



# Summary of Mutual Learning

12th July 2018, New Delhi, India  
16h Workshop on GHG Inventories in Asia  
Greenhouse Gas Inventory Office of Japan (GIO)  
National Institute for Environmental Studies (NIES)



# Outline

## ■ Background of mutual learning (ML) program

- Overview
- History
- Procedure

## ■ Report on each session

- Overview of each country's inventory
- Outcome of sessions
  - Energy
  - Waste



# Background of ML program

## Overview

### ■ Objectives

- To help inventory compilers improve their national GHG inventories
- To provide an opportunity to learn details of other countries' inventory
- To foster and strengthen cooperative relationships among inventory experts

### ■ Approach

- Active and voluntary participation of experts who actually produced the inventories
- Two-way communication of questions and answers, not one-way communication like examiner vs. examinee
- Not to criticize or audit each other's inventory, or like the UNFCCC review of Annex I Parties' GHG inventories



# History

	2011 WGIA9	2012 WGIA10	2013 WGIA11	2014 WGIA12	2015 WGIA13	2016 WGIA14	2017 WGIA15	2018 WGIA16
General	-	-	-	-	Japan Vietnam	-	-	-
Energy	Indonesia Mongolia	Cambodia Thailand	Lao PDR Thailand	Indonesia Myanmar	-	Brunei Korea	Mongolia Vietnam	India Vietnam
IP	-	Indonesia Japan	-	-	-	Malaysia Myanmar	-	-
Agriculture	-	Indonesia Vietnam	China Myanmar	China Mongolia	Indonesia Lao PDR	-	-	-
LULUCF	Japan Lao PDR	-	-	Vietnam	Cambodia Mongolia	Indonesia Lao PDR	Lao PDR Myanmar	-
Waste	Indonesia Cambodia Korea	China Korea	Malaysia Vietnam	-	Korea Myanmar	Mongolia Thailand	China Philippines	Lao PDR Japan

- Trial implementation between Japan and Korea since 2008
- Introduction to ML activity on WGIA 8
- Added as official programme into WGIA since 2011(WGIA9)



# Experienced countries

	2011 WGIA9	2012 WGIA10	2013 WGIA11	2014 WGIA12	2015 WGIA13	2016 WGIA14	2017 WGIA15	2018 WGIA16
Brunei						✓		
Cambodia	✓	✓			✓			
China		✓	✓	✓			✓	
India								✓
Indonesia	✓	✓		✓	✓	✓		
R.O.K	✓	✓			✓	✓		
Japan	✓	✓			✓			✓
Lao PDR	✓		✓		✓	✓	✓	✓
Malaysia			✓			✓		
Mongolia	✓			✓	✓	✓	✓	
Myanmar			✓	✓	✓	✓	✓	
Philippines							✓	
Singapore								
Thailand		✓	✓			✓		
Viet Nam		✓	✓	✓	✓		✓	✓

- Most of the countries have already experienced the ML.



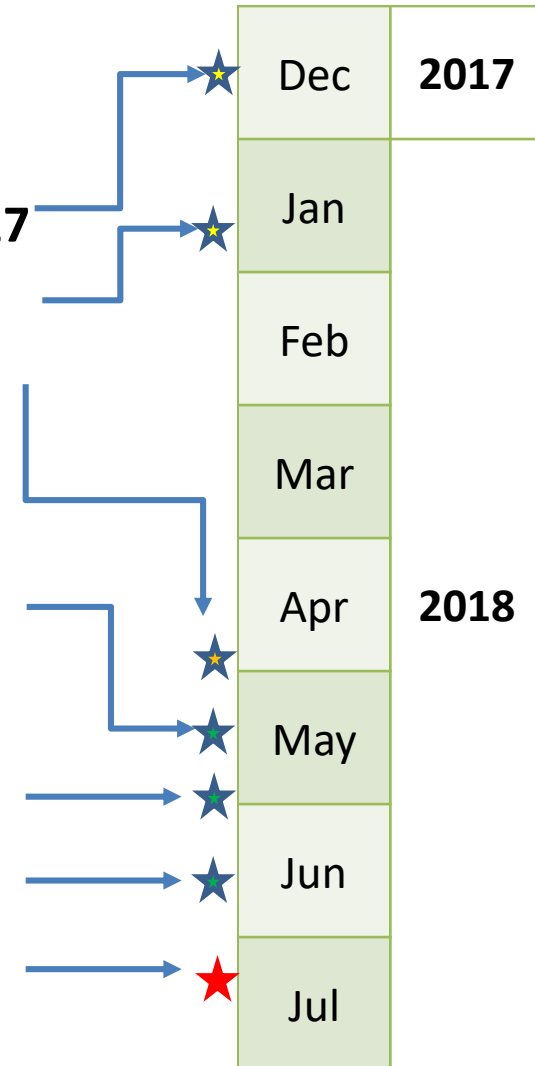
# Procedure of ML

- **Preliminary process**

- **Announcement** : December 2017
- **Application** : January 2018
- **Determining of partner** : Late April

- **Main process**

- **Submission of materials** : Mid May
- **Material Exchange** : Mid May  
[Learning the materials :During May]
- **Comment exchange** : Late May
- **Answer to comments** : Mid June
- **Sessions** : 10 July



# Comment exchange

## 1. Category: Solid Waste Disposal on Land

<input type="checkbox"/> Methodology	<input type="checkbox"/> Emission Factor	<input checked="" type="checkbox"/> Activity Data	<input type="checkbox"/> Other
<b>Question or Comment:</b>			
Could you show the amount of landfills by waste type and by year in table form?			
<b>Answer:</b>			
See attached file; it is a confidential data. Please keep a secret.			

<input type="checkbox"/> Methodology	<input type="checkbox"/> Emission Factor	<input type="checkbox"/> Activity Data	<input checked="" type="checkbox"/> Other
<b>Question or Comment:</b>			
All landfills in Japan are considered 'Managed landfill' in accordance with Waste Disposal and Public Cleaning Law. Are the specific contents of this law available in relation to the design of landfills and can it be compared with the standards of 'Managed landfill' of 2006 IPCC G/L?			
<b>Answer:</b>			
Our 'Managed Landfill' meets the standard of 2006 Guidelines. Please refer for details to the 'Ministerial Ordinance on Technical Standards for Final Disposal Sites of Municipal and Industrial Waste.' ( <a href="http://law.e-gov.go.jp/html/data/S52/S52F03102004001.html">http://law.e-gov.go.jp/html/data/S52/S52F03102004001.html</a> ).			

<input type="checkbox"/> Methodology	<input type="checkbox"/> Emission Factor	<input type="checkbox"/> Activity Data	<input checked="" type="checkbox"/> Other
<b>Question or Comment:</b>			
The country-specific value is used for "methane generation speed constant (k)". How is the uncertainty of country-specific methane generation rate value(k) estimated?			
<b>Answer:</b>			
We estimate XXXX,XXXXXXXXXXXXXXXXXXXXXXXXXXXX.			
Items	Half life (y)	K value	Uncertainty of k value (%)
Kitchen garbage	***	***	***
Waste paper	***	***	***
Waste textile (natural fiber)	***	***	***
Waste wood	***	***	***
Sludge	***	***	***

## ■ Procedures

- Reading partner's materials carefully
- Filling up **questions and comments** on "comment exchange sheet"
- Comment exchange through GIO secretariat
- **Answering** to the comments
- Session on the comment exchange

Comment exchange sheet

# Sessions during WGIA16

Sector	Country	Number of Participants
Energy	India	20
	Vietnam	3
Waste	Lao	3
	Japan	5

A scene of the Energy sector session between India and Vietnam



- Closed sessions for limited participants
  - For very frank discussion
  - Supported by several resource persons





# Report on each session

## Overview of each country's inventory

Sector	Country	Inventory	Guidelines applied	Estimation Methodology	Emission factors	Activity data
Energy	India	BUR1 in 2016 SNC in 2012	Revised 1996 IPCC GLs and partially 2006 IPCC GLs	Tier 1, 2	Basically IPCC default values, partially CS	National Statistics
	Vietnam	BUR2 in 2017	Revised 1996 IPCC GLs and partially 2006 IPCC GLs	Tier 1	Basically IPCC default values, partially CS	Energy Balance Table in Vietnam & National Statistics
Waste	Lao	First draft report on GHG inventory for BUR1	2006 IPCC GLs	Tier 1	D	National statistics, etc.
	Japan	GHG inventory in 2018	2006 IPCC GLs	CS, D, T2, T3	CS, D	National statistics, etc.



# 1. Energy (1)

## (India and Vietnam)

### ■ Issues and solutions / Outstanding issues

#### India

- Decentralized system among ministries, with MoEFCC as the nodal Ministry.
- There is already system of data collection in place, which helps build a more CS inventory but does not necessarily fit international data (e.g. IEA)

#### Vietnam

- Currently centralized, but in the near future, line ministries will prepare inventory for energy sector at higher detail level (maybe Tier 3) serving for the implementation and MRV of NDC.
- It is better to provide uncertainty range of country-specific emission factor of fugitive emissions from underground coal mines to justify the factor is significantly different from the default value.



# 1. Energy (2)

## (India and Vietnam)

### ■ Good practices

#### India

- At each submission, some part of the inventory is improved – e.g. raising the Tier for a category, etc.
- QA/QC plan in place
- Slowly moving to 2006 GLs
- Involvement of national research institutions in the respective areas - e.g. improving EFs
- Involvement of national experts in IPCC and UNFCCC processes – understanding of methodology/reporting is enhanced
- Undergoes rigorous review – including compiler peer review, review by ministries (data providers), top governmental level review, and review by civil society

#### Vietnam

- Legal document defining NIS in place – network is created to work with stakeholders such as data providers
- Improvement is made at each inventory cycle – e.g. recalculation and uncertainty analysis in the most recent cycle
- Plans to move to 2006 GLs
- Close contact with TA team – e.g. integrating suggestions from the TA into the next report
- AD for BUR2 is much more transparent – the NIR + data collection report (the latter for the internal consideration process only)



# 1. Energy (3)

## (India and Vietnam)

### ■ Follow-up activity

- Improve inventory compilers' skill through various training
- NIS + data collection systems/formats – Provision of Japanese examples/input might be useful
- Improvement of CRF? Reporting – being in line with the guidelines but also made fit to each countries' needs



## 2. Waste sector (1) (Lao PDR and Japan)

### ■ Issues and solutions / Outstanding issues

#### <Activity data>

- For the collection of AD, both countries recognize the importance of cooperating with line Ministries.
- The importance of regular update of AD(amount of waste and waste composition ) is recognized in order to reflect rapid economic growth.
- Both countries confirmed importance of using an appropriate driver for estimating historical waste data for FOD method.

#### <Hint for GHG inventory improvement>

- Lao is considering to separate estimation files based on different MCF for unmanaged SWDS for Vientiane capital and other provinces based on the depth of SWDS.
- For key categories, CS data based on research in the country is encouraged to be used.

## 2. Waste sector (2) (Lao PDR and Japan)

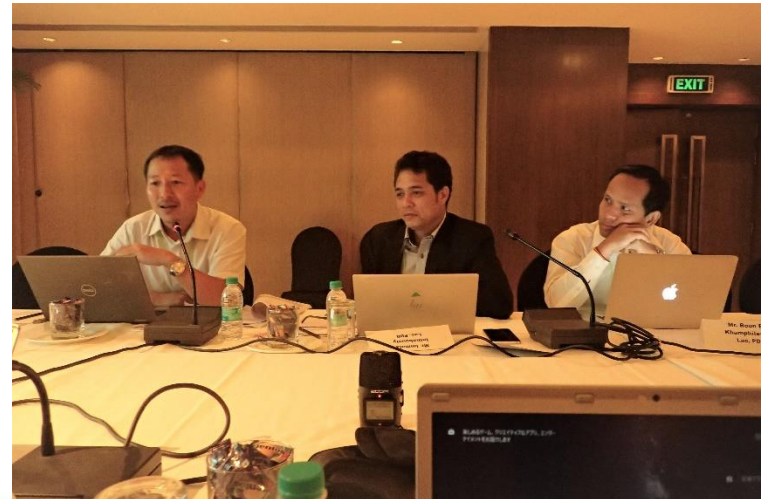
### ■ Issues and solutions / Outstanding issues (Cont.)

#### <Information for mitigation>

- When considering the installation of power generation at waste incinerator, the capacity of incinerator is one of the key criteria.

#### <Challenges>

- Further effort is needed to ensure the consistency among data from different data sources.



## 2. Waste sector (3) (Lao PDR and Japan)

### ■ Good practices

#### Lao PDR

- Applying methodologies of the 2006 IPCC GLs including FOD method
- Organizational arrangement for waste data collection is in place

#### Japan

- Transparent explanation and accurate GHG calculation
- Corporation with private sectors for collecting AD and developing EFs



## 2. Waste sector (4) (Lao PDR and Japan)

### ■ Follow-up activity

- Updating EFs and AD as well as finalize GHG inventory and share the revised result with Japan

### ■ Suggestion for future ML

- Include topics for mitigation, projection and MRV
- Include case studies related to GHG inventory
- Consideration for collaboration activities between participating countries for EF development





Please take advantage of  
this opportunity  
to improve your  
inventory compilation !!!

