



Policies, Plans and Actions toward Low-Carbon Growth in Thailand

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Thailand Greenhouse Gas Management Organization : TGO

9th July 2012



Overview of Thailand Policies on Climate Change

National Policy Framework

**The 11th National Economic and Social Development Plan
2012-2016**

**Government Policy of the Prime Minister
H.E. Ms. Yingluck Shinawatra**

National Plans on Environment & Climate Change

Ministry of Natural Resources and Environment (MoNRE)

**National Strategic Plan on Climate Change
2008-2012**

**National Environmental Quality Management Plan
2012-2016**

***Draft* National Master Plan on Climate Change
2011-2050**

National Sectoral Plans

Ministry of Energy

**Energy Efficiency Plan
2010- 2030**

**Renewable Energy Development Plan
2008 - 2022**

Ministry of Transport

***Draft* National Transport Master Plan
2011- 2017
And 2018- 2030**

Ministry of Industry

**National Industrial Development Master Plan
2010- 2014**

Ministry of Agriculture and Cooperative

***Draft* Strategic Plan on Climate Change in the Agricultural Sector**

1. The 11th National Economic and Social Development Plan 2012-2016

Strategy: Managing natural resources and environment towards sustainability

Key Measures

- **Shift the development paradigm and consumption behaviors** towards the environmentally-friendly society & low carbon economy
- **Improving ecological efficiency of the production and services** towards the environmentally friendly society
- **Reinforce urban environment** and infrastructure management
- **Establish the Voluntary Domestic Carbon Market**

2. Government Policy of the Prime Minister

H.E. Ms. Yingluck Shinawatra

Key Measures

- **Reducing resource use, and lowering greenhouse gas emissions** in accordance with the principle of reduce, reuse and recycle
- **Develop towns or eco-industrial towns** to become a **low-carbon society**
- **Support the production, use, R&D of renewable and alternative energy sources**, with the objective of replacing 25% of the energy generated by fossil fuels within the next decade
- **Promote energy conservation** through reduction of power usage in the production process by 25 % within the next two decades

National Environmental & Climate Change Plans

3. National Strategic Plan on Climate Change 2008 – 2012

Strategy on Mitigation

Key measures:

- **Reducing** GHG emission based on sustainable development by means of CDM implementation. Priority is given to **energy sector, waste utilization, agricultural activities, and industries.**
- **Increasing** forest area by afforestation.
- **Increasing** activities to **promote clean and low carbon technology**

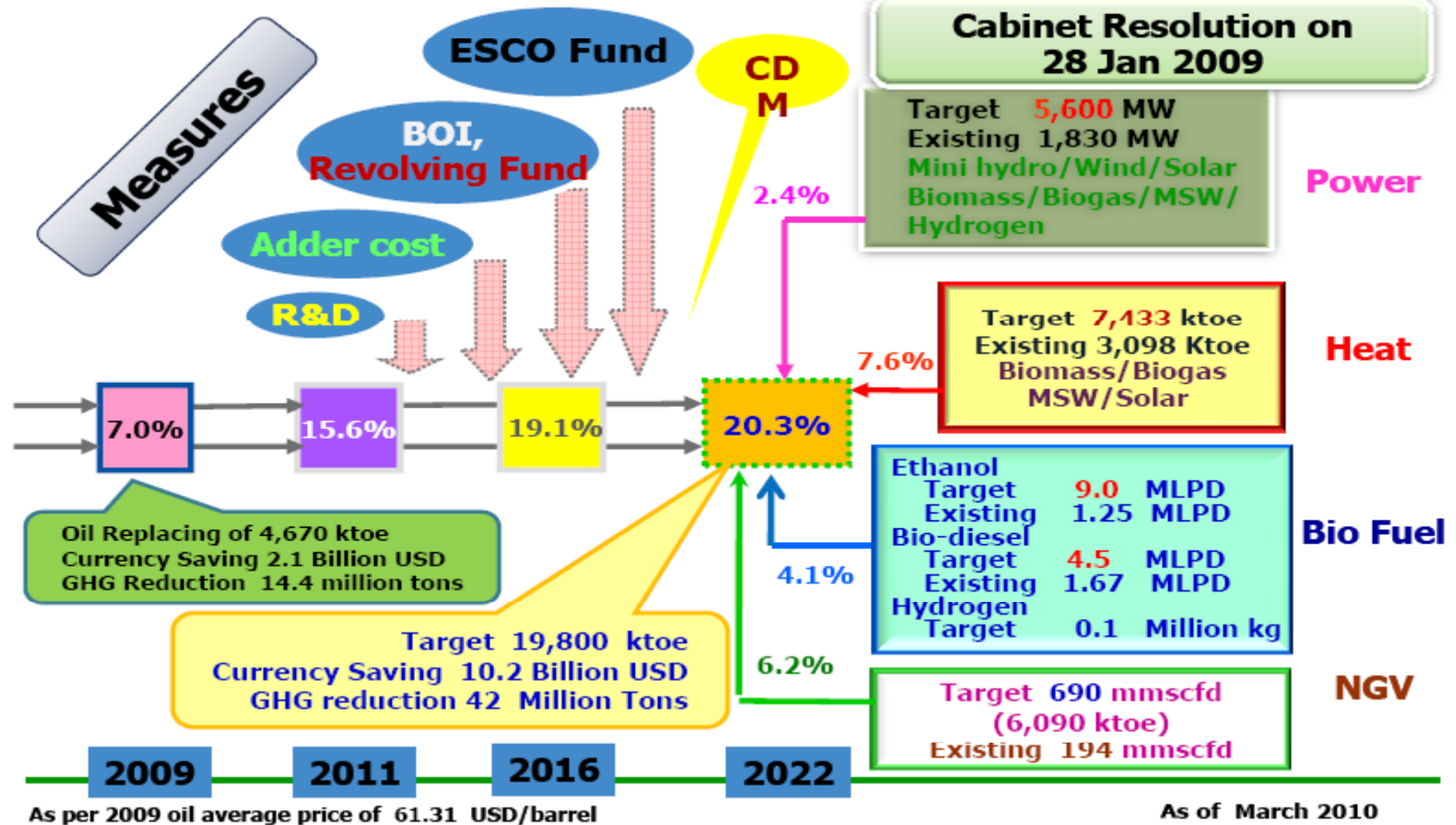
National Sectoral Plans

3. Renewable Energy Development Plan 2008-2022

Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

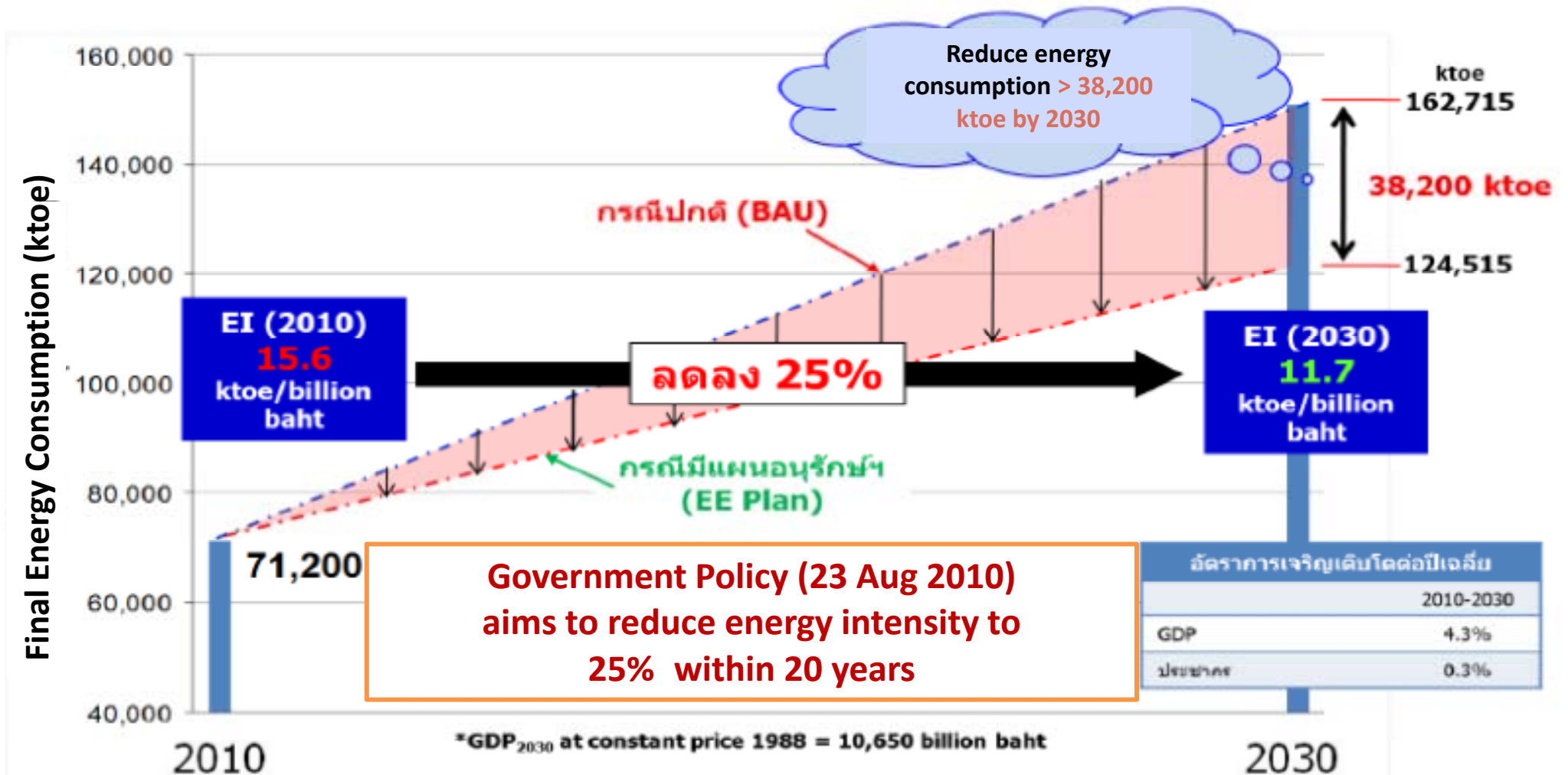
Alternative Energy Development Plan 2008-2022

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National Sectoral Plans

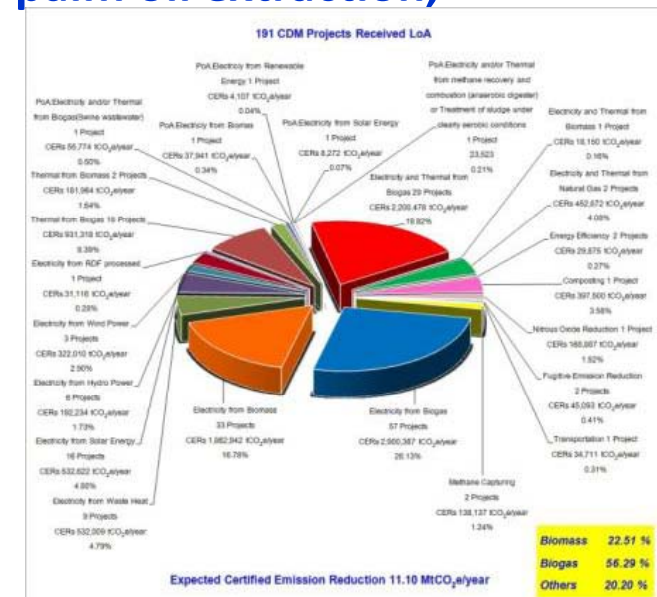
4. Energy Efficiency Plan 2010-2030 (20 Years Plan)



Mitigation Actions in Thailand

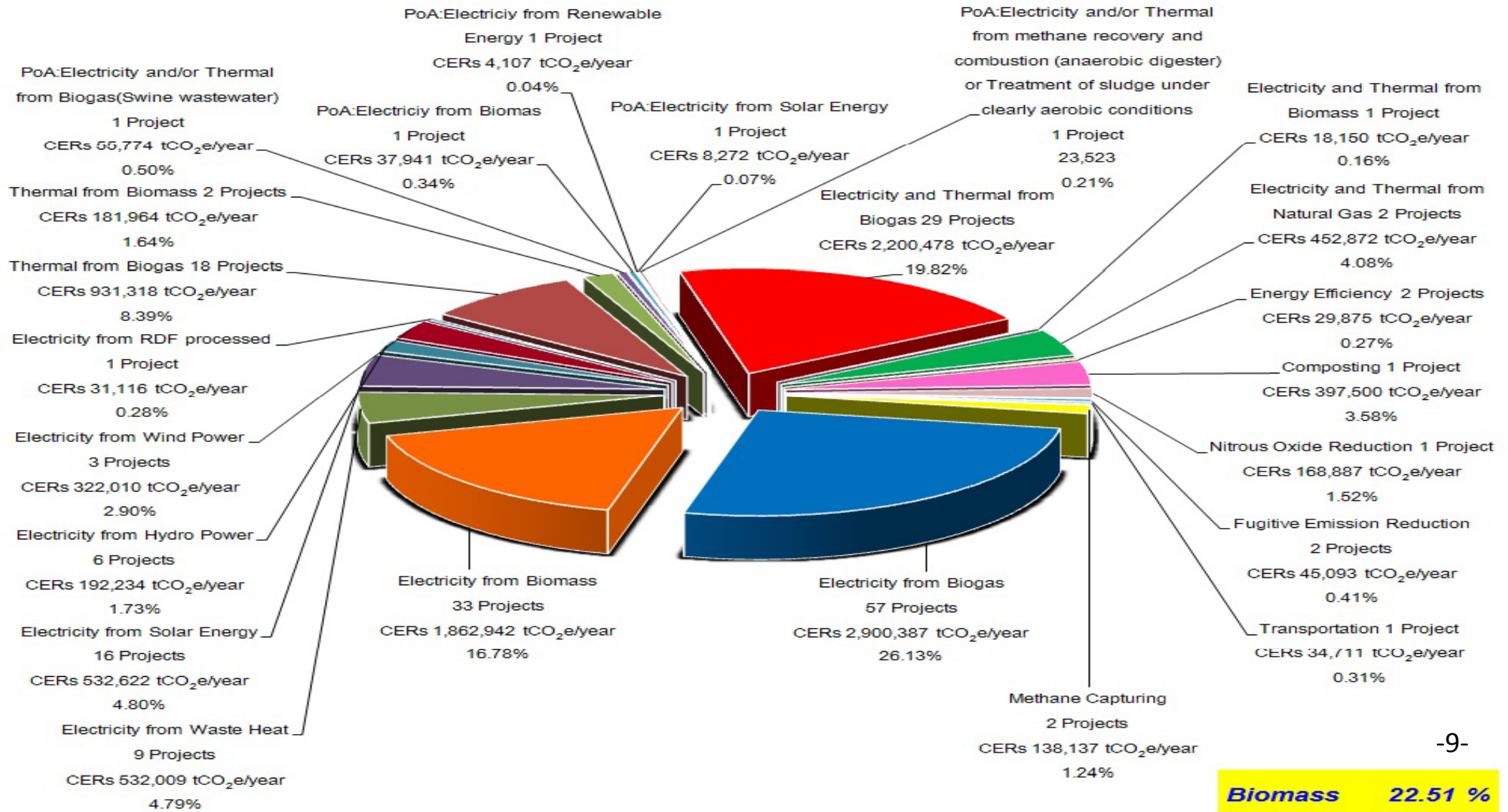
1. Implementation on Clean Development Mechanism (CDM)

- ▶ **Biogas from anaerobic digestion**
 - Treating wastewater from starch production, palm oil extraction, ethanol plants, pig slurry
 - Landfill sites with gas collecting system
- ▶ **Energy from biomass**
- ▶ **Heat recovered from cement plants**
- ▶ **Wind and solar farms**
- ▶ **Small hydro-power schemes**
- ▶ **N₂O reduction schemes**
- ▶ **Organic fertilizer produced from digestate and residues**
- ▶ **Transportation projects**
- ▶ **Energy saving projects relating to shifting fuel modes and improving processes**



CDM Statistics

191 CDM Projects Received LoA



Expected Certified Emission Reduction 11.10 MtCO₂e/year

Biomass	22.51 %
Biogas	56.29 %
Others	20.20 %

Mitigation Actions in Thailand

2. Carbon Labeling : Carbon Footprint & CRL



การวัดการปล่อยคาร์บอน



Carbon Footprint for Product

Carbon Reduction Label



Mitigation Actions in Thailand

3. Low Carbon City

3.1 Shifting modes of transportation



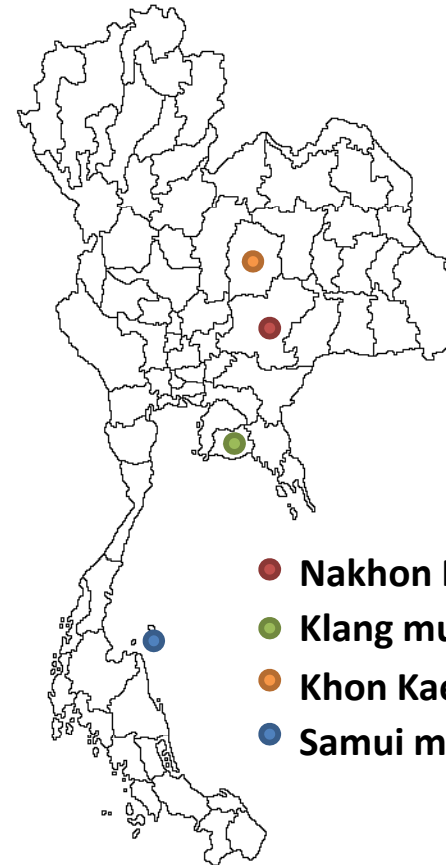
3.2 Energy savers



3.3 Energy from city renewables



3.4 Carbon sequestration



Locations of the pilot project on Low Carbon City to be supported by the Global Environment Facility (GEF)

- Nakhon Rachasima municipality
- Klang municipality
- Khon Kaen municipality
- Samui municipality

Mitigation Actions in Thailand

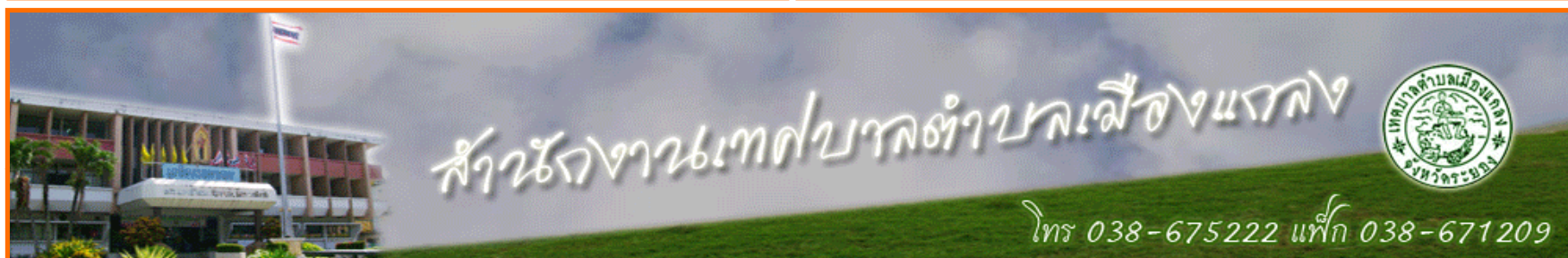
4. Set up Thailand's Voluntary Domestic Carbon Market (VCM)

Objectives for establishing Thailand's "Voluntary Domestic Carbon Market"

- **Support** voluntary GHG reduction activities
- **Achieve** cost-effective GHG reduction
- **Learn** how to manage domestic emission trading/ carbon offsetting
- **Encourage** private companies who attempt to reduce their GHG emissions with their own targets on voluntary basis by giving economic incentive

Thailand's Low Carbon City Approach: A pilot project at Muangklang Municipality

Thailand Greenhouse Gas Management Organization (Public Organization)



Muangklang Municipality

is a small-size municipality located in Rayong province

Objective : Develop Muangklang Municipality as a pioneer small-size municipality towards low carbon city approach, and enhance the city's good practice as a replication in other cities

Thai model guidelines for Low Carbon City

Follow up and evaluation

Set up city's target and action plan on GHG emission reduction

List activities and relevant stakeholders

GHG Inventory

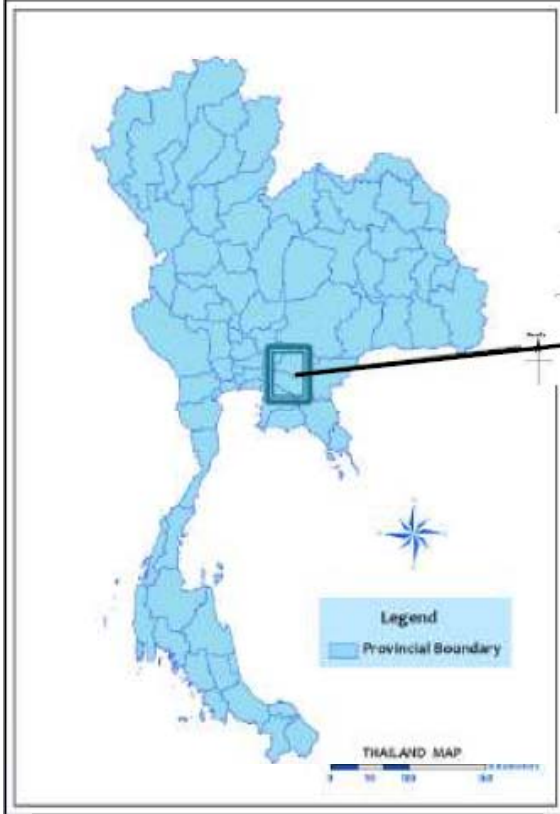
1st meeting

2nd meeting

3rd meeting

Low Carbon City

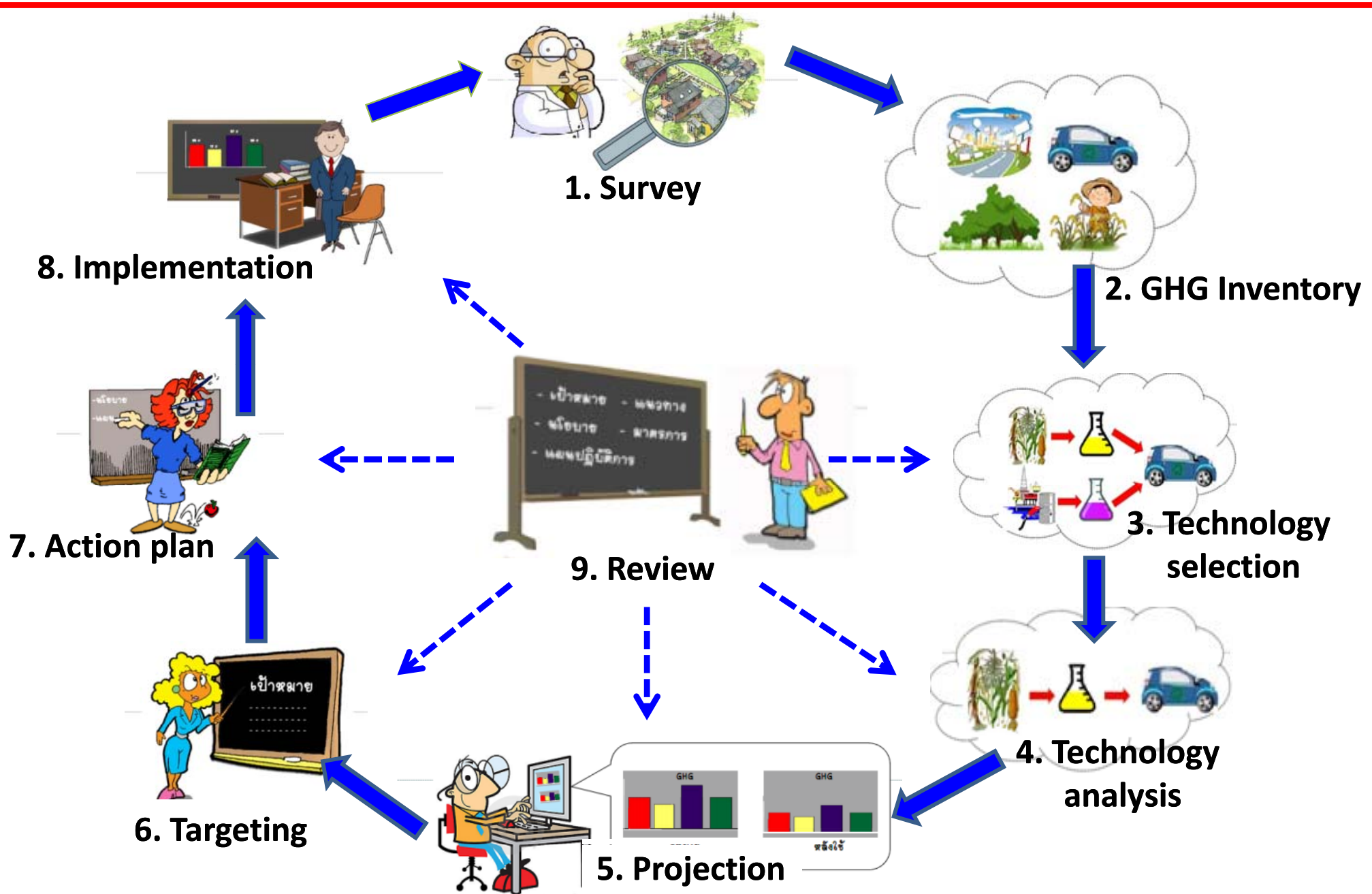
City area : 14.5 km²
Population : 17,197
Households : 3,309
Communities : 13



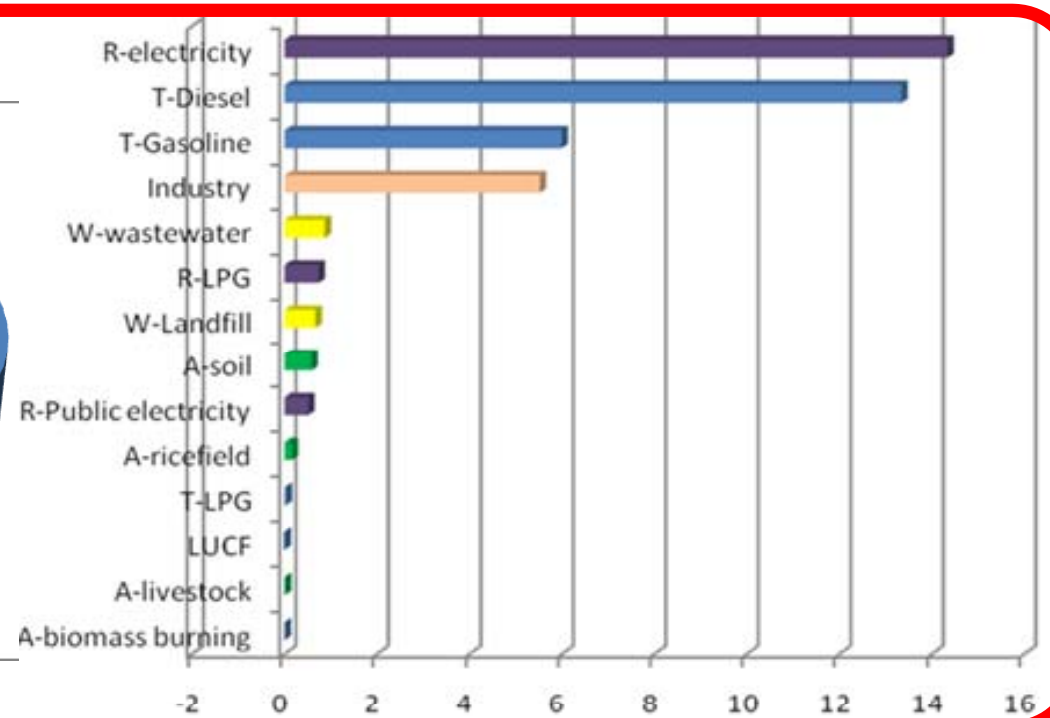
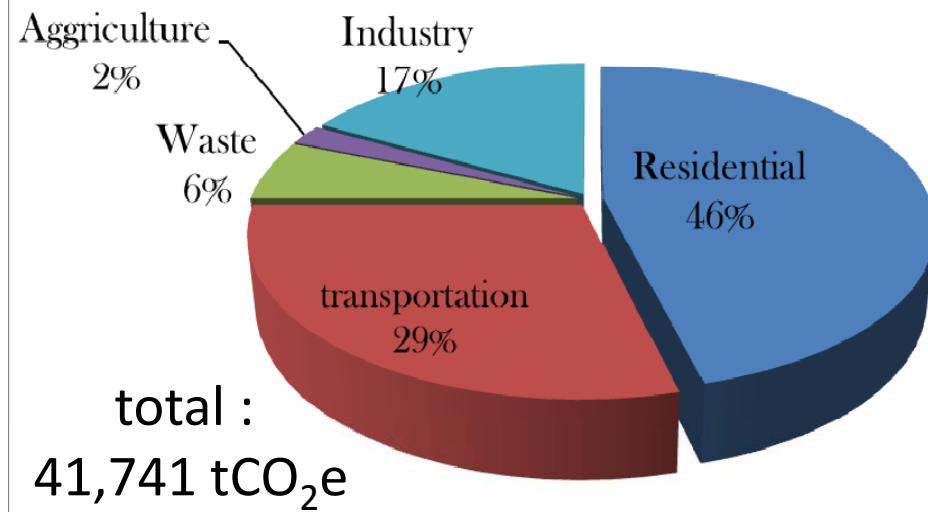
Outcomes of the study/pilot project

- 9-step approach towards Thai Low Carbon City:
 - Stakeholders can participate and brainstorm for their desirable mitigation measures
 - Main focus are on possibilities and creating co-benefits for their community
- City's stakeholders participation in mitigation goals:
 - Need information and scientific data supported
 - Flexibility in city's voluntary mitigation target set up
- Bottom-up approach measures:
 - Stemming from strong public involvement

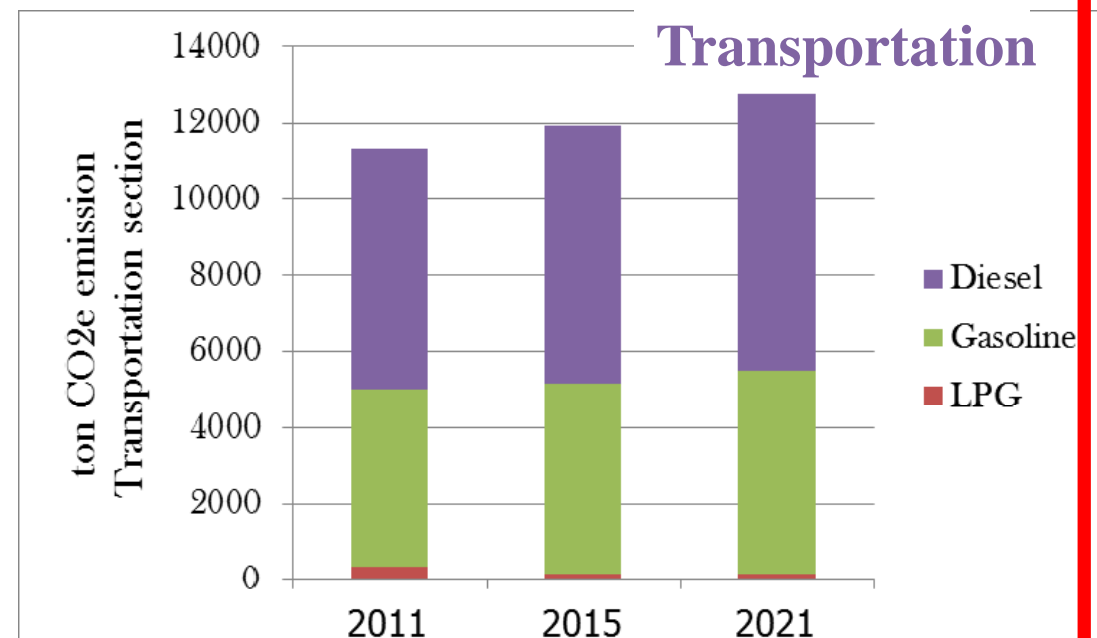
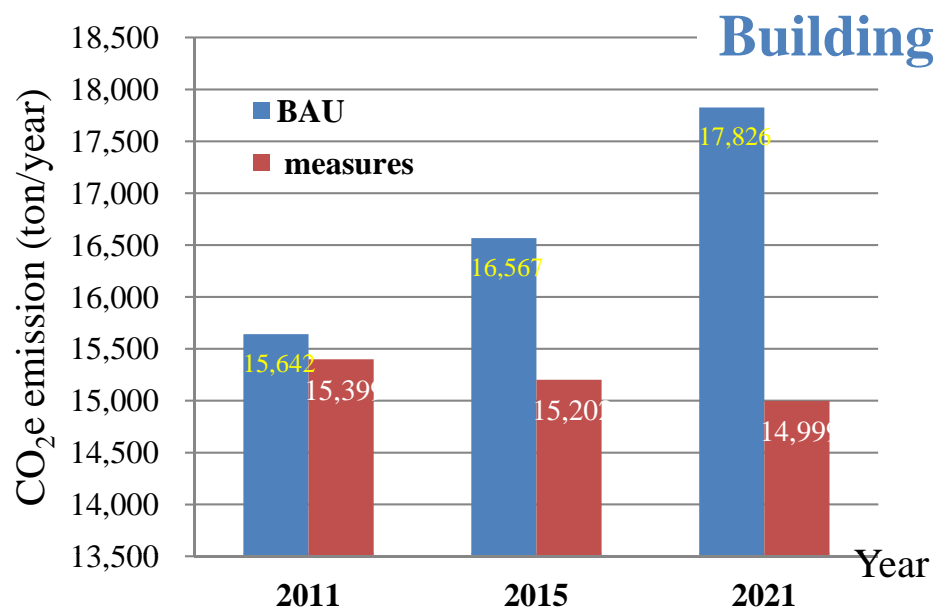
Nine-step approach to Thai Low Carbon City



GHG emission : Muangklang Municipality



GHG emission trend – projected emission reduction with mitigation measures



Muangklang Municipality voluntary mitigation goals (from stakeholders' consultation)









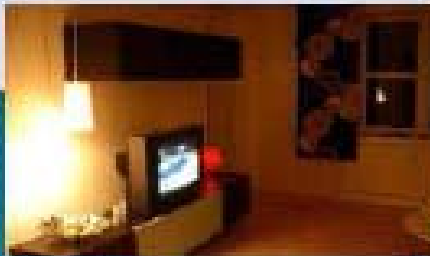
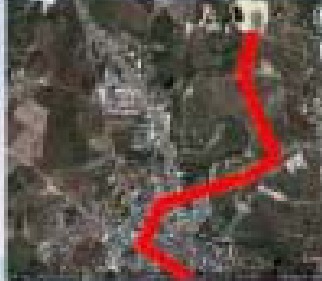


Within 5 years:

Reduce 100 kg CO₂e/capita (5%)

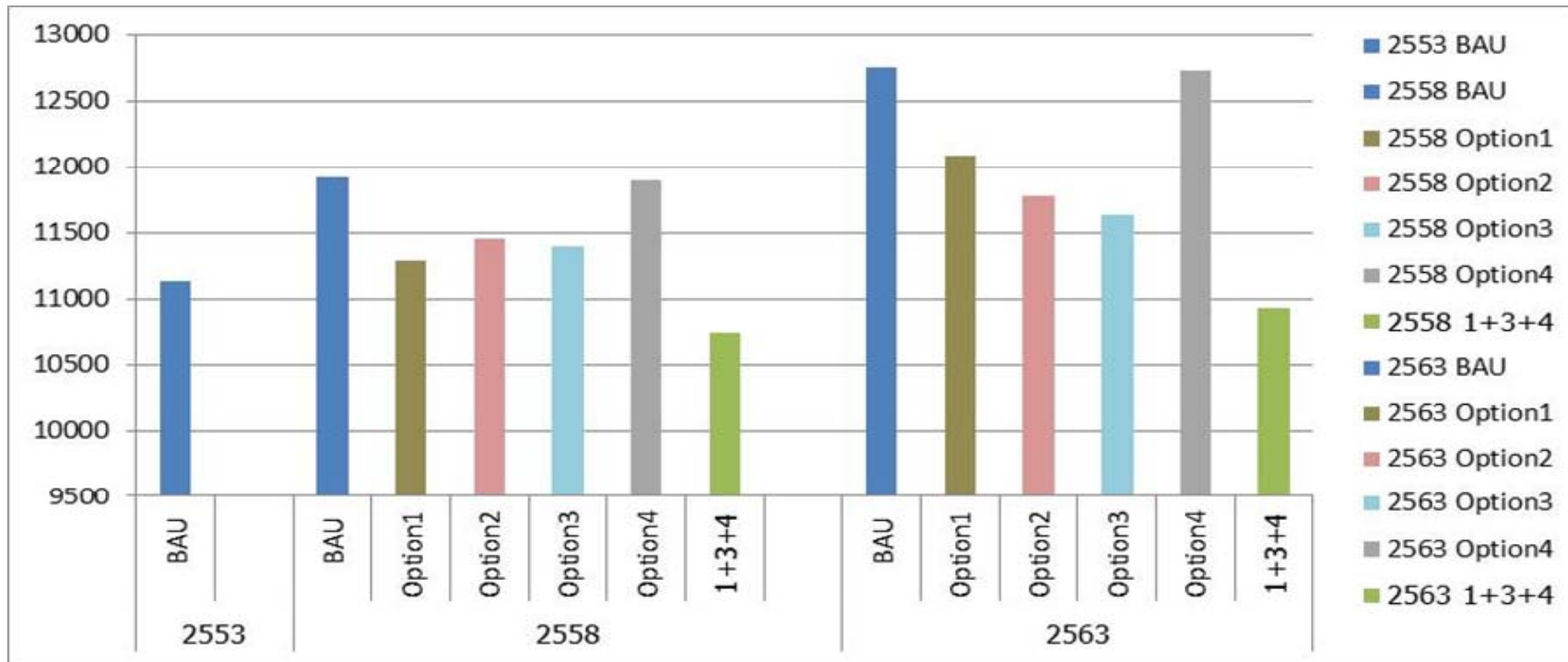
Within 10 years:

Reduce 200 kg CO₂e/capita (10%)

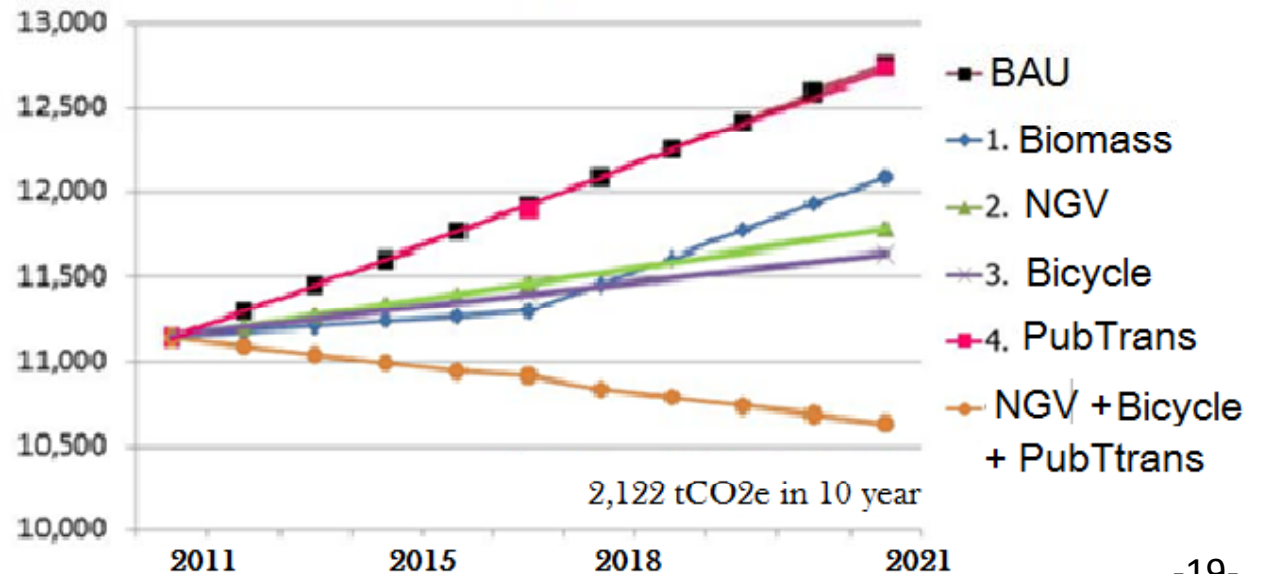
Mitigation measures

Energy saving/efficiency	Reduce fuel use	Increase greenspace	Waste management
			
			
			

GHG mitigation measures/options and its reduction trends



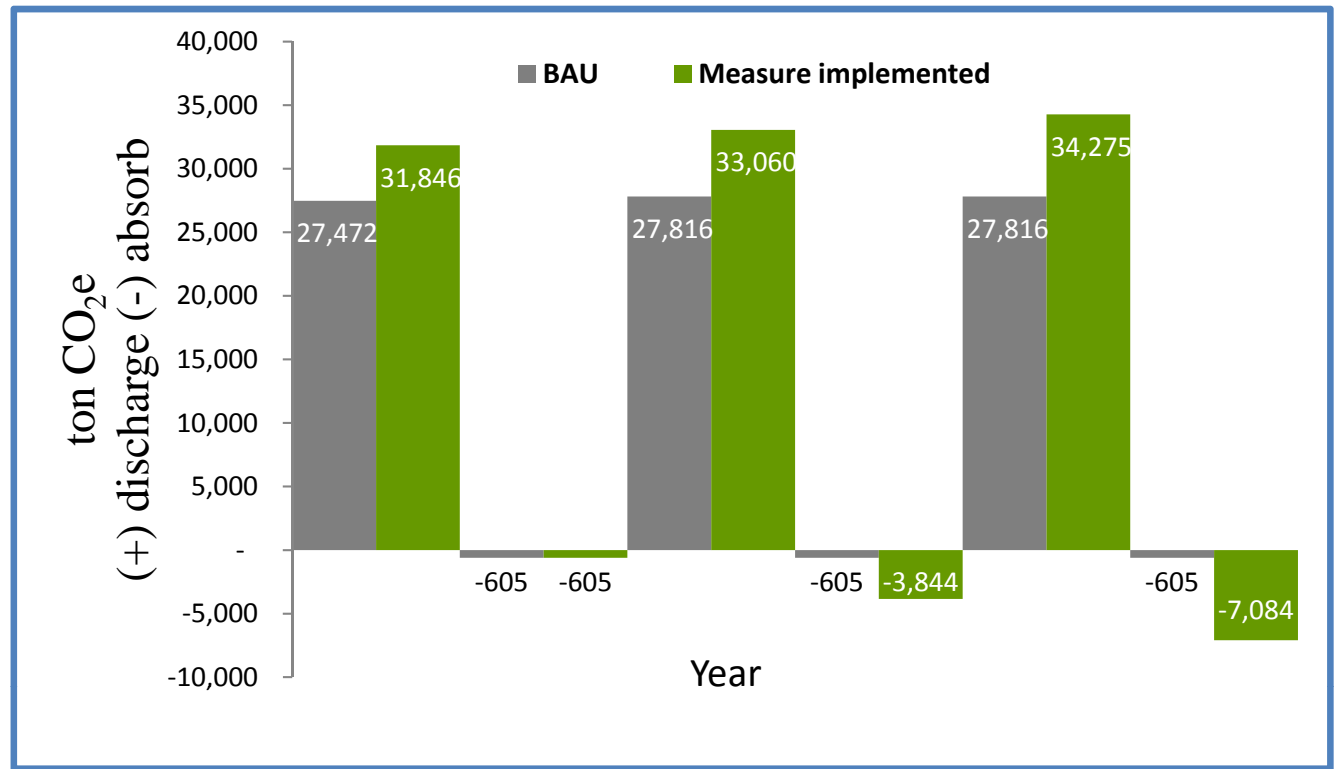
4 Transport measures :
 Option 1. Biofuel
 Option 2. NGV
 Option 3. Bicycle
 Option 4. Public transport



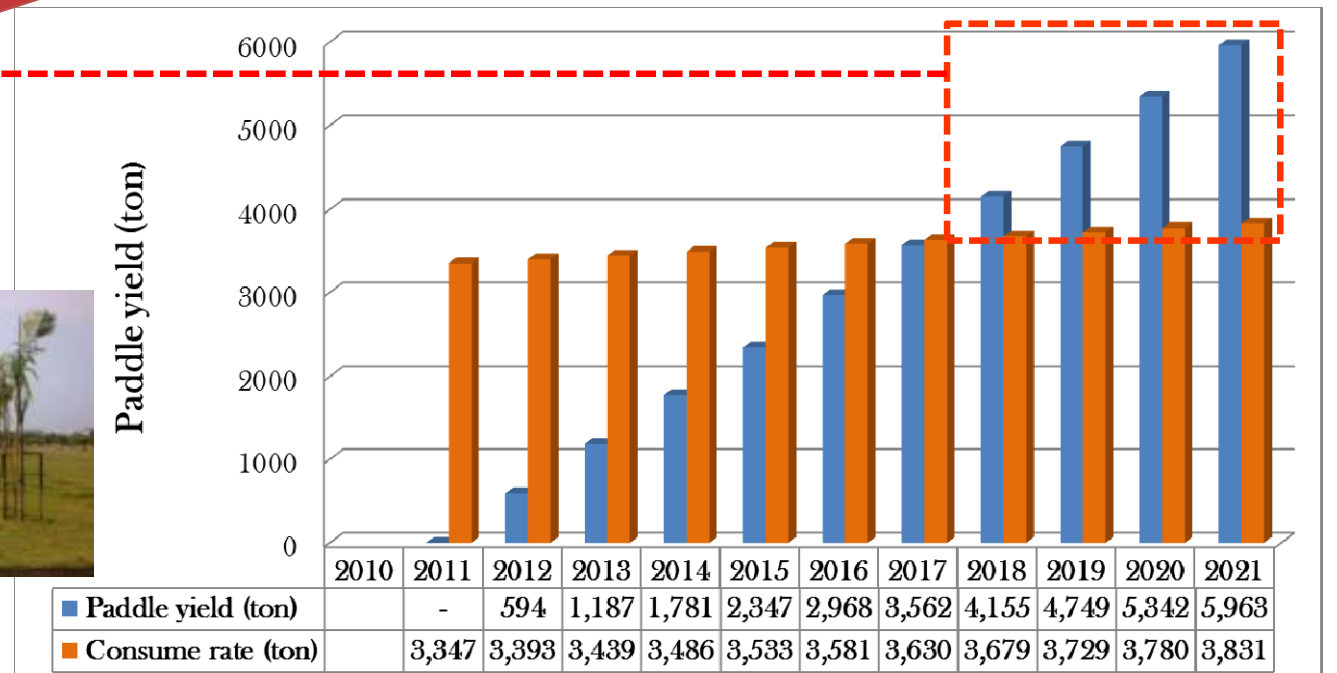
Land-use (agriculture & forestry) measures:

Convert

- 14.4 km² of waste land → paddy field
- 1.1 km² of grassland → fast-rotation crops



Co-benefit from excess paddy yield



Example of measures in **Transport Sector**

(identified by city's stakeholders during the brainstorming session)

Measure	Measure no.4 : Managing on vehicle usage and traffic congestion
1. Finance	<ul style="list-style-type: none"> • Enhance budgets for sustainable public transportation systems.
2. Public awareness	<ul style="list-style-type: none"> • Raise public awareness to use public transport rather than personal cars
3. Management	<ul style="list-style-type: none"> • Free service for all routes - with providing street signs and timetables
4. Policy	<ul style="list-style-type: none"> • Improve and promote use of public transport, e.g. set up bus stop for solely public transport and refraining large vehicles from traveling in public routes; no parking in such routes.
5. Local ordinance	<ul style="list-style-type: none"> • Adopt regulations refraining personal cars from parking on public transport routes in a form of municipal law.
6. Public relations	<ul style="list-style-type: none"> • Announce timetables, routes and destinations through local radio • Creates more incentives to use public transport e.g. free public transport

Example of measures in

Agriculture and Forestry Sectors (short rotation crops)

(identified by city's stakeholders during the brainstorming session)

Measures	Actions	Entities
Financial support schemes	<ul style="list-style-type: none"> • Provide budgets/ seedlings 	Financial institute/ Ministry of Agriculture and Co-operative/ Private sector
Policy and measure	<ul style="list-style-type: none"> • Initiate a community reforestation program 	Municipality
Management	<ul style="list-style-type: none"> • Set up evaluation and monitoring program 	Municipality /Land owner/ Private sector/Communities
Social awareness	<ul style="list-style-type: none"> • Raising awareness of the public & businesses 	School/ Communities/ community leaders/ Industry sector
Local regulations	<ul style="list-style-type: none"> • Local ordinances on greenspace 	Municipality

Mitigation Activities



TGO supported 2 mitigation activities requested by Muangklang Municipality:

- * Rice milling machine, and
- * Municipal waste separation belt



Lessons learned : key success factors and barriers

Key success factors

- Local government leaders have understandings and political will
- Recognize co-benefits from GHG mitigation
- Communication on good practice
- Involvement of stakeholders
- Readiness of entities in charge

Barriers

- Data collection and information access (limited of information)
- Gap of understanding among stakeholders
- 'Low Carbon City model' need modification before using with others cities

See VDO of Muangklang Municipality Low Carbon City project at

http://www.tgo.or.th/index.php?option=com_content&view=article&id=427&Itemid=86

NAMAs Activities in Thailand

GHG Inventory 2nd National Communication (NC) Year 2000 = 229.1 MtCO₂

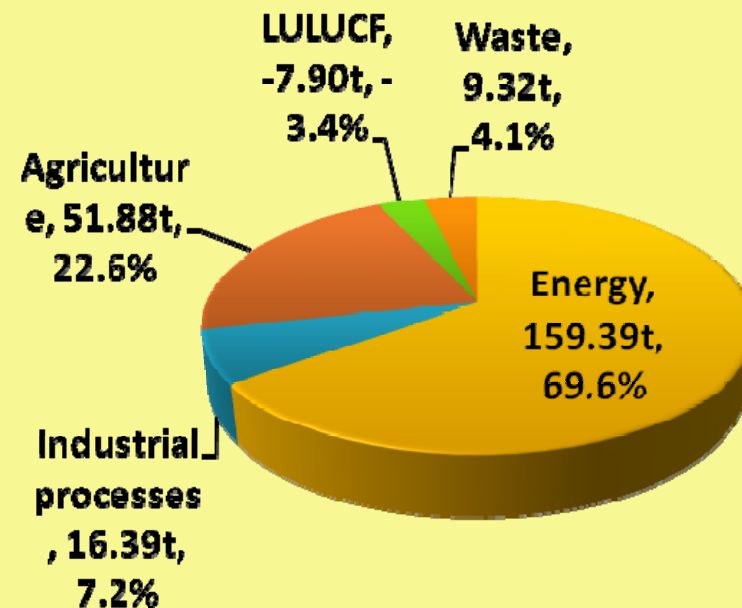
Sources of emission by sector:

Energy 69.6 %

Agriculture 22.6 %

Industry 7.2 %

Waste 4.1 %



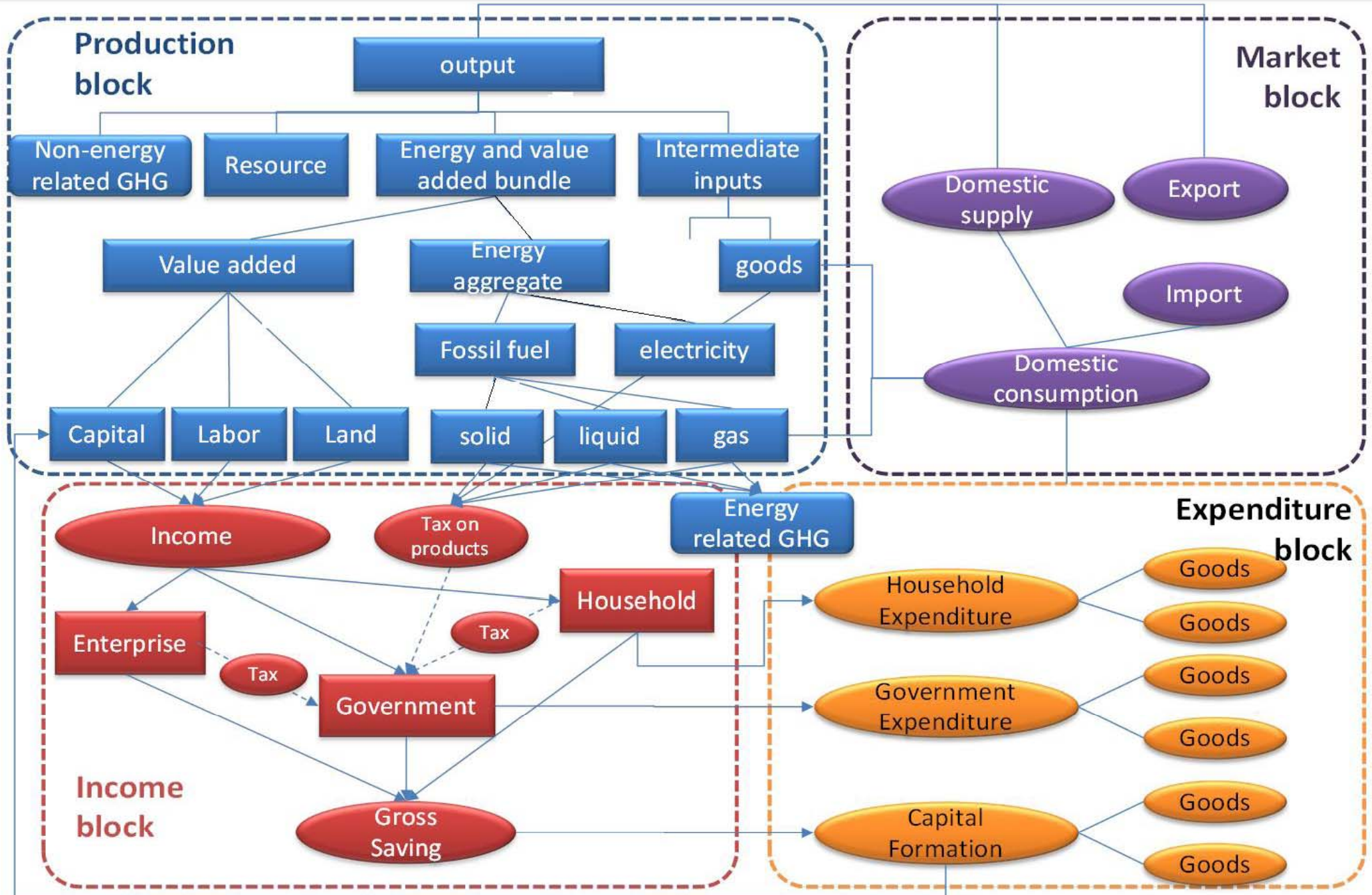
Land use , Land use change and Forestry -3.5%

NAMAs Activities

- Energy Sector (Energy, Industry & Waste)
- Forestry Sector
- Agricultural Sector

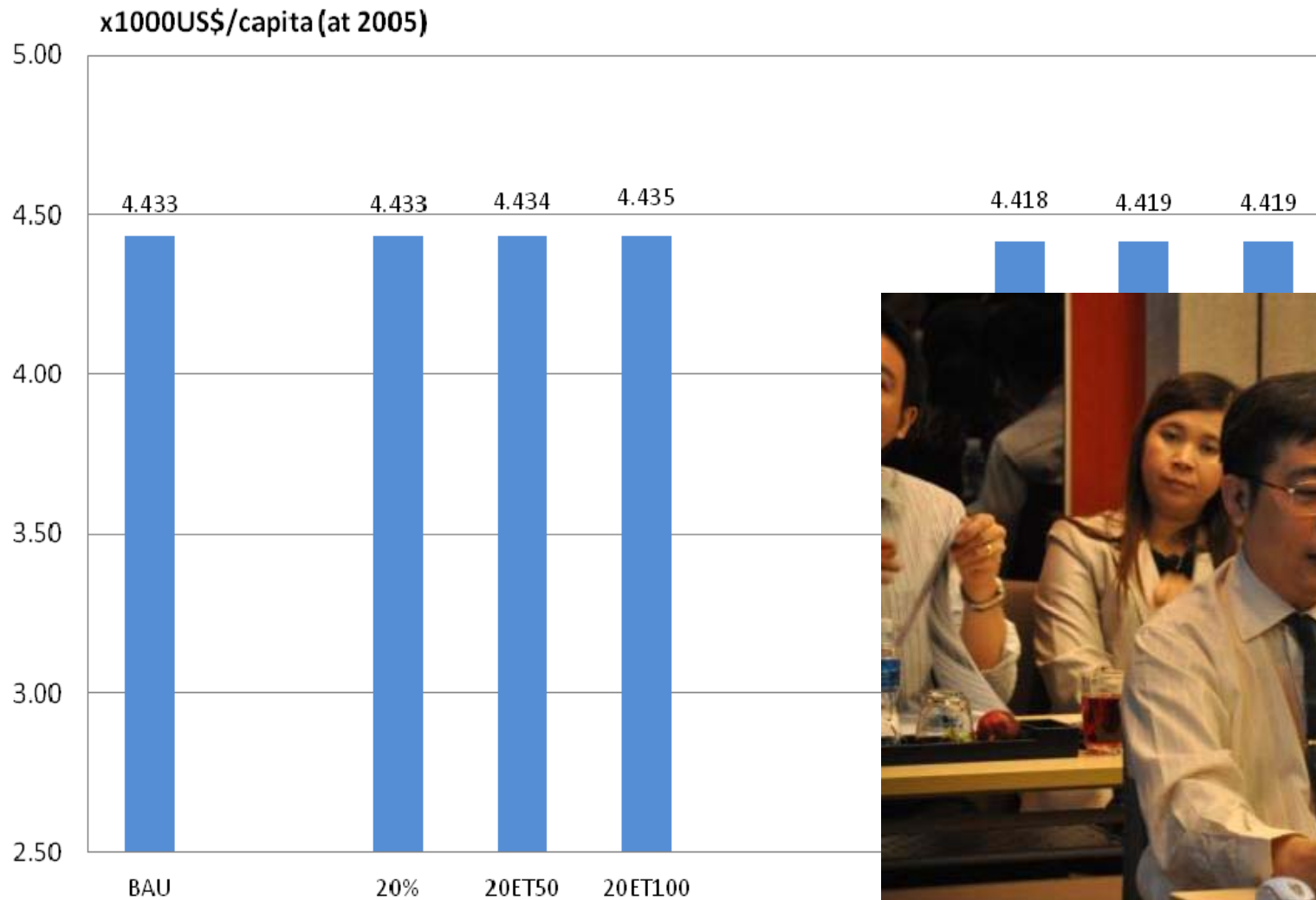


AIM/CGE model structure



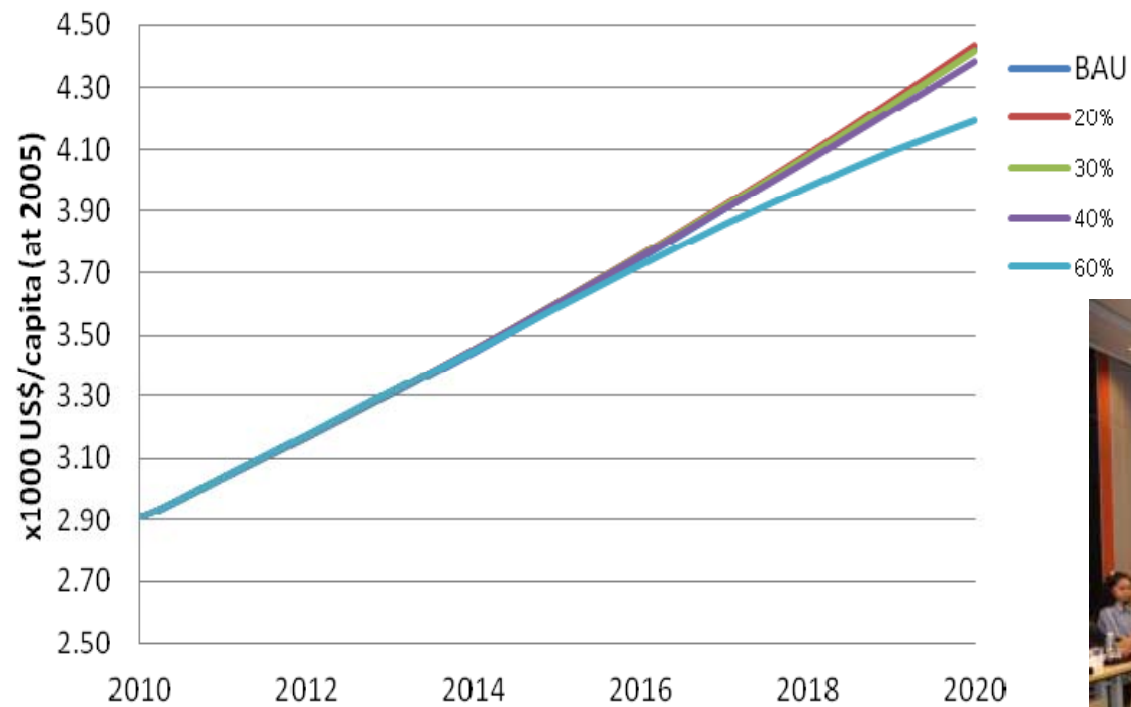
AIM/CGE Analysis of Thailand's NAMAs

Impacts of CO₂ reduction on GDP per capita in 2020



Effects to GDP

AIM/CGE Analysis of Thailand's NAMAs
Impacts of CO₂ reduction on GDP per capita



Thank you for your attention

Thailand Greenhouse Gas Management Organization (TGO)

www.tgo.or.th

