

## Thailand Country profiles 2011



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# THAILAND

## 1. General Information

Thailand is located between 5° and 21° N latitude and between 97° and 106° E longitude. It shares land borders with Myanmar (Burma) in the north and west, the Andaman Sea in the west, Laos in the north and north-east, Cambodia and the Gulf of Thailand in the east, and Malaysia in the south.

### 1.1 Geographical Data

Thailand is situated in South-East Asia, covering an area of nearly 513,115 square kilometers (198,114 square miles), extends about 1,620 kilometers (1,007 miles) from north to south and 750 kilometers (482 miles) at its widest point from east to west, or approximately the same size as France, with a coastline of approximately 2,700 kilometers (1,143 miles) on the Gulf of Thailand and 865 kilometers (537 miles) along the Indian Ocean. It is roughly the size of France.

Lowest point: Gulf of Thailand 0 m

Highest point: Doi Inthanon 2,576 m

### Topography

Thailand is divided into four geographical regions: Central Thailand (including Bangkok), Northern Thailand, Northeastern Thailand, and Southern Thailand.

**The North Region** The North Region is mainly mountainous representing the most heavily forested areas of the country. The region accommodates four north-south flowing rivers namely Ping, Wang, Yom and Nan. Most populated areas in the North are in the alluvial valleys along these rivers. Chiang Mai, the second largest city of Thailand, and Chiang Rai are among the well known cities.

**The Northeast Region (Isarn)** In terms of areas and population, Isarn is the biggest region of Thailand, one-third of the country's total areas. This region lies atop of Korat Plateau which is bound on the north and east by Mekong River. There are two major rivers, Chi and Mun, which run down to Mekong River.

**The Central Region** The Central Region (including Bangkok Metropolitan Region) is situated in the basin of the Chao Phrya River which runs from north to south and after crossing Bangkok flows to the Gulf of Thailand. This region is often referred as the "rice bowl" of Thailand being the most fertile area of the country.

**The South Region** The peninsular south consists of the narrow Kra Isthmus that widens into the Malay Peninsula. With a vast area of mountains, the South Region has the highest rainfall in the country. It is connected to the Indian Ocean in the west and to the Pacific Ocean (Gulf of Thailand) in the east.



### 1.2 Climate information

#### General Climatic Conditions

The climate of Thailand is under the influence of monsoon winds of seasonal character i.e. southwest monsoon and northeast monsoon. The southwest monsoon which starts in May brings a stream of warm moist air from the Indian Ocean towards Thailand causing abundant rain over the country, especially the windward side of the mountains. Rainfall during this period is not only caused by the southwest monsoon but also by the Inter Tropical Convergence Zone (ITCZ) and tropical cyclones which produce a large amount of rainfall. May is the period of first arrival of the ITCZ to the Southern Part. It moves northwards rapidly and lies across southern China around June to early July that is the reason of dry spell over upper Thailand. The ITCZ then moves southerly direction to lie over the Northern and Northeastern Parts of Thailand in

August and later over the Central and Southern Part in September and October, respectively. The northeast monsoon which starts in October brings the cold and dry air from the anticyclone in China mainland over major parts of Thailand, especially the Northern and Northeastern Parts which is higher latitude areas. In the Southern Part, this monsoon causes mild weather and abundant rain along the eastern coast of the part.

The onset of monsoons varies to some extent. Southwest monsoon usually starts in mid-May and ends in mid-October while northeast monsoon normally starts in mid-October and ends in mid-February.

#### **Season**

From the meteorological point of view the climate of Thailand may be divided into three seasons as follows:

**Rainy or southwest monsoon season** (mid-May to mid-October). The southwest monsoon prevails over Thailand and abundant rain occurs over the country. The wettest period of the year is August to September. The exception is found in the Southern Thailand East Coast where abundant rain remains until the end of the year that is the beginning period of the northeast monsoon and November is the wettest month.

**Winter or northeast monsoon season** (mid-October to mid-February). This is the mild period of the year with quite cold in December and January in upper Thailand but there is a great amount of rainfall in Southern Thailand East Coast, especially during October to November.

**Summer or pre-monsoon season** (mid-February to mid-May) This is the transitional period from the northeast to southwest monsoons. The weather becomes warmer, especially in upper Thailand. April is the hottest month.

### **1.3 Demographic data**

*Official Name:* Kingdom of Thailand

*Capital (and largest city):* Bangkok (Thai : Krung Thep)

*Population:* 65.9 million (source: National Statistical Office, Ministry of Information and Communication Technology: 2010)

*Population density:* 127.5 per sq.km. (Source: National Statistical Office.2010)

*Languages:* Thai, English (secondary language of the elite), ethnic and regional dialects.

*Official script:* Thai alphabet

*Nationality :* Thai 75%, Chinese 14%, other 11% Religions : Buddhist 94.6%, Muslim 4.6%, Christian 0.7%,

*Life expectancy:* Male 69.9 Female 74.9 (source: Report on The 1995-1996 Survey of Population Change, National Statistical Office.)

*Major religion:* Buddhism

*Monetary unit:* 1 baht = 100 satangs

### **1.4 Administrations**

*Type of government:* Constitutional monarchy

*Head of state:* King Bhumibol Adulyadej (Rama IX).

*Prime minister:* Prime Minister

*Administrative Divisions:* Thailand has 76 provinces (changwat) and Bangkok municipality. The provinces are divided into 998 districts (amphoe), 8,860 rural administrative subdistricts (tambon) .

*Types of government administrations:* the central, provincial and local.

*Provincial and Local Government:* Local government is based on the principles of decentralization and self-government when certain legal conditions are met. Under the 1997 constitution, elected local assemblies and elected or appointed local administrative committees were allowed four-year terms. Central government officials could not serve as local officials. Bangkok is a provincial-level entity with an elected governor and the legislative Metropolitan Administration Council. Supervision of provincial and local government takes place through the Department of Local Administration of the Ministry of Interior.

## 2. Natural hazards in Thailand

Thailand is in a tropical zone which is subject to the influences of monsoons and tropical hurricanes resulting in natural disaster impacts, such as floods, landslides, droughts, wildfires, etc. Summaries of the hazard, vulnerability and disaster risks in Thailand have been extracted from a study prepared by the Asian Disaster Preparedness Center, the Asian Institute of Technology and the United Nations Development Program - "Strengthened Disaster Management Strategies in Thailand", a project of the Royal Thai Government, March 1994, (THA/88/004), are presented in Table 1.1 and Table 1.2 below.

Table 1.1: Relative Risks of Hazards, Vulnerability, Level of Management and Disaster Occurrence in Thailand

Types of Disaster	Hazard	Vulnerability	Management	Disaster Risk
Flood	high	moderate	Moderate	high
Typhoon/Hurricane	high	high	moderate	moderate
Earthquake	low	low	poor	moderate
Landslide	moderate	low	poor	moderate
Drought	high	moderate	moderate	moderate
Fire	high	moderate	moderate	moderate
Explosion	high	moderate	poor	high
Accident	high	moderate	poor	high
Epidemics	low	low	moderate	low
Pests	moderate	low	poor	moderate
Civil Unrest	low	low	poor	moderate
Refugee migration	moderate	Low	moderate	moderate

Table 1.2: Rank Order of Risk of Disasters in Thailand

Type of Disasters	Subjective Rank	Numeric Weight
Flood	high	2.39
Accident	high	2.37
Explosive	high	2.34
Typhoon	moderate	2.31
Drought	moderate	2.24
Fire	moderate	2.20
Land slide	moderate	2.15
Earthquake	moderate	1.97
Civil Unrest/Refugee Influx	moderate	1.87
Pests	moderate	1.77
Epidemic	low	1.63

The occurrences of natural disaster in Thailand are subject to seasonal cycle such as cold spell, drought, flood, landslide and storm.

Table 1.3 Disaster Seasoning Calendar

Type of Disaster	Disaster/Event	Periods of Time (month)
Natural	<ol style="list-style-type: none"> <li>1. Cold spell</li> <li>2. Drought</li> <li>3. Flood</li> <li>4. Landslide</li> <li>5. Tropical Cyclone</li> <li>6. Earthquake</li> <li>7. Storm surge</li> </ol>	October – January January – May October – November and June – September October – November and June – September March – May Year – round surveillance October – November
Natural/human induced	<ol style="list-style-type: none"> <li>1. Forest fire</li> </ol>	Year – round surveillance Northern region April – May Northeastern region November – May Central region Eastern region Southern region } March - May

Source: Implementation Handbook 2009, Department of Disaster Prevention and Mitigation

## 2.1 Natural Hazards likely to affect the country

Looking into the past major disasters happening in Thailand, it was not only the 2004 Indian Ocean Tsunami that came to devastate the country. Long before that Thailand experienced other major natural disasters as well. These include Typhoon Gay in 1989 that hit a southern province of Chumporn, claiming almost 500 lives, and landslide in a northern part of country in 2001 where 131 people perished.

Flood, landslide, forest fire, wind damage, drought, lightening, hail and epidemics are the major disasters. Flood is by far the worst disasters in Thailand. Between 2002 and 2010 flood killed more than 1,000 people and brought damage and loss in economic terms more than 40 billion Baht. It out numbers the damage caused by all other disasters combined during the period.

Landslides occur frequently in Thailand due to the influence of monsoon rain. In most cases, landslide would occur in the northern and southern parts of the country which are mountainous. The table below provides information of large scale landslide events taken place over the past four decades.

Although drought does not pose danger to human life but it does cause a great damage to the economy and livelihood of the people especially in rural areas. Occasionally, Thailand experienced tropical storms.

Thailand suffers quite often from these disasters; the occurrences of which are becoming more often and more severe than before. The table below concludes the detail of natural disaster occurrence in Thailand during 2005 – 2010.

Table 1.4 Thailand's Disaster Situation Summary in 2010

year	Disaster type	Frequency	Killed	Injured	Total affected	Damaged (Baht)	Damaged (USD)
2010	<b>Flood</b>	<b>7</b>	<b>266</b>	<b>1,665</b>	<b>13,485,963</b>	<b>16,338,772,341</b>	<b>536,577,088</b>
	Drought	n/a	0	0	4,077,411	1,415,223,466	46,476,961
	Cold Spell	n/a	0	0	10,609,301	n/a	n/a
	Storm	2,192	30	174	407,271	198,845,340	6,530,244
	Fire	1,903	29	83	8,912	1,283,787,066	42,160,494
2009	<b>Flood</b>	<b>5</b>	<b>53</b>	<b>22</b>	<b>8,881,758</b>	<b>5,252,613,976</b>	<b>172,499,637</b>
	Drought	n/a	0	0	17,353,358	108,346,716	3,558,184
	Cold Spell	n/a	0	0	10,588,881	n/a	n/a
	Storm	1,348	24	26	360,154	207,373,975	6,810,311
	Fire	5,127	83	312	6,549	817,334,839	26,841,866
2008	<b>Flood</b>	<b>6</b>	<b>113</b>	<b>16</b>	<b>7,921,127</b>	<b>7,601,796,302</b>	<b>249,648,482</b>
	Drought	n/a	0	0	13,298,895	103,900,841	3,412,178
	Cold Spell	n/a	0	0	9,554,992	n/a	n/a
	Storm	1,995	15	30	242,944	227,549,741	7,472,897
	Fire	1,696	30	92	8,392	1,424,889,050	46,794,385
2007	<b>Flood</b>	<b>13</b>	<b>36</b>	<b>17</b>	<b>2,326,179</b>	<b>1,687,865,982</b>	<b>55,430,738</b>
	Drought	n/a	0	0	16,754,980	198,304,732	6,512,470
	Cold Spell	n/a	0	0	5,910,339	n/a	n/a
	Storm	2,233	10	71	245,619	234,547,154	7,702,697
	Fire	1,901	45	156	9,761	875,791,793	28,761,635
2006	<b>Flood</b>	<b>6</b>	<b>446</b>	<b>1,462</b>	<b>6,050,674</b>	<b>9,627,418,620</b>	<b>316,171,383</b>
	Drought	n/a	0	0	11,862,358	495,275,738	16,265,213
	Cold Spell	n/a	0	0	2,303,703	n/a	n/a
	Storm	1,883	29	39	142,849	92,244,108	3,029,363
	Fire	1,734	37	66	9,708	1,083,845,622	35,594,273
2005	<b>Flood</b>	<b>12</b>	<b>75</b>	<b>0</b>	<b>2,874,673</b>	<b>5,982,283,276</b>	<b>196,462,504</b>
	Drought	n/a	0	0	11,147,627	7,565,861,139	248,468,346
	Cold Spell	n/a	0	0	3,742,793	n/a	n/a
	Storm	1,313	13	0	61,429	148,871,750	4,889,055
	Fire	1,559	48	68	23,250	931,191,005	30,580,985

(1 USD = 30.45 Baht)

**Source:** Department of Disaster Prevention and Mitigation (DDPM)

## 2.2 Recent major disasters

**2011:** Severe flooding occurred during the 2011 monsoon season in Thailand. Beginning at the end of July triggered by the landfall of Tropical Storm Nock-ten, flooding soon spread through the provinces of Northern, Northeastern and Central Thailand along the Mekong and Chao Phraya river basins. In October floodwaters reached the mouth of the Chao Phraya and inundated parts of the capital city of Bangkok. Flooding persisted in some areas until mid-January 2012, and resulted in a total of 815 deaths (as of JAN. 17, 2012) (with 3 missing) and 13.6 million people in 4 regions affected. Sixty-five of Thailand's 77 provinces were declared flood disaster zones, and over 20,000 square kilometers (7,700 sq mi) of farmland was damaged. The disaster has been described as "the worst flooding yet in terms of the amount of water and people affected." The World Bank has estimated 1,425 billion baht (US\$ 45.7 Bn) in economic damages and losses due to flooding, as of 1 December 2011. Most of this was to the manufacturing industry, as seven major industrial estates were inundated by as much 3 meters (10 feet) during the floods.

**2010:** In 2010 the impacts of tropical storms together with the influence of the active monsoon trough lying over Thailand has brought losses and damages to the country, particularly in the sector of agriculture, fishery, tourism, and to overall activities of the people. During the year 2010, Thailand was affected by the influence of 2 main tropical storms, namely Tropical Storm Mindulle (22-28 August 2010) and Tropical Depression (31 October – 2 November). Besides the influences from Typhoon related disaster, this year Thailand was also suffered from the flooding crisis from the vigorous monsoon clouds poured heavy rainfall over Thailand which occurred in over 51 provinces of Thailand. More than 8.9 million people and 2.6 households had been affected by flooding since the flood hit on October 10, 2010. The death toll has reached 257 in 29 provinces and the economic loss was estimated to be more than USD 1.5 Billion.

The Tropical Storm “Mindulle” was moving over the East of Donghoi, Viet Nam. On August 24, 2010 the monsoon then increased its intensity as Severe Tropical Storm and expanded across Thailand, Lao PDR, Cambodia and Viet Nam. The effects of Midulle caused heavy rainfall and flood in the north and northeastern parts of Thailand until September 15, 2010. The total affected areas covered more 39 provinces and affected over million populations. For 712 people were evacuated and there were 2 deaths due to the flood.

The estimated damages were over USD 185 million with damages to 87,000 hectare of agricultural areas, more than 57,000 livestock, 5,881 roads, 186 bridges, 44 schools, and 80 mines.

In the beginning of October 2010 the low pressure area, moving over Southern, Central, Eastern part coupled with South East Monsoon has caused damage to 19 provinces, 94 districts, 716 sub-district, 5,474 villages, 545,447 households and 1,694,199 persons.

Those provinces include 1 province in Northern part (Nakornsawan); 9 in Northeastern part (Nakornratchasima, Chaiyaphum, Srisakes, Surin, Khonkaen, Kalasin, Mahasarakham, Roi Et and Ubonratchathani; 9 Central Provinces (Chainart, Singburi, Angthong, Suphanburi, Pra NakhonSi Ayutthaya, Lopburi, Saraburi, Nonburi and Pathumthani). It is estimated that 6,316,156 rai of farmland (2,497,210 acres) are destroyed.

In addition, on October 31, 2010 the Tropical Depression moved into the Gulf of Thailand over the Southern part of Thailand, causes heavy rainfall and flooding which affected in 12 provinces, 133 districts, 874 sub-districts, 6,197 villages, 609,511 households and 1,932,405 persons. There were 78 casualties in 8 provinces, 1,499 injuries. The estimated losses were USD 104 million.

#### **2004: December 2004’s Tsunami: the Most Catastrophic Disaster in Thai**

At 07.58 a.m., of 26 December 2004, the massive earthquake magnitude of 9.0, the strongest in the world since 1964, struck deep under the Indian Ocean off the west coast of Sumatra, Indonesia, and triggered the cataclysmic tidal wave that slammed on the Andaman coastal provinces, southern Thailand. The catastrophic incident devastated 6 provinces namely, Phuket, Trang, Phang Nga, Krabi, Ranong and Satun.

Right after the tsunami waves ebbed, the relief activities were immediately and continuously activated. It is widely accepted that Thailand had led an effective relief efforts and response immediately on the day of tsunami strike. As the consequence, Thailand had achieved the rapid success in relief operation within a few months later. The key factors in the effectiveness of relief response can be delineated as follows;

- The synergy of Thai people from all walks of life to provide all kinds of assistance to their suffered countrymen.
- The close and integrated collaboration and cooperation among the civil, military, police, NGOs, charitable foundations, civil defence volunteers etc.
- The influx of endless support and humanitarian assistance from international communities, organizations, NGOs near and far.

The Royal Thai Government, private sector and NGOs, have continuously launched restoration activities to enhance livelihoods and rebuild the environments of the affected people and areas following the initial phase of rescue and humanitarian relief. Simultaneously, has conducted preparedness activities so as to reduce the vulnerability and increase the resilience in the tsunami hit communities. The international communities, NGOs and United Nations mechanisms also continue to endlessly support Thailand in these humanitarian assistance activities.

**2007:** Cyclone Lekima hit Thailand between 4 and 6 October 2007 killed 17, affected 1,552,936, and whose total loss was US\$ 30.8 million.

**2008:** Cyclone Mekkahla hit between 31 September and 1 October 2008. The cyclone caused torrential rains which killed 32, affected 2,864,484 and whose total loss was US\$ 21.6 million.

### 3. Disaster Management system

#### 3.1 Legal system, legal framework

##### 3.1.1 The Disaster Prevention and Mitigation Act 2007:

The Disaster Prevention and Mitigation Act 2007 (DPM Act) has replaced the old and outdated 1979 Civil Defense Act and the 1999 Fire Prevention and Suppression Act. Entering into force on 6 November 2007,

It stipulates the Department of Disaster Prevention and Mitigation (DDPM) as the core government department in handling national disaster management work. Also it authorizes local governments to take responsibility of disaster management in their respective areas, in line with the Provincial Plan.

The Disaster Prevention and Mitigation Act 2007 (DPM Act) has 4 prominent features, including

- 1) Introducing 3 main policy - making and planning bodies including National, Provincial and Bangkok Metropolitan,
- 2) Having Prime Minister or an designated Deputy Minister as the National Commander,
- 3) Empowering Department of Disaster Prevention and Mitigation (DDPM) as the core government agency in handling national disaster management work, and
- 4) Authorizing local governments to take responsibility of disaster management in their respective areas, in line with the Provincial Plan.

According to the new DPM Act, disaster can be classified into 3 categories namely:

- 1) Man-made and natural disasters;
- 2) Disaster resulted from air raid during wartime; and
- 3) Disaster resulted from sabotage or terrorist attack.

In terms of policy making, there are 3 levels:

- 1) National, which is chaired by the Prime Minister or designated Deputy Minister
- 2) Provincial, which is chaired by Provincial Governor
- 3) Bangkok Metropolitan Administration level, which is chaired by the Bangkok Governor.

Each of three policy - making organs is composed of the committee as follows:

- 1) The National Disaster Prevention and Mitigation Committee (NDPMC)
- 2) The Provincial Disaster Prevention and Mitigation Committee
- 3) The Bangkok Metropolitan Administration Committee

##### 3.1.2 Disaster Prevention and Mitigation Plan

Department of Disaster Prevention and Mitigation (DDPM) as the Secretariat of the National Disaster Prevention and Mitigation Committee (NDPMC), has the responsibility to devise the National Disaster Prevention and Mitigation Plan. This is to be done by conferring with relevant government agencies, local administrations, and private sectors.

Once the National Plan is approved, it will be used as a master plan, upon which the provincial and Bangkok Metropolitan Administration will be based.

According to the National Disaster Prevention and Mitigation Act 2007, the three - level plan shall have substantial parts as shown in the following table.

National plan	Provincial Plan	BMA Plan
(1) Guide lines, measures and adequate budget to support disaster prevention and mitigation operations systemically and continuously	(1) The setting up of Special Command Center when ever disasters strike, that center shall be constructed and has authorities to command and oversee disaster prevention and mitigation operations and activities	(1) establishment of command center where disaster occurred for construction and authorization for disaster prevention and mitigation operation
(2) Guide lines and methods for providing aids and mitigate the impacts of disasters in both short and long term, together with evacuation procedures of effected people, government services, and other local administrations, supports effected people on their public health, public utilities and communication system	(2) Plan and procedures for local administrations for procuring tools, equipments, materials, hardware and vehicles in disaster prevention and mitigation operations	(2) plan and process to procure materials , tools , equipment, and vehicle for disaster prevention and mitigation
(3) Relevant government agencies and local administrations shall proceed all operations under (1) and (2), and shall seek for availability and mobility of fund	(3) Plan and procedures for local administrations for procuring an early warning system and other equipments to inform people and communities on incoming disasters	(3) plan and process to procure signaling devices or others for notifying the occurrence and expectation of a disaster
(4) Preparedness perspectives on support personnel, equipments and other materials to deploy upon disaster prevention and mitigation operations, and capacity building of those personnel and other people shall be included	(4) Operation plan for disaster prevention and mitigation at local administrations	(4) Bangkok Disaster Prevention and Mitigation Action Operation Plan
(5) Guide line on fixing, recovery and restoration to community right after disaster	(5) Cooperation plan to other relevant public charities.	(5) Coordination Plan with Public Charity Organizations in Bangkok

### 3.2 Structure of Disaster Management

Disaster Prevention and Mitigation Act B. E. 2550 (2007) has explicitly prescribed and explicated disaster management arrangement that encompasses the types of disaster, policy guideline, operating procedure as well as coordinating procedure as illustrated in chart 1.1 :

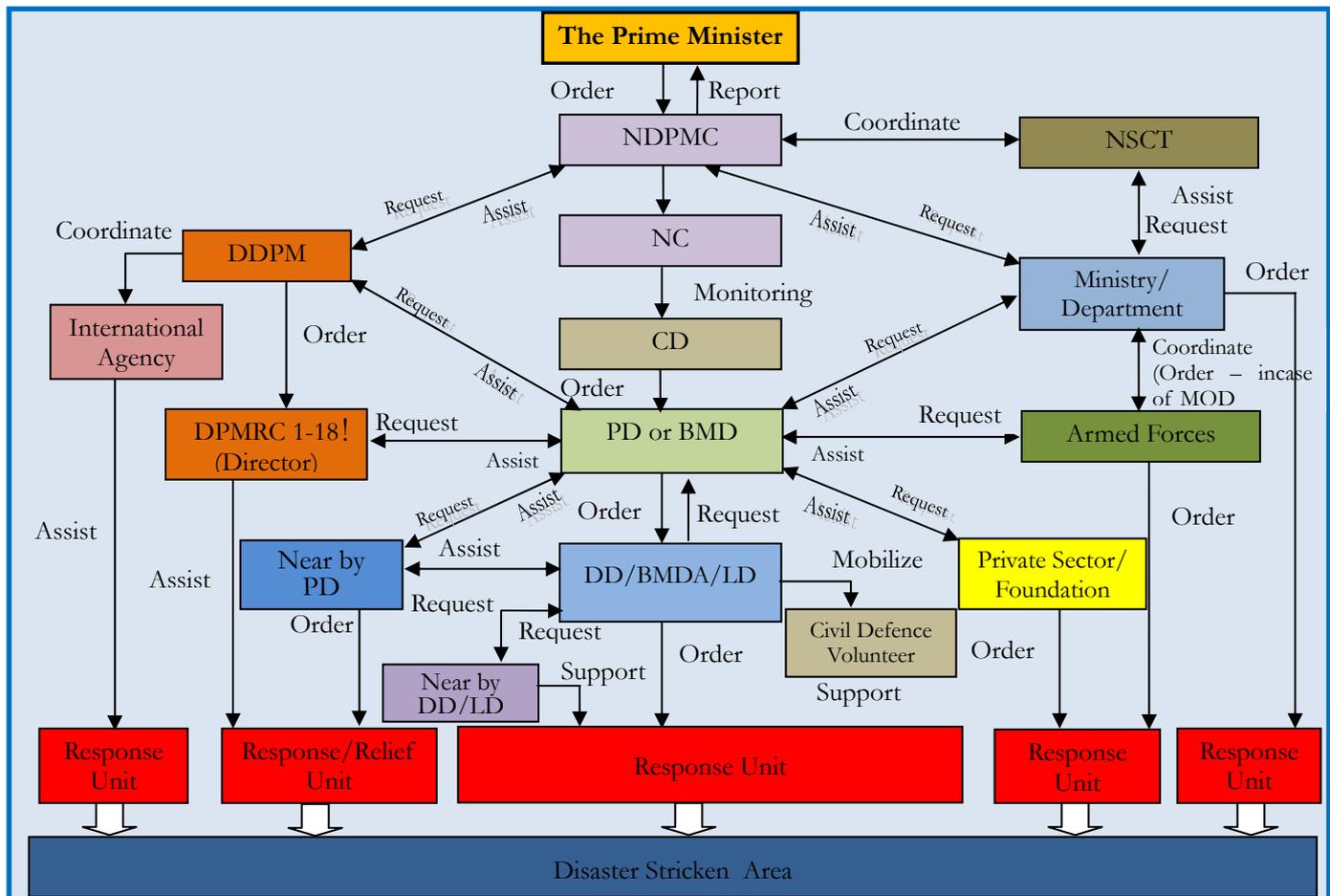


Chart 1.1 Current Disaster Management Arrangements in Thailand

(1) The Prime Minister is a chairman of National Disaster Prevention and Mitigation Committee. In case of extreme large – scale disaster the Prime Minister has been empowered to command National Commander, Director, state agency, and local administration organization to handle disaster situation.

(2) National Disaster Prevention and Mitigation Committee, which is chaired by the Prime Minister or the entrusted Deputy Prime Minister is obligated to lay down a policy for the formulation of National Disaster Prevention Mitigation Plan and integrate the development of disaster management system. Department of Disaster Prevention and Mitigation as the Secretariat of National Disaster Prevention and Mitigation Committee has been tasked to formulate the aforesaid plan in conjunction with relevant government agencies including the representatives from local administration organization.

(3) The National Safety Council of Thailand is the main body responsible for formulating the accident – related policy and developing safety mind. Department of Disaster Prevention and Mitigation as well functions as the Secretariat of National Safety Council of Thailand.

(4) All disaster operations related command, order and management at national, provincial/Bangkok Metropolis and local levels must precede according to the Act as illustrated in chart 1.1

Table 1.5: Component of National Disaster Prevention and Mitigation Committee and its roles

National Disaster Prevention and Mitigation Committee and its roles	
Committee Members	Mission
1. Chairman: - Prime Minister or Deputy Prime Minister as assigned 2. Vice Chairman 1 - Minister of Ministry of Interior; Vice Chairman 2 - Permanent Secretary - Ministry of Interior 3. Committee: - Permanent Secretary - Ministry of Defence; - Permanent Secretary - Ministry of Social Development and Human Security; - Permanent Secretary - Ministry of Agriculture and Cooperatives; - Permanent Secretary - Ministry of Transportations; - Permanent Secretary - Ministry of Natural Resources and Environment; - Permanent Secretary - Ministry of Information and Communication Technology; - Permanent Secretary - Ministry of Public Health; - Director of the Bureau of the Budget; - Commander-in-Chief of the Royal Thai Police; - Supreme Commander; - Commander-in-Chief of the Royal Thai Air Force; - Commander-in-Chief of the Royal Thai Army; - Commander-in-Chief of the Royal Thai Navy; - Secretary-General National Security Council; - and not more than five qualified persons appointed by the Cabinets as committee members. 4. Secretary: The Director General, DDPM, 5. Assistant Secretary: 2 DDPM Officers	1. Establish the National Disaster Prevention and Mitigation Policy for establishing the master plan. 2. Approve the National Disaster Prevention and Mitigation Plan before submission to the cabinet. 3. Integration and develop the Disaster Prevention and Mitigation Plan of government agencies, local government agencies and private agencies. 4. Provide advice, consultation and support the implementation of Disaster Prevention and Mitigation's mission 5. Regulate the rules of remuneration, compensation and any expenses of the Disaster Prevention and Mitigation implementation 6. Perform other missions as mentioned in this Act or other Acts or assigned by the Cabinet.

### 3.3 National Safety Council of Thailand (NSCT)

Apart from National Civil Defence Committee, Thailand has another disaster management related mechanism which has highlighted its tasks and responsibility on man-made disaster management only, that is "The National Safety Council of Thailand" (NSCT). The NSCT has been established in 1982 on the ground of the problem of road traffic accidents in Thailand which annually resulted in the tremendous loss of lives, properties and national economy. Later on, its responsibilities have been extended to cover the prevention of chemical accident, occupational accident, accident in home and public venues, considering preventive measure of fire in high-rise building, accident prevention in subway tunnel construction, providing education of safety etc.

### 3.4 National Disaster Warning Center

The National Disaster Warning Center was established under the Order of the Office of the Prime Minister. It is to protect lives and properties of Thai people and foreign visitors by setting up the National Warning Center as soon as possible.

The major task of the National Disaster Warning Center is to detect earthquake and to analyze seismic data to determine the possibility of a Tsunami generation before issuing notification messages to the public and related authorities and rescuers for evacuation of people into safe places. This is to prevent the loss of people's lives and properties as much as possible. From now on, the National Disaster Warning Center will be developed, upgraded of its early warning system and extended its telecommunication networks to be able to cope with multi-hazards disasters apart from Tsunami. Now, NDWC had transferred to be under of the Ministry of Information and Communication Technology

### 3.5 Implementing Mechanism Arrangement

The following implementing mechanisms will be established to undertake disaster management responsibilities.

#### 3.5.1 National Command Headquarters

The power and duty of National Command Headquarters are to direct, control, oversee, supervise, and coordinate disaster operations undertaken by Emergency Operations Centers of all levels. The Headquarters is headed by the Minister of Ministry of Interior as National Commander and other functioning staffs which comprise permanent secretary for Ministry of Interior as the Deputy National Commander, director general of Department of Disaster Prevention and Mitigation as the Central Director, the representatives from every government agency, public enterprise and the designated private entity. The main administration staffs of the headquarters will be the personnel from Department of Disaster Prevention and Mitigation.

#### 3.5.2 Local Command Center

This category of center includes :

(1) Tambon Administration Organization Command Center is headed by chief executive of tambon administration organization (TAO) as the Director, other functioning staffs of the center comprise TAO clerk as the Deputy Local Director, sub - district headman, village headman and the representatives from private sector located within tambon jurisdiction. This first response mechanism is responsible for disaster operations within tambon jurisdiction.

(2) Municipality Command Center is headed by the mayor as Director; other functioning staffs of the center comprise municipal Clerk as the Deputy Director, chiefs of different divisions of municipality and the designated private sector's representatives. This first response mechanism is responsible for disaster operations within its jurisdiction.

(3) Pattaya City Command Center is headed by Pattaya City mayor as the Director, other functioning staffs of this center comprise Pattaya City clerk as the Deputy Director, chiefs of different divisions of Pattaya City office and the designated private sector's representatives. This first response mechanism is responsible for disaster prevention and mitigation operations within its jurisdiction.

(4) District Command Center is headed by district chief as the District Director, other functioning staffs of this center comprise district clerk, chiefs of different divisions of district office, representatives of the local administration organization and private sector located in district jurisdiction. The main function of this center is to carry out disaster operations within the district jurisdiction and to assist the provincial disaster operations.

(5) Bangkok Metropolitan District Command Center is headed by each Bangkok Metropolitan District Director as the Bangkok Metropolitan Assistant Director. This center is responsible for conducting disaster operations within district jurisdiction as well as assisting Bangkok Metropolitan Director. All officials of divisions and sectors of Bangkok Metropolitan district office and the representatives from public sector within its jurisdiction are the functioning staffs of this center. In addition, this center is obliged to assist Bangkok Metropolitan Administration in managing a disaster within Bangkok Metropolitan jurisdiction.

(6) Provincial Command Center is headed by provincial governor as the Provincial Director, and deputy provincial governor whom entrusted by provincial governor

including chief executive of provincial administration organization are Deputy Provincial Directors. The functioning staffs comprise the chiefs of different government offices located in the province and the representatives from designated public and private enterprises.

(7) Bangkok Metropolitan Command Center is headed by Bangkok Metropolitan governor as the Bangkok Metropolitan Director, and a permanent secretary for Bangkok Metropolitan Administration as the Bangkok Metropolitan Deputy Director. This center is responsible for disaster operations within Bangkok Metropolitan jurisdiction.

#### Tasks of Local Command Center

(1) Direct, control, perform and coordinate disaster management activities within the area under responsibility.

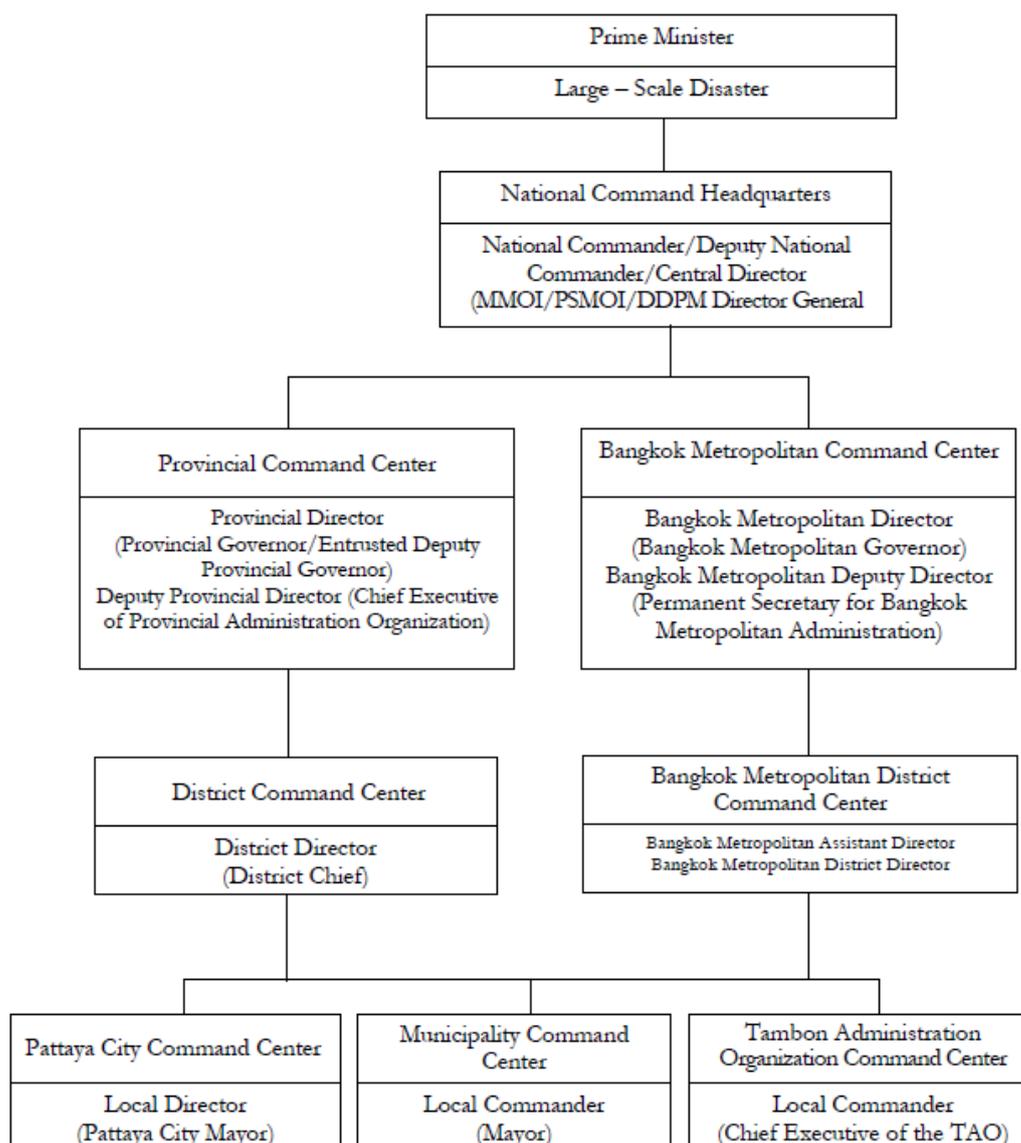
(2) Provide support to adjacent and other Command Centers upon request.

(3) Coordinate with government agencies and other relevant public enterprises located in the area under responsibility including private sector for cooperation on disaster management.

When a disaster occurs or is imminent in area under responsibility, the respective Command Center is obliged to establish Emergency Operations Center to provide assistance to the people in short notice.

The structure of implementing mechanism arrangement is illustrated in chart 1.2

Chart 1.2 Implementing Mechanism Arrangement



### 3.6 Priority on disaster reduction management

#### Priority on disaster risk management

Thailand urgently needs to reform disaster management systems and mechanisms as follows:

1) *Public Awareness and Education*. Improve public safety of every sector particularly those who are living with risk by enhancing people's understanding of the threats posed by various types of disasters.

2) *Materializing Early Warning Systems*: Following the catastrophic tsunami disaster in 2004, Thailand took immediate action to establish National Disaster Warning Center, which covers the warning of both natural and man-made disasters.

3) *Establishing More International Disaster Management Networks*: Thailand needs to enhance the country's disaster management capacity and efficiency through the mobilization of technical assistance from foreign countries, particularly from developed and advanced countries.

4) *Effective Damage Assessment*. Remote Survey technology must be introduced to effectively assess the damages caused by large scale disaster. The staff of the agencies concerned needs to be trained to enhance their capacity in applying satellite images to assess the damage.

5) *Application of Community-Centered Approach*: Local Authority and community are in the front line in the event of disaster occurrence, consequently, they are the most vulnerable and effected. It is indispensable to enhance their potentials in responding to disasters, and to equip them with awareness and preparedness.

6) *Highlight on Preventive Approach*: The new approach of disaster management has shifted its focus from "assistance" or "relief" to "prevention". In this regard, risk reduction to be vigorously taken into account. So as to reduce the risk, both structural and non-structural measures should be materialized, thus, the cost of risk reduction will yield invaluable rate of return when compared with the cost of disaster damage.

7) *The Focus on Prevention*: Proactive disaster management can reduce the damage and impact substantially.

8) *The Focus on Public Participation*: The past disaster management in Thailand had underlined the roles of government agencies and simply ignored private sectors, non – government organization, communities and even the public. Unfortunately, there has been a lack of cooperation among agencies concerned. This is a real challenge for DDPM to bring these stakeholders together.

9) *The Focus on Unity in Management*: The application of the Incident Command System (ICS) will demonstrate unity in management.

10) *The Focus on Efficient Communication*: The efficient communication system consists of the major system and the reserved system, which are vital for disaster management.

11) *The Focus on Human Resource Development*: Human resource development is a key factor for disaster management.

12) *Livelihood Rehabilitation*: Livelihood rehabilitation activities such as community development, vocational training, improving the standards of living should be immediately materialized to normalize disaster victims' means of living.

### 3.7 Department of Disaster Prevention and Mitigation

Department of Disaster Prevention and Mitigation (DDPM), according to the Bureaucrat Reform Act 2002, has been formed by different organizations responsible for disaster prevention and mitigation as follows:

- (1) Civil Defence Division of Department of Provincial Administration;
- (2) Department of Accelerated Rural Development;
- (3) Department of Social Welfare, Department of Community Development; and
- (4) Office of National Safety Council

According to Article 11 of Disaster Prevention and Mitigation Act B.E.2550, DDPM is mandated to be central government agency under the umbrella of Ministry of Interior to undertake the work on disaster prevention and mitigation at a national level. Aside its Head Office in Bangkok, DDPM also has 18 Regional Operation Centers and 75 Provincial Offices across the country. In 2004, Disaster Prevention and Mitigation Academy (DPMA) has been established and 6 campus in Prachinburi, Songkhla, Chiang Mai, Khon Kaen, Phuket, Phitsanulok which is currently conducting training for its own staffs, some government stakeholders and private organization.

#### **DDPM's responsibility:**

1. Materializing disaster and civil emergency prevention and warning Systems and creating preparedness in all areas.
2. Directing and implementing disaster and civil emergency mitigation activity systematically, rapidly, equitably and thoroughly.
3. Procurement of materials, equipments, and vehicles, indispensable for disaster prevention, mitigation, suppression and for relief operation.
4. Rehabilitation of damaged public utilities, physical and mental recuperation of disaster victim, and restoration of livelihood. All these activities are carried out on thorough, equitable and rapid basis, and be in harmony with the needs of the victims.
5. Mainstreaming and collaborating disaster prevention and mitigation system, programme, the implementation evaluation with other national and international agencies.

#### **Disaster Management in DDPM's main activities**

Disaster Management comprises 3 phases as follow;

**1. Preparedness Phase:** DDPM has supported the provinces to carry out preparedness related activities as follow;

- (1) Formulating disaster prevention plan.
- (2) Training the officials and Civil Defence Volunteer.
- (3) Educating the general public.
- (4) Procuring equipments, vehicles and other amenities and safety temporary shelters.
- (5) Conducting annual drills and exercise in different levels.

**2. Prevention and Mitigation Phase:** In the event of disaster or the potential disaster, DDPM will implement the following activities.

(1) Early warning: After receiving the information of potential disaster from Department of Meteorological and Department of Mineral Resources, DDPM will immediately relay to the risk province to further warn the people of the hazard or evacuate the people.

(2) Directing Unit: The National Committee will set up "Operation Center" to manage disaster

(3) Providing relief operation to the affected people thoroughly and rapidly.

(4) Coordinating: In the event of large-scale disaster, DDPM will coordinate with all agencies concerned to mobilize relief efforts to affected areas.

(5) Telecommunication: The Director of National Committee is authorized to utilize all telecommunication facilities in the affected areas. DDPM will coordinate with telecommunication concerned agencies to provide the substitute facilities in case the telecommunication system in the affected area broke down.

(6) Public Relations: At national level, DDPM is responsible for disseminating the

disaster related information to the public continuously to protect the life and property of the citizens. Moreover to alert the possibility of disaster just before a strong tremor is expected to strike as “a warning”

### **3. Recovery Phase:** DDPM is responsible for

(1) Providing relief to affected people: Provincial/District/Local authorities assess the damages and losses and enlist the affected persons. DDPM will carry out to pay cash compensation the victims.

(2) Clean-up: DDPM will coordinate with all agencies concerned to mobilize the equipments to conduct clean-up activities.

(3) Long-term Rehabilitation: DDPM is responsible for coordinating with all agencies concerned to collect all relevant information on long-term rehabilitation projects and further submit for cabinet’s approval

## **4. Projects on disaster reduction**

### **4.1 One-Tambon-One-Search and Rescue Team (OTOS)**

DDPM has realized the urgent need to setup efficient and skillful search and rescue team at provincial, district and local levels. In this regard, DDPM has launched OTOS program which contains ; at the provincial level, the training of provincial SAR teams were completed and have been assigned to be SAR instructors ; at district level, district SAR team have been trained to become instructors as well ; at Tambon level (Thailand’s administrative unit in between district and village). As of November 2009, OTOS program is 85% completed with 6,615 SAR teams (10 members) based in each tambon or local administration offices throughout the country and more than 68,000 volunteers trained.



### **4.2 Disaster Management Training for managers, practitioners, local government officers and others through DDPM’s Disaster Prevention and Mitigation Academy (DPMA)**

Department of Disaster Prevention and Mitigation has set up Disaster Prevention and Mitigation Academy (DPMA) in October 2004 to be the national training center in the field of disaster management. DPMA has coordinated with the agencies and developed countries including international organizations to develop curricula and mobilize the technology and know-how for standardize training. The courses will be organized to serve the capacity of the government officers, local administration officers and private sector who are in charge of the disaster management including civil defence volunteers. Nowadays, DPMA has extended to 6 campuses in upcountry. The standard curricula have consisted of the Fire Fighting, Building Collapse (Search and Rescue), Hazmat Emergency Management, Civil Defense Volunteer and Disaster Management.



### 4.3 Community-Based Disaster Risk Management (CBDRM) Program

DDPM has adopted and applied this appropriate people participatory approach to generate the awareness among the general public and mobilize their participation in every phase of disaster management so as to build safer and resilient community. In the past year, DDPM, in collaboration with various government agencies, local authorities, NGOs and international organizations, has launched CBDRM program in hundreds of communities at risk. This program will be jointly organized on the continuous to cover all vulnerable communities nation-wide.

### 4.4 “Mr. Warning” Training Program

In conjunction with various government agencies and NGO, DDPM has implemented a community-based volunteer training program which aims at creating a disaster warning network in the flashflood and mud slide prone villages. The trained villagers are designated as “Mr. Warning” and assigned to be the “vigilant”, “forewarner” and “coordinator” in emergency and non-emergency situation respectively. This program has been in concerted with its preceded program, “Simple Rain Gauge Installation” program. Nowadays, the 7,817 people in the flood prone areas to be trained in this programme.



### 4.5 Emergency Response Team Development Project (ERT)

Emergency Response Team or ERT has been developing by DDPM to response for each type of large-scale hazards or incidents. Basically, ERT was set up 20 teams, 2 teams embedded in DDPM, Bangkok Office, and the other 18 teams in each Regional Center of DDPM. Each ERT will consist 10 members, including one team leader, three for planning, and six for operation. Team leader will be the chief officer to coordinate with Provincial Director and officers of the Ad-Hoc Directing Center in case of disaster occurring.



#### 4.6 Development of Civil Defence Volunteer Network Program

The main objective of this program is to increase the number of community-based Civil Defence Volunteer whose function is to holistically assist the government official's operation of all disaster. Currently, there are approximately 1 million Civil Defence Volunteers that had been trained and registered nation-wide. These Civil Defence Volunteers are based in their community and are on stand-by to be summoned all time.



#### 4.7 Practical disaster preparedness drills in a community

Provincial evacuation plan and drill: Apart from formulating Provincial Civil Defense Plan, all provincial in Thailand (76 provinces) have formulated "Provincial Evacuation Plan" which is corresponding to types of threatening disaster within the provinces. Besides, each province is obliged to conduct evacuation drill at least twice a year.



#### 4.8 Inventory of countered disaster resources

Department of Disaster Prevention and Mitigation has initiated the computerized inventory of various categories of disaster management-related equipments and supplies belonging to all relevant government agencies, NGOs, private enterprises and of the foundations nation-wide to be used in planning and availability in the wake of disaster.



## 5. Budget Size on National Level

Year	THB	USD(ml)	JPN(ml)
2003	1,066,412,900	35.02	2,797
2004	1,312,578,500	43.10	3,443
2005	1,685,362,700	55.34	4,421
2006	2,437,850,700	80.06	6,395
2007	1,948,805,800	64.00	5,112
2008	2,184,972,800	71.75	5,734
2009	2,315,783,900	76.05	6,074
2010	2,541,163,000	83.45	6,666
2011	2,541,163,300	83.45	6,666
2012	3,918,637,000	128.69	10,279

Source: DDPM (1 USD = 30.45 THB, 100JPN= 38.12 THB)

## 6. Progress of the Implementation of Hyogo Framework for Action (HFA)

The progress on implementation of Hyogo Framework for action (HFA) **2005 – 2015**: Building the resilience of Nations and Communities to Disasters. To achieve the goal of HFA is “sustainable reduction of disaster losses, in lives and in social, economic and environmental assets.” In adopting the Hyogo Framework, Thai government; DDPM committed to five priorities for action; sets out the required actions – collectively known as “disaster risk reduction” – measures that be continuously implemented in order to achieve resilience to future hazards.

Thailand had submitted its national progress report on the implementation of the HFA on April 05, 2011. Department of Disaster Prevention and Mitigation is the National Focal Point for the HFA and it coordinates implementation within the country.

The following is a summary of National progress report on the implementation of the Hyogo framework for Action (2009-2011), reported by Department of Disaster Prevention and Mitigation.

### **Outcomes for 2007-2009**

**Area 1** *The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction.*

#### **Outcomes:**

Disaster risk reduction is being adopted and integrated into national development plans. The DRR is being incorporated in the strategy of managing natural resources and environment towards sustainability under the 11th National Economic and Social Development Plan 2012-2016, which is going to be the framework for medium term national development towards the vision of “A Happy Society with Equity, Fairness, and Resilience”. The plan provides guideline for natural disaster preparedness, including hazard mapping at national, regional, and provincial level and prioritization of identified hazards, in order to develop proper preventive and mitigating structural and non-structural measures with the emphasis on both social and economic aspects.

**Area 2** *The development and strengthening of institutions, mechanisms and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience to hazards.*

#### **Outcomes:**

Existing mechanisms stated in the national disaster prevention and mitigation plan 2010-2014 are being adopted and executed in a more integrated and holistic fashion in order to create and strengthen disaster warning and assessment networks, as well as to encourage people’s participation in disaster reduction activities at all levels. In the mean time, the new frameworks

and mechanisms are going to support capacity development of the existing mechanisms on a regular basis. This is to ensure the creation of “A Happy Society with Equity, Fairness, and Resilience”.

**Area 3** *The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities.*

**Outcomes:**

National risk reduction and risk management frameworks are translated into action at provincial and local level through a series of planning training, and a periodical plan monitoring and evaluation. In parallel with plan translation at local level, every risk prone village are being educated and trained using community-based disaster risk management approach (CBDRM) to enhance those villagers’ capacity in properly handling with local hazards and disasters before outside assistance arrives. Based on each community’s cultural, social, and economic structure, the risk prone community is going to have its own disaster prevention and mitigation action plan which includes its hazards map, risks assessment, organizational structure, warning system and protocols, and drill procedures.

**Priority for action 1:** *Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation.*

<b>Core Indicator</b>	<b>Level of Progress achieved</b>	<b>Description</b>
1. <i>National policy and legal framework for disaster risk reduction exists with decentralised responsibilities and capacities at all levels.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
2. <i>Dedicated and adequate resources are available to implement disaster risk reduction plans and activities at all administrative levels</i>	3	Institutional commitment attained, but achievements are neither comprehensive nor substantial
3. <i>Community Participation and decentralisation is ensured through the delegation of authority and resources to local levels</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
4. <i>A national multi sectoral platform for disaster risk reduction is functioning.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Priority for action 2 :** *Identify, assess and monitor disaster risks and enhance early warning*

<b>Core Indicator</b>	<b>Level of Progress achieved</b>	<b>Description</b>
1. <i>National and local risk assessments based on hazard data and vulnerability information are available and include risk assessments for key sectors.</i>	3	Institutional commitment attained, but achievements are neither comprehensive nor substantial
2. <i>Systems are in place to monitor, archive and disseminate data on key hazards and vulnerabilities</i>	3	Institutional commitment attained, but achievements are neither comprehensive nor substantial
3. <i>Early warning systems are in place for all major hazards, with outreach to communities.</i>	3	Institutional commitment attained, but achievements are neither comprehensive nor substantial
4. <i>National and local risk assessments take account of regional / trans boundary risks, with a view to regional cooperation on risk reduction.</i>	3	Institutional commitment attained, but achievements are neither comprehensive nor substantial

**Priority for action 3: Use knowledge, innovation and education to build a culture of safety and resilience at all levels**

<b>Core Indicator</b>	<b>Level of Progress achieved</b>	<b>Description</b>
1. <i>Relevant information on disasters is available and accessible at all levels, to all stakeholders (through networks, development of information sharing systems etc)</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
2. <i>School curricula, education material and relevant trainings include disaster risk reduction and recovery concepts and practices.</i>	3	Institutional commitment attained, but achievements are neither comprehensive nor substantial
3. <i>Research methods and tools for multi-risk assessments and cost benefit analysis are developed and strengthened.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
4. <i>Countrywide public awareness strategy exists to stimulate a culture of disaster resilience, with outreach to urban and rural communities.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Priority for action 4: Reduce the underlying risk factors**

<b>Core Indicator</b>	<b>Level of Progress achieved</b>	<b>Description</b>
1. <i>Disaster risk reduction is an integral objective of environment related policies and plans, including for land use natural resource management and adaptation to climate change.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
2. <i>Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.</i>	3	Institutional commitment attained, but achievements are neither comprehensive nor substantial
3. <i>Economic and productive sectorial policies and plans have been implemented to reduce the vulnerability of economic activities</i>	2	Some progress, but without systematic policy and/ or institutional commitment
4. <i>Planning and management of human settlements incorporate disaster risk reduction elements, including enforcement of building codes.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
5. <i>Disaster risk reduction measures are integrated into post disaster recovery and rehabilitation processes</i>	3	Institutional commitment attained, but achievements are neither comprehensive nor substantial
6. <i>Procedures are in place to assess the disaster risk impacts of major development projects, especially infrastructure.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

**Priority for action 5: Strengthen disaster preparedness for effective response at all levels**

<b>Core Indicator</b>	<b>Level of Progress achieved</b>	<b>Description</b>
1. <i>Strong policy, technical and institutional capacities and mechanisms for disaster risk management, with a disaster risk reduction perspective are in place.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
2. <i>Disaster preparedness plans and contingency plans are in place at all administrative levels, and regular training drills and rehearsals are held to test and develop disaster response programmes.</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities
3. <i>Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.</i>	5	Comprehensive achievement with sustained commitment and capacities at all levels
4. <i>Procedures are in place to exchange relevant information during hazard events and disasters, and to undertake post-event reviews</i>	4	Substantial achievement attained but with recognized limitations in key aspects, such as financial resources and/ or operational capacities

The Government of Thailand is indeed committed to disaster risk reduction and will continue its efforts towards implementing the priority areas of the HFA both at national and international levels and acknowledge the ongoing effort by UNISDR to promote and accelerate the implementation of the HFA.

## **7. Counterpart of ADRC**

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