



# Current status of disaster prevention and control in Vietnam, challenges and opportunities

**TA NGOC TAN**

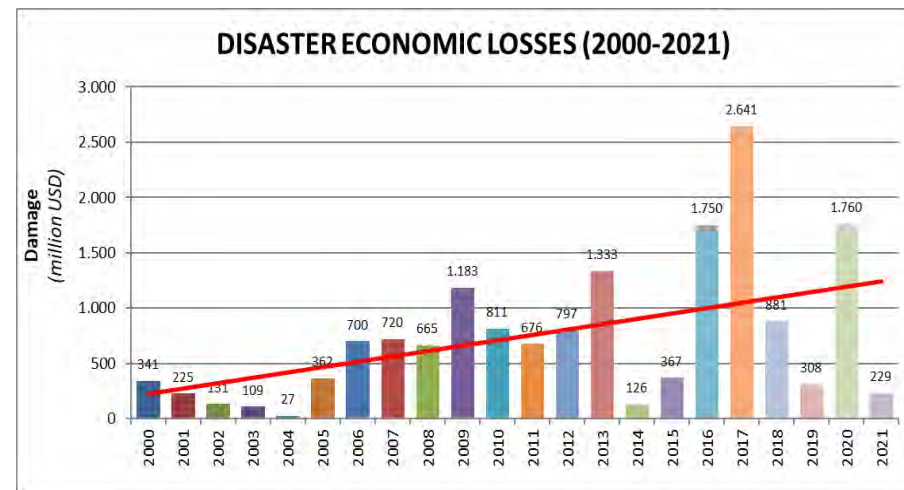
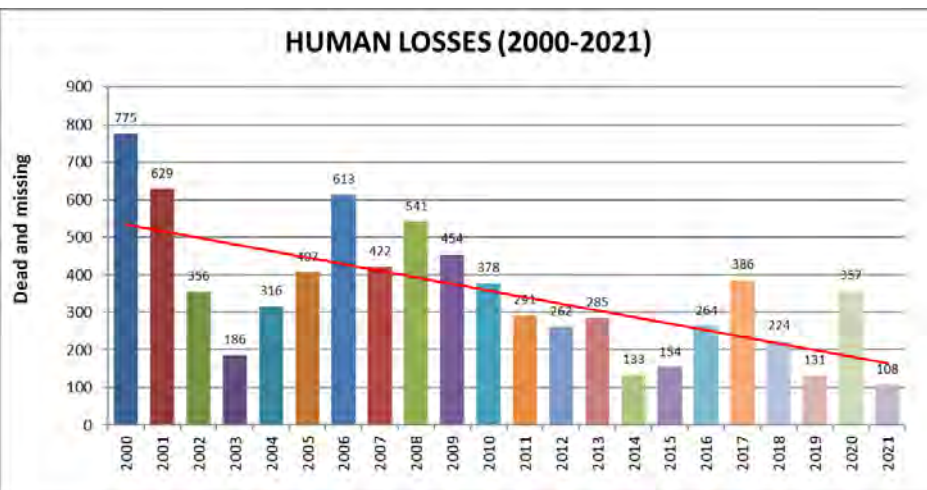
Vietnam Disaster Management Authority



# NATURAL DISASTER IN VIETNAM

## Context

- Vietnam is one of the countries most affected by natural disasters and climate change impacts (up to 22/23 types of natural disasters occurred, except for tsunami). Particularly, storms, floods, flash floods, landslides and droughts are increasing in both intensity and frequency.
- Huge losses to human life and the economy: In the last 20 years, natural disasters have caused the deaths and missing of 10,800 people and an annual average loss of 1 ÷ 1.5% of GDP.



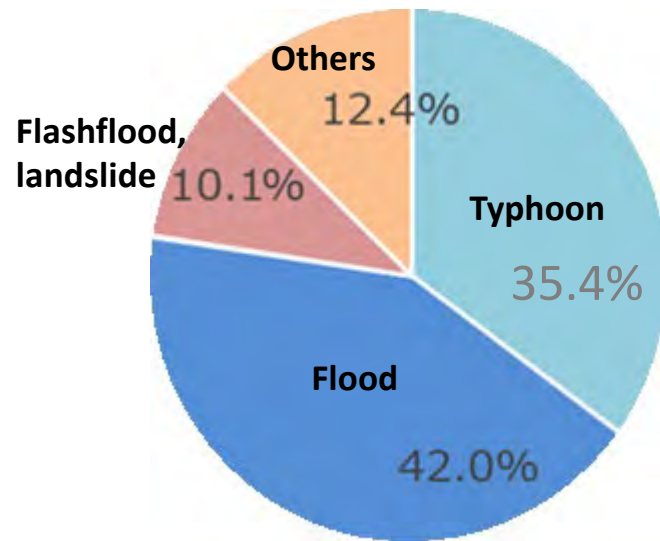


# NATURAL DISASTER IN VIETNAM

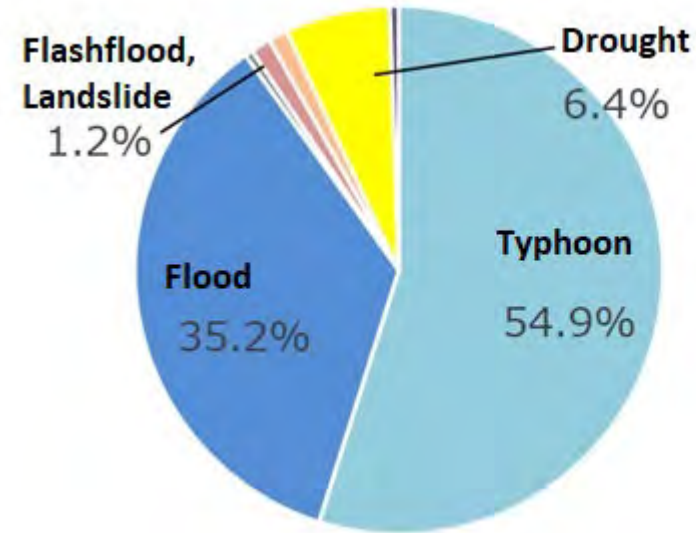
Typhoons, tropical low pressures, floods, flash floods, landslides, droughts, saline intrusion are typical natural disasters in Vietnam, causing enormous losses to life and property.

## Damages by types of disasters

### Deaths and missing



### Disaster related damage costs



#### NOTE:

Droughts during 2015-2016 caused big economic losses to the Central Highlands and Mekong Delta. Damages are estimated at 38% of total disaster related damages during the period.





**ZONE 2: NORTHERN MOUNTAINS AND NORTH CENTRAL REGION**  
flashflood, landslide, damaging cold, hoarfrost, heavy rain

**ZONE 1: RED RIVER DELTA AND NORTH CENTRAL PLAINS**  
flood, typhoon, tropical low pressure, heavy rain, inundation, drought, seawater intrusion, damaging cold

**ZONE 3: CENTRAL COAST**  
flood, inundation, typhoon, tropical low pressure, water rise, drought, extreme hot weather, seawater intrusion, landslides, riverbank and coastal erosion, heavy rain, forest fire by natural cause

**ZONE 4: CENTRAL HIGHLANDS, SOUTHEAST REGION**  
extreme hot weather, drought, flood, flashflood, landslide, inundation

**ZONE 5: MEKONG DELTA**  
typhoon, tropical low pressure, flood, inundation, high tide, water rise by typhoon, drought, seawater intrusion, riverbank and coastal erosion, whirlwind, lightning, forest fire by natural cause

**ZONE 6: LARGE CITIES**  
inundation due to heavy rain, flood, high tide, typhoon, whirlwind

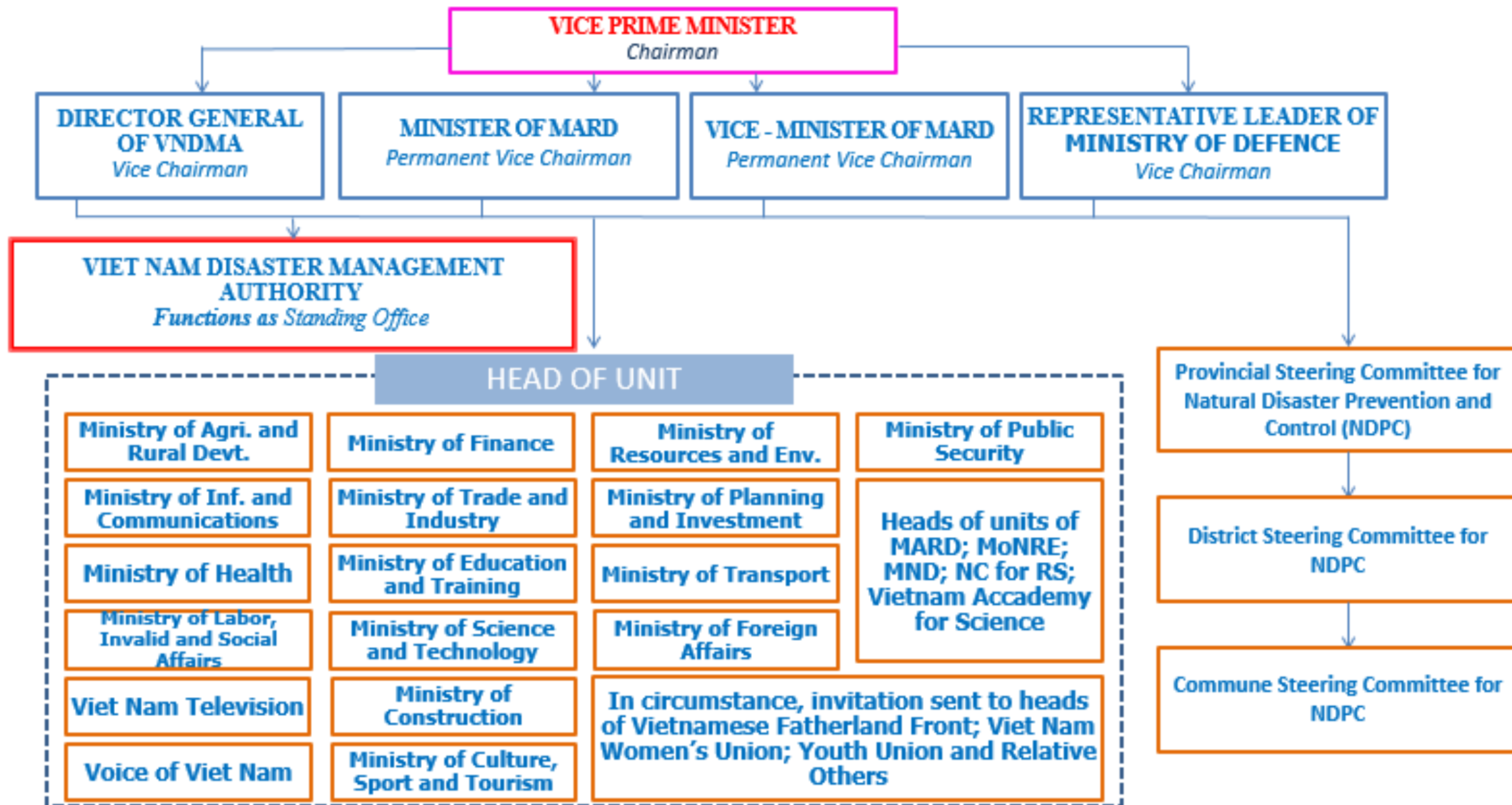
**ZONE 7: SEA AND ISLANDS**  
tropical low pressure, typhoon, strong wind, water rise.





# NATURAL DISASTER MANAGEMENT IN VIETNAM

## NATIONAL STEERING COMMITTEE FOR DISASTER MANAGEMENT







# NATURAL DISASTER MANAGEMENT IN VIETNAM

**Legislative** document system is developed synchronously as the basis of the implementation of the natural disaster prevention and control nationwide



Law on Natural Disaster  
Prevention and Control



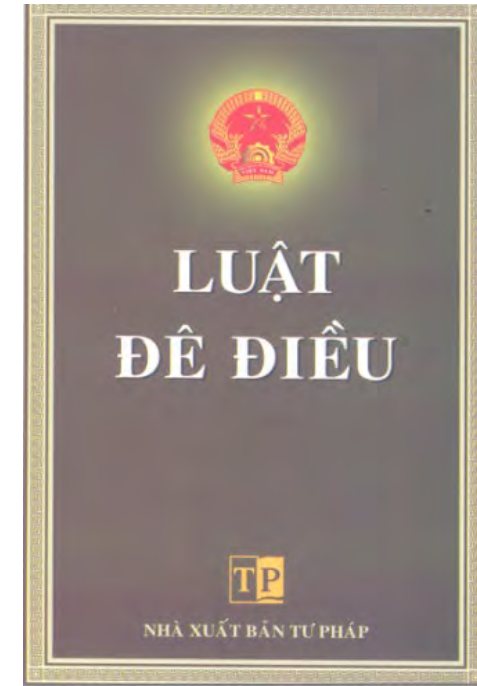
Law on Hydro - meteorology



Law on Water Resources



Law on Irrigation

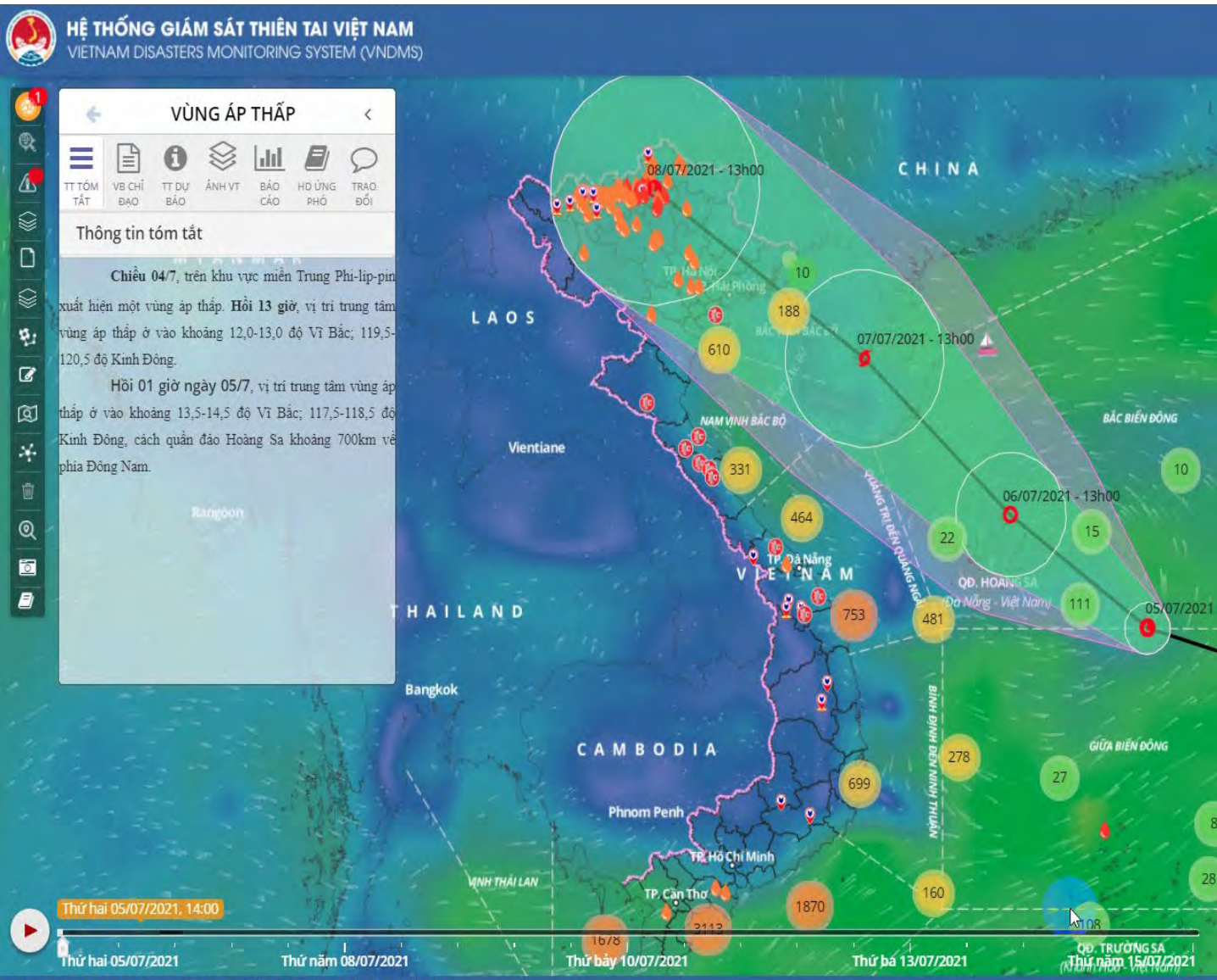


Law on Dyke



# NATURAL DISASTER MANAGEMENT IN VIETNAM

## VIETNAM DISASTER MONITORING SYSTEM



- **408** irrigation reservoirs (> 01 milliom m3)
- **241** Hydropowers
- **07** Meteorology radar stations;
- **51** Multi-disaster warning stations
- **193** Meteorology stations
- **02** Tsunami warning systems; **51** information and warning stations.
- **454** hydrology stations; **23** oceanographic stations
- **2.166** Rainfall stations
- **269** Water level stations
- **414** Temperature stations
- **45** International monitoring stations: **05** rainfall, water level, discharge stations (Red river basin), **40** water level stations (Mekong river basin)
- **414** Wind stations
- **133** Monitoring camera of reservoir, dyke systems
- **71** Ship shelters (Capacity **46.212** ships).
- Fishing vessel monitoring system: **28.067** vessels
- Population and housing data of **11.000** communes.





# CHALLENGES

1. **Climate change** continues to be a big challenge; extreme and unusual disasters are occurring at higher frequency and intensity over space and time and against to natural laws.

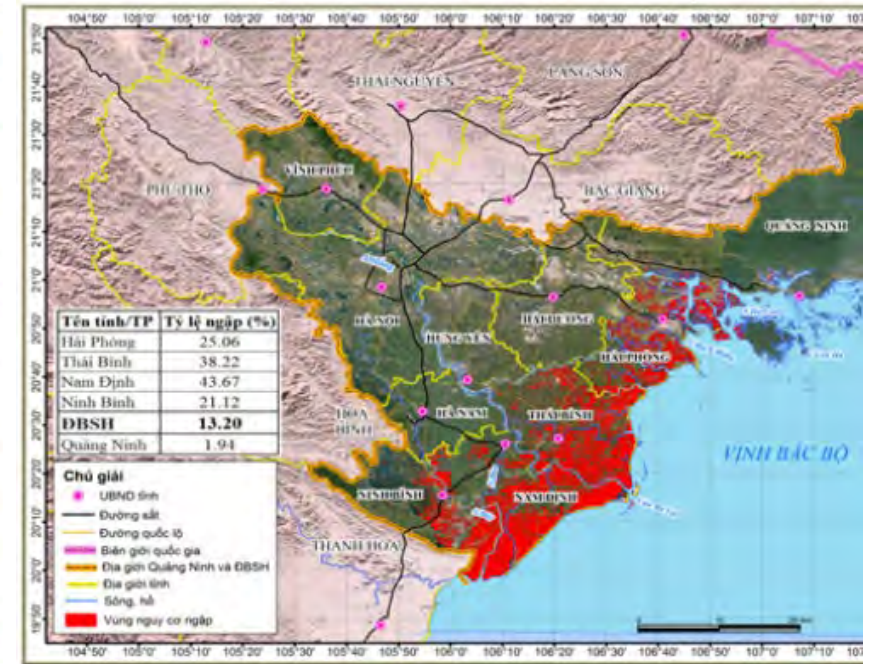
## Hochiminh City



## Mekong River Delta



## Red River Delta



Flooding risks as  
Sea Level Rise

The worse scenario, SLR 100 cm:

- Red River Delta: 13%
- Mekong River Delta: 47%
- Ho Chi Minh City: 17%





# CHALLENGES

Extreme rains (locally and resulting in large rainfall); strong storms, super typhoons, flash floods and landslides occur more frequently; disasters happen throughout the year and in all parts of the country



Ho Binh reservoir opened 8 gates in 2017



Flashflood in Dien Bien 2020



Hail in the northern VN 2020



Extreme rainfall in Da Nang 2022  
795mm/16h



Flashflood in Nghe An 2022



Typhoon Molave 2020 (level 14)



Coastal erosion in Mekong delta



Riverbank erosion in Mekong delta



Saltwater intrusion in Mekong delta





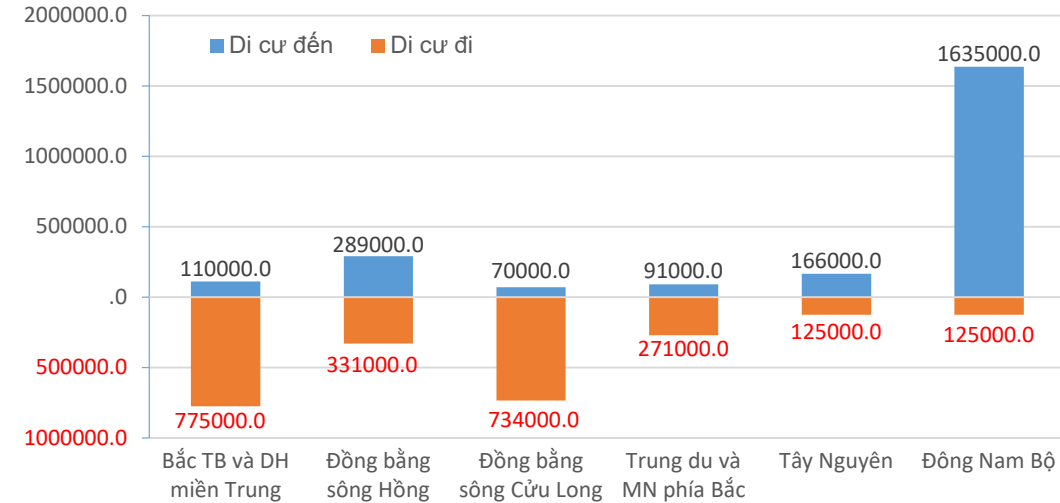
# CHALLENGES

## 2. Impacts of socio-economic developments

- Population size and rapid growing economy are putting more pressure on the need to ensure safety before natural disasters.
- Socio-economic planning have not yet integrated natural disaster prevention and control activities.



- Increased natural disaster risks
- New disasters occur to less disaster prone areas
- More severe disaster impacts, causing larger damages.
- Natural disaster prevention and control tasks are increased throughout the country.

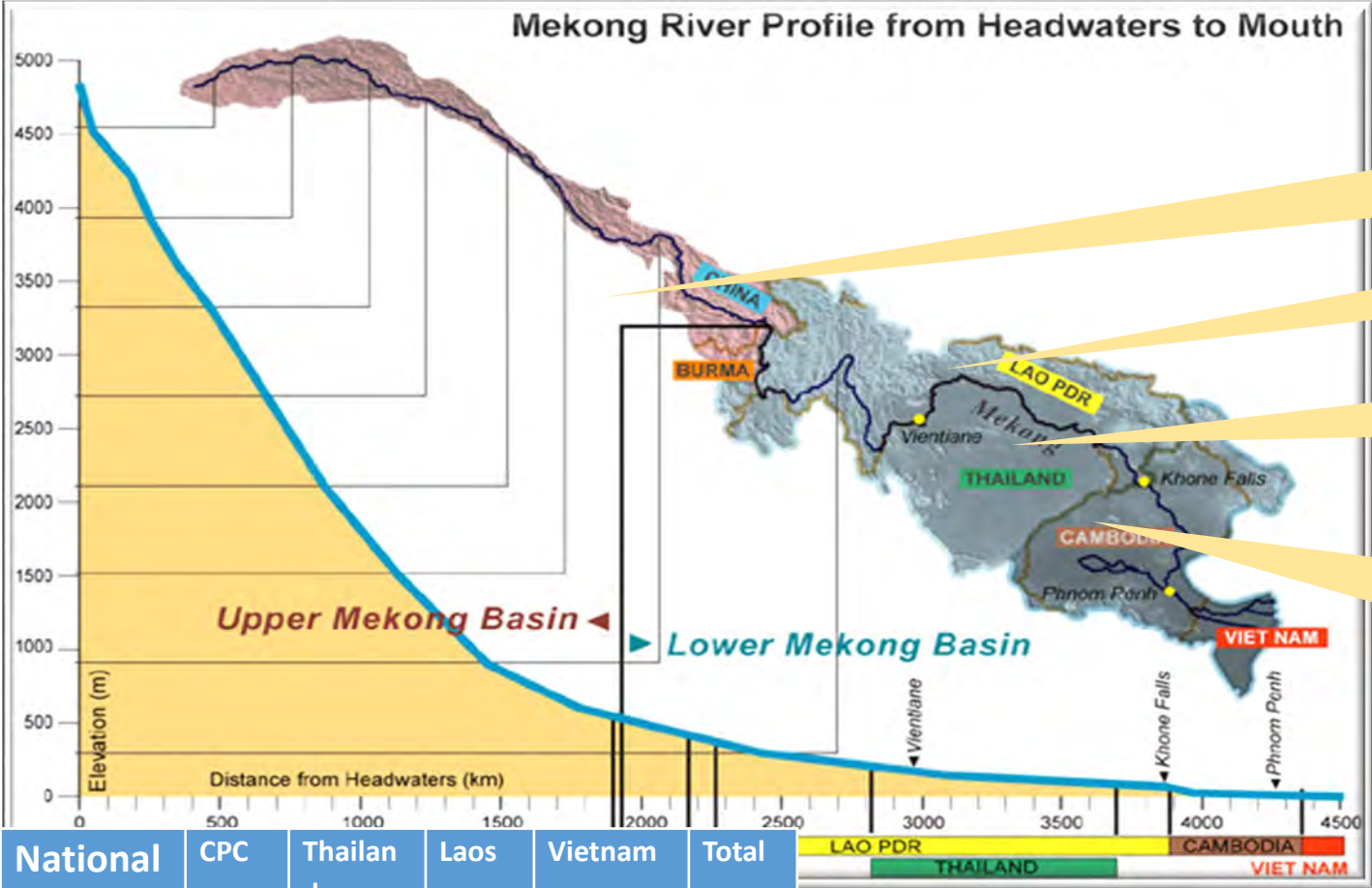






# CHALLENGES

## 3. Upstream water use is causing sediment depletion, lowered river bed, river bank and coastal erosion...



Sand mining 2018

- CHINA**
  - Hydropower (6/8 reservoirs)
- LAO PDR**
  - Hydropower (2/9 reservoirs)
  - Irrigation/agriculture
- THAILAND**
  - Water diversion
  - Hydropower
- CAMBODIA**
  - Embankment
  - Hydropower (0/2 reservoirs)

Time	Sediment (million tons)	Reduction compared to 2012 (73 million tons)	
		(WWF)	SOUTHERN WR PLANNING INSTITUTE
After 2012	42	42%	
Completing the plan	15	80%	>90%



# COOPERATION OPPORTUNITIES

## Non - construction



- Research related to finance in disaster prevention (Disaster risk insurance, Disaster prevention fund, financial support mechanism in disaster prevention,...)
- Capacity building for people working in disaster prevention and raising public awareness.
- Apply and transfer technologies related to disaster monitoring, post-disaster damage assessment
- Cooperation in developing disaster response plan in all level

## Construction



- Construction solutions to prevent flash floods and landslides
- Research on nature-based solutions to prevent riverbank and coastal erosion
- Solutions to restore the mangrove system





# COOPERATION OPPORTUNITIES

## EFFECTIVE WAYS



ODA Projects



Pilot Projects

VNDMA + MLIT EXPERT



Cooperation with  
VN partners

