# VIET NAM'S VULNERABILITY AND ADAPTATION ASSESSMENTS UNDER THE SNC

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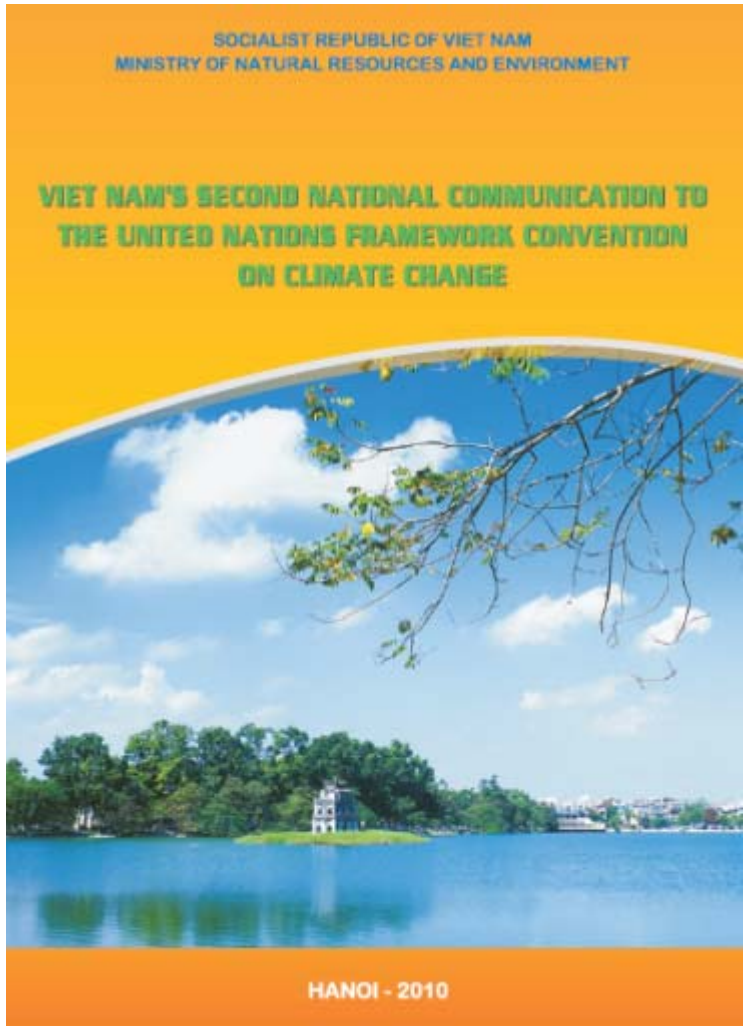
# NATIONAL CIRCUMSTANCES

- ✓ Viet Nam: located in Southeast Asia, land area of approximately 331,051.4 km$^2$, two major river deltas - the Mekong River Delta and the Red River Delta.
- ✓ Climate: monsoon tropical climate with annual mean temperature varying from 12.8$^o$C to 27.7$^o$C; average annual rainfall ranges from 1,400 to 2,400 mm.
- ✓ Water resources: nine major river systems
- ✓ Population (2000): 77.6 mil.
- ✓ Agriculture: total area of agricultural land is around 9.3 mil. ha
- ✓ Forestry (2000): total area of forest land was 11.6 mil. ha
- ✓ Industry: the annual industrial growth is 10-15%

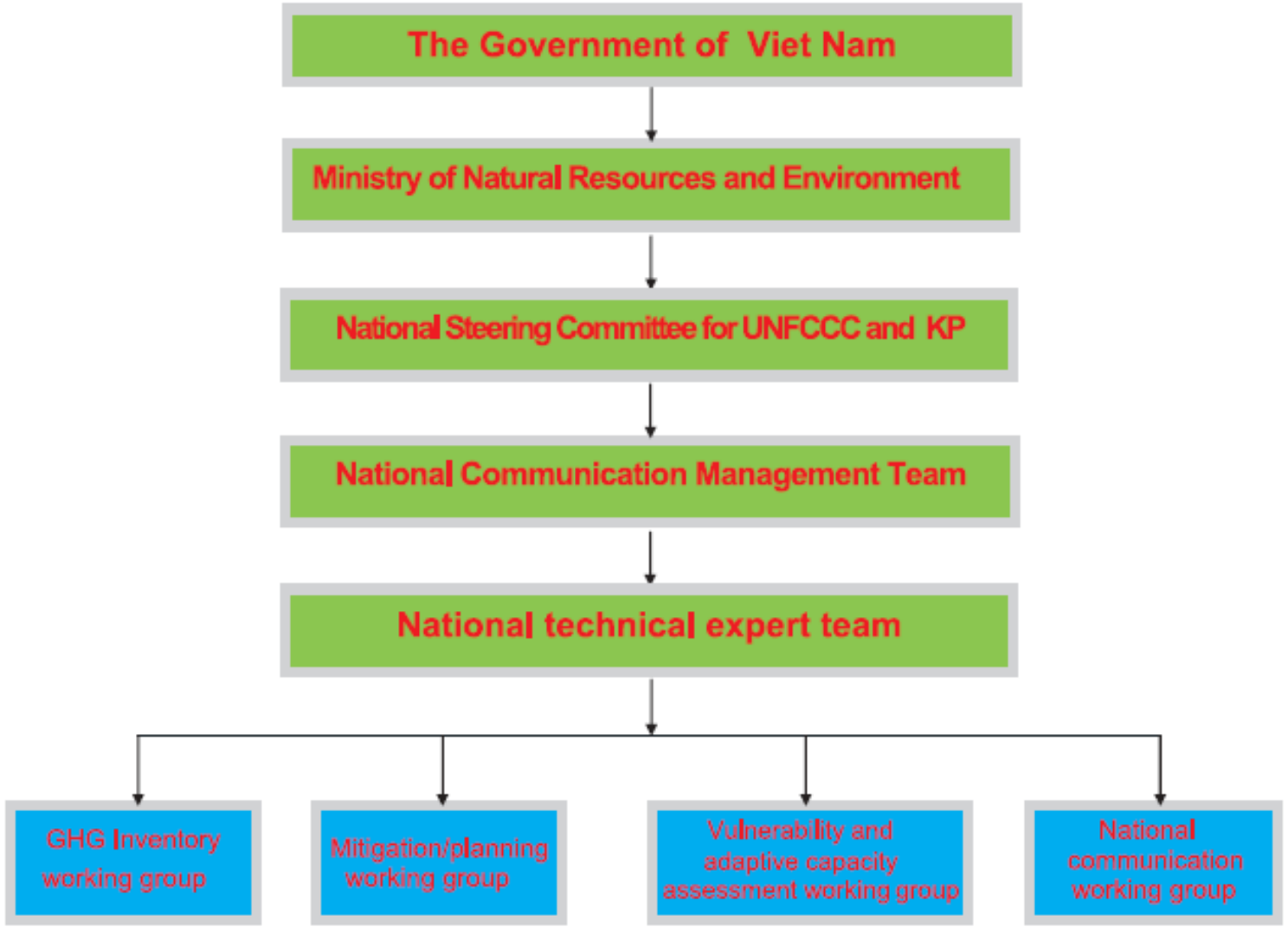

- ✓ Transportation: road transportation is the dominant mode of transport
- ✓ Energy: primary energy consumption in 2000 was 32.235 KTOE
- ✓ Economic growth: 7.5% per annum between 2000-2008
- ✓ Health and education: average life expectancy is 67.8; Viet Nam's basic education lasts for 12 years and is divided into three levels

# Development of the SNC

- ✓ Vietnam completed the development of the 2nd National Communication to the UNFCCC and submitted it to the UNFCCC Secretariat at the COP 16.
- ✓ It provides information on the national GHG inventory in 2000, analyses and assesses impacts of climate change, and recommends a number of feasible options for the adaptation to climate change and the mitigation of GHG emission in 2010-2030.



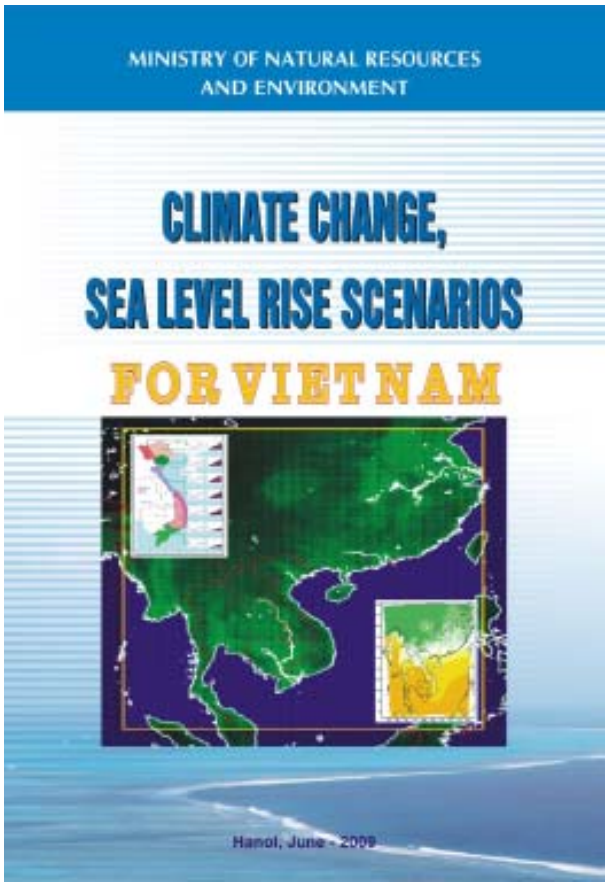
# Institutional arrangement for implementing SNC Project (including V&A assessment) in Viet Nam



# *Development of climate change scenarios*

*Climate change, sea level rise scenarios for Viet Nam are developed based on different emission scenarios, namely, low (B1), medium (B2) and high (A2, A1FI).*

- By the end of 21st century, temperatures in Vietnam would rise 2.3°C relative to the average of 1980-1999. The increase in temperature would be in the range of 1.6-2.8°C in different zones.
- Both annual rainfall and rainy season's rainfall would increase, while dry season's rainfall tends to decrease, especially in Southern climate zones.
- By mid 21st century sea level rise is expected to increase about 30cm and sea level rise would rise about 75cm by the end of 21st century compared to the period of 1980-1999.



# CLIMATE CHANGE IMPACTS AND ADAPTATION MEASURES

- Assess impacts of climate change and adaptation measures on following sectors:
  - Water resources: river flow regimes; evapotranspiration; groundwater
  - Coastal zones: sea-level rise will increase flood area, intensity and duration; coastal ecosystems may be destroyed; sea-level rise will speed up mangrove-fringed shoreline and estuarine erosion and wash away mangrove swamps; losses and damages to agricultural production and rural development, aquaculture production, forestry, infrastructure caused by sea-level rise are assessed
  - Agriculture: agro-meteorological factors; crop growth rate; crop water demand; growth and spread of detrimental pests, diseases; growing seasons; crop geographic distribution; reduction and submergence of the arable land by sea-level rise; rice and maize outputs; animal husbandry

# CLIMATE CHANGE IMPACTS AND ADAPTATION MEASURES

- Assess impacts of climate change and adaptation measures on following sectors (cont.):
  - Forestry: forest vegetation cover and forest ecosystems; forest fire risk; growth and dispersion of harmful forest pests; forest land
  - Aquaculture: coral reef ecosystem; sea-grass ecosystem; estuarine ecosystem; pest and disease growth and spread in aqua-farming; red tides
  - Energy and transportation: energy demand; energy supply; national energy security; energy industries; power infrastructure; transportation infrastruction; electricity transmission and distribution network
  - Human health: direct impacts: impact of changing climate patterns, impacts of anomalous heat waves on health, impacts of natural disasters on human health and indirect impacts: saltwater intrusion and inundation; spread of diseases and epidemics; food security; risk of famine…

# *Overall methodology*

- ✓ Top down with seven steps (IPCC guidance)
- ✓ Sectoral focus
- ✓ Stakeholders involved
- ✓ Tool and data availability
- ✓ National situation is used for undertaking V&A

# *Limitations and Constraints*

- ✓ The application of the MAGICC/SCENGEN 5.3 model in the development of climate change scenarios, which produces low-resolution grid maps (300 by 300 km), makes it difficult to accurately reflect the local specificities of climate change in Viet Nam.
- ✓ The database for impact assessments and adaptation measures development, particularly data used in adaptation measure cost-benefit analyses, is incomplete.
- ✓ There is currently a lack of in-depth analysis to distinguish and assess impacts induced by climate change from other natural phenomena.
- ✓ Adaptation impact assessment and response measure development models and tools are insufficient, in particular for cross-sector or inter-regional assessments.
- ✓ The assessment of technological needs for adaptation lacks capacity, methodology and database.
- ✓ There is a shortage of technical experts capable of running impact assessment and adaptation measure development models.

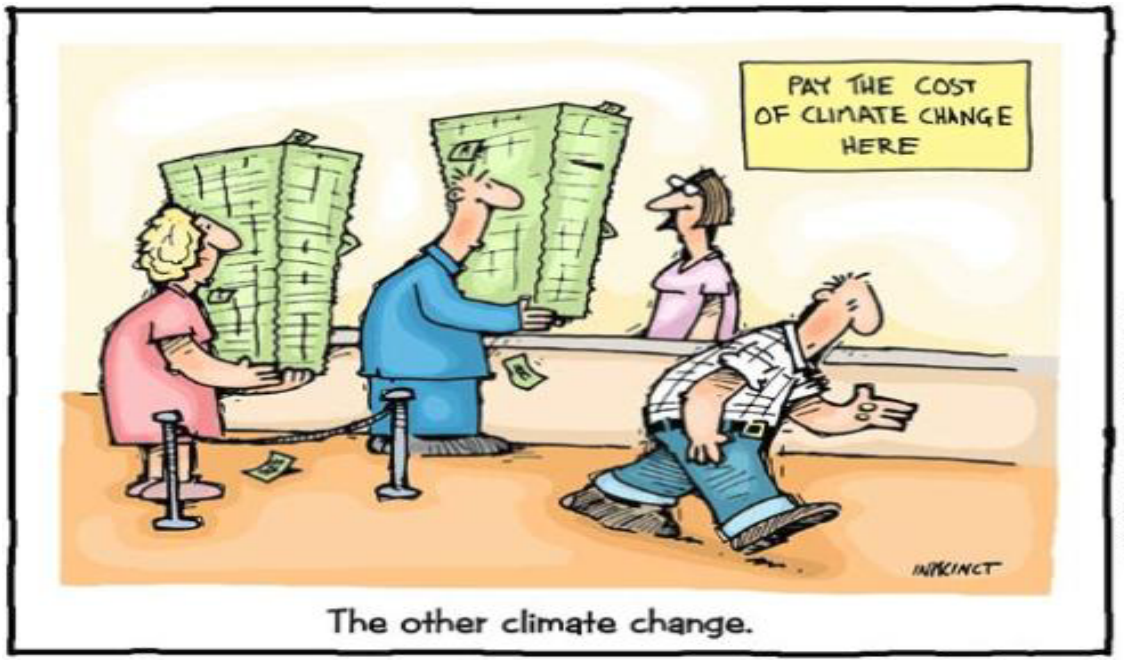
# Needs and concerns

- Strengthening international cooperation and supports from international organizations (UNEP, UNDP, UNESCAP, ADB, WB…) in order to respond to climate change;
- Mobilizing maximum possible financing from domestic sources and foreign investments based on mainstreaming climate change issues into strategies, programmes, plans and planning of each Ministries as stated in the NTP;
- Developing and transferring adaptation technologies;
- Need to establish a Policy Framework for implementing adaptation measures and mainstreaming it into National Development Planning.

# NEXT STEPS

- Enhance national capacity on V&A;
- Promote research on scientific basic to enhance climate & climate change
- Mobilize the technological and financial assistances from International Donors;
- Assess the adaptation technologies needs and develop the Technology Action Plan (TAP);
- Amendment of existing laws, decisions, measures to strengthen the integration of climate change adaptation issues into sectoral development plans/strategies;
- Improve local expert knowledge and expertise thought V&A training (Integrated assessment approaching and modeling ) and “Learning-by-doing”
- Improve database and apply related models for V&A and strengthen information sharing;
- Enhance awareness and knowledge on climate change in general and on climate change impacts and adaptation in particular at all levels;
- Update the climate change scenarios for Viet Nam;
- Prepare the project proposal for preparing Viet Nam Third National Communication with the support and guidance of UNEP, GEF.

# THANK YOU VERY MUCH FOR YOUR ATTENTION

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