Introduction of the Workshop on Greenhouse Gas Inventories in Asia (WGIA)

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August 2017

Overview of the Workshop on Greenhouse Gas Inventories in Asia (WGIA)

- Capacity building for Measurement, Reporting and Verification -

Workshop title:	Workshop on Greenhouse Gas Inventories in Asia (WGIA)
Objective:	To support countries in Asia to improve the quality of inventories via regional information exchange
Organizers:	Ministry of the Environment of Japan National Institute for Environmental Studies A host country from participating countries
Member countries:	Brunei, Cambodia, China, India, Indonesia, Japan, Republic of Korea, Lao P.D.R., Malaysia, Mongolia, Myanmar, Philippines, Singapore, Thailand, Vietnam (15 countries)
Participants:	Government officials, researchers, compilers
Observers	UNFCCC Secretariat, IPCC Task Force on National Greenhouse Gas Inventories, USEPA, Australia, JICA, etc.
Number of participants	Approximately 100 to 120 people
Style:	Annual workshop since 2003 (the latest one is the 15th WGIA held in July 2017)
Funds:	Ministry of the Environment of Japan

Package of Support Programs for NAMA

Nationally Appropriate Mitigation Actions (NAMA)

①Strategy
- Scenario & Planning

②Technology
- Energy saving
- Renewable energy

③System
- MRV
  – Inventory, NC, BUR

Low Carbon Society Scenario

NAMA Guidebook

JCM
(Joint Crediting Mechanism)
- Capacity Building
- Feasibility Studies
- Model projects
- Finance scheme

WGIA
(Workshop on Greenhouse Gas Inventories in Asia)

City- to- city Cooperation

Necessity of GHG Inventory

➢Inventories form the basis of rational policy development because they can be used:

- to identify the major sectors where abatement will have a real impact.
- to predict and compare impacts of mitigation measures.
- to choose cost-effective options.

➢Inventories are essential to monitoring of impacts of mitigation policies and measures.

- Policy makers need to know if policies are working.
- Inventory methods should be chosen to reflect impacts of mitigation actions.

What do we do to improve our inventories?

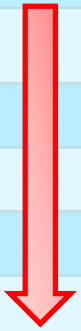
- Sharing experiences concerning inventory development, preparation
- Updating inventory related information of each participating countries
- Identifying common issues and discussing possible solutions
- Discussion on cross-cutting and sector-specific issues concerning inventory
- Mutual Learning since 2011: In-depth methodological discussion between 2 countries by inventory-compilers

Outcomes

- Development of a network for inventory experts
- Presentations made by the participants in the work shop are available on URL: http://www-gio.nies.go.jp/wgia/wgiaindex-e.html
- Workshop proceeding are published

WGIA History

WGIA1:	Phuket, Thailand, 13-14 Nov. 2003	Staring with 30 participants from 11 countries Identified problems and needs of support
WGIA2:	Shanghai, China, 7-8 Feb. 2005	Shared information and experiences gained through inventory development
WGIA3:	Manila, Philippines, 23-24 Feb. 2006	Malaysia becomes member countries Discussed technical matters on each sector inventory
WGIA4:	Jakarta, Indonesia, 14-15 Feb. 2007	Singapore and Myanmar become member countries Organized working groups and discussed sector specific issues
WGIA5:	Kuala Lumpur, Malaysia, 6-8 Sep. 2007	Identified needs for further inventory improvement
WGIA6:	Tsukuba, Japan, 16-18 July 2008	Reaffirmed the importance of inventory development
WGIA7:	Seoul, Republic of Korea, 7-10 July 2009	Shared information and experiences / Discussed sector specific and cross cutting issues
WGIA8:	Vientiane, Lao P.D.R., 13-16 July 2010	
WGIA9:	Phnom Penh, Cambodia, 13-15 July 2011	Newly started ”Mutual Learning”
WGIA10:	Hanoi, Viet Nam, 10-12 July 2012	Shared information and experiences / Conduct Mutual Learning
WGIA11:	Tsukuba, Japan, 5-7 July 2013	
WGIA12:	Bangkok, Thailand, 4-6 August 2014	
WGIA13:	Bali, Indonesia, 4-6 August 2015	Brunei become member countries
WGIA14:	Ulaanbaatar, Mongolia, 26-28 July 2016	Poster session (Sharing the specific issues)
WGIA15:	Nay Pyi Taw, Myanmar, 11-13 July 2017	



Achievements of WGIA

Strengthened a network of regional experts

WGIA1 in Thailand (2003)

WGIA15 in Myanmar (2017)

Dissemination

- Website

http://www-gio.nies.go.jp/wgia/wgiaindex-e.html

- Proceedings

Overview of WGIAs - Plenary Sessions -

- Plenary sessions deal with cross-cutting issues on national GHG inventory preparation.
- All participants joined the plenary sessions.
- Through discussions in the plenary sessions, participants in WGIAs share information provided by various data sources, which is useful for improving their inventory preparation systems.

Plenary session in WGIA13

- Topics discussed in plenary sessions:
  - Information on progress about non-Annex I Parties' NCs, BURs and ICA shared by the UNFCCC Secretariat
  - Progress of NCs and BURs in each participating country,
  - National Systems for Periodical National GHG Inventory Preparation,
  - Relationships between inventory and mitigation measures/NAMAs,
  - Enhancement of Network for Supporting Measurement, Reporting and Verification (MRV),
  - Quality Assurance/Quality Control (QA/QC),
  - Uncertainty Assessment,
  - Time-series consistent estimates, etc.

<Reference>
•WGIA: http://www-gio.nies.go.jp/wgia/wgiaindex-e.html

Overview of WGIAs - Sectoral Working Group Sessions -

- There are various issues for inventory preparation in each sector.
- It is good to discuss such sector-specific issues among sectoral experts for deeply discussing the issues.
- WGIAs provide the sectoral working group sessions in order to discuss particular sector-specific issues and to find some elements for solving the issues.

Sectoral Working Group Sessions held in WGIAs

	Cross-cutting	Energy	Agriculture	LULUCF	Waste
WGIA6	Awareness raising of GHG inventories		Strategies to improve reliability of data	Use of remote-sensing data	Strategies to improve reliability of data
WGIA7		Statistics for energy sector	Emission factors utilized for NCs	Activity data from remote-sensing and GIS	Improvement of data collection scheme
WGIA8	Institutional arrangements for inventory preparation		Estimation methods and development of parameters	Follow up of WGIA7 (remote sensing and GIS data)	Information exchange on the current status of sectoral inventory preparation
WGIA9	-Non-CO_2 gas estimation - QA/QC systems	Estimation of CO_2 emissions from transport sector			Development of waste statistics
WGIA12	-GHG Inventory at various levels		Relationship between national GHG inventories and mitigation measures, specifically NAMAs		

<Reference> WGIA: http://www-gio.nies.go.jp/wgia/wgiaindex-e.html

Overview of WGIAs - Hands-on Training Sessions -

- Technical issues how to implement inventory preparation need some trainings.
- WGIAs provide hands-on training sessions in order to provide participants in WGIAs chances to try how to actually implement some technical processes of inventory preparation.

Hands-on Training Sessions held in WGIAs

	Topic
WGIA6	How to implement a key category analysis
WGIA7	How to fill data gaps
WGIA8	How to implement mutual learning for national GHG inventories
WGIA10	How to use the new IPCC Inventory Software (Energy, Industrial Processes, Waste)



Hands-on Training Session in WGIA10 (Waste)

Overview of WGIAs - Mutual Learning Sessions -

Mutual learning on general in WGIA13

Mutual learning on LULUCF in WGIA13

Mutual learning on waste in WGIA13

- Over two months, studying another country's inventory, asking question on the inventory to compilers of the country, and getting their answers help you to obtain useful information/data that could be used for your own inventory preparation and to enhance your own capacity for inventory compilation.
- WGIAs provide sessions for two countries to mutually learn each national GHG inventory in detail.
- The ML sessions are held as closed meetings, so information provided by participating countries can be dealt with as confidential.

Mutual Learning programme since 2010

Objective

- To develop capacity of inventory compilation by learning from the partner county's inventory
  - To study methodology
  - To progress inventory compilation (data collection, quality control, and etc.)
  - To improve documentation

Approach

- Bilateral learning
- Exchange of the inventories
  - Document on methodology
  - Spreadsheet for calculation
- Reading carefully, clarifying with questions
- Learning mutually good practices from the partner country's inventory
  - Not one sided lecture
  - Not peer review with criticism

General Procedure of ML

- Preliminary process

  Announcement : December
  Application : January
  Determining partners : March

- Main process

  Submission of materials : April –May
  Material Exchange : June
  [Learning the materials]
  Comment exchange : June
  Answer to comments : July
  Sessions : July

Expected outcomes

■ Issues discussed

Estimation methodology

- Acquisition of activity data
- Adoption of emission factor
- Uncertainty analysis
- Transparency of documentation

National system

- Institutional arrangement
- Quality assurance & quality control

etc.

■ Benefit to the parties

- Good opportunity to know other country's inventory
- Motivation for continuous inventory compilation
- Improvement of methodology, etc.

	General	Energy	IP	Agriculture	LULUCF	Waste
2008-2010	Trial implementation Japan- Korea					
2010 WGIA8	Introduction to ML (with hands on training)					
2011 WGIA9	-	Indonesia-Mongolia	-	-	Japan-Lao PDR	Indonesia-Cambodia- Korea
2012 WGIA10	-	Cambodia-Thailand	Indonesia-Japan	Indonesia-Vietnam	-	China-Korea
2013 WGIA11	-	Lao PDR-Thailand	-	China-Myanmar	-	Malaysia-Vietnam
2014 WGIA12	-	Indonesia-Myanmar	-	China-Mongolia	Vietnam	
2015 WGIA13	Japan-Vietnam	-	-	Indonesia-Lao PDR	Cambodia-Mongolia	Korea-Myanmar
2016 WGIA14	-	Brunei-Korea	Myanmar-Malaysia	-	Indonesia-Lao, PDR	Mongolia-Thailand
2017 WGIA15	-	Mongolia-Vietnam	-	-	Lao PDR-Myanmar	China-Philippines

- Trial implementation between Japan and Korea since 2008
- Introduction to ML activity on WGIA 8
- Added as official programme into WGIA since 2011
- Added a session for General (cross cutting issues) on WGIA13.

Experienced countries

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

- In spite of many applicants every year, not all of the countries have experienced ML yet..

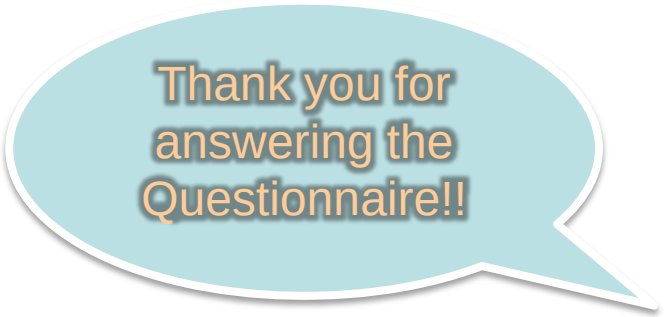
Follow-up survey of Mutual Learning

- **Objective**
  - To follow up outcomes from mutual learning programme
  - To understand requests for future mutual learning programme
- **Outline of survey**
  - Intended person

    Participants of previous mutual learning
  - Date

    18 May 2016 - 10 June 2016
  - Answer

    9 participants



Follow up survey of Mutual Learning

Q. Please answer whether there has been any improvements?

Item	Yes	No
Method	5	2
Activity data	7	0
Emission factor	5	2
Other	5	1
Cross cutting	-	-
Improvement of capacity (as a individual)	9	0

- One country which joined the mutual learning for the General sector did not answer for “Method”, “Activity data”, and “Emission factor”.
- Another country which has not started the next compiling process did not answer.

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Summary of Mutual Learning

- Through the mutual learning sessions,
  - Methodology, activity data and emission factors have been improved.
  - Institutional arrangement also has been improved.
  - Knowledge was gained on QA/QC, Uncertainty analysis
  - Back ground information, such as related regulations, legal framework and statistical system in other country, were learned.
  - Not only the GHG inventory report, but also capacities of inventory compilers have been improved.
  - Diversity of methodologies and the process of AD collection in other countries were understood.
- Capacity building also provided to national experts who review and collect data,
- Participants would like to participate in mutual learning programme in the future.

Workshop on Greenhouse Gas Inventories in Asia(WGIA)

The annual workshops have been held since 2003 in order to support non-Annex I (NAI) Parties in Asia to develop and improve their GHG inventories and to facilitate the enhancement of cooperative relationships towards improvement in the accuracy of national GHG inventories in the Asian region.

15th workshop

The Ministry of the Environment of Japan (MOEJ) and the National Institute for Environmental Studies (NIES) convened the 15th Workshop on Greenhouse Gas (GHG) Inventories in Asia (WGIA15) from 11 to 13 July 2017, in Nay Pyi Taw, Myanmar.

Participants

120 participants of government officials, researchers, and compilers from 14 Countries in Asia; Brunei, Cambodia, China, India, Indonesia, Japan, Republic of Korea, Lao P.D.R., Malaysia, Mongolia, Myanmar, Philippines, Thailand, and Viet Nam; and International Organizations.

↑ Plenary

Objectives of WGIA15

- To enhance sector-specific capacity for inventory compilation *(Mutual learning for Energy, Industrial Processes, LULUCF, and Waste sector)*

Mutual learning session →

- To share the information of national GHG inventory for national communications (NCs) and biennial update reports (BURs) *(Session I: Updates on the National Communications (NCs) and Biennial Update Reports (BURs) from Non-Annex I Parties)*
- To explore good practice for International Consultation and Analysis (ICA) of BUR *(Session II: Countries' Experience with the ICA Process and the Support for Strengthening Transparency in Reporting from non-Annex I Parties)*
- To enhance the understandings of methodology of Fluorinated Gases Emissions *(Session III: Fluorinated Gas Emissions from non-Annex I Parties)*
- To promote the relationship among GHG inventory, Projections and Mitigation Actions *(Session IV: GHG Inventories, Projections and Mitigation Actions)*

Good practices in Mutual Learning sessions of WGIA15 (1)

Energy

- The 2006 IPCC Guidelines were applied;
- The CSEFs for four types of coal was developed;
- The emissions are estimated from 1990;
- The Common Reporting Format tables were produced for full time-series.
- The energy balance tables (EBT) for 2 inventory years (2005 & 2010) were provided;
- The institutional arrangement is already set up in highest level;
- 1st BUR was submitted;
- Documentation of BUR1 is well done (The NIR 2010 was provided).

Good practices in Mutual Learning sessions of WGIA15 (2)

■ LULUCF

- 2006 IPCC Guideline was applied for calculation of GHG emissions and removals based on well understanding of methodologies. How to apply default values and methodologies were considered carefully taking into account its national circumstance.
- Institutional arrangement for GHG inventory is established and worked well. However, to make sure improvement of GHGI in the future, specifically more accuracy of activity data, the national GHGI including national experts need to be improved continuously.
- Coordination with GHG inventory agency with other organization is done.
- Consistency on the time series data is required (recalculate all previous NGHGI whenever changes occurs in terms of methodology, etc)

Good practices in Mutual Learning sessions of WGIA15 (3)

■ Waste

- Bottom-up data collection procedures has been in place
- AD estimation is based on internal assumptions using extrapolation with income class and size of city
- Institutionalized inventory management and reporting system
- The inventory system supports the domestic carbon trading
- Industry-based reporting system has been in place
- By regulation, biodegradable waste must be treated at the village level and this practice contributes to reduce GHG emissions

Main findings of the WGIA15

- Considering that Technical Assessment (TA) and Facilitative Sharing of Views (FSV) were conducted in ICA process, participants shared the view that applying 2006 IPCC Guidelines is effective, and that the experience of ICA enhance the transparency of BUR including GHG inventory.
- Participants also shared the view that estimation and reporting of Fluorinated gas, one of main GHGs are important, and that improving the accuracy of GHG inventories is important for establishment and evaluation of Nationally Determined Contributions (NDCs).
- Participants shared the recognition that Mutual learning was a good opportunity to understand the current status of its own country and counterpart countries, and it has led to the improvement of their BURs.

← Participants of the WGIA15

Future direction

WGIA16 will be held in 2018. In WGIA16, mutual learning, and discussions to improve BURs and GHG inventories included therein, based on experiences gained in ICA, will be conducted.

Review of WGIAs

Topic:	・Mutual Learning ・Improvement GHG inventory and MRV system ・National Communications (NCs), Biennial update reports (BURs) and International Consultation and Analysis (ICA) of BUR
Style:	・Mutual Learning: Breaking out group Greenhouse gas Inventory Office of JAPAN acts as a facilitator ・Discussion on Plenary sessions ・Discussion on sector specific issue on Working Group
Summary:	・Mutual Learning was recommended to be continued because of its usefulness to improve participating countries' inventories ・Importance of the relationship between inventory and mitigation measures was shared as common perceptions ・ The network of inventory experts in Asia was also strengthened through these annual events

Thank you for attention

- http://www-gio.nies.go.jp/wgia/wgiaindex-e.html
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