

Presentation given at the Southeast Asia Katoomba meeting

## **Katoomba XVII**

# **Taking the Lead: Payments for Ecosystem Services in Southeast Asia**

June 23-24, 2010

Hanoi, Vietnam

Hosted by:

Forest Trends, the Katoomba Group, Ministry of Agriculture and Rural Development (MARD), Ministry of Natural Resources and Environment (MONRE), United States Agency for International Development (USAID) and Winrock International



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*Conference on Payments for Ecosystem services in Southeast Asia*

*Hanoi, 23-24 June 2010*



**VIETNAM NATIONAL  
PROGRAMMES TO RESPOND  
TO CLIMATE CHANGE**

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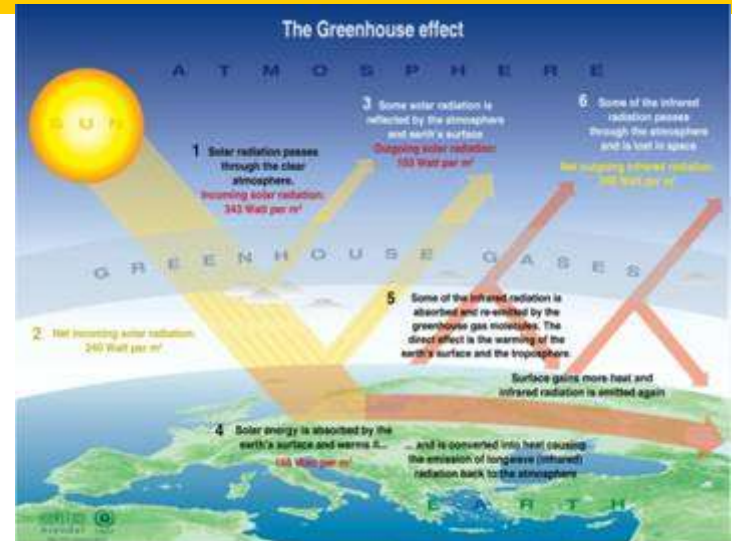
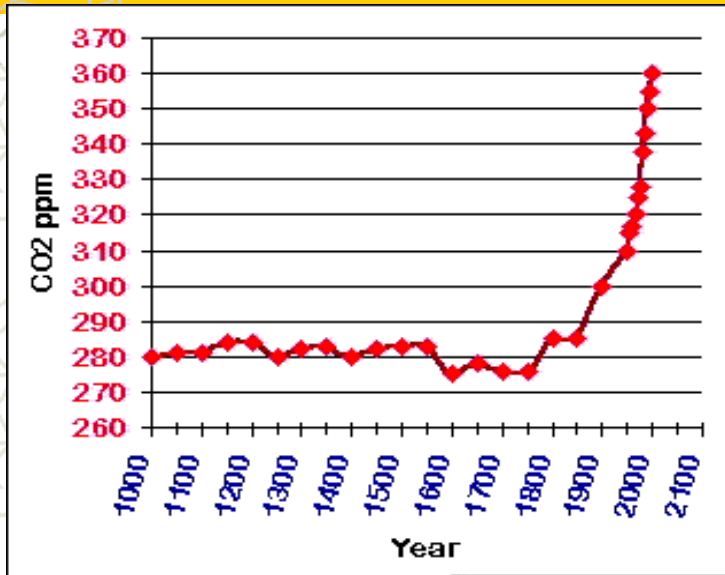
I. Overview

II. National Target Programme to Respond to Climate Change (NTP)

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# I - Overview



Sources: Georgian university cottage in Canada, Department of geography, University of Oxford, school of geography, United States Environmental Protection Agency (EPA), Washington, Climate Change 1996, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change.



Source: www.birfield.edu

**Temperature**

Sea level rise

Precipitation

**Impacts on...**

Health	Agriculture	Forest	Water resources	Coastal areas	Species and natural areas
Weather-related mortality Infectious diseases Air-quality respiratory threats	Crop yields Intensive demands	Forest composition Geographic range of forest Forest health and productivity	Water supply Water quality Competition for water	Erosion of beaches Inundation of coastal lands Additional costs to protect coastal communities	Loss of habitat and species Cryosphere Endangered species

Source: United States environmental protection agency (EPA)



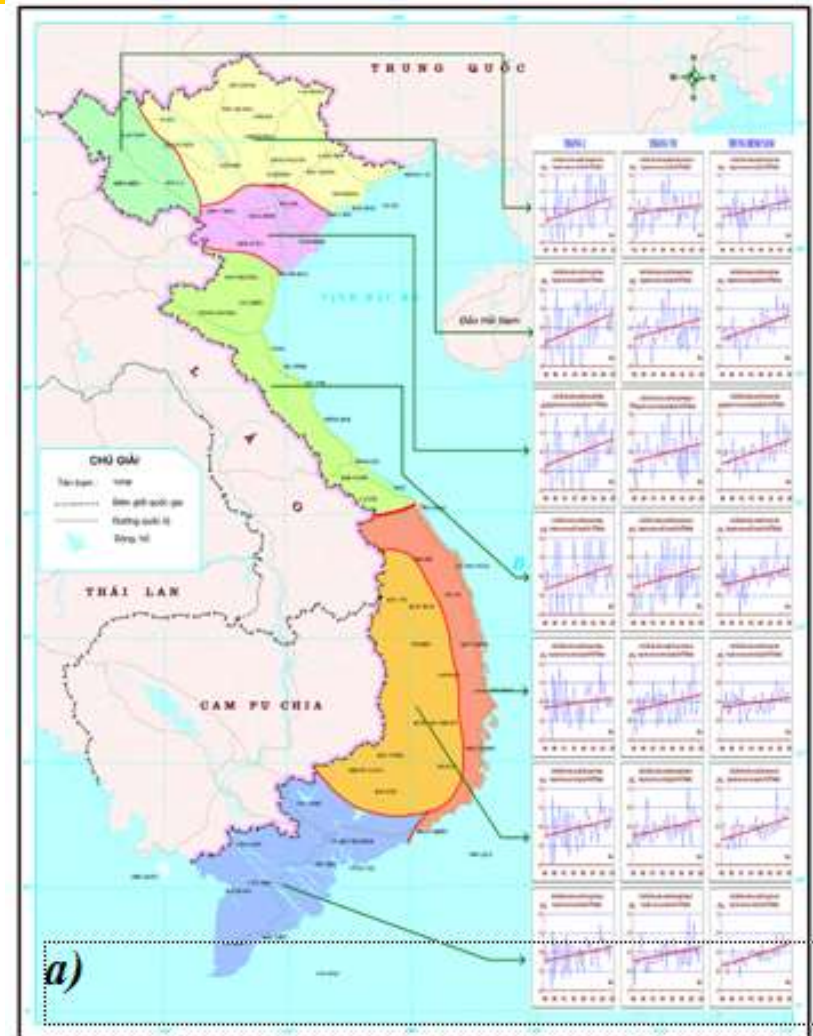
## Did you know?

262 million people were affected by climate disasters in 2004, more than 98 per cent of them in developing countries

# Climate change in Vietnam

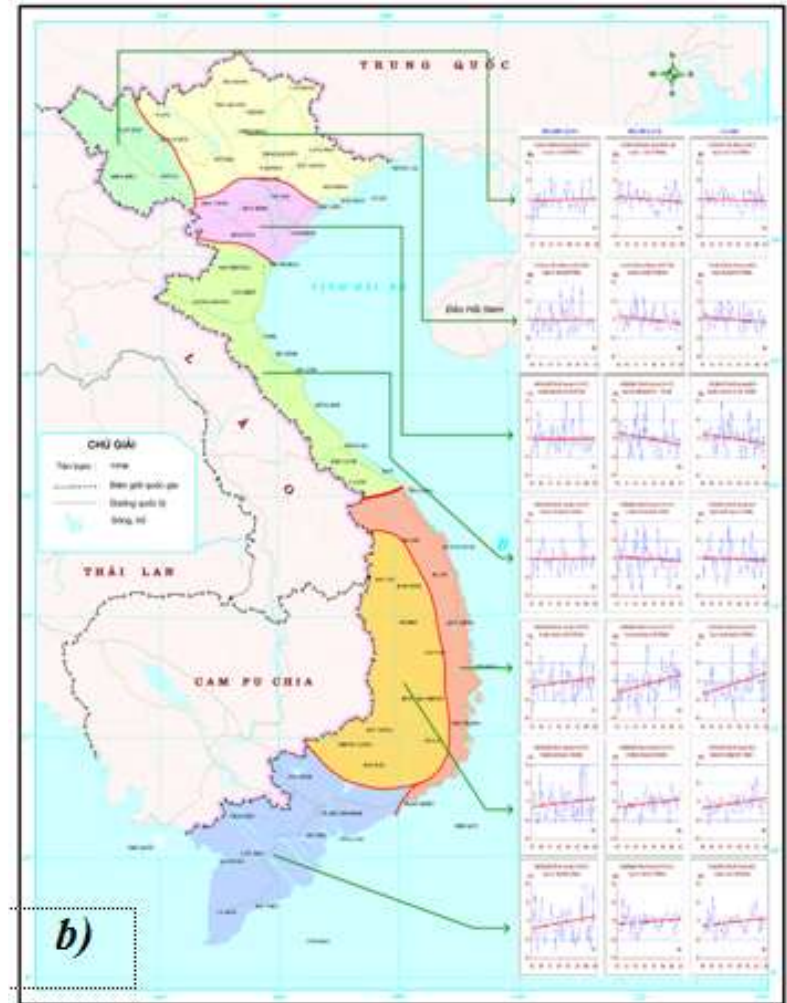
**Temperature:** during the last 50 years (1958-2007), the annual average temperature in Vietnam increased about 0.5-0.7°C.

The annual average temperature for the last 4 decades (1961-2000) was higher than that of 3 previous decades (1931-1960).



# Climate change in Vietnam

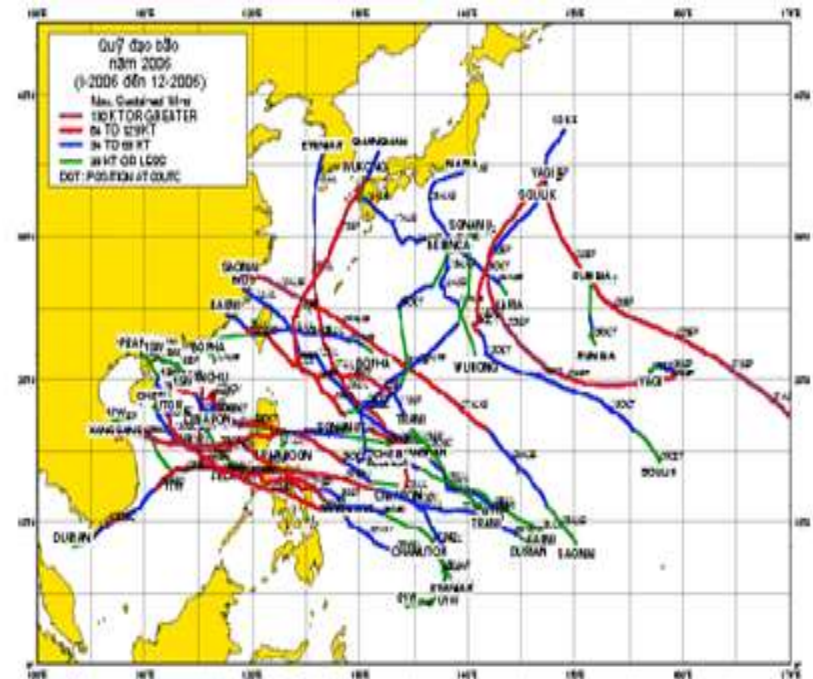
**Rainfall:** at every location, change of annual average rainfalls for the last 9 decades (1911-2000) was not distinct and not consistent with each other. There were ascending and also descending periods. The annual rainfall decreased over Northern climate zones while increased over Southern ones. On average for the whole country, the rainfall over the past 50 years (1958-2007) decreased by about 2%.



# Climate change in Vietnam

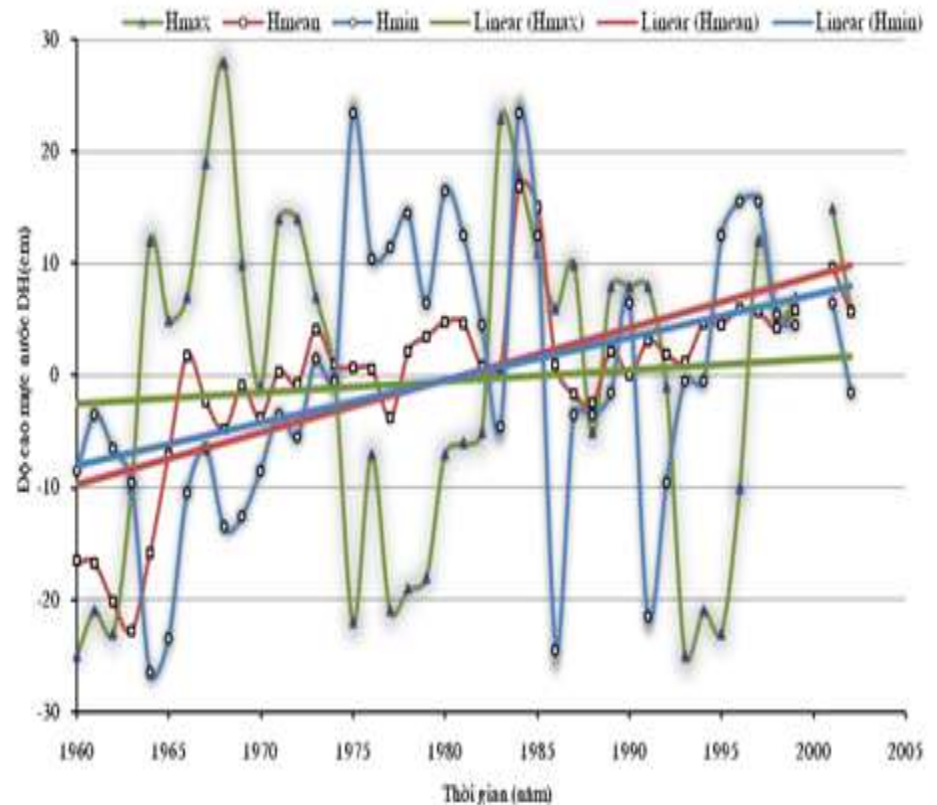
**Cold fronts:** in the last two decades, the number of cold fronts affecting Vietnam was reduced remarkably.

**Typhoons:** in recent years, there were more typhoons with higher intensity affecting Vietnam. Typhoon tracks have a tendency of moving southward and typhoon season tends to end later.



# Climate change in Vietnam

**Sea level:** data from tidal gauges along Vietnam coasts show that sea level rise was the rate of about 3mm/year during the period of 1993-2008 which is comparable with the global tendency. In the past 50 years, sea level at Hon Dau station rose about 20 cm.





# Climate change in Vietnam

The north of Vietnam has affected by the heat wave extend in 10 days which recognized as the record over the last 60 years. In Hanoi, the highest temperature reached  $44.4^{\circ}\text{C}$  at 15.00 on 19 June 2010.



# Climate change scenarios for Vietnam

***1- Temperature:*** temperatures in winter can increase faster than those in summer for all climate zones. Temperatures in Northern climate zones can increase faster than those in Southern climate zones.

Climatic Region	Decades in the 21 Century								
	2020	2030	2040	2050	2060	2070	2080	2090	2100
North West	0.5	0.7	1.0	1.3	1.6	1.9	2.1	2.4	2.6
North East	0.5	0.7	1.0	1.2	1.6	1.8	2.1	2.3	2.5
North Delta	0.5	0.7	0.9	1.2	1.5	1.8	2.0	2.2	2.4
North Central	0.5	0.8	1.1	1.5	1.8	2.1	2.4	2.6	2.8
South Central	0.4	0.5	0.7	0.9	1.2	1.4	1.6	1.8	1.9
Central Highlands	0.3	0.5	0.6	0.8	1.0	1.2	1.4	1.5	1.6
South	0.4	0.6	0.8	1.0	1.3	1.6	1.8	1.9	2.0

Changes in annual mean temperature (°C) relative to period of 1980-1999 by medium emission scenario

# Climate change scenarios for Vietnam

**2 - Rainfall:** rain fall in dry season would decrease in most climate zones, especially in Southern climate zones. Rainfall in the rainy season and the total annual rainfall would increase in all climate zones.

Climatic Region	Decades in the 21 Century								
	2020	2030	2040	2050	2060	2070	2080	2090	2100
North West	1.4	2.1	3.0	3.8	4.6	5.4	6.1	6.7	7.4
North East	1.4	2.1	3.0	3.8	4.7	5.4	6.1	6.8	7.3
North Delta	1.6	2.3	3.2	4.1	5.0	5.9	6.6	7.3	7.9
North Central	1.5	2.2	3.1	4.0	4.9	5.7	6.4	7.1	7.7
South Central	0.7	1.0	1.3	1.7	2.1	2.4	2.7	3.0	3.2
Central Highlands	0.3	0.4	0.5	0.7	0.9	1.0	1.2	1.3	1.4
South	0.3	0.4	0.6	0.8	1.0	1.1	1.2	1.4	1.5

Changes in annual rainfall (%) relative to period of 1980-1999 by medium emission scenario

## Climate change scenarios for Vietnam

**3 - Sea level rise:** by mid 21<sup>st</sup> century, sea level may rise 28-33 cm, and by 2100 sea level may rise 65-100 cm relative to the baseline period of 1980-1999.

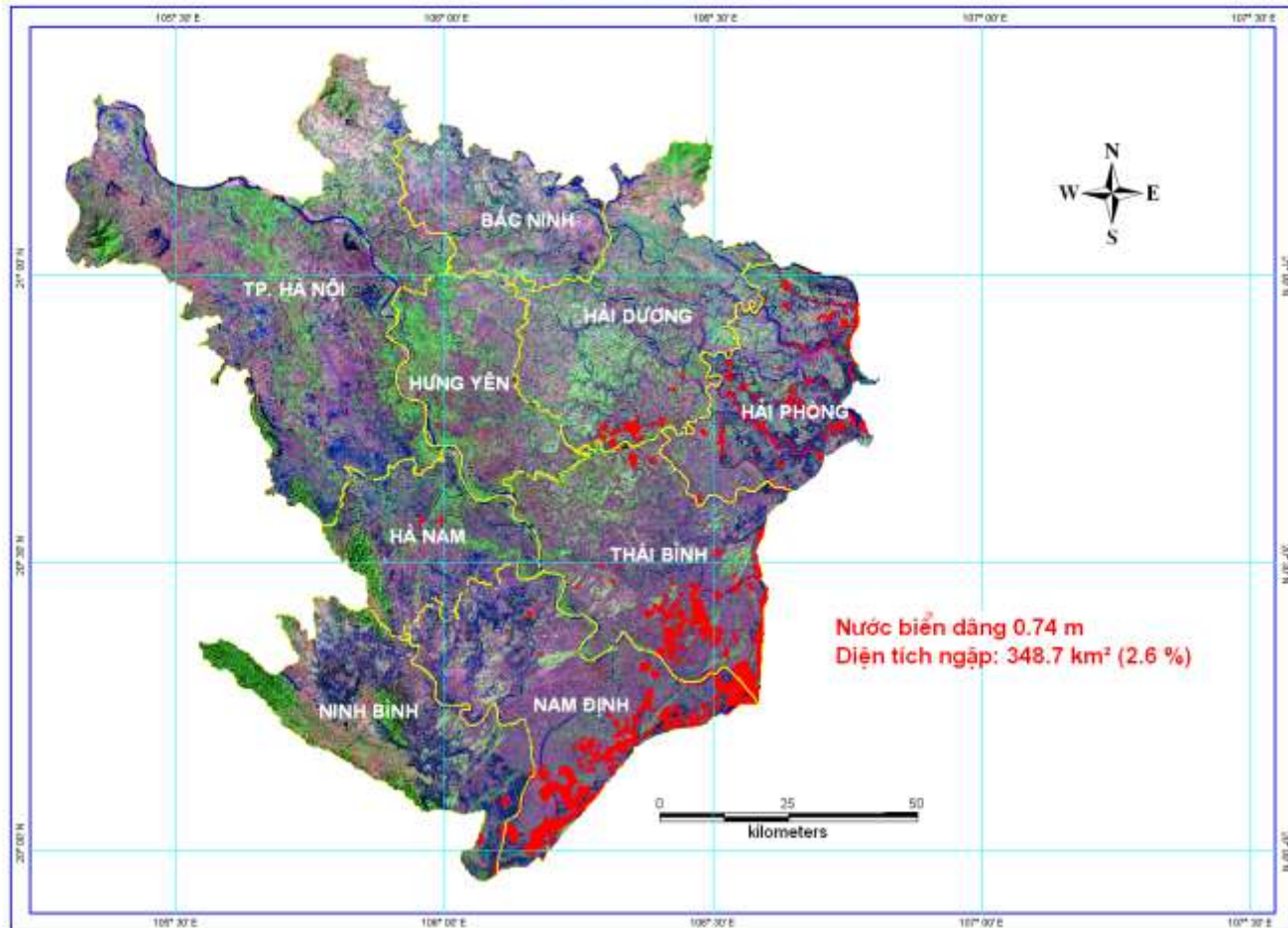
Scenarios	Decades in the 21 Century								
	2020	2030	2040	2050	2060	2070	2080	2090	2100
Low emission scenario (B1)	11	17	23	<b>28</b>	35	42	50	57	<b>65</b>
Medium emission scenario (B2)	12	17	23	<b>30</b>	37	46	54	64	<b>75</b>
High emission scenario (A1FI)	12	17	24	<b>33</b>	44	57	71	86	<b>100</b>

DIỆN TÍCH NGẬP LỤT ỨNG VỚI KỊCH BẢN NƯỚC BIỂN DĂNG 0.2 M  
ĐỒNG BẰNG SÔNG HỒNG

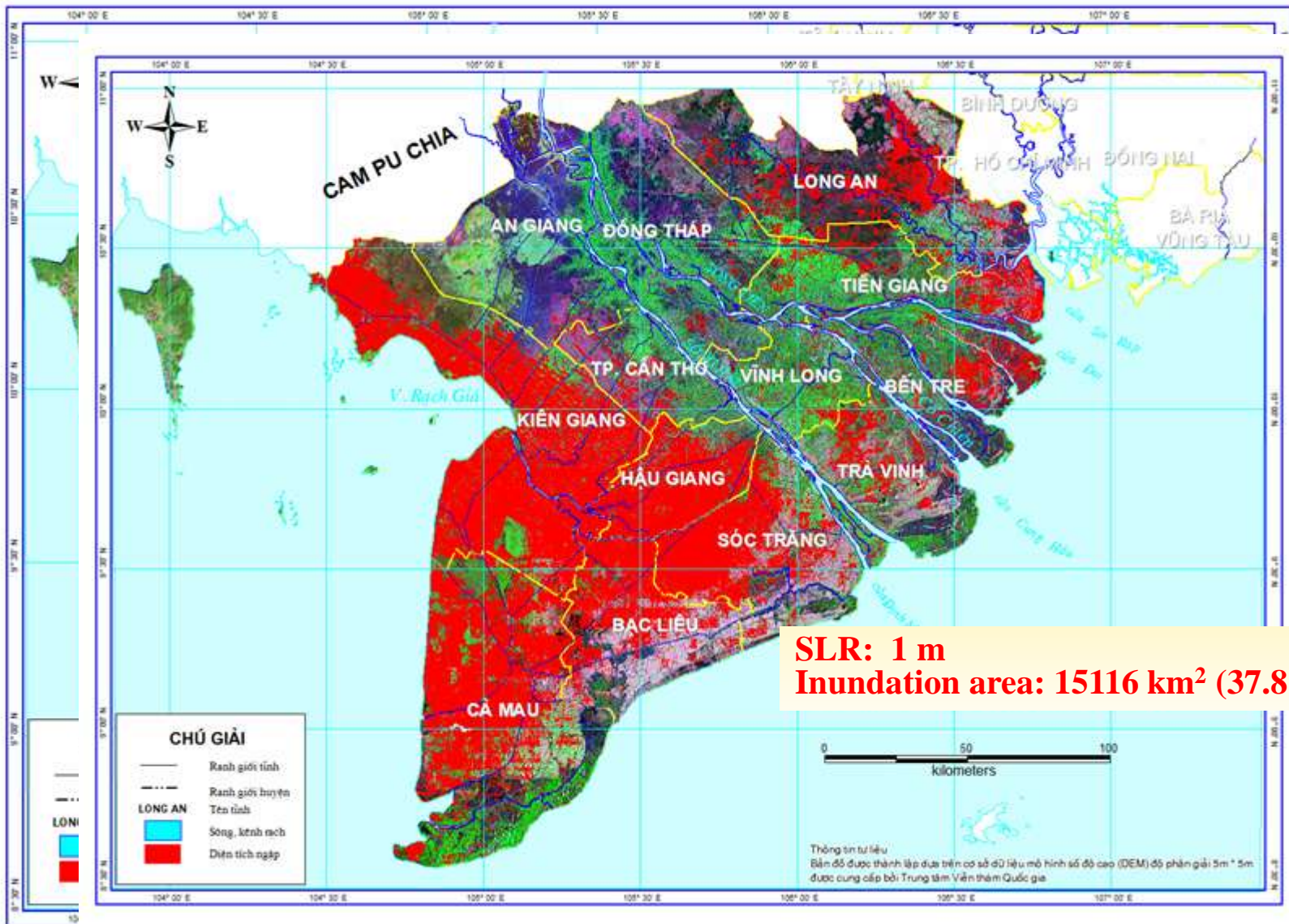
DIỆN TÍCH NGẬP LỤT ỨNG VỚI KỊCH BẢN NƯỚC BIỂN DĂNG 0.4 M  
ĐỒNG BẰNG SÔNG HỒNG

DIỆN TÍCH NGẬP LỤT ỨNG VỚI KỊCH BẢN NƯỚC BIỂN DĂNG 0.6 M  
ĐỒNG BẰNG SÔNG HỒNG

DIỆN TÍCH NGẬP LỤT ỨNG VỚI KỊCH BẢN NƯỚC BIỂN DĂNG 0.74 M  
ĐỒNG BẰNG SÔNG HỒNG



# Inundation map of Mekong River Delta at 75 & 100 cm SLR scenario



**SLR: 1 m**  
**Inundation area: 15116 km<sup>2</sup> (37.8%)**

## II - National Target Programme to Respond to Climate Change

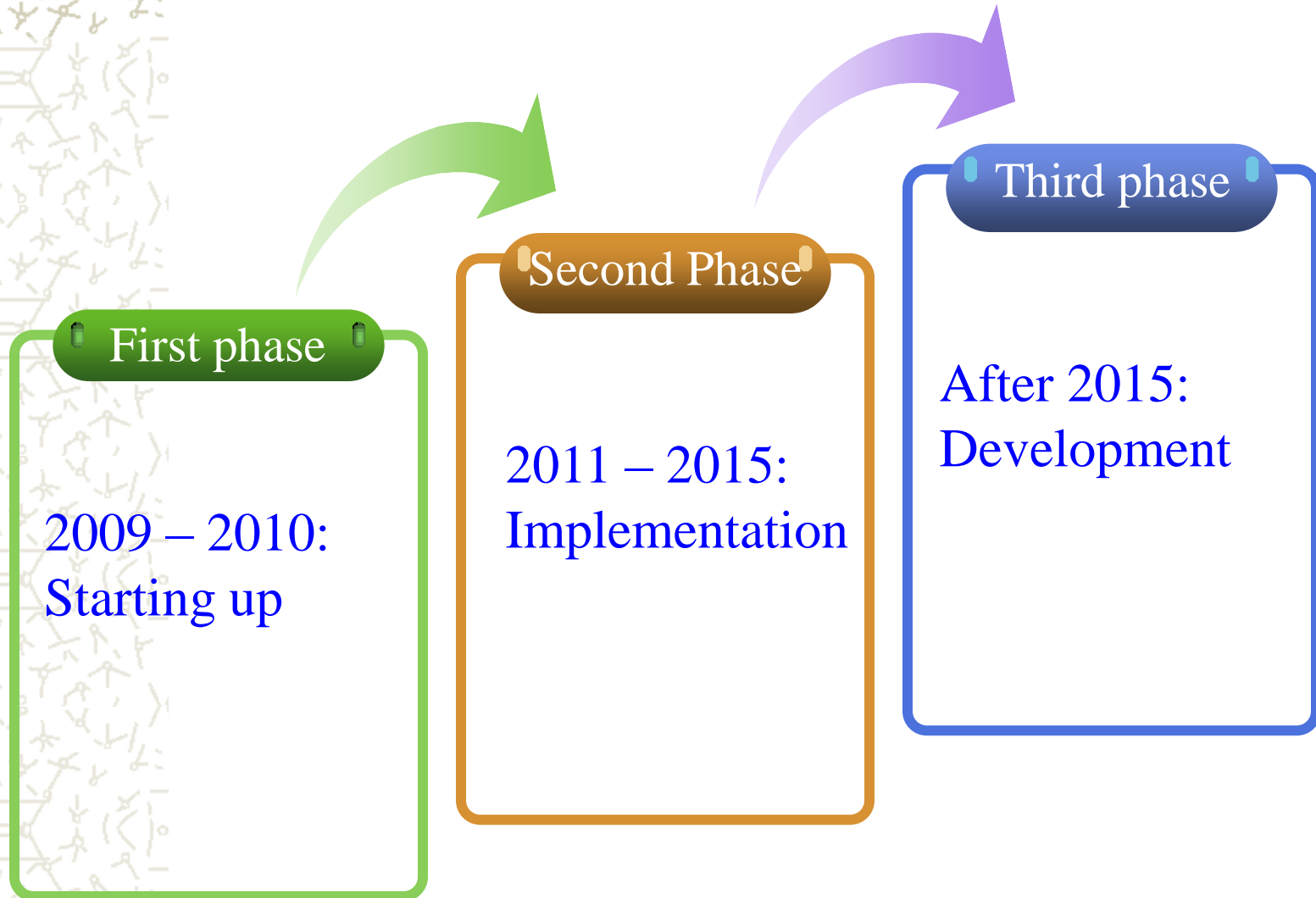
*On 02 December 2008, Vietnamese Prime Minister issued Decision No. 158/2008/QĐ-TTg on approval the National Target Programme to respond to climate change (NTP).*

### GENERAL OBJECTIVES

1. To assess climate change impacts on sectors and regions in specific periods
2. To develop feasible action plans to effectively respond to climate change in the short-term and long-term to ensure sustainable development of Vietnam
3. To take opportunities to develop towards a low-carbon economy
4. To join the international community's efforts in mitigating climate change and protecting the climatic system.

# Scope

The NTP will be implemented for the whole country in three phases:





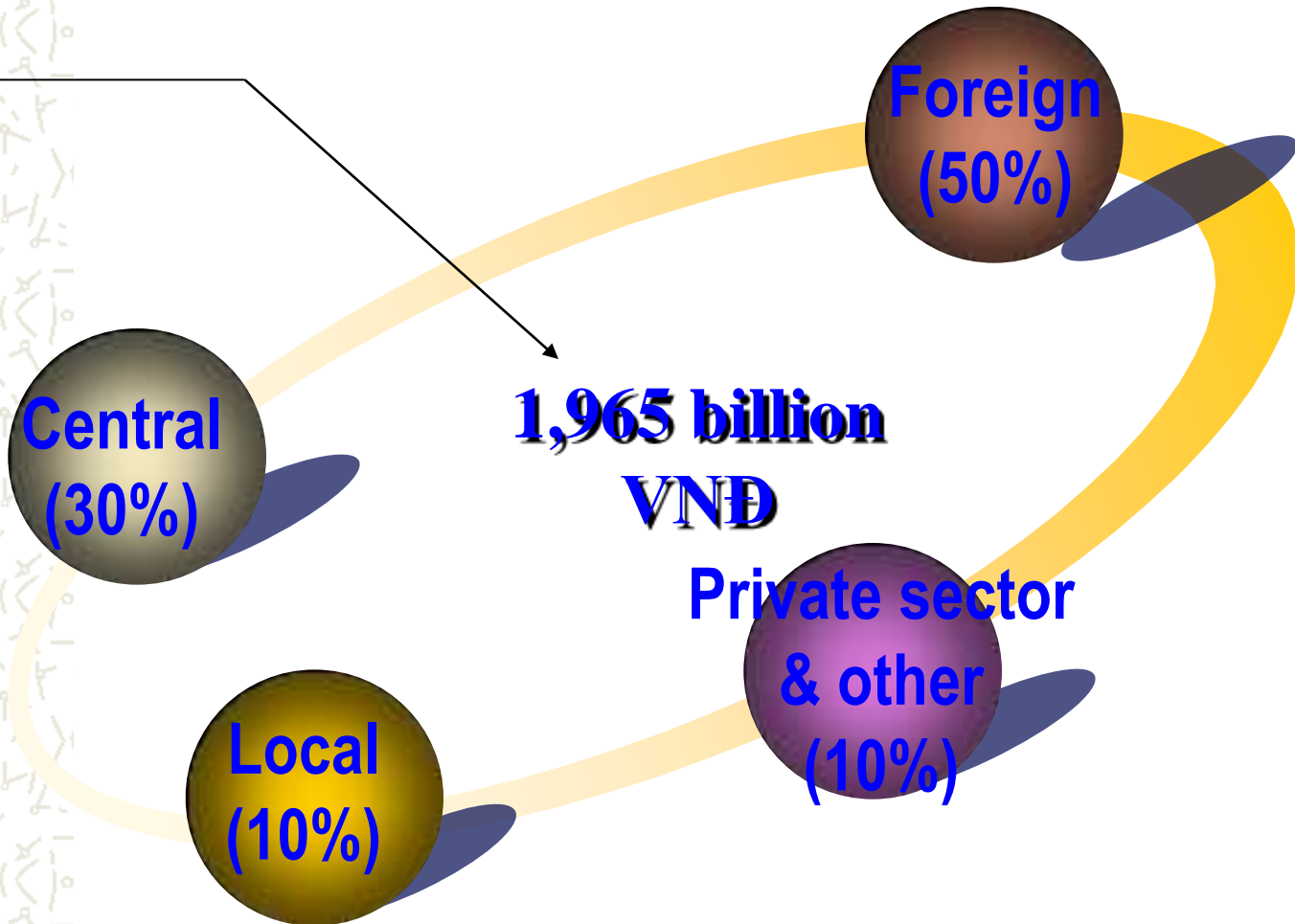


# TASKS AND SOLUTIONS

1. Assessment of climate change extent and impacts in Vietnam
2. Identification of measures to respond to climate change
3. Development of a science and technology program on climate change
4. Strengthening the capacities of organization, institutions and policy on CC
5. Awareness raising and human resources development
6. Enhancement of International Cooperation
7. Mainstreaming climate change issues into socio-economic, sectoral and local development strategies, plans and planning
8. Development of Action Plans of Ministries, sectors and localities to respond to climate change
9. Develop and implement projects of the Program

# BUDGET

Total



## Tasks carried out by MARD under NTP

*MARD will chair and cooperate with other ministries in development and implementation action plan to respond to CC of MARD:*

- Assess impacts of CC and SLR on sectors administered by MARD;
- Identify measures to respond to CC and SLR for sectors administered by MARD;
- Mainstream CC issues into strategies, programs, plans and planning of MARD;
- Develop coastal eco-economic models to respond to CC;
- Study science bases, realities and propose projects on socio-economic development in regularly dry areas;
- Propose to integrate CC issues into development of measures to ensure security of water sources, sea dyke system, reservoir; propose measures to develop protective forests (upstream forests and coastal forests) in accordance with CC scenarios;
- Study to modify management strategy and planning on protected areas system of Vietnam to respond to CC; and implement pilot projects.

## Tasks carried out by MARD under NTP

*MARD will cooperate with other ministries in implementation some relevant activities:*

- Mainstream CC issues into environmental protection programs, reasonable use of natural resources programs, etc.
- Develop technologies to mitigate GHGs emission and technologies to adapt to CC



# **PLAN TO IMPLEMENT THE NTP IN 2010**

1. Strengthen the institutional work to implement the NTP;
2. Develop and implement science-technology programmes on climate change;
3. Update climate change scenarios to 2100 for Vietnam;
4. Develop and complete action plans to respond to climate change of Ministries and provinces in the 2010-2015 period in order to develop the national action plan to respond to climate change; implement some pilot projects on climate change adaptation;

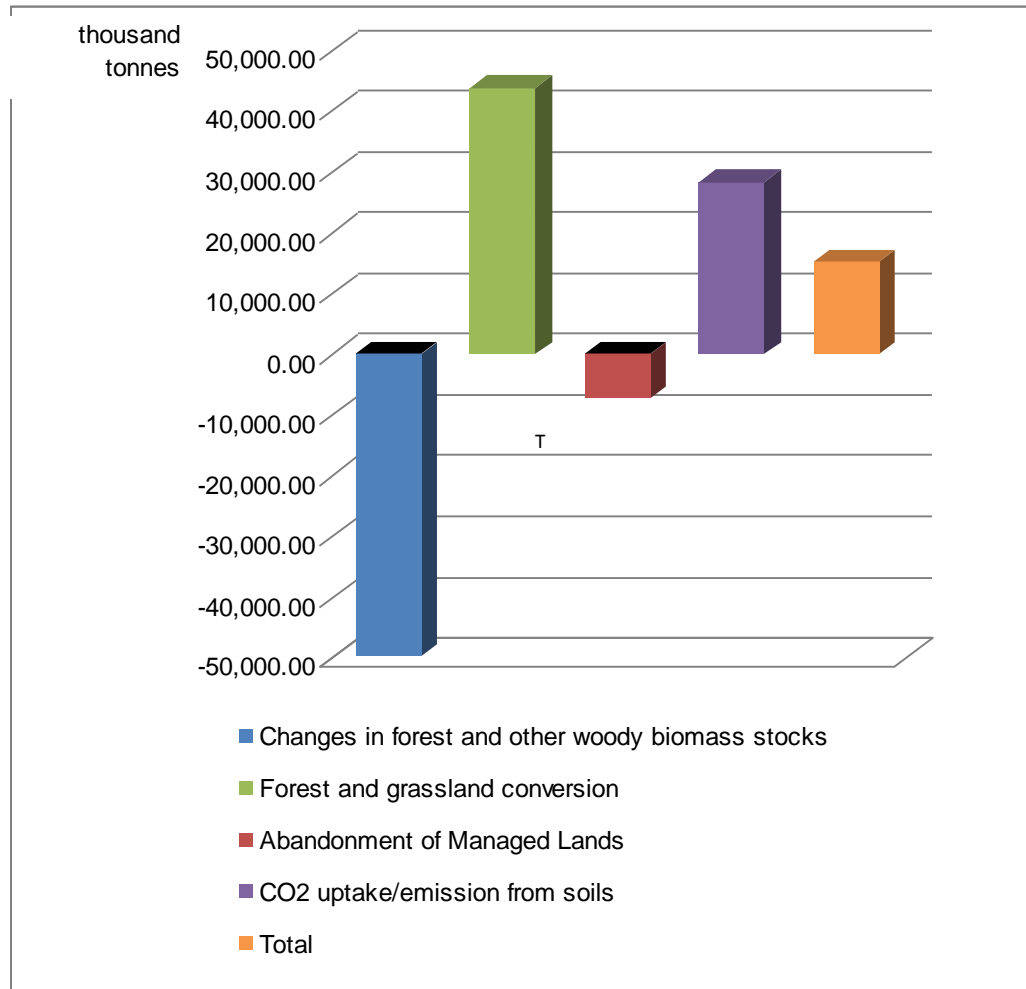


# PLAN TO IMPLEMENT THE NTP IN 2010

5. Integrate climate change issues into the development of five years socio-economic development plan (2011-2015) and ten years socio-economic development strategy (2011-2020);
6. Research on developing climate change programmes, syllabuses for national education;
7. Cooperate with related stakeholders to capacity building and propaganda of climate change issues for officials and community on it's impacts and adaptation measures and mitigation options;
7. Strengthen the international cooperation activities on climate change in order to mobilize necessary resources, use the budget of NTP effectively and access the sound environment technologies from developed countries.

# III - Mitigation options for LULUCF sector under Vietnam SNC

## GHG emissions from LULUCF in 2000

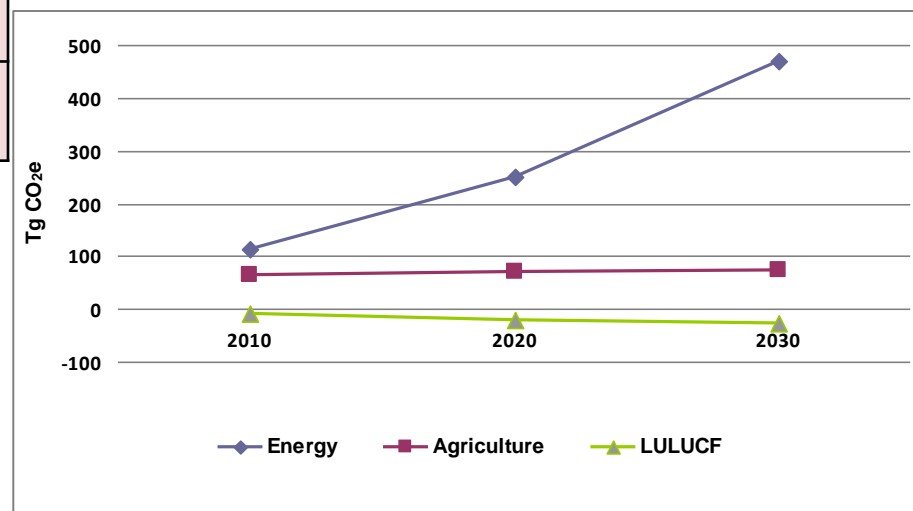


# III - Mitigation options for LULUCF sector under Vietnam SNC

## GHG emission projection to 2010, 2020 and 2030

Unit: Tg CO<sub>2</sub> eq.

Sector	2010	2020	2030
Energy	113.1	251.0	470.8
Agriculture	65.8	69.5	72.9
<b>LULUCF</b>	<b>-9.7</b>	<b>-20.1</b>	<b>-27.9</b>
<b>Total</b>	<b>169.2</b>	<b>300.4</b>	<b>515.8</b>





### **III - Mitigation options for LULUCF sector under Vietnam SNC**

#### **☀ Using Comprehensive Mitigation Assessment Process (COMAP) Model**

#### **☀ Inputs:**

- Data on area, rotation, investment cost, evolution of carbon pools (soil, vegetation, products), lifetime of wood products, income from forest exploitation, etc.**
- Develop GHG mitigation options based on baseline scenarios for the period of 2010-2020-2030.**

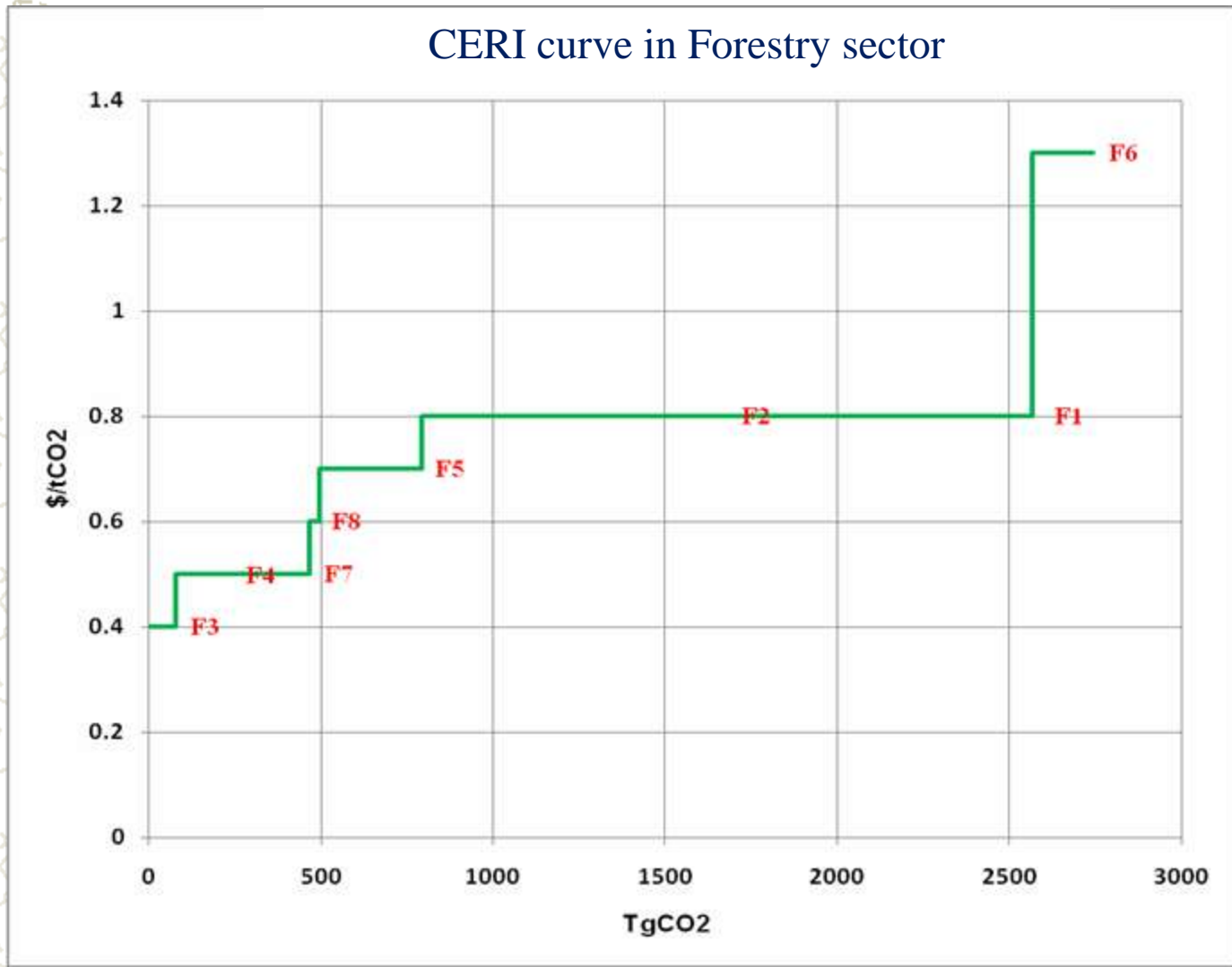
### **III - Mitigation options for LULUCF sector under Vietnam SNC**

- F1: Protection and sustainable management of existing production forests**
- F2: Protection of existing protection forests**
- F3: Plantation together with natural regeneration of large timber production forest**
- F4: Long rotation large timber forest plantation**
- F5: Short rotation sawn timber forest plantation**
- F6: Short rotation forest plantation for pulp and paper**
- F7: Long rotation non-timber forest plantation**
- F8: Melaleuca plantation in alkaline soil**

## ***GHG mitigation potential and cost of options in LULUCF***

<b>Option</b>	<b>F1</b>	<b>F2</b>	<b>F3</b>	<b>F4</b>	<b>F5</b>	<b>F6</b>	<b>F7</b>	<b>F8</b>
Rotation (years)	40	40	40	40	15	15	40	15
GHG mitigation potential (Mt CO <sub>2</sub> )	904	1153	80	271	296	176	117	25
GHG mitigation cost (US\$/tCO <sub>2</sub> )	1.36	0.77	0.38	0.55	0.81	1.38	0.48	0.59

# CERI curve in LULUCF



# CONCLUSSION

- ✿ **NTP is being carried out. MARD's action plan (MAP) is being formulated. It is expected that MAP will be completed in 2011.**
- ✿ **LULUCF has a high potential to mitigate GHG emissions through afforestation / reforestation and forest protection activities.**
- ✿ **Develop several CDM projects for LULUCF sector.**

# CONCLUSSION

- ✿ **The Three Rio Conventions (UNFCCC, CBD and UNCCD) all emphasize the importance of conservation, sustainable use and management of forests.**
- ✿ **In line with Copenhagen Accord that calls for “... substantial finance to reduce emissions from deforestation and forest degradation...” the GEF will expand its support to actions reducing deforestation and provide up to \$ 1 billion for the implementation of a dedicated SFM/REDD+ program throughout the period 2010-2014.**

# CONCLUSION

## FCCC/AWG-LCA/2010/6 document:

- Encourages all Parties to find effective ways to reduce the pressure on forests that results in GHG emission.
- Decides that developing Parties should contribute to mitigation actions in the forest sector by undertaking the following activities:
  - + Reducing emissions from deforestation;
  - + Reducing emissions from forest degradation;
  - + Conservation of forest carbon stocks;
  - + Sustainable management of forest carbon stocks.

**HOW TO  
PROTECT  
OUR  
CLIMATE  
SYSTEM?**

**Climate Protection  
in the 21st. Century**







# **THANK YOU VERY MUCH FOR YOUR ATTENTION**

**For more information, please contact:**

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