.
- Conduct research and apply scientific and technological advances to natural disaster prevention; disseminate relevant legal documents, knowledge and experience on natural disaster prevention. Inspect the enforcement of laws on natural disaster prevention and recovery.
- Prepare local budget and mobilize all legal resources from organizations and individuals for natural disaster prevention and recovery.
- Manage and utilize resources for disaster prevention, mitigation effectively and purposefully.

9.2.2. For provinces in the Northern delta and the North Central:

- Ensure dyke safety at the same time use it in multi purposes in local socio-economic development.
- Complete dyke renovation plan before the rainy and flood season every year; review and assess dyke quality; work out dyke protection plans, especially in critical sections.
- Establish guard forces, search and resolve early the problems and flaws in dykes, embankments and sluices.
- Be prepared to operate flood diversion and retarding structures.
- Prepare protection plans for the population in the river's alluvial ground, the areas surrounding ring dykes, flood diversion and retarding areas and coastal areas.

- Prepare enough personnel, facilities and materials according to the principle “4 ”; be prepared against floods and storms.

9.2.3. For provinces in the Central Coast and the South East:

- For provinces in the Central Coast, it is essential that natural disaster prevention, response and mitigation are integrated into the overall socio-economic development planning.

- Continue mapping flood areas and areas highly prone to floods and storms in order to provide a basis for warning systems, evacuation plans and infrastructure development.

- Develop land use planning and use it as a basis for forest plantation, construction and production planning.

- Research proper varieties of plants and animals; adapt the structures of crop production and animal husbandry to the flood, storm and drought situations of the Central region.

- Resolve the riverbank and coastline erosion; build estuary regulation structures to ensure flood discharge and prevent obstruction. Build dykes against early floods; accept flooding in high seasons, ensure quick flood discharge, complete new dams and reservoirs; build more spillways to ensure reservoir safety.

- Complete the construction of storm shelters for boats and ships in line with approved planning.

- Reinforce office buildings, schools and hospitals. These buildings must be at least two stories high to be used as shelters in case of floods and storms.

- Renovate and upgrade bridges and sluices for flood discharge in roads and railroads.

- Carry out safety plans for fishermen and vehicles on rivers and at sea; build and upgrade communication system, manage effectively the activities of fishermen on rivers and at sea.

- Follow the principle “4 ” to the maximum degree; disseminate knowledge and experience in storm prevention as well as international laws for fishermen, especially vehicle owners and captains.

- Work out annual plans and alternatives on flood and storm prevention and control, especially plans for the most disadvantaged situations that may arise as a result of combination of floods, typhoons, tropical depressions and high tides.

9.2.4. For provinces in the Mekong river delta:

- Complete the construction of residential clusters for flood resistance as well as flood control structures, ensure long-term stability for economic development.

- Review and amend flood planning, supervise the construction of ring dykes in order to protect production, take advantage of alluvium and allow flood discharge in high seasons.

- Infrastructure, road system must meet the usual requirements of the population during the flood season, especially for those living in deep flooded areas.

- Reinforce office buildings, schools and hospitals. These buildings must be at least two stories high to be used as shelters and children-keeping places in case of floods and storms.

- Upgrade the flood warning system in the Mekong river delta.

- Follow the principle “4 ” to the maximum degree; work out annual plans, alternatives and measures to fight against high and long lasting floods; and plans against typhoons, tropical depressions and cyclones.

- Disseminate knowledge and experience in storm and flood prevention, children-keeping and swimming.

9.2.5. For provinces in mountainous regions and the Central Highlands.

- For provinces in mountainous regions and the Central Highlands, it is necessary that natural disaster prevention, response and mitigation are integrated into the overall socio-economic development planning.

- Continue mapping areas highly prone to flash floods and landslides in order to provide a basis for warning systems, evacuation plans and infrastructure development.

- Develop land use planning and use it as a basis for population, construction and production planning. Control the construction of houses at hillside, along rivers and streams, on the edge of mountains near roads. Control the mineral exploitation; plant and exploit forests properly.

- Research proper varieties of plants and animals; adapt the structures of crop production and animal husbandry to the flood, storm and drought situations of the region.

- Complete new dams and reservoirs; build more spillways to ensure reservoir safety. Resolve river bank erosion.

- Follow the principle “4 ”, carry out exercises and training for the forces directly responsible for flash floods and landslides prevention, search, and rescue. Reserve and deliver necessities such as food, running water, medicines, etc. to families, villages, especially those in remote and isolated areas.

- Establish the communication system to commune and village level. Disseminate knowledge and experience in flash flood and landslide prevention.

- Build structures to prevent flash floods and landslides; clear the flood discharge channels; expand flood discharge opening for bridges and sluices. Expand the lake system for flood and drought prevention.

- Cooperate with border localities in forecast, warning, search and rescue.

9.3. Monitoring and evaluation of the strategy implementation

The Committees for Flood and Storm Control, the Committees for Search and Rescue at all levels shall be responsible for supervising the implementation of the Strategy. The monitoring and evaluation of the strategy implementation are as follows:

9.3.1. Evaluation contents of natural disaster prevention and recovery:

- Evaluate the integration of natural disaster prevention, response and mitigation into overall planning as well as specific projects for socio-economic development in ministries, sectors and localities.

- Evaluate the plans and alternatives in response to natural disasters, based on local and regional characteristics.

- Evaluate the response and damage recovery concerning each type of natural disaster in each locality.

- Evaluate the preparedness and supervision activities according to the principle “4 ” for natural disaster prevention, response and mitigation.

- Evaluate the land use planning.

9.3.2. Evaluation of resource mobilization:

- Central and local budgets and other resources.
- Training, public awareness education.
- Facilities and equipments for natural disaster prevention, response and mitigation.

9.3.3. Organizational structure, policies, legal documents:

- Strengthen the organizational structure.
- Policies.
- Legal documents.

9.3.4. Evaluation of the effectiveness of the strategy implementation to hunger eradication and poverty alleviation, and economic growth.

9.3.5. Evaluation of the strategy implementation shall be done every 3 years.

9.3.6. Evaluation criteria for the implementation of the above mentioned contents shall be completed by 2010.

MINISTRY – CHAIRMAN OF COMMITTEE

Cao Duc Phat