

Philippines

Ms. Donna Lyne S. Sanidad

Information Technology Officer II,
Climate Change Commission



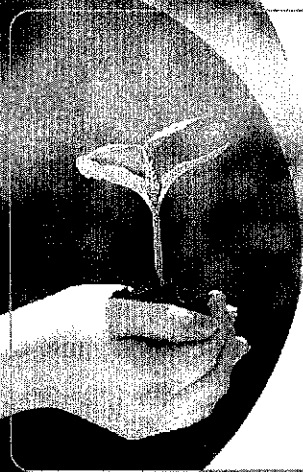
Work experience:

My previous job at the Manila Observatory has equipped me and become knowledgeable about how to address the issue of climate change. As a web developer at the Manila Observatory, I was under the klima Climate Change Center which was envisioned to be the climate change hub in the East Asian region. The staffs in the klima Climate Change Center were required to learn about climate change and its issues. I was required give lectures about climate change from grade school to university students, attend climate change related seminars, workshops, and conferences. I also attended the workshop on The Philippine Greenhouse Gas Accounting and Reporting Program (PhilGARP). I was also part of the team in writing a working paper entitled "In the Eye of the Perfect Storm: What the Philippines should do about Climate Change". Furthermore, I took part in the Philippines Second National Communication to the United Nation Framework Convention on Climate Change (UNFCCC) in 2010.

Current responsibilities:

Currently, I am working as an IT Officer II at the Climate Change Commission (CCC). This position not only requires me to be knowledgeable in IT and programming but also be knowledgeable about climate change issues. Under the Knowledge Management division, my responsibilities include the design and development of the Climate Change Commission web site, design and development of the databases needed for the website, create graphics, and help in the advocacies of the Climate Change Commission.

Powerpoint presentation:



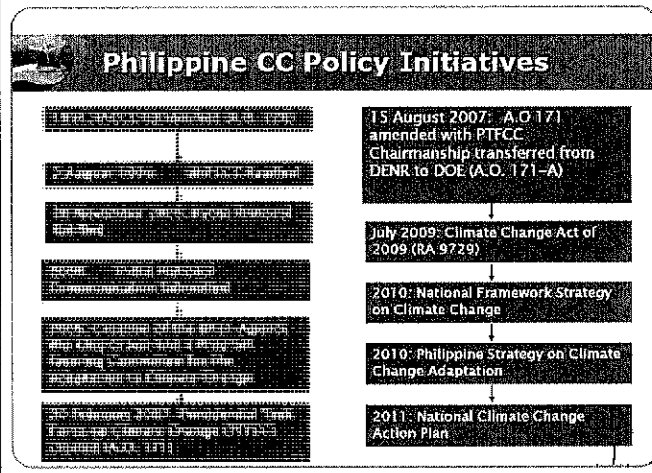
Current Status of Climate Change Mitigation and Adaptation

Philippines, Climate Change Commission

Contents

- 1 Overview of climate change mitigation and adaptation
 - National Policy & Plan
 - Measures
 - Institutional Structure
- 2 Overview of GHG inventory development
 - National Policy & Plan
 - Institutional Structure
- 3 Other Issues

Philippine CC Policy Initiatives



15 August 2007: A.O. 171 amended with PTFCC. Chairmanship transferred from DENR to DOE (A.O. 171-A)

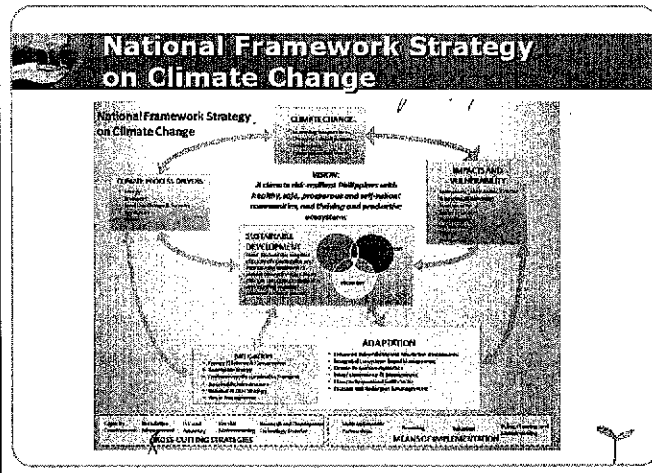
July 2009: Climate Change Act of 2009 (RA 9729)

2010: National Framework Strategy on Climate Change

2010: Philippine Strategy on Climate Change Adaptation

2011: National Climate Change Action Plan

National Framework Strategy on Climate Change



MITIGATION: It aims to reduce greenhouse gas emissions from both developed and developing countries to reduce the risk of climate change and its adverse impacts.

ADAPTATION: It refers to adjustments in natural or human systems to moderate or avoid adverse effects of climate change.

SUSTAINABLE DEVELOPMENT: It is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

National Climate Change Action Plan 2011-2028

Goal: To build the adaptive capacities of women and men in their communities, increase the resilience of vulnerable sectors and natural ecosystems to climate change, and optimize mitigation opportunities towards a gender-responsive and rights-based sustainable development.

ULTIMATE OUTCOMES	1.0 Enhanced adaptive capacity of communities, resilience of natural ecosystems, and social ability of all	2.0 Reduced greenhouse gas emissions and climate change impacts
INTERMEDIATE OUTCOMES	<p>100 Food Security: Availability, stability, accessibility, affordability, safety and quality food ensured and food climate of origin.</p> <p>101 Water Sufficiency: Water resources sustainably managed and equitable access assured.</p> <p>102 Ecosystem and Environmental Stability: Ecosystem resilience and stability of natural systems and communities.</p> <p>103 Human Security: Reduced risks of the population from climate change and disasters.</p> <p>104 Climate Smart Industries and Services: Comprehensive, new efficient and eco-friendly business and services developed, promoted and increased.</p> <p>105 Sustainable Energy: Sustainable renewable energy technologies adopted in line with the concept of sustainable development.</p> <p>106 CC Knowledge and Capacity Development: Citizens' knowledge on and capacity to address climate change.</p>	

Measures

- **Mitigation**
 - Department of Energy (DOE) – Renewable Energy (CDM Projects: Wind Farm, Biodiesel 5%)
 - DA – Organic Law (Organic Farming), Capacity Development for farmers
 - DOTC – Environmentally Sustainable Transport
 - Waste – Solid Waste Management
 - Forestry – National Greening Project
 - CCC – Conserve-Protect-Restore (CPR)

Measures

Adaptation

- Department of Environment and Natural Resources (DENR) - Adaptation to Climate Change and Conservation of the Biodiversity in the Philippines (AccBio) Project - Philippine Strategy on Adaptation Measures.
- CCC - Enhanced Vulnerability and Adaptation Assessments - VA Tools (scoping)
- Integrated Ecosystems Based Management - Ecotown



Measures

Adaptation

- Department of Agriculture (DA) - Climate Responsive Agriculture - DA has Agriculture Plan (R&D crop varieties that are resilient to extreme climate, climate proofing of agricultural structures, Irrigation and rain fed crops
- Department of Public Works and Highways (DPWH) and Department of Education - Water Governance and Management (flood control and water catchment)



Measures

Adaptation

- Department of Environment and Natural Resources (DENR) - Adaptation to Climate Change and Conservation of the Biodiversity in the Philippines (AccBio) Project - Philippine Strategy on Adaptation Measures.
- CCC - Enhanced Vulnerability and Adaptation Assessments - VA Tools (scoping)
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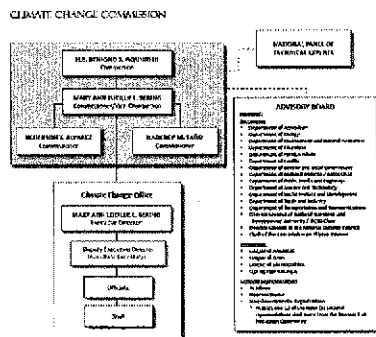
Measures

Adaptation

- Department of Health (DOH) - Surveillance on vector diseases
- National Disaster Risk Reduction Management (NDRRM) - MOU with CCC
 - RA 10121. Calamity fund can be used for DRR measure
 - Maps of vulnerable areas



Institutional Structure



GHG Inventory and Development

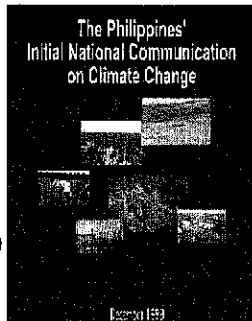
Types of GHG Accounting

- National Inventory
- LGU Inventory
- Corporate GHG Inventory



GHG Inventory for the 1st National Communication

- ❖ **Base year 1994**
- ❖ **Sectors**
 - Energy
 - Industry
 - Agriculture
 - LUCF
 - Waste
- ❖ **Submitted in 2000**



GHG Inventory 1st National Communication

Figure 2.1. 1994 GHG Emissions from the Four Non-LUCF Sectors of Energy, Agriculture, Industry, and Waste.

SECTOR	CO ₂ Emissions (ktona)
Energy	60,039
Industry	10,653
Agriculture	33,150
Waste	7,052
TOTAL	105,894

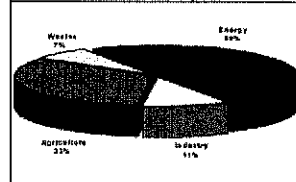
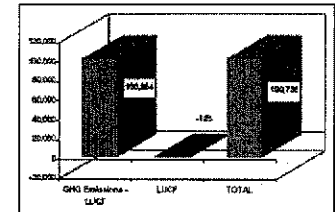


Figure 2.2. Net GHG Emissions with the LUCF Sector.



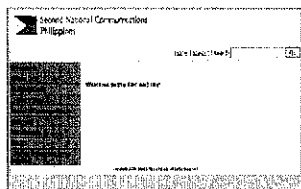
GHG Inventory for the 2nd National Communication

- ❖ **Base year is 2000**
- ❖ **To be submitted this year to the UNFCCC**
- ❖ **Inventory part of the SNC accomplished by 2009**

SNC: Key Methodologies used for GHG Inventory and Data Collection Process

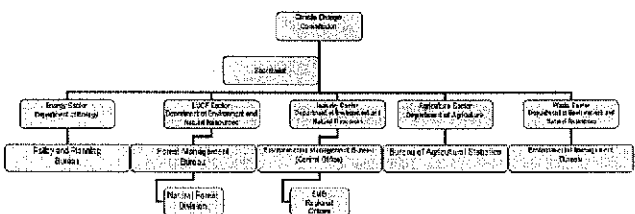
- ❖ **Used the methodologies provided in the 1996 IPCC Guidelines**
- ❖ **UNFCCC software version 1.3.2**
- ❖ **Base year: 2000**
- ❖ **Recipe and Reference Manuals**
- ❖ **Database for the 2000 Philippine GHG Inventory was created**
- ❖ **Capacity building workshops were conducted for each of the sectors**

SNC Website

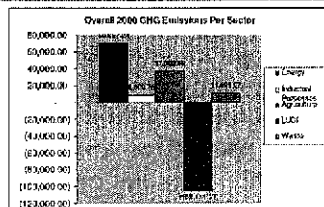


- ❖ **Database for the 2000 Philippine GHG inventory including worksheets and documentation was created for inventory members**
- ❖ **Developed in order to have a central repository of all inventory files**

Suggested Institutional Structure for future GHG Inventory



Second National Communication



Sector	a	b	c	d	e	f
	CO ₂ (in Gg)	CH ₄ (in Gg)	GHG GW Potential	N ₂ O (in Gg)	N ₂ O GW Potential	CO ₂ -eq Emission (in Gg)
Energy	62,499.10	504.14	21	2.52	310	69,667.24
Industrial Processes	8,024.74	0.24	21			8,699.78
Agriculture	1,209.70		21	37.41	310	32,042.69
LULU	650.53		21	6.32	310	1,051,113.71
Waste	546.67		21	3.80	310	11,899.02
Totals	72,926.74	1,568.26		43.11		21,767.41

Key Findings/Challenges/Recommendations

❖ Energy Sector

- GHG emissions from the Energy Sector already semi-institutionalized in the Department of Energy
- Need to develop the capacity of the Department of Transportation and Communications to estimate GHG emissions from the transport sector
- Explore the possibility of getting data needed to move to Tier 2 approach for emissions calculation

❖ Industry Sector

- Difficulty in getting GHG emissions data as there is no single institution within the government that acts as the main repository of GHG data
- Relied heavily on private entities and industry associations for most of the inventory data
- Need to identify a point agency which will be responsible for establishing and maintaining a database of information necessary for the estimation of emissions at a national level

Key Findings/Challenges/Recommendations

❖ Agriculture Sector

- Used IPCC default values except for rice cultivation. Country emission-factors for rice cultivation in the Philippines derived from research findings of IRRI
- Apart from rice cultivation, this sector used Tier 1 method to estimate GHG emissions. Lack of disaggregated data and country-specific EF makes it difficult to move to a higher tier.
- Estimate of GHG emissions from grassland burning was confronted with inadequate data on the area of grassland in the Philippines and management practices applied.
- No central repository of emissions data for the sector

Key Findings/Challenges/Recommendations

❖ Waste Sector

- Most of the data used were from the National Capital Region only
 - Emissions from waste incineration were not included
 - Methane emissions from industrial wastewater treatment was calculated using the First Order Decay model
- ### ❖ LULU
- The huge difference between the 1994 and 2000 data was largely due to data availability and different methodologies used

Key Findings/Challenges/Recommendations

❖ Mitigation Analysis

- Continue to develop in-country capacity to conduct mitigation analysis, which includes developing the capacity of institutions tasked with database management and analysis
- Given limited resources in developing countries such as the Philippines, mitigation potential needs to be evaluated in tandem with adaptation potential
- Developing and expanding the base of inventory and mitigation experts will help in assuring better quality in the analysis

Key Category Analysis

- ❖ **CO₂ removal from changes in forest and other woody biomass stock (36.8%);**
- ❖ **CO₂ emissions from forest and grassland conversion (13.1%)**
- ❖ **CO₂ from mobile combustion – road vehicles (9.7%);**
- ❖ **CH₄ emissions from rice production (7.8%); and**
- ❖ **CO₂ emissions from manufacturing industries and constructions (4.3%)**

Key Category Analysis w/o LUCF Sector

- ❖ CO2 emissions from mobile combustion-road vehicles (19.3%);
- ❖ CH4 emission from rice production (15.6%);
- ❖ CO2 emission from manufacturing industries and construction (8.5%);
- ❖ N2O direct and indirect emissions from agricultural soils (8.5%); and
- ❖ CH4 emission from enteric fermentation in domestic livestock (6.3%).

LGU GHG Inventory

- ❖ LGUs start to conduct their own GHG inventory but they still need guidance
- ❖ Possibility of including GHG Inventory for their Local Climate Change Action Plan (?)
- ❖ Helps them identify mitigation and adaptation measures

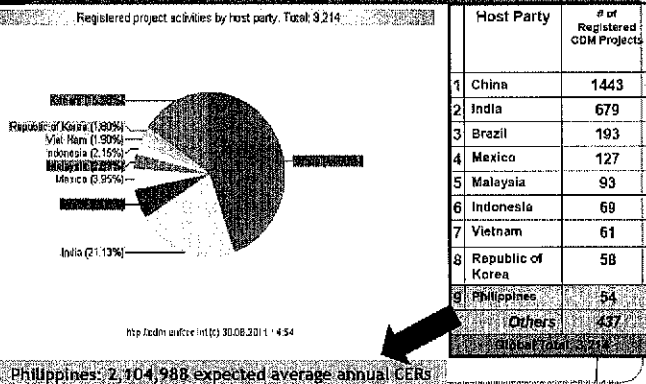
Corporate GHG Accounting

- ❖ PhilGARP project (2006)
 - Voluntary GHG inventory of companies
 - Confidentiality issues
- ❖ What protocols to be used
- ❖ Increasing awareness of the need for GHG accounting
- ❖ GHGMI through CEnergy project of USAID

Current Status of Philippine CDM Project Activities (As of 1 July 2011)

- ❖ No. of CDM applications
 - 98 = 26 large and 72 small scale
 - = At least 3.6M CERs
- ❖ No. of LOAs issued
 - 89 = 27 large scale and 62 small scale
 - 2,314,822 CERs large + 1,250,195 CERs small scale
 - = 3,565,017 CERs (3.5M CERs)
- ❖ No. of Registered CDM projects
 - 54 = 2,104,988 CERs (2.1M)
 - 11 large (1,248,312+ CERs) and 43 small scale (328,992+ CERs)
 - Philippines rank no. 9; 1.7% of the total 3,214 project activities
- ❖ 159,023 CERs issued - 3 projects: Northwind Bangui Bay Project, QC Controlled Disposal Facility Biogas Emissions Reduction Project and Phil. Sinter Corp. Waste Heat Recovery Power Generation Project

Registered Projects by Host Party As of 30 June 2011



Other Issues

- ❖ Third National Communication
 - Start proposing for the TNC hopefully this year
 - Base year to be determined

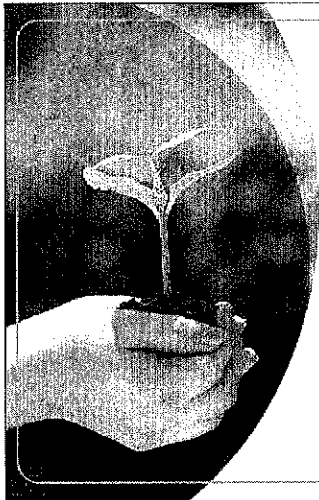
Challenges

- ❖ Data quality, data availability and data accessibility
- ❖ Different methodologies used for INC and SNC making it difficult to compare results
- ❖ Lack of country-specific emission factors
- ❖ Need to harmonize data available with what the UNFCCC worksheets need
- ❖ Institutionalizing the GHG inventory



Opportunities

- ❖ Process of mainstreaming GHG inventory to different critical agencies/ministries
 - DOE, NSCB, BAS, etc
- ❖ Capacity building initiative – SEA GHG project
 - LULUCF and Agriculture sector



Thank You !

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Thailand

Mrs. Nirawan Pipitsombat

Acting Director, Office of Climate Change Coordination,
Office of Natural Resources and
Environmental Policy and Planning



Powerpoint presentation:

Policy Related to Climate Change in Thailand

Ms. Nirawan Pipitsombat
Director of the Office of Climate Change Coordination
Office of Natural Resources and Environmental Policy and Planning
Ministry of Natural Resources and Environment

Thailand Status

Thailand had ratified

- United Nations Framework Convention on Climate Change (UNFCCC) in December 1994
- Kyoto Protocol (KP) in August 2002

Institutional Framework

Ministry of Natural Resources and Environment (MNRE)
Office of Natural Resources and Environmental Policy and Planning (ONEP)

- National Focal Point of UNFCCC
- Designated National Authority (DNA) of KP

<p>Office Climate Change Coordination (OCCC)</p> <ul style="list-style-type: none"> National Focal Point of UNFCCC & KP Climate Change Coordinator Office Secretariat office of National Committee on Climate Change 	<p>Thailand Greenhouse Gas Management Organization (TGO)</p> <ul style="list-style-type: none"> Secretariat office of DNA Coordinate on GHG Management & CDM implementation
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Committee and Sub-Committee

National Climate Change Committee (Prime Minister is a Chairman)

- Sub-Committee on Climate Change for Technical Supporting (Permanent Secretary of MNRE is a Chairman)
- Sub-Committee on Climate Change for Negotiation Supporting (Director-General of Department of International Organizations and Secretary-General of ONEP are a Chairman)
- Climate Change Coordinator: CCC (90 Agencies, 19 SMOs, 11 Agencies under the Prime Minister's Office) (8 September 2005)

Climate Change Sub-Committee for Adaptation

Climate Change Sub-Committee for NAMAs (Nationally Appropriate Mitigation Actions)

Thailand's Implementations on Climate Change

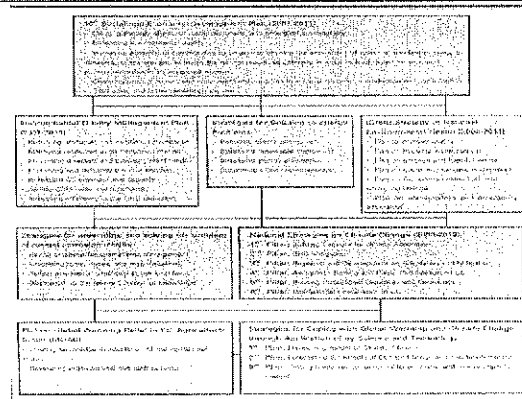
Thailand's Responses "National Strategic Plan on Climate Change Management B.E. 2551-2555 (2008-2012)"

was approved by the Cabinet on 22 January, 2008

Vision Statement

"Thailand is a climate-resilient society and cooperates with the global community to mitigate climate change base on the principle of sustainable development"

Linkages between policies on Climate Change Operations



National Strategic Plan on Climate Change B.E. 2551 – 2554 (2008 – 2012)

STRATEGY 1 Build capacity to adapt and reduce vulnerabilities to climate change impacts

STRATEGY 2 Promote greenhouse gas mitigation activities based on sustainable development

STRATEGY 3 Support research and development to better understand climate change, its impacts and adaptation and mitigation options

STRATEGY 4 Create awareness and participation of problem solving on climate change

STRATEGY 5 Build capacity of relevant personnel and institutions and establish a framework of coordination and integration

STRATEGY 6 Support international cooperation to achieve the common goal of climate change mitigation and sustainable development

(Draft) National Master Plan on Climate Change B.E. 2011 – 2050

ONEP is on the process of drafting the National Master Plan

Role of Thailand's Climate Change Master Plan 2011 - 2050

Mission:

- To enhancement capacity for resilience socio-economic development and ecosystems
- To reconstruct economic development to a low carbon society
- To promote sustainable development in a Thai context

Thailand's Climate Change Master Plan 2011 - 2050

Thailand's climate change master plan has long term goal for 40 years and is separated into 3 phases:

- First Phase: 2 – 5 years (Urgent Actives Base)
- Second Phase: 6 – 20 years (Project Base)
- Third Phase: 20+ years (Program Base)

Master Plan must be revised and updated every 5 years

Thailand's Climate Change Master Plan 2011 - 2050

The Ultimate Goal of Thailand's Climate Change Master Plan is to reduce GHG emission and to be a Low Carbon Society in the next 40 years (2050) by focusing on:

Adaptation Measures

Adaptation :

- Behavior and lifestyle changes
- Ecological preservation and protection
- Harmonization of humans and nature
- Self-sufficiency
- Food Safety and Security
- Water Resource Management

Mitigation Measures

Mitigation :

- Keep balancing between GDP Growth and GHG emission reduction
- Energy efficiency, alternative and renewable energy
- Low carbon production
- Low carbon technology development and technology transfers
- Eco-friendly consumption
- Capacity building for SMEs

Tools and Key Elements of Success

- Sufficiency economic
- Financial mechanism
- Research and development
- Agriculture and farming protection
- Local wisdom and appropriate technology
- Sufficiency and effective education
- International cooperation
- Forest and ecosystem protection

**Obstacle Elements of Line Agencies for
implementing GHG Inventory
the Third National Communication**

**Obstacle Elements of Line Agencies for
implementing GHG Inventory**

- ▣ **Insufficient data**
- ▣ **Chaotic and unsystematic data**
- ▣ **Lack of research and development**
- ▣ **Lack of expertise and experienced**
- ▣ **Lack of technologies and tools**
- ▣ **Lack of new methodologies**

Challenge Solutions

- ▣ **Data systematization**
- ▣ **Human and organization capacity building**
- ▣ **Data and methodology integration**
- ▣ **Line agencies provide their own GHG inventory**



Thank You

Contact Details:

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Unfccc.thailand.focalpoint@gmail.com

Mr. Thawatchai Somnam

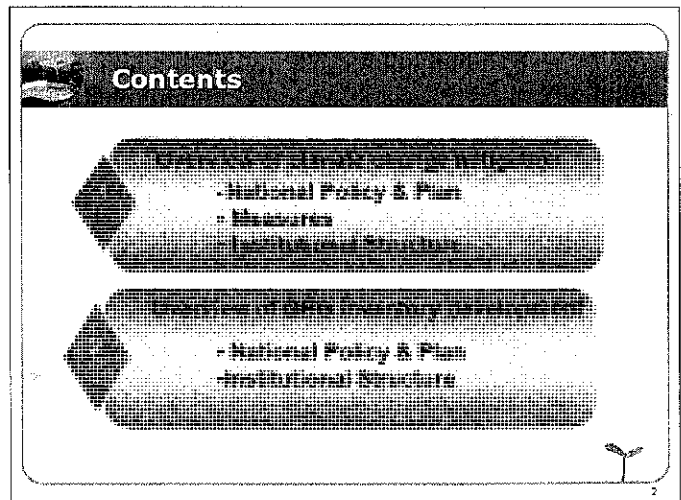
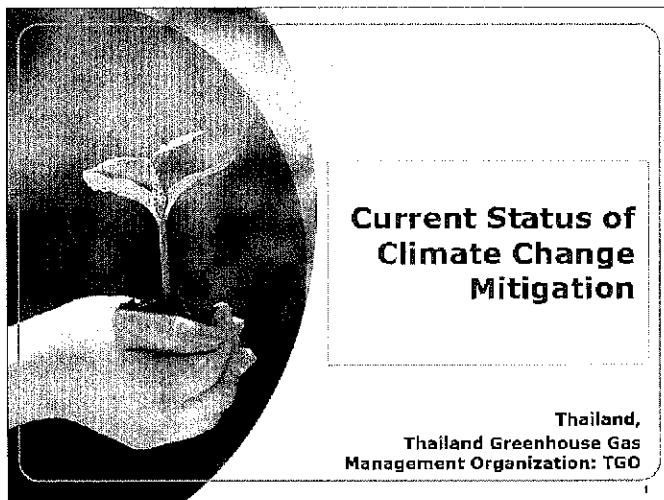
Assistant Senior Official, Strategy Office,
Thailand Greenhouse Gas Management Organization
(PO)



Current responsibilities:

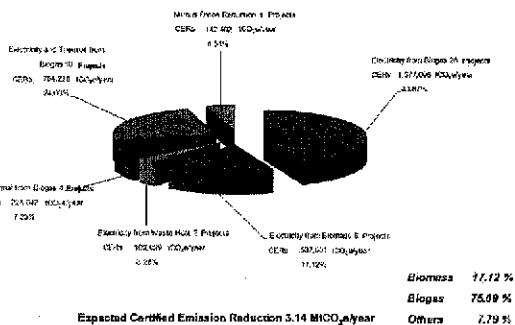
- Prepare Strategic plan for the organization.
- Coordination to the Project of Nationally Appropriate Mitigation Actions (NAMAs)
- Prepare quarter report of the organization.
- Summarize meeting reports.
- Comments on Climate Change related topics and reports.

Powerpoint presentation:

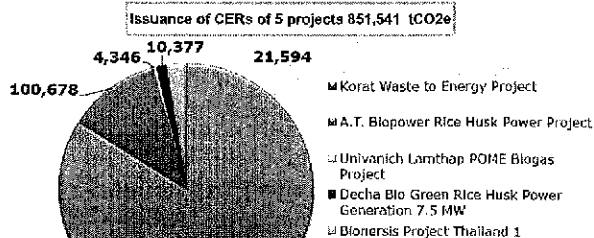


At present, The number of registered project is 54 projects.
Expected average annual CERs is 3.14 MtCO₂e.

54 CDM Projects Registered at CDM EB



Issuance of CERs of 5 projects 851,541 tCO₂e



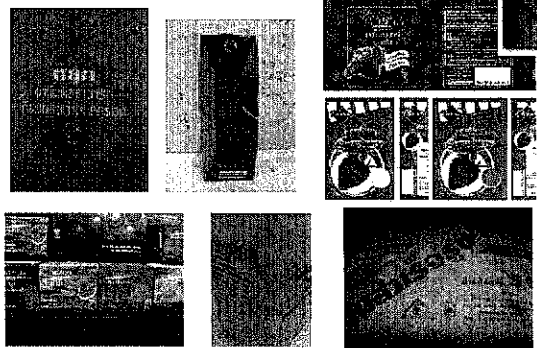
Carbon Labeling to enhance GHG reduction in Thailand

Carbon reduction label & Carbon footprint

- ❖ **Carbon Reduction Label** Manufacturers could apply for the "Carbon Reduction Labeling", which is a product to encourage the industrial process that emits -10% less than GHGs emission level in 2001.
- ❖ Up to present, there are 145 products, registered for carbon and granted for use.



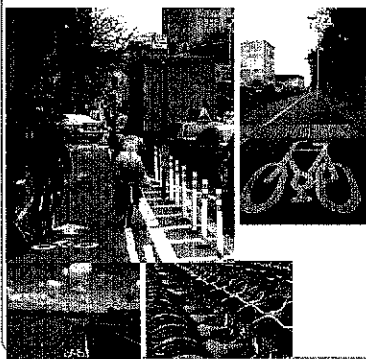
Carbon Reduction Label




Carbon reduction label & Carbon footprint

- ❖ **Carbon Footprint** The carbon footprint indicates the quantity of greenhouse gas emissions from each production unit for the whole life cycle (cradle to grave) of a particular product.
- ❖ Currently, there are 197 products were trained by TGO about the carbon footprint, and allowed to use the carbon footprint.

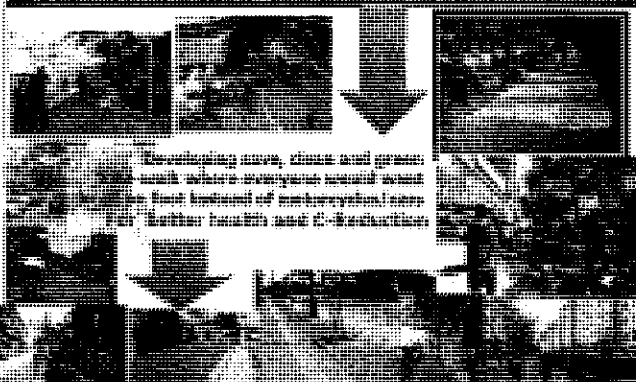
Carbon Reduction :
non-car transport to Save Energy, Save Money



Bike lanes: to schools, govt. offices, parks, recreation / tourist spots, others
Bicycles: available for free or rental services



Walk If You Can Non-car transportation,
a city for walking about.



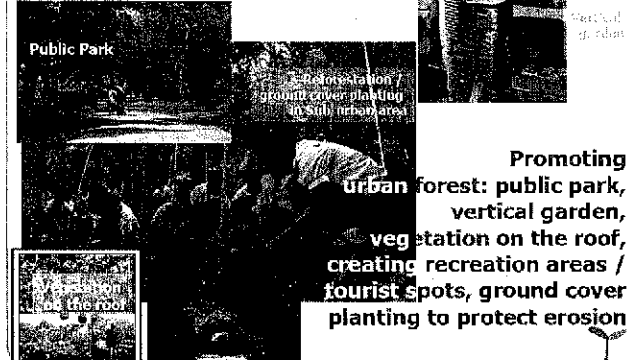
Developing more, dense and green walk ways means less need for cars instead of motor vehicles for better health and CO₂ reduction

Carbon Reductions through their own
energy sources



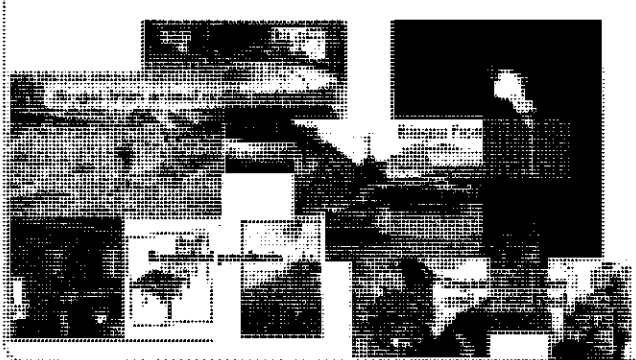
Thanks to Energy Star

Carbon sequestration :
Planting tree helps reducing dust and shading
the environment in town




Promoting urban forest: public park, vertical garden, vegetation on the roof, creating recreation areas / tourist spots, ground cover planting to protect erosion

Carbon Reduction:
The city can provide and promote Vocational training on low carbon products.



Carbon Reduction:
The city can provide and promote Vocational training on low carbon products.

- Organic Food
- Garden design, plant nursing organic fertilizer
- Design and making recycling furnitures and products
- Electrical goods repairing technician
- Design and construction of green-building
- Making energy-saving stoves
- Others



Co-benefits of Low Carbon City Program

- ❖ Save Energy
- ❖ Having their own energy sources to lower the electricity bill of their own community
- ❖ Better Environment
- ❖ Less traffic congestion
- ❖ Better Air Quality
- ❖ Others many more



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Overview of GHG inventory development



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1. Present status and future prospect of national communications

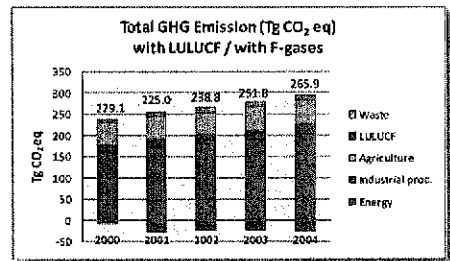
- ❖ Thailand submitted its initial national communication (INC) to the UNFCCC in 2000.
- ❖ The second national communication (SNC) has recently submitted the 2nd Communications in 2011 using the UNFCCC reporting guidelines and the IPCC technical guidelines, including the good practice guidelines and uncertainty management.
- ❖ The implementation of 3rd NC which will have the similarity of structure of SNC is currently under consideration.



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2. Present status and future prospect of GHG inventories (emission and sink)

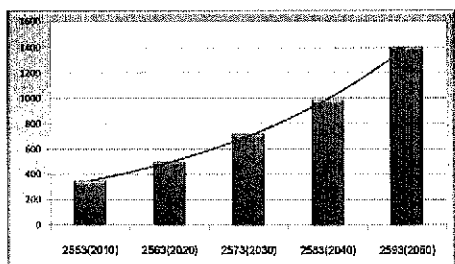
- ❖ Thailand's National GHG inventories in 2nd National Communications (Present)



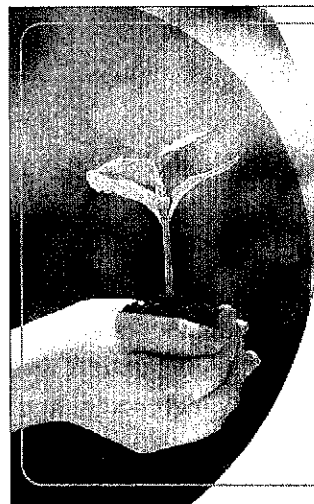
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3. The projection of Thailand's GHG inventories for 2050

- ❖ The future trend of GHG inventory for Thailand will increase gradually from 2010 to 2050



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Thank You !

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Vietnam

Dr. Huynh Thi Lan Huong

Deputy Director, Climate Change Research Center,
Institute of Meteorology, Hydrology and Environment



Work experience:


Over 17 years of professional experience in science research:

- Natural and water resources assessment, analysis and integrated management
- Surface water resources assessment and management;
- Water quality and pollution source monitoring and assessment, including pollution control;
- River, lake and reservoir management and institutional development in temperate/ tropical regions;
- Special fields:
 - Water balance, hydrodynamics of surface water resources; water resources conservation and protection;
 - Rural development: water resources, water supply and sanitation;
 - Hydrological and water resources prediction;
 - Climate Change adaptation
- Experience in field of study concerned:
 - Head of working group, Project "Developing the Decision Support Framework in water sharing in Ba river system" (Ministry level), 2007- 2008.
 - Member of working group, Project "Benefits of climate change adaptation from small and medium scale hydropower plants, synergies and tradeoffs with rural development", 2009.
 - Member of working group, Project "Impacts of Climate Change on Water Resources and Adaptation Measures", Head of working group, sub-project "Impacts of Climate Change on Water Resources in Ba river Basin and Adaptation Measures, sponsored by Denmark Government, 2008-2010.
 - Member of working group, Project "Climate change impacts in Huong River Basin and Adaption in its coastal district Phu Vang (Thua Thien Hue province); (2009)
 - Member of working group, Project "Develop a policy guidance for Vietnam on integrating climate change into strategies, plannings and plans at national, sectoral and local level" (2010)
 - Member of working group, Projects: "Low-Carbon Society analyzing for Vietnam", (2011)

Current responsibilities:

- Research on the current status and trend of climate change; assess the impacts, risks and vulnerability due to climate change and research on adaptive measures to climate change;
- Research on mitigation alternatives in Vietnam from the perspective of low-carbon economy development, including: policies and mechanisms, technological innovation, environmental services and products, opportunities in greenhouse gases reduction, and capacity building for industrial firms, small and medium enterprises in order to develop the green technology;
- Research on climate change mainstreaming into strategies, planning, plans and program on socio-economic development at national, sectoral and local level;
- Research and cost-benefit analysis on the adaptive and mitigation activities in Vietnam;

Powerpoint presentation:



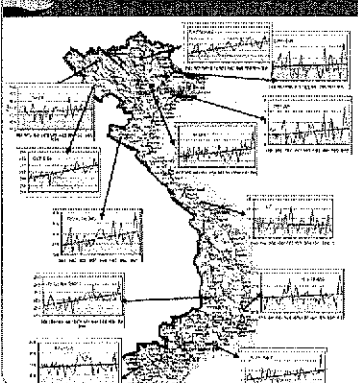
Current Status of Climate Change Mitigation and Adaptation in Vietnam

Dr. Huynh Thi Lan Huong
Vietnam Institute of Meteorology, Hydrology and Environment
Ministry of Natural Resources and Environment, Vietnam

Contents

- 1 Current status of CC in Vietnam
- 2 Vietnam Respond to CC
- National GHG Inventory

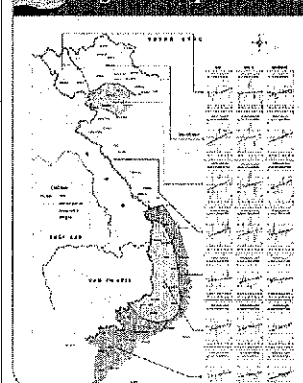
Current Status of CC in Vietnam



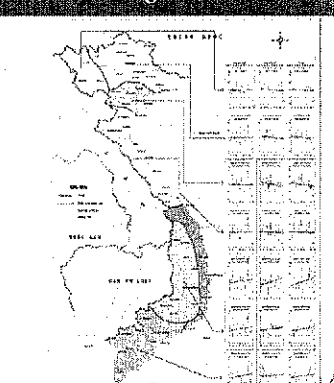
Temperature

Over the past 50 years, annual average temperature has increased about 0.5°C.

Changes in temperature

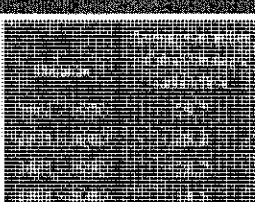


Changes in rainfall



Current Status of CC in Vietnam

- 1) Number of drizzle days decreases significantly;
- 2) Frequency of cold front in the North decreases significantly in the past three decades;
- 3) Number of cold spell decreases.

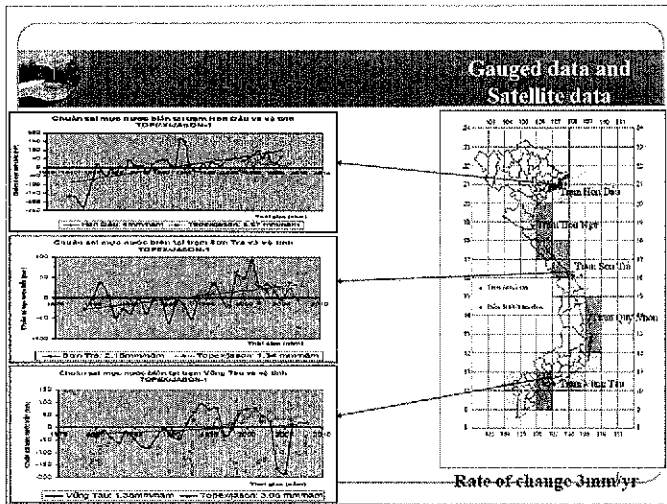


Decade	(T_{avg} , day < 13°C)	Prolong (day)	(T_{min} , day < 13°C)	Prolong (day)
1961 - 1970	26.6	26	11.7	16
1971 - 1980	29.7	25	13.5	14
1981 - 1990	29.8	16	17.0	10
1991 - 2000	20.4	16	7.3	10

Current Status of CC in Vietnam

- Off-season extreme rainfall events occur more frequently. More profound is events in November 2008 in Ha Noi and surround.
- Number of hot wave is more in 1991 - 2000, especially in the Central and South.

Station	19hrs 30/10/08 to 1hrs 1/11/08
Ha Noi	408
Ha Dong	572
Hung Yen	158
Ha Duong	-
Hoa Binh	129
Bac Giang	156
Hiep Hoa	186



CLIMATE CHANGE IMPACTS

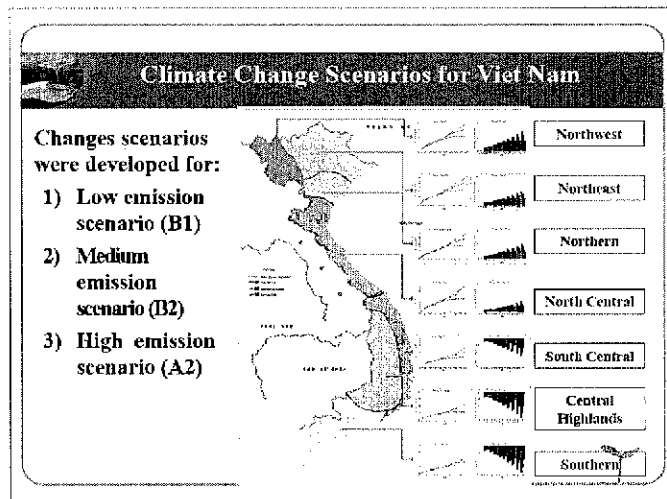
Viet Nam is particularly vulnerable to climate change impacts (UNFCCC)... has about 3,200 km coastline, with a total area of about 332,000 km². Major CC impacts: inundation, climatic extremes, climatic stresses on resources and communities, rural and urban,...

1. Mekong Delta: 1 of 3 global hotspots with respect to its population displacement and global food security;
2. Social groups: poor, ethnic minorities, women, children, elderly, migrants, ...;
3. Sectors: water, agriculture, transport, trade, health, and education, ...

National Target Program to Respond to CC

Strategic objectives:
Assess CC impacts on sectors and regions and develop feasible action plans to effectively respond to CC in the short and long-term to ensure sustainable development of VN.
To take opportunities to develop towards a low-carbon economy, and to join the international community's efforts in mitigating CC.
Promote international cooperation.

- ### Implementing Progress of NTP
- 1) Disclosure of climate change scenarios;
 - 2) Guidelines developed and implemented action plans to respond to climate change;
 - 3) Assess of climate change impacts and identify adaptation options;
 - 4) International negotiations;
 - 5) Ministries and Provinces Action Plan to response to climate change;
 - 6) Pilot projects to analyze and propose adaptation measures to climate change;
 - 7) Guideline for integrated CC in national, sectoral and provincial development strategies;
 - 8) Updated climate change scenarios;
 - 9) Developing a national strategy on climate change.
- The Government has made drastic action to cope with climate change. Initially, there were a certain number of results and has received much international support.



Sea Level Rise Scenarios

By mid of the 21st century sea level is expected to increase about 30cm.
Sea level would rise about 75cm by the end of 21st century compared to the period of 1980 - 1999.

SLR Scenario	Decades in the 21 Century								
	2020	2030	2040	2050	2060	2070	2080	2090	2100
Low (B1)	11	17	23	28	35	42	50	57	65
Medium (B2)	12	17	25	30	37	46	54	64	75
High (A1FI)	12	17	24	33	44	57	71	86	100

Other National Programs

- 1) **National Scientific Program on Climate Change:** will be developed and implemented to provide scientific basis for the development of policy, institution and action plans to respond to climate change.
- 2) **National Strategy on Climate Change:** Strengthening the adaptive capacity of human and natural systems, development of low-carbon economy to protect and improve the quality of life, security and sustainable development of countries in the context global climate change and actively with the international community to protect the climate system.
- 2) **Action Plan to Respond to Climate Change of Ministry of Natural Resources and Environment, Ministry of Agriculture and Rural Development, Ministry of Industry and Trade and Ministry of Transport, ... and provinces**

Adaptation

Overall objective of CC adaptation: strengthen resilience of men, women, children, communities, regions and sectors;

- Raising public awareness is an urgent task.
- Vulnerability and adaptation assessments at sectoral, regional and community levels, and social groups.
- Enhancing resilience of people, geographic areas and sectors through creation of livelihood opportunities.
- Strong coordination between sectors and effective oversight of policy implementation.

Major projects on Impacts Assessment and Adaptation

- Vulnerability assessment for Vietnam coastal zone;
- Impact of CC on water resources and Adaptation measures;
- Asian Cities Climate change resilience Network;
- Developing and implementing CC adaptation measures to increase resilience of national development;
- Reforestation for Adaptation to CC (in Quang Binh province);
- Supporting Program to Respond to CC;
- CC Adaptation and Mitigation Program – Vietnam (in Quang Nam and Ben Tre Province);

Mitigation

- **Legal documents**
 - Law on Environmental Protection No. 52/2005/QH11 dated 29th November 2005 (replaces the 1993 Law on Environmental Protection).
 - Water Resources Law No. 08/1998/QH10 dated 20th May 1998. Petroleum Law (1993) No. 10/2008/QH12 dated 6th July 1993 (amended twice on 9th June 2000 and 3rd June 2008).
 - Law on Minerals No. 2/1996/QH9 dated 1st September 1996 (amended on 27th June 2005).
 - Law on Forest Protection and Development No. 29/2004/QH11 dated 3rd December 2004 (replaces the 1991 Law on Forest Protection and Development).
 - Law of Electricity No. 28/2004/QH11 dated 3rd December 2004.
 - Law on Energy Efficiency No. 50/2010/QH12 dated 28th June 2010.
- **Government-issued legal documents**
 - In 2003, the National Environment Protection Strategy by 2010 and vision until 2020;
 - In 2006, the Government established the National Target Program on Energy Efficiency
 - In 2008, the Government approved the National Target Program to Respond to Climate Change.

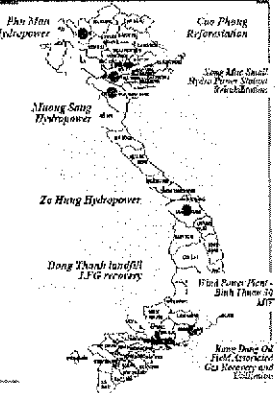
Major projects on GHG Mitigation

- Vietnam National Strategy on CDM;
- Promotion of Renewable Energy, Energy Efficiency and GHG Abatement;
- Livestock Waste Management in East Asia;
- Vietnam Energy Efficiency Public Lighting;
- Energy Conservation and Efficiency in Small and Medium Scale Enterprises;
- Sustainable Land and Forest Management;

Clean Development Mechanism (CDM)

Vietnam has received and applied a number of new technologies to mitigate GHG emissions:

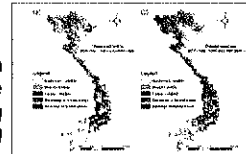
- + As of October 2010, Vietnam has 34 CDM projects registered by the EB;
- + Vietnam ranks 11th globally in registered CDM quantity and 8th in issued Certified Emission Reduction (CERs) amount.



UN REDD VIETNAM

Overall Objectives:

- Support the Government of Vietnam to effectively implement the scheme of REDD, contributing to reducing greenhouse gas emissions and responding to climate change;
- Contribute to the goal that "by 2012 Vietnam will be ready for REDD implementation, and positively contribute to efforts to reduce deforestation and forest degradation at the national level as well as the regional scale";
- Support relevant programs and strategies of the Government.



UN REDD VIETNAM

Achievements in 2010: Viet Nam's National REDD+ Strategy is developed with support from the UN-REDD National Programme, and currently under full-scale national level consultation. Once being finalised it will form a legal context for the National REDD+ Programme and define the roles and responsibilities of state and non-state actors in the implementation of REDD+ in the country.

In order to improve the management capacity of REDD+ at district level, a provincial REDD+ working group has been established and presently working in Lam Dong Province.

UN REDD VIETNAM

Objectives of the Second Phase:

- ❖ Overall Objectives: Contribute to the sustainable forest management and mitigation of greenhouse gases emissions in Vietnam and effective response to climate change in the region.
- ❖ Specific Objectives: reduce emissions and increase the absorption of greenhouse gases in the pilot provinces as the basis to expand the implementation of REDD + over the country and the region.

National GHG Inventory

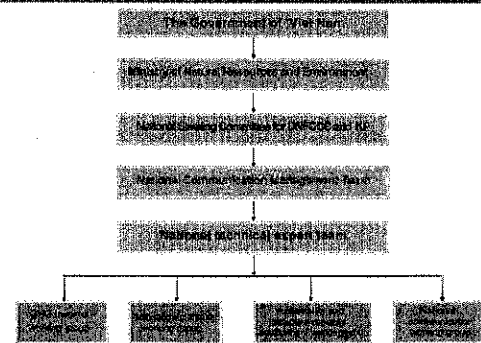


Figure 2.1. Institutional arrangement for national GHG inventory

National GHG Inventory in 1994 and 2000

Year	1994		2000	
Sector	Emissions	%	Emissions	%
Energy	25,637	24.7	52,773	35
Ind processes	3,807	3.7	10,006	6.6
Agriculture	52,430	50.5	65,091	43
LULUCF	19,380	18.6	15,105	10
Waste	2,565	2.5	7,925	5.3
Total	103,839	100	150,899	100

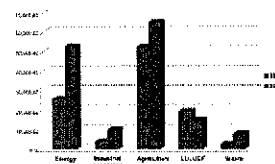
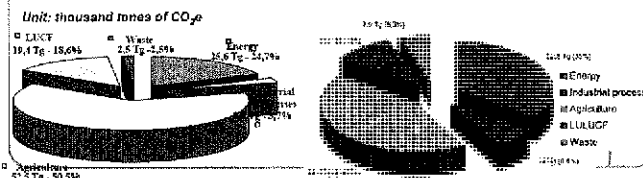


Figure 2.9. GHG emissions by sector, in 1994 and 2000



National GHG Inventory in 2000

Table 2.17. National GHG Inventory by sector in 2000

Sector	Unit: thousand tonnes				
	CO ₂	CH ₄	N ₂ O	CO ₂ e	Percentage
Energy	45,910,000	808.54	1,272	52,773,400	35.0
Industrial processes	10,005,722	0	0	10,005,722	6.6
Agriculture	0	2,369,775	48,495	65,690,625	43.1
LULUCF	11,860,119	149,533	0.96	15,104,722	10.0
Waste	0	331,118	3,111	7,925,118	5.3
Total	67,765,841	3,160,112	53,61	150,899,722	100



National GHG Inventory in 2000

- ❖ The 14 main sources and sinks of emission in Vietnam's National GHG inventory in 2000 were determined as follows:
 - ❖ Energy: manufacturing industries and construction, transportations, energy, industries, oil and natural gas extraction.
 - ❖ Industrial processes: Cement production, steel production;
 - ❖ Agriculture: wet rice cultivation, enteric fermentation, agricultural soils.
 - ❖ LULUCF: changes in forest and other woody biomass stocks, land conversion, abandonment of managed land;
 - ❖ Waste: Solid waste.

National GHG Emission Projections

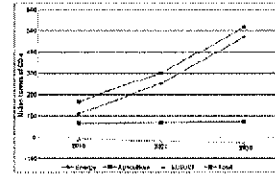


Figure 2.10. GHG emission projections 2010-2030

Table 2.28. GHG emission projections for 2010, 2020 and 2030

Source	2010	2020	2030
Energy	112.1	251.9	429.9
Agriculture	54.6	62.5	72.9
LULUCF	-27.9	-20.1	-27.9
Total	138.8	294.4	474.9

GHG mitigation options in Energy

- Option E1: Innovative coal stoves
- Option E2: Replacing coal with LPG in household cooking
- Option E3: High-efficiency refrigerators
- Option E4: Energy-saving compact fluorescent light bulbs
- Option E5: High-efficiency air conditioner
- Option E6: Solar water-heating appliances
- Option E7: High-efficiency electric motors
- Option E8: Innovative brick kilns
- Option E9: Switching from DO to CNG in transportation
- Option E10: LPG-fuelled cabs
- Option E11: Using high-pressure sodium lamps in public lighting
- Option E12: Switching from coal-fired to LNG thermal power
- Option E13: Small-scale hydropower replacing coal thermal power
- Option E14: Wind power replacing coal-fired thermal power
- Option E15: Rice husk power replacing coal thermal power

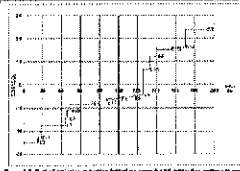


Figure 2.11. GHG emission reduction potential for various energy mitigation options in Vietnam

GHG mitigation options in Agriculture

- Option A1: Biogas replacing cooking coal in lowlands
- Option A2: Biogas replacing cooking coal in mountain areas
- Option A3: Rice paddy field water drainage in the Red River Delta
- Option A4: Rice paddy field water drainage in the South Central Coast
- Option A5: MUB cattle feeds

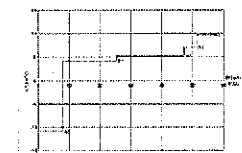


Figure 2.12. GHG emission reduction potential for various agriculture mitigation options in Vietnam

GHG mitigation options in LULUCF

- Option F1: Protection and sustainable management of existing production forest areas
- Option F2: Conservation of existing protection forests
- Option F3: Reforestation of large timber forests in conjunction with natural regeneration
- Option F4: Planting long-rotation large timber trees
- Option F5: Planting fast-growing trees for lumber
- Option F6: Planting short-rotation pulpwood forest
- Option F7: Growing long-rotation non-timber product forest
- Option F8: Planting melaleuca forest on alkaline wetlands

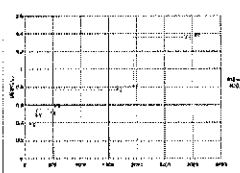


Figure 2.13. GHG emission reduction potential for various LULUCF mitigation options in Vietnam

Other Issues

Low-Carbon Society Vision 2030 Vietnam



Figure 2.14

Abstract: Supporting the development of Green Growth Strategy in Viet Nam, a study on a Low-Carbon Society has been implemented to provide a general view on a Low-Carbon Society Vision 2030 in Viet Nam.

The GHG emission in 2030 could be approximately decreased by 49.3% due to application of proposed GHG emission mitigation activities. To achieve the reduction of GHG emission, a package of Green Growth policies is designed for sectors of residence, commerce, industry and transportation.

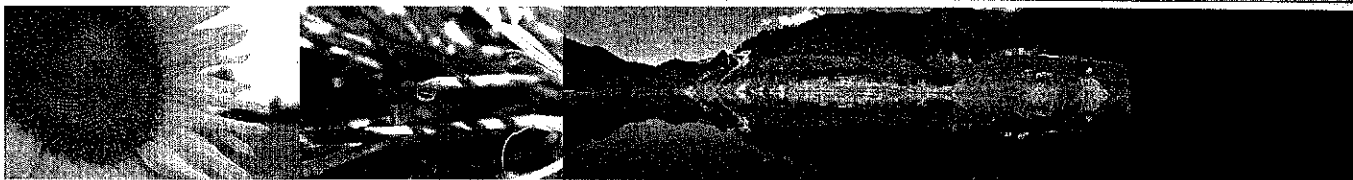


Thank You !

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Vietnam Institute of Meteorology,
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S u m m a r y



In order to share issues and problems to address climate change, and identify major capacity development and assistance needs in ASEAN region, TGO organized the ASEAN meeting on “GHG Mitigation and Low Carbon Society” as a part of the project. After fruitful presentations by ASEAN countries, participants had intensive discussion about issues and problems to address climate change. As a result of the discussion, they finally recognized the importance of “one-stop training center” to address climate change at the ASEAN or the international level.

Details of major capacity development and assistance needs in ASEAN region are summarized in Table 1 and Table 2. According to the above mentioned discussion, participants considered that the needs in personnel and technological aspects in the mitigation are important, and that the needs in institutional and awareness aspects were relatively less important, on the other hand. It is apparent that the needs in financial aspect were the high priority issue both in the mitigation and the adaptation. Concerning GHG inventory, institutional aspect such as coordination among related ministries and agencies was considered as priority.

Concerning “one-stop training center” to address climate change, they recognized that international organization would be necessary. In addition, the important role of the center should be effective implementation of training, and prompt putting the outcome of training in practice into the real world. Considering such roles, they concluded that immediate approach of “one-stop training center” should be launched in regional level such as ASEAN and should be expanded to a broader range of regions and countries. Finally, TGO on behalf of Thailand proposed to take a leadership for the realization of the concept of “one-stop training center”. All participants accepted this proposal with showing their appreciation to TGO.

Table 1: Capacity development and assistance needs for Mitigation, Adaptation and GHG Inventory - Summary –

CB & ASSIST Needs	Mitigation	Adaptation	GHG Inventory
Institutional aspects	- CB, ML, MM, TH	- CB, MM, PH, TH, VN	- CB, MM, PH, TH, VN
Technological aspects	- CB, MM, PH, TH, VN	- CB, MM, PH, TH, VN	- CB, MM, PH, TH, VN
Personnel aspects	- CB, ML, MM, PH, TH, VN	- CB, MM, TH	- CB, MM, TH
Awareness raising	- CB, LA, TH	- LA, TH, VN	- LA, TH
Financial aspects	- CB, ID, LA, ML, MM, TH, VN	- CB, LA, MM, PH, TH, VN	- CB, LA, MM, TH

CB: Cambodia, ID: Indonesia, LA: Laos, MM: Myanmar, ML: Malaysia, PH: Philippines, TH: Thailand, VN: Vietnam

Note: This table is made by TGO based on the presentations and answers to the questionnaire by participated ASEAN countries

Table 2: Capacity building and assistance needs for Mitigation, Adaptation and GHG Inventory - select review-

CB & ASSIST Needs	Mitigation	Adaptation	GHG Inventory
<p>Institutional aspects</p>	<ul style="list-style-type: none"> - Strengthening institutional cooperation and coordination among stakeholders. (CB, TH) 	<ul style="list-style-type: none"> - Coordination between ministries, sectors and provinces needs to be enhanced and strengthened. (VN) - Strengthening Institutional cooperation and coordination. (CB, TH) - Adaptation to strengthen communities from the impact of climate change and disaster management. (ID) 	<ul style="list-style-type: none"> - There are needs of data collection system for GHG inventory and a number of Ministry and sector-level technical experts. (VN) - Need strengthening cooperation, coordination, networking, information sharing among involved government institutions. (CB, TH) - Identify possible legal instrument/tools to improve quality of GHG inventory. (CB) - Lack of legal and regulatory frameworks governing the emission of greenhouse gases by large emitters and key sectors. (ML)
<p>Technological aspects</p>	<ul style="list-style-type: none"> - It is necessary to assess the level of technological demand in climate change mitigation to seize opportunities to steer development towards a low carbon economy. (VN) - Green Technologies – Capability to develop locally produced green technologies. (PH) - Tools for Mitigation Analysis. (PH) - The list of proven technologies that suit to Thai context need to regularly revised and updated to key stakeholders. (TH) 	<p>- Need for further strengthening South-South and Regional co-operation. (LA)</p> <ul style="list-style-type: none"> - Assessment of vulnerability for ecosystems, economic and social impacts from climate change and development of appropriate adaptation measure that include policy measures. (VN) - Scenario building using new and highly reliable models and tools for the entire territory and for each specific economic region. (VN) 	<ul style="list-style-type: none"> - Research, assess and verify certain country-specific emission factors. (VN) - Establishing data base management systems, QA&QC. (CB) - Establishing and improving national carbon accountant system, such as Measurement Reporting and Evaluation (MRV). (CB) - Developing the central system that can pool related up-to-date information (TH)

CB & ASSIST Needs	Mitigation	Adaptation	GHG Inventory
	<ul style="list-style-type: none"> - Cost analysis of mitigation and adaption options, cost curve development, and strategic planning development in adaptation and mitigation options.(CB) 	<ul style="list-style-type: none"> - Training in V&A assessment in the sector of coastal zone (including tidal movements), marine resources and coral reefs, forestry, agriculture and waste management are needed. (MM) - Vulnerable assessment and adaptation modeling.(CB) - VA Tools – Development and or Provision of VA Tools to be used for CCA-DRR for all the different sectors. (PH) - Improvement of science-based knowledge in adaptation approaches, best practices, and technologies.(PH) 	
Personnel aspects	<ul style="list-style-type: none"> - Technical experts and professionals need to be trained in order to facilitate the prompt and successful adoption of new technologies (VN) - Improving individual and institution capacity.(CB) 	<ul style="list-style-type: none"> - Improving individual and government institution capacity building.(CB) - Capacitate government agencies and communities to respond or adapt to climate variability and extreme events.(PH) 	<ul style="list-style-type: none"> - Encourage on-the-job training practices to build local experts.(CB) - Strengthening capacity of the NCCC and its Secretariat.(CB) - Supporting and training the personnel from related organizations (TH)
	<ul style="list-style-type: none"> - There is a training requirement for legal officers and policy makers for combating the climate change.(MM) - Need for major capacity building within the government, the private sector and the academic.(LA) - More cooperation needed among stakeholders, government agencies, research institutes, and private and government-linked corporations.(ML, TH) 		<ul style="list-style-type: none"> - Increase number and trainings of inventory and mitigation experts.(PH)

CB & ASSIST Needs	Mitigation	Adaptation	GHG Inventory
<p>Awareness raising</p>	<ul style="list-style-type: none"> - Mainstreaming climate change concept, knowledge including green growth and other low carbon initiatives to government institutions/agencies, private sector, NGOs, civil society organization, local communities. (CB) 	<ul style="list-style-type: none"> - It is necessary to formulate plans and develop awareness-raising programs for the whole population, climate change education and training programs in school curricula, and continue to organize climate change knowledge-building campaigns and educational competitions through the mass-media. (VN) 	
<p>Financial aspects</p>	<ul style="list-style-type: none"> - There is a basic need for a continuing training and capacity building program that covers all major aspects relating to climate change at educational, scientific (GHG inventory, climate scenario), technical, technological (mitigation & adaptation), legal and policy levels, both nationally and locally. (MM) - Need to strengthen cross cutting multi sector awareness generating programs on Climate Change to policy planners and decision makers. (LA, TH) 	<ul style="list-style-type: none"> - Mobilizing more fund for research and development activities. (CB) - Creation of efficient use of CCA funds to mobilize new innovative financing. (PH) 	<ul style="list-style-type: none"> - Resource mobilization. (CB)
	<ul style="list-style-type: none"> - The most important thing is possible market beyond 2012, the new carbon market, and regional carbon market. (ID, TH) - Mobilizing financial resources. (CB) - The current subsidy structure on fossil fuels that could constrain buy-in to energy efficiency and renewable energy measures (ML) 	<ul style="list-style-type: none"> - Financial resources for climate change outreach programs and activities are needed. (MM, TH) - Need for continued and coordinated support from development partner. (LA) 	

CB: Cambodia, ID: Indonesia, LA: Laos, MM: Myanmar, ML: Malaysia, PH: Philippines, VN: Vietnam
 Note: This table is made by TGO based on the presentations and answers to the questionnaire by participated ASEAN countries

Photos

17 August 2011

Training on "GHG Mitigation and Low Carbon Society"





18 August 2011 - 19 August 2011 (morning session)

The 2nd Climate Thailand Conference: CTC 2011 entitled "Climate Change and Green Economy: Pathway to Response"





19 August 2011 (afternoon session)

ASEAN Meeting on "GHG Mitigation and Low Carbon Society"





17,18 August 2011
Reception Dinners







Note

Note

資料6: JCC M/M

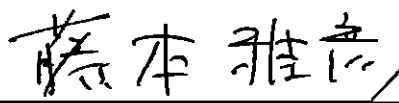
MINUTES OF MEETING
ON
THE INCEPTION REPORT
FOR
THE PROJECT
FOR
CAPACITY DEVELOPMENT AND INSTITUTIONAL STRENGTHENING
FOR
GHG MITIGATION
IN
THE KINGDOM OF THAILAND

Agreed upon between
THAILAND GREENHOUSE GAS MANAGEMENT ORGANIZATION
and
JICA EXPERT TEAM

Bangkok, ๙ February, 2010



Ms. Prasertsuk Chamornmarn
Deputy Executive Director
Thailand Greenhouse Gas
Management Organization



Mr. Masahiko Fujimoto
Team Leader,
JICA Expert Team

Based on the Record of Discussions between Japan International Cooperation Agency (hereinafter referred to as "JICA") and the Authorities concerned of the Government of the Kingdom of Thailand signed in Bangkok on October 21, 2009 (hereinafter referred to as "R/D"), JICA dispatched the Expert Team, headed by Mr. Masahiko Fujimoto, to Bangkok, Thailand to commence The Project for Capacity Development and Institutional Strengthening for GHG Mitigation in the Kingdom of Thailand (hereinafter referred to as "the Project") on January 13, 2010.

In order to build a consensus about the details of implementation plan and schedule of the Project, the JICA Expert Team exchanged views and had a series of discussions with Thailand Greenhouse Gas Management Organization (hereinafter referred to as "TGO") based on the draft Inception Report submitted by the JICA Expert Team. As a result of the discussions, TGO agreed on the following principles described in the Inception Report.

- 1) Basic policy and implementation approach of the Project
- 2) Project activities
- 3) Assignment for each project activity
- 4) Project schedule framework

1st Joint Coordinating Committee (hereinafter referred to as "JCC") Meeting was held on January 22, 2010 to officially inform the relevant stakeholders (JCC members) of the Project about its background, contents, activities, expected outputs and implementation schedule in order to reach common understanding among stakeholders and thus contribute to successful implementation of the Project. JCC members accepted the contents of the Project.

The JICA Expert Team submitted the Thai side twenty (20) copies of the Inception Report of the Project. TGO officially received the Inception Report.

On this occasion, the Project Consultation Team organized by JICA, visited the Thailand from January 21, 2010 to January 22, 2010. The Team participated in a series of meetings with TGO for discussions on the draft Inception Report and JCC meeting.

Through these meetings, the followings were confirmed and/or agreed:

1. Structure of JCC

- Concerning the inclusion of related ministries' staff, selection will be done through discussion between TGO and JICA Expert Team according to the training items. It was confirmed that the most priority target of this project is TGO staff.
- After the first JCC meeting on 22 January. 2010, JICA Expert Team will visit related ministries to ask for participation to the working teams of the training course, as well as to cooperate with the team for the preparation of necessary data/information about model project candidates. TGO staff will support JICA Expert Team to make appointment for the meetings.
- Add JICA Thai Office as a member of JCC

2. Request for additional work items to the Training Program

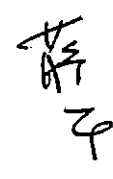
Based on the request of TGO, the following items were added, integrated to the draft Training Program.

a) CDM

- Validation and verification process. Because TGO staff often receive questions from Thai project proponents how to address validation/verification processes.

b) Carbon trading

- National registry
- J-VER system as an example of voluntary system
- Combine overview of USA system and overview of system after 2012, to allocate one class to National registry system and keep 3 classes for exercises.
- Combine background and history of carbon trading and overview of carbon trading markets in the world, to one class to background, history and overview of carbon trading markets in the world.
- Combine current situation of Kyoto credits (CDM, JI, and GIS) and overview of European Emission Trading System (EU-ETS), to one class to current situation of Kyoto credits (CDM, JI, and GIS) and overview of European Emission Trading System (EU-ETS).
- * Issues of Carbon emission portfolio will be included to National registry, GHG Inventory, and/or carbon trading issues, etc.

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domestic conference etc.

- Required or desirable options/candidates for the training, including site visit, will be discussed during the training and among the TGO staff, as well as considering the progress of the Training Program.
- One candidate site for site visit may be an example of "Low Carbon Society/City".
- Participants will include working level staff as well as higher level staff related to policy making.

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c) GHG mitigation in relevant sectors

- Monitoring of contribution to the sustainable development. Because monitoring of GHG emission reduction is easy but monitoring of SD is difficult. Appropriate evaluation method is needed considering the SD criteria of Thailand (for example, semi quantitative methodology). This issue will be integrated to or combined with the Co-benefit approach.
- MRV exercise. Because not only for the learning of negotiation (institutional) process, practical exercise will be effective.
- Allocate one class for "Other issues", including aviation and maritime transport, and other issues not only limited to the carbon footprint.

d) UNFCCC Structure and Negotiations

- Latest information of MRV negotiation is requested to be coordinated with the additional item (MRV exercise) to the GHG mitigation sectors.

e) Carbon foot print

- LCA related issues
- Corporate Activity for Footprint
- Combine exercises of food and beverage to one exercise class, clothes and detergent to the other exercise class.

3. Schedule of training program

- One suggestion was proposed from TGO that it might be effective to combine as much classes in one day as possible to help participant for the arrange their schedule as well as for the concentration to the Program. As a results, training course will be held on Tuesday in week.

4. Items of training materials

- Although in R/D GHG inventory is not included in training materials, TGO requested to provide training material for GHG inventory. JICA Expert Team and JICA Project Consultation Team agreed to add GHG inventory in training material.

5. TGO database

- Project database has already been established, so it will be analyzed that the additional contents in project database should be needed or not.

6. Technical training in Japan

- Tentative schedule was accepted by TGO (Phase 1: July 2010, Phase 2: August 2011) but it should be flexible according to the other important

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