



# Summary of the Mutual Learning Sessions

11 July 2024, Putrajaya, Malaysia  
The 21st Workshop on GHG Inventories in Asia

Greenhouse Gas Inventory Office of Japan (GIO)  
National Institute for Environmental Studies (NIES)



# Mutual Learning in WGIA21

- Participants had exchanged the Q&A sheets with the partner countries through the WGIA secretariat in advance.
- In the sessions, participants discussed the sector-specific issues based on the Q&A sheets and additional comments.
- The sessions were held as a closed session.

Participants in the ML sessions

| Sector      | Country   | Number of Participants (remote) |
|-------------|-----------|---------------------------------|
| IPPU        | India     | 4                               |
|             | Malaysia  | 3                               |
| Energy      | China     | 3                               |
|             | Mongolia  | 3                               |
| Agriculture | Cambodia  | 3                               |
|             | Indonesia | 5 (1)                           |



# Overview of each country's inventory

| Sector      | Country   | Inventory                | Guidelines Applied                      | Estimation Methodology | Emission Factors | Activity Data                                                             |
|-------------|-----------|--------------------------|-----------------------------------------|------------------------|------------------|---------------------------------------------------------------------------|
| IPPU        | India     | BUR3, NC3                | 2006 IPCC GLs                           | Tier 1, 2              | D, CS            | National statistics/surveys, data provided by industry, and int'l sources |
|             | Malaysia  | BUR4, NC4                | 2006 IPCC GLs                           | Tier1, 2               | D, CS            | National statistics/surveys, data provided by industry                    |
| Energy      | China     | NC4, BUR3                | 2006GL, GPG2000, 1996GL                 | Tier 1, Tier 2, Tier 3 | D, CS            | NBS, Aviation Agency, relevant associations, etc.                         |
|             | Mongolia  | BUR2, NIR2, BUR1, NIR1   | 2006GL                                  | Tier 1, Tier 2         | D, CS            | NSO, IEA, MRPAM, etc.                                                     |
| Agriculture | Cambodia  | BUR1, NC1, NC2, NIR, NC3 | 2006 IPCC GLs                           | Tier 1                 | D                | MAFF and MEF                                                              |
|             | Indonesia | BUR3                     | 2006 IPCC GLs, 2013 Wetlands Supplement | Tier 1, Tier 2         | D, CS            | Statistic Bureau and MoA                                                  |

NBS: National Bureau of Statistics, NSO: National Statistical Office, IEA: International Energy Agency  
 MRPAM: Mineral Resources and Petroleum Authority of Mongolia  
 MAFF: Ministry of Agriculture, Forestry and Fisheries, MEF: Ministry of Economy and Finance  
 MoA: Ministry of Agriculture

# 1. IPPU sector (1)

## (India and Malaysia)

### ■ Issues and solutions / Outstanding issues

- Challenges are faced with collecting activity data for estimating for F-gas sources (e.g. F-gas emissions from RAC). (India/Malaysia)
- If there is no domestic production of F-gases, tracking the F-gas imports to the various sources may provide information for estimation. (India/Malaysia)
- Emissions/activity data that is used currently can be enhanced. (Malaysia/India)
- Challenges are faced with capturing data from small and fragmented industries. (India)



RAC : Refrigeration and Air-Conditioning



# 1. IPPU sector (2)

## (India and Malaysia)

### ■ Good practices

#### India

- Consideration is made to apply the 2019 Refinement for some sub-categories in BTR1.
- NIMS to collect more unified data will be started up.
- CSEFs are used for estimating CO<sub>2</sub> emissions from cement/soda ash production, etc and the values are clearly provided in the TNC, in a tabular format.
- Quantitative information of activity data for 2017 to 2019 are provided in the TNC, in a tabular format, supporting the robustness of the inventory.



# 1. IPPU sector (3) (India and Malaysia)

## ■ Good practices

### Malaysia

- Information on methodology used for the estimation such as Tier, EF, AD and its source/assumptions are clearly provided in the technical annex of BUR4, in a tabular format.
- GHG emissions for 1990 to 2019 are estimated at the sub-category level.
- A cycle is established to acquire data, analyze the data, and then engage with the data providers on data clarification, etc. This builds mutual trust.
- NRES is working to extend its reach to the appropriate / applicable industry stakeholders in the IPPU sector in order to improve the inventory quality.

## 2. Energy sector (1) (China and Mongolia)

### ■ Issues and solutions / Outstanding issues

- The IEA EBT is mainly used as AD and cross-checked with national sources. The draft national EBT (1990-2019) are under the review by domestic stakeholders. (MNG)
- The national statistics do not have sufficient category disaggregation. (MNG)
- A figure of institutional arrangement is included in BUR2, but the institutional arrangement may change for the BTR. (MNG)
- The fuel consumption of water-borne navigation includes buildings, cars, etc. of ship companies. (CHN)
- The recalculation was performed for the NDC reference year 2005, but not for 1994, 2010, 2012 and 2014. The recalculation of 2010, 2012, 2014, 2017 and 2018 will be reported in the final BUR. (CHN)



CHN: China, MNG: Mongolia, EBT: Energy balance tables, RA: Reference approach,  
SA: Sectoral approach, NDC: Nationally determined contribution

## 2. Energy sector (2) (China and Mongolia)

### ■ Good practices

#### China

- Higher tiers are applied for most key categories (e.g., CSEF and the COPERT model).
- The inventory agency closely coordinates with the data providers such as the statistical bureau and relevant associations.
- Involving in the UNFCCC international review process enables the team better understanding the good practices and gain inspirations.
- Quick estimates of CO<sub>2</sub> emissions from fuel combustion and IPPU sector are performed for internal use, which is one of the good examples of use of GHG inventories.
- At the moment, further CSEF development including liquid fuels is in progress.



## 2. Energy sector (3) (China and Mongolia)

### ■ Good practices

#### Mongolia

- NIR2 was attached with BUR2 for enhancing transparency.
- Updated CSEF (2021) are applied to carbon contents of other bituminous coal and lignite, and the CO<sub>2</sub> emissions are recalculated for the entire time-series.
- Has some experiences in preparing CRF during BUR1 compilation.
- Entire time-series emissions from 1990 are estimated.



# 3. Agriculture sector (1)

## (Cambodia and Indonesia)

### ■ Issues and solutions / Outstanding issues

- Difference of reporting years compared with the previous inventory. (KH)
- Need to consider whether or not elephants are sources of enteric fermentation emissions, considering Cambodia's specific circumstances. (KH)
- Need to check where the EF information on manure management for elephants comes from. (KH)
- Need to check consistency between data used as the amount for rice residue and biomass burning. (KH)



# 3. Agriculture sector (2)

## (Cambodia and Indonesia)

### ■ Good practices

#### Cambodia

- Improvement plans are provided.
- Elephant manure is considered as a CS source.
- Even though data sources change, data consistency is ensured for animal livestock population.



# 3. Agriculture sector (3)

## (Cambodia and Indonesia)

### ■ Good practices

#### Indonesia

- Time series data since 2000 and X-2 year were calculated.
- Tier 2 is applied and CSEFs are developed based on research on parameter data for livestock and rice cultivation.
- Recalculations were conducted from previous BUR submission for full time-series.
- Some not estimated sources for enteric fermentation in the previous BUR are estimated in the latest submission.
- Filling some data gaps which were caused from unavailability of statistics for the recent years are supplemented by using proxy data and proportion to previous data for paddy field.

