THAILAND'S FIRST BIENNIAL UPDATE REPORT

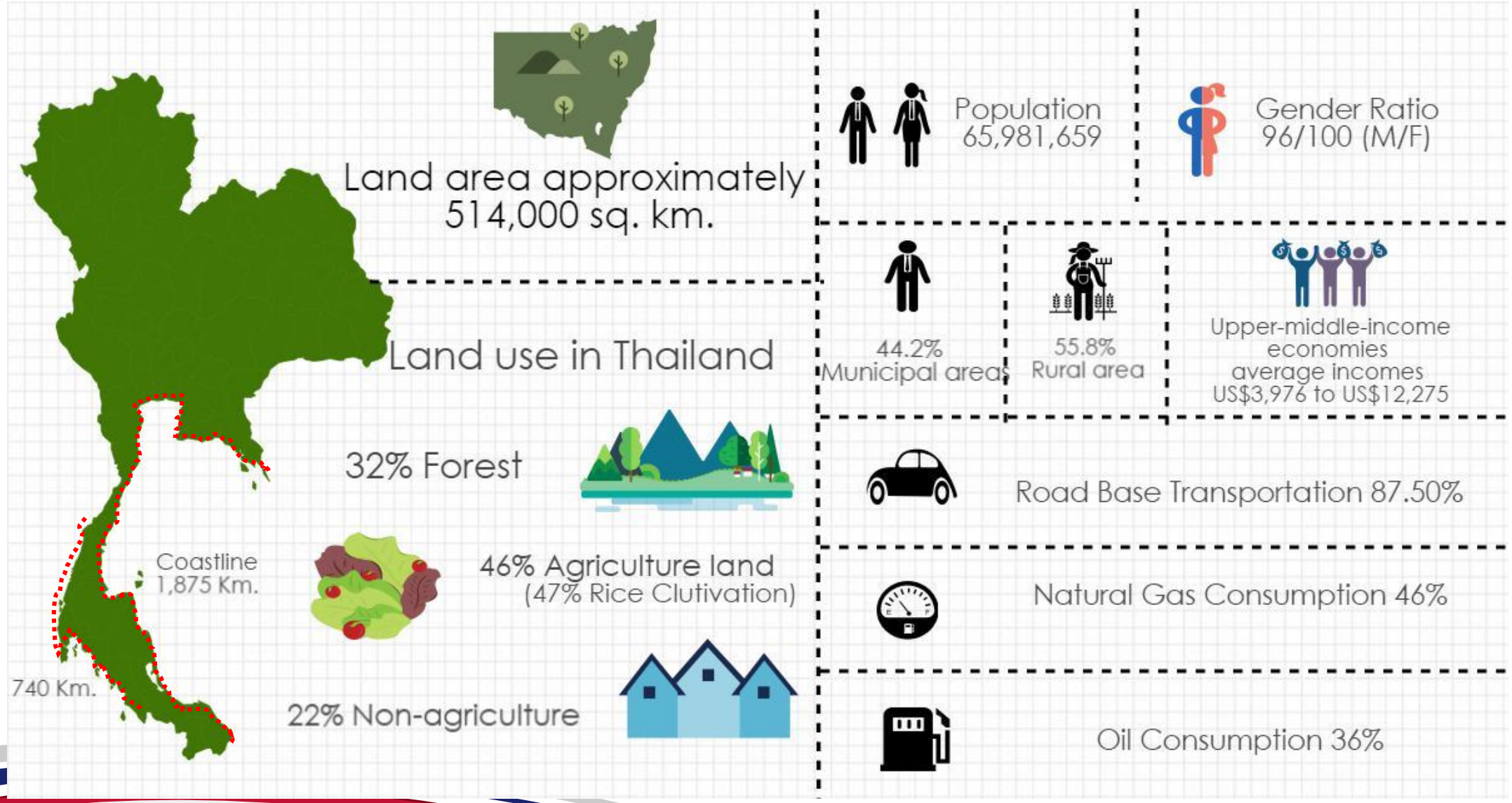
15 May 2017

Empowered lives.
Resilient nations.

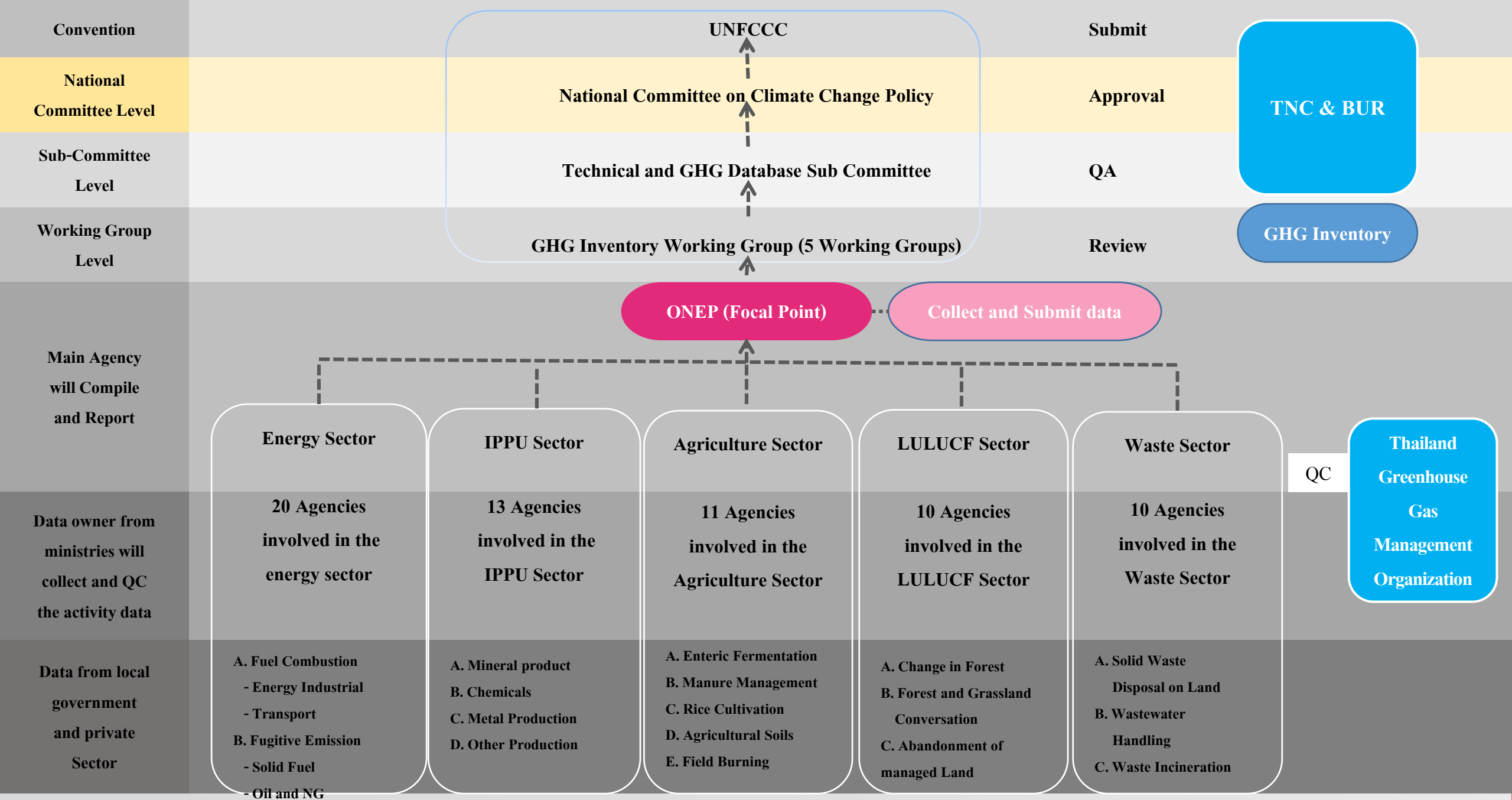
Outline

- Summary of BUR and recent development
- Experience and lessons learned in participating in the ICA process
- Response to questions received

Summary of BUR and recent development

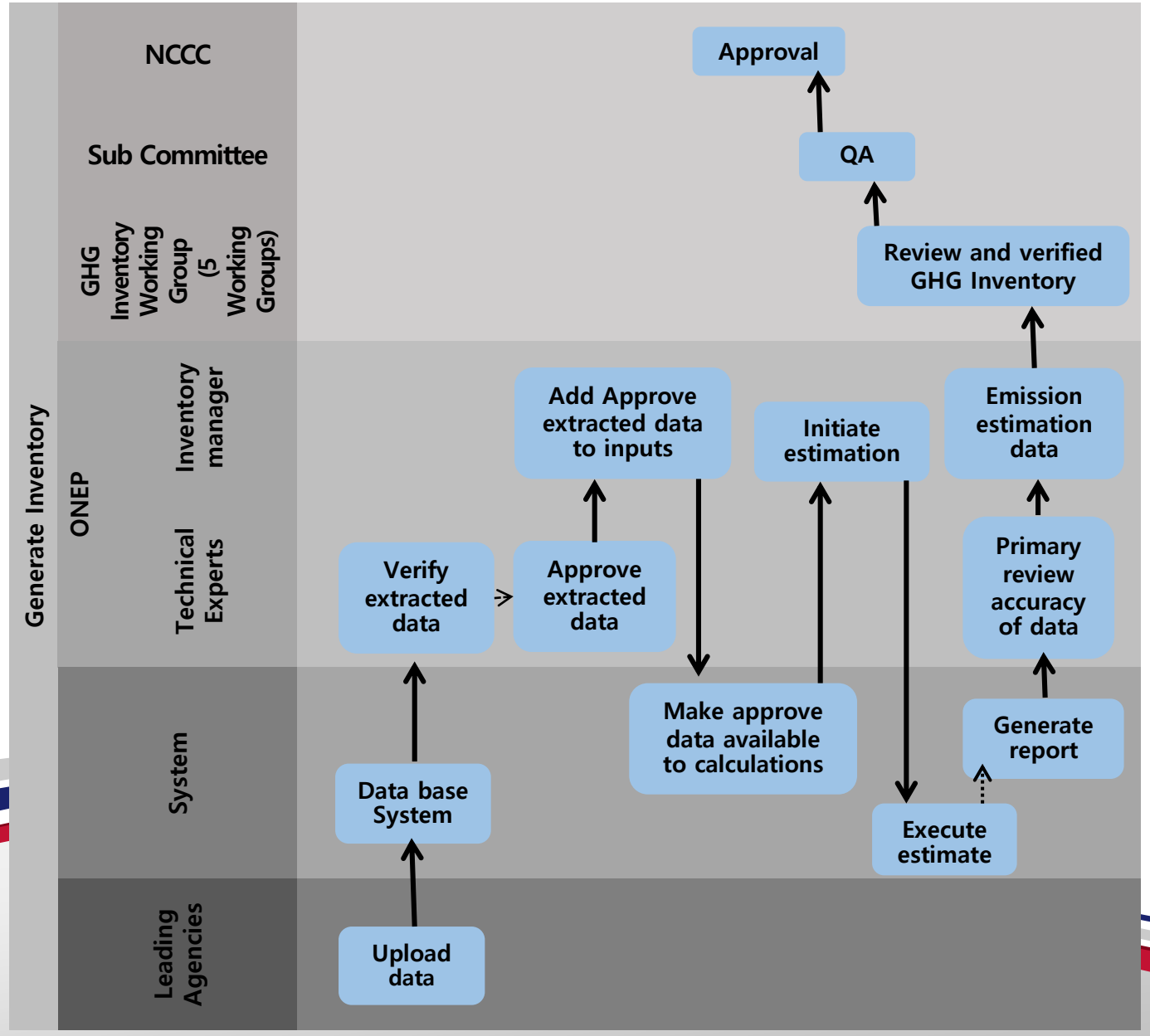


National Circumstances



Institutional arrangement For GHG Inventory

Next Step : Thailand Greenhouse Gas Emission Inventory System (TGEIS)

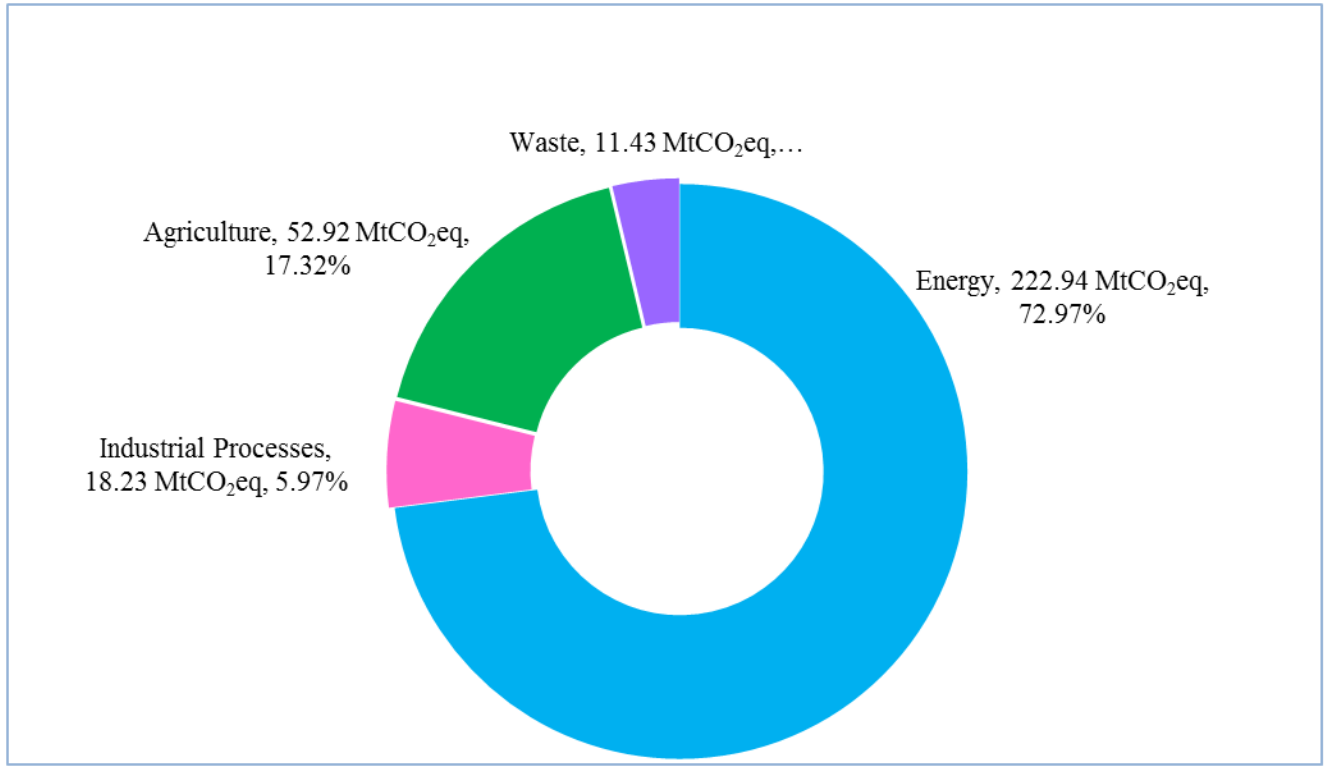


The Abilities of TGEIS; TACCC

- Carbon Check; Energy sector
- Report Generation
- Time Series
- Uncertainty Calculation

Supported by Australian Government

Total GHG Emissions (excluding LULUCF) by Sector, 2011

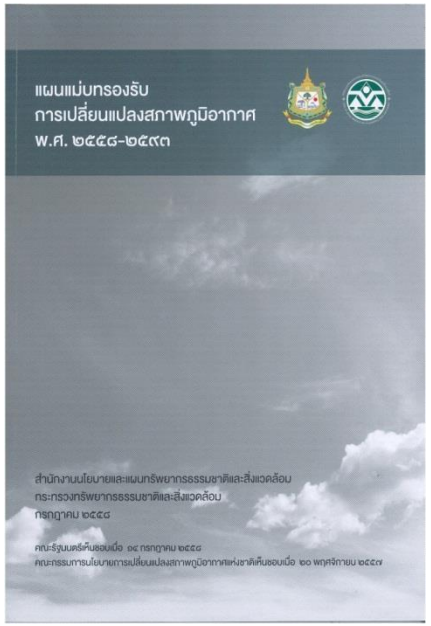


Trend of GHG Emissions and Removals from 2000 - 2011

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Energy	153.96	161.95	170.90	180.18	195.34	200.92	202.24	208.09	210.25	211.83	223.02	222.94
Industrial Processes	15.40	17.70	20.00	17.84	19.06	19.56	19.81	19.56	18.55	18.40	18.45	18.23
Agriculture	41.91	43.21	41.85	45.35	44.93	46.29	46.40	50.98	51.00	52.24	52.32	52.92
LULUCF	-12.00	-7.72	-20.18	-20.99	-17.26	-51.55	-53.47	-60.52	-65.34	-66.69	-65.26	-70.94
Waste	9.46	10.13	11.44	12.62	12.98	13.20	13.99	14.29	14.85	14.78	13.35	11.43

National Greenhouse Gas Inventory from 2000 - 2011

National Climate Change Master Plan (2015 – 2050)



Mitigation Targets:

by 2020 :

- Reduce 7-20% compared to the BAU scenario (2005 - 2020).
- Increase 25% of renewable energy consumption.

by 2030 :

- Reduce 25 % energy intensity from base year (2005).

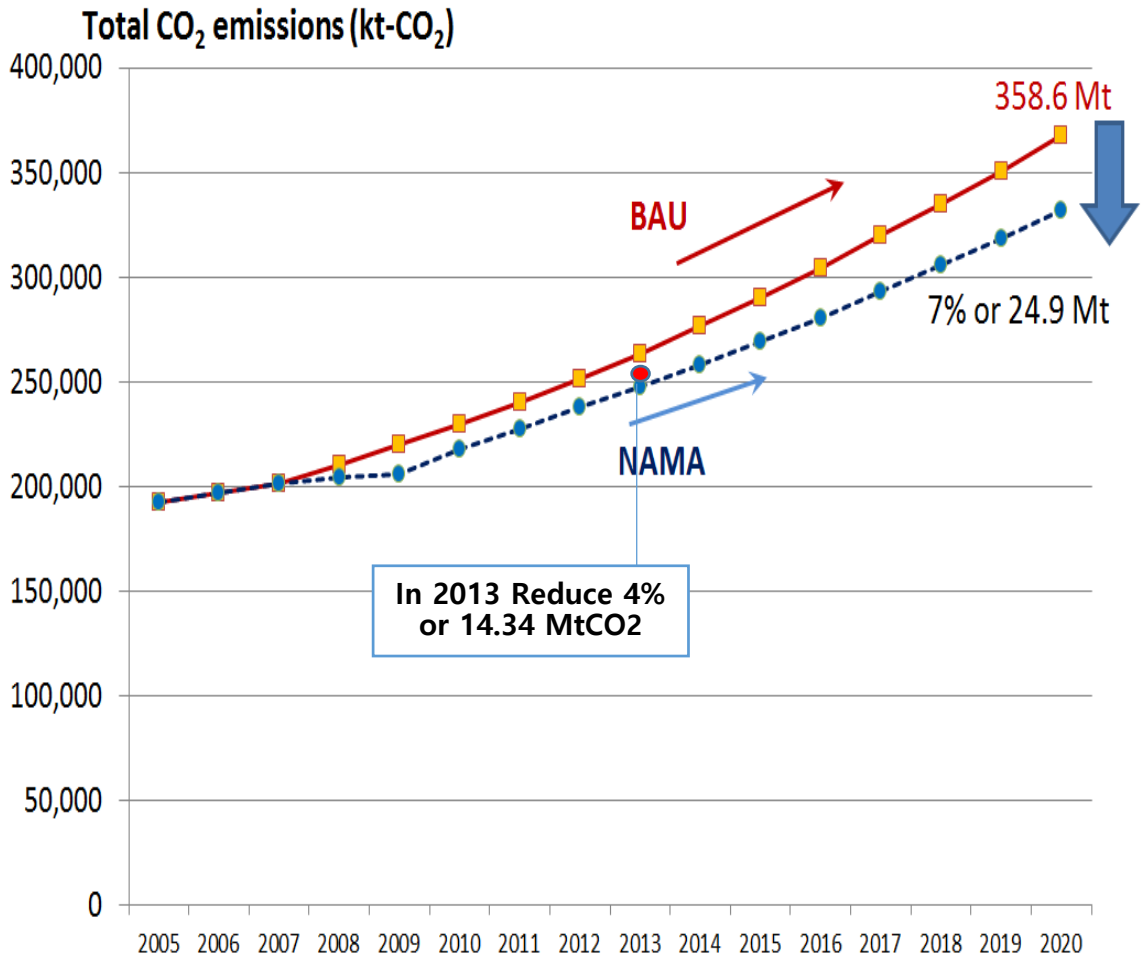
AEDP & EEP (2015 – 2036)

2015 - 2036:

- 30% Renewable energy shared on final energy consumption.
- Reduce 30 % energy intensity from base year (2010).

Mitigation Actions

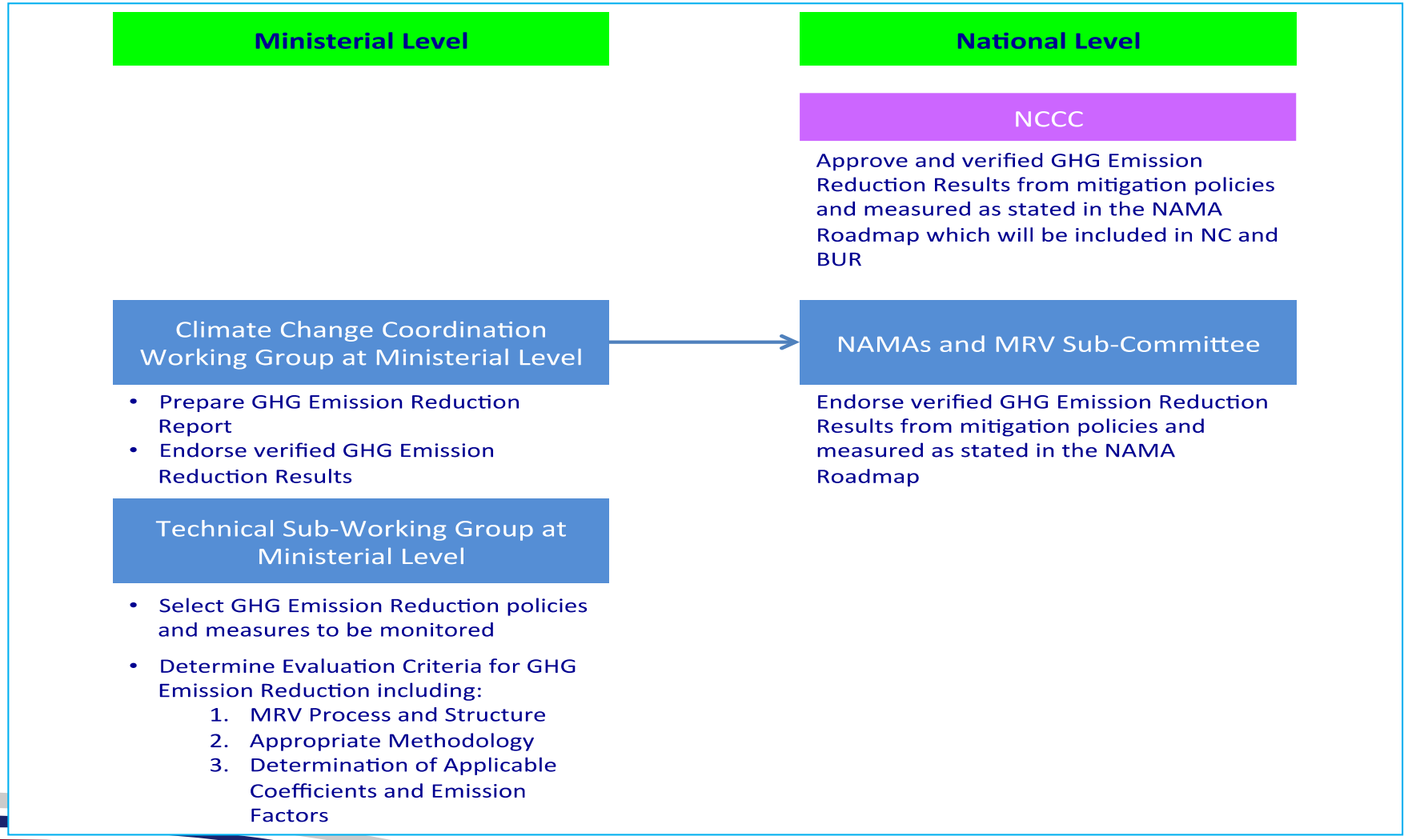
GHG Emission Trajectories under Business as Usual (BAU) and NAMA Roadmap, 2005-2020



Mitigation Measures

- Electricity generation from renewable energy sources
- Ethanol production to substitute gasoline on transport sector
- Biodiesel production to substitute diesel on transport sector
- Improving efficiency of Specific Energy Consumption (SEC) on existing EGAT power plants

Mitigation Actions



Thailand's MRV System

Obstacles and Barriers

- No mandate for related agencies on providing and collecting data.
- No proper a data management system for archiving the data for inventory calculation.
- Difficulty in transition of estimating GHG inventory from Tier1 to Tier2 methodology because lack of research support.

Energy supply

- **Smart grid** : A modernized electricity generation.
- **Waste** : waste to energy for reduction of fossil-fuel power generation.
- **Advanced Biofuels** : The biofuel is produced from non-food feedstock to avoid affecting the human food supply chain.
- **High Efficiency Boiler** : Designed technology to control the burner output.

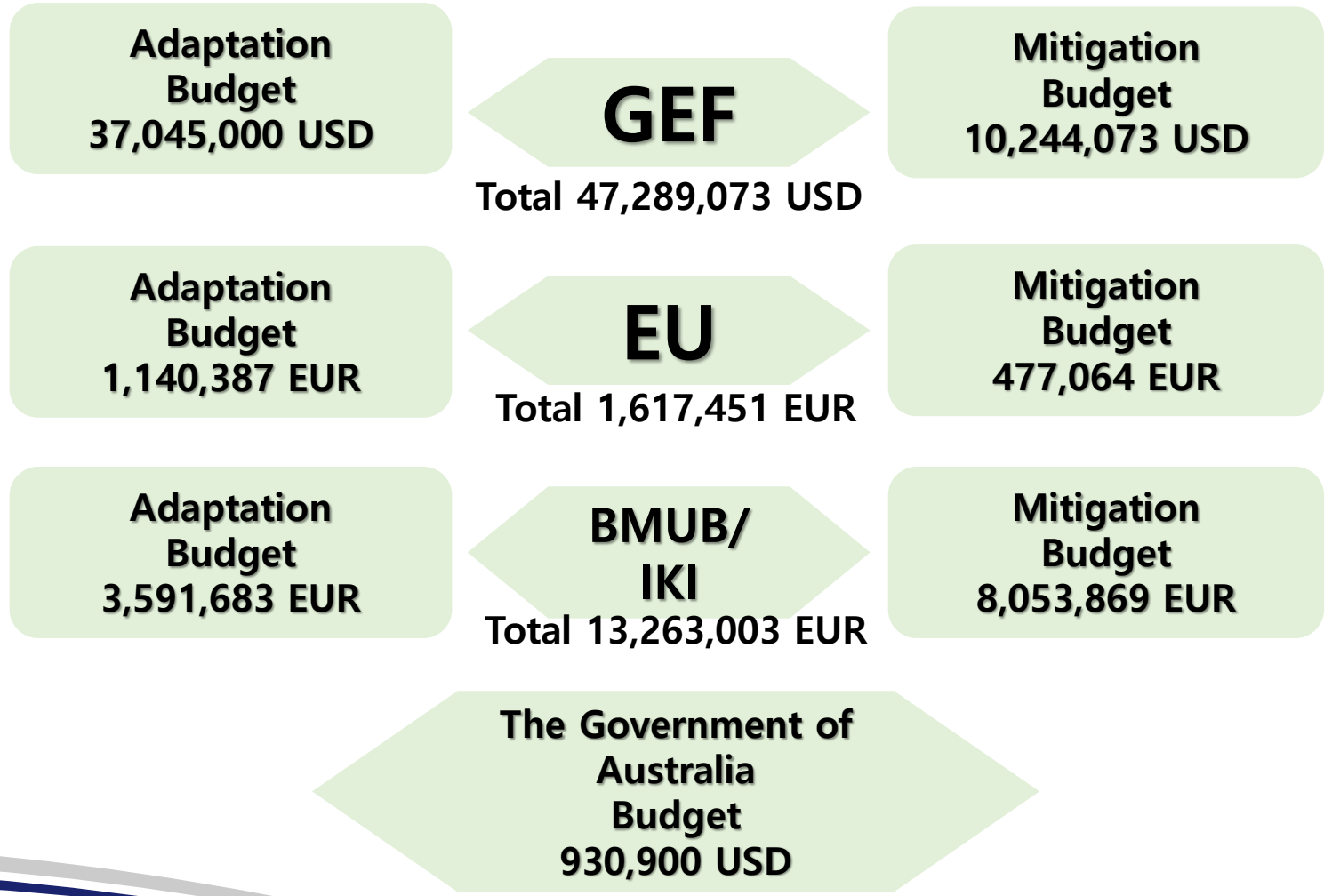
Other Energy sector

- **Carbon Capture and storage (CCS) :** Technology and process for capturing CO_2 from large point source.

For Climate change, technology needs are categorized

- **Agriculture**: forecasting and early warning systems in order to reduce the risk of damage
- **Water resource management** : The high-impact technologies that have been prioritize as technology.
- **Modeling** : The expert group and other stakeholder have identified the following technology as high priority

Summary of Support Needs



Support Received

Experience and lessons learned in participating in the ICA process

❖ Has participation in the ICA process raised the profile of climate actions at the domestic level?

Answer : Yes, Thailand had established the national structure of reporting system that would engage line agencies who will support Activity Data.

❖ Has the BUR preparation enhanced domestic coordination/ domestic MRV in providing climate related information? If so, how?

Answer : Yes, the BUR preparation enhanced domestic MRV because Thailand has already set up the MRV for both GHG inventory and mitigation reporting system for national and sub-national levels.

❖ What's the value addition of the technical analysis of BURs by the team of technical experts?/ internal planning and prioritization?/ improvement?/ prioritization of capacity-building needs ?

Answer : The value addition of the technical analysis of BURs are

- Gaps and needs identified/ Capacity building of local sector experts/ Accuracy and Transparency improved.
- Improvement of institutional arrangement for national GHG Inventory and MRV agreed by line ministries approved by NCCC.

Thank you very much

Response to questions received

From : USA

❖ Could Thailand explain why the LULUCF sink grew between 2004 and 2005?

Answer : The rubber plantations were added in the GHG emission estimation under sub-category “Changes in Forest and Other Woody Biomass Stocks” since 2005. However, Thailand did not report the emission estimation of the rubber plantation before 2005 due to lack of data.

Questions

From : Switzerland

- In Table 4 of Thailand's first BUR, information is presented on fuel consumption of the different transport modes from the year 2008 on. However, no separate data are given for international aviation and water transport for the most recent years (2012, 2013). Could Thailand elaborate on the reason for the unavailability of these data and the challenges in presenting a full time series for fuel used in, and emissions related to, international transport?

Answer : For both domestic and international transports were reported by Ministry of Transport. During 2012-2015, two organizations, Civil aviation authority of Thailand and Marine department, who are responsible for reporting these data were restructuring. Thus, the data of these two sub-sectors were missing during that period of time. Currently, the two organizations have been officially launched so we expect to report the fuel consumption and emission of these two sub-sectors in the near future. However so far Thailand has been reporting fuel used for international transport to ICEAO & IMO.

Questions

From : New Zealand

- What processes and institutional arrangements does Thailand have in place to assess the level of uncertainty associated with GHG inventory data and underlying assumptions?
- Has Thailand identified any capacity-building needs to assess uncertainty levels and report these in its next BUR?

Answer : ONEP, as a focal point, will responsible for compiling the related activity data from five leading agencies of each sector and then estimating GHG inventory for each sector. The five leading agencies will compile activity data from their related agencies before submitting to ONEP. Then ONEP will estimate GHG emission base on activity data provided from five leading agencies.

Currently we are designing the templates for activity data reporting from each agency. The MRV guidelines for each sectors have also been prepared at the same time to improve data collections, quality control, and quality assurance. Consequently, the level of uncertainty of GHG inventory data should be minimized. Thailand will report uncertainty assessment in the next BUR. Uncertainty will be incorporated into TGEIS.

Questions

From : EU

- Thailand was provided to the TTE, clarifying that the tier 2 approach was adopted in all subsectors in the LULUCF sector. Thailand also summarized the sources of the activity data and emission factors used. Could the country provide more information on the assumptions and methodologies used in the estimation of emissions and removals in the LULUCF sector?

Answer : The methodologies used were based on the revised 1996 IPCC guidelines and the 2003 Good Practice guidance for LULUCF. GHG estimations were calculated for 3 subcategories, including 5A Changes in forest and other woody biomass stock, 5B Forest and grassland conversion, 5C Abandonment of Managed Lands. Methodology tiers were chosen according to the decision trees in the GPG 2003. As a result, Tier 1 and tier 2 methods were applied. Activity data (AD) were obtained from the published reports from the relevant government agencies. Supporting data for estimating Tier 2 emission factors (EFs) were also acquired from the published data and expert judgments in the country. All ADs and EFs were verified by LULUCF GHG Inventory Working Group under NCCC comprising of representative from 7 agencies.

Questions

From : EU

- Could you provide some information on the processes to enable the data collection and the application of tier 2 methodologies for LULUCF sector?

Answer : Forest area used in the calculation was from Remote Sensing data reported by Royal Forestry Department. Area of planted forests were reported by responsible organizations.

- In its BUR, Thailand has recalculated its GHG emissions and removals for the year 2000 so that it could be compared with the data in 2011. Could the country provide information on additional improvements in data collection and research that are currently being considered to improve the estimates in the LULUCF sector for the upcoming GHG inventory?

Answer : More research works have been carried out in the country especially on aboveground biomass and carbon contents of natural forests and plantations. Activity Data template and MRV are being done in this year.

Questions

From : EU

- Could the country provide more information on your experience of using IPCC 2006 guidelines?
- Could you also clarify whether in a near future you are planning the implementation of 2006 IPCC guidelines for the GHG inventory? What are the opportunities and remaining challenges?

Answer : So far Thailand has been using 1996 IPCC guidelines for our 1st BUR, we have less experienced the 2006 IPCC guidelines. However, we utilized some emission factors from the 2006 IPCC GLs , for example, Agriculture sector in Thailand's SNC and the 1st BUR, emission factors for soil N2O emissions (4D Agricultural Soils). The ONEP with the collaboration from Australia's government are developing the GHG inventory system called "TGIES". This GHG inventory system is prepared based on the 2006 IPCC GLs.

The opportunities of using 2006 IPCC guidelines are

- Enhancement of accuracy of GHG estimation of each sector
- Development of activity data collection

The challenges of using 2006 IPCC guidelines are

- lacking of activity data
- Time constraint

Questions

From : EU

- Are the capacity-building needs identified in the technical analysis report of your first BUR mirroring your own priorities? Has the country identified priority needs that could be addressed in the short term (i.e. to be implemented in time for the submission of BUR2)?

Answer : Yes, the priority needs that could be addressed in the short term are

- Reporting emissions on marine and aviation bunkers, which was previously hindered by the lack of disaggregated data
- Preparing and transferring a data collection system to the estimations by using the 2006 IPCC guidelines
- Enhancing national capacity to develop assumptions for all mitigation actions : Waste, IPPU and Agriculture.

Questions

From : EU

- What are the key success factors in establishing such formal arrangements and how did the data collection and the GHG inventory improve as result of these measures?

Answer : The key success factors in establishing such formal arrangements are

- **The collaboration of the five leading agencies and related agencies who will provide the data for estimating GHG inventory,**
- **Capacity building for these key agencies,**
- **Related regulation,**
- **Adequate resources such as budget, personnel.**

Questions

From : EU

- Could Thailand provide some information on the processes to enable the data collection and application of higher tier methodologies for key agriculture subsectors?

Answer : In Agriculture sector, Thailand's previous NCs and BUR1 adopted both tier 1 and tier 2 methodologies for estimating GHG emissions. For Tier 2 approach, most of the activity data (AD) used could be collected from the relevant agencies, in particular of the Department of Livestock Development (DLD) and the Office of Agricultural Economics. Which provided a great opportunity for Tier 2 activity data.

For Tier 2 emission factors (EFs), the researchers from government agencies and universities consider that the country-specific EFs in Agriculture sector are importance. Hence, several studies on the agriculture-related EFs has been conducted. To determine the country-specific EFs, the data from literature reviews of published research articles has been gathered from both national and international levels. The proposed AD and EF has been approved via the working group on GHG inventory (Agriculture sector) before adopted.

Questions

From : EU

❖ What are the gaps and remaining challenges of moving to higher tier methodologies for other key emission sectors in agricultural sector ?

Answer : Capacity building is required for estimating agricultural GHG emissions from several subcategories. Examples are:

- Better understanding of manure management systems (MMS) between actual MMS in Thailand and MMS provided in the IPCC GLs are needed, especially for DLD's officers in case of field survey.
- Due to limitation of the equipment and analytical instruments, some data related to EFs, e.g., methane-conversion factors (MCF) and EFs from each MMS, agricultural soils, field burning of agricultural residues, are adopted from the IPCC defaults.
- By aiming to higher IPCC methodologies, capacity building, e.g., on technical trainings of agricultural modeling, e.g., growth model and DNDC model, from the experts should be provided, together with the availability data for these models.

Questions

From : EU

- What are experiences and lessons learned with the application of the BUR guidelines? In the preparation of the BUR, did you find any areas of the guidelines not sufficiently clear or detailed? Which areas should or could be improved in your view?

Answer : The BUR guidelines is quite general and boarded information. Some topics are not clear. We need more clarification on these issues:

- **Domestic MRV did not provide the information on how to report this issue.**
- **Finance, technology and capacity building needs and supports should provide a format how to report this issue that can reflect both supporter and receiver.**
- **Overlapping with NC in some topics such as national circumstance, inventory, and mitigation.**

Questions