Mutual Learning for Waste Sector
by
China and Republic of Korea

12th July 2012, Hanoi, Viet Nam
10th Workshop on GHG Inventories in Asia

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

Outline of ML-Waste Sector Report

Including:

- ML-Waste Sector Process Overview
- ML-Waste Sector Session Agenda
- Participants
- Inventories subjected to study
- Points of Focus to Study
- Issues and Findings
- Benefit obtained from ML
- Suggestion for future ML

ML-Waste Sector Process Overview

How did they mutually learn?

May 15th, 2012

Exchanging materials to be studied with each other

May 15th - June 25th, 2012

Interacting with each other by filling in and exchanging the Study Sheet
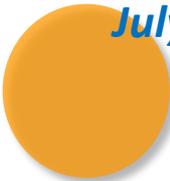
July 10th, 2012

Implementing three and a half-hour ML Session focusing on the issues raised in the Study Sheet and both countries preferred further discussion

Study Sheet and Study Sheet Summary

ML-Waste Sector Session Agenda

Time	To be discussed on
8:30-8:40	Introducing each other
8:40-10:00	Inventory of RoK
	· Issues to be further discussed as checked on the Study Sheet Issue #: 4, 6, 8, 10, 11, 15 (see the cells in the column titled "Further discussion on 10th requested by China." in the Study Sheet Summary) including: - issues and solutions, - outstanding issues, - good practice, - possible follow-up activities · Benefit obtained from actually participating in ML
10:00-10:10	Break
10:10-11:20	Inventory of China
	· Issues to be further discussed as checked on the Study Sheet Issue #: 1, 3, 4, 5 (see the cells in the column titled "Further discussion on 10th requested by RoK." in the Study Sheet Summary) including: - issues and solutions, - outstanding issues, - good practice, - possible follow-up activities · Benefit obtained from actually participating in ML
11:20-11:30	Break (if necessary)
11:30-12:30	Suggestions for future ML
	Any suggestions and/or requests for future Mutual Learning in terms of: · approach, · procedure to final discussion, · setting goals or producing outcomes, · any difficulties or concerns, etc.

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Participants

- ➢ **China**
  Dr. Qingxian GAO, Dr. Zhanyun MA with the Chinese Research Academy of Environmental Sciences (CRAES)

- ➢ **Republic of Korea**
  Dr. Byong Bok JIN, Dr. Eun-hwa CHOI, Mr. Chang Hoon LEE, Dr. Sang Won LEE, Mr. An Woo NAM, Mr. Sung Ho SHIN with the Korea Environment Corporation (KECO)

- ➢ **Observer**
  Mr. Le Ngoc Thang with Vietnam Environment Administration (VEA),

- ➢ **Facilitator**
  Mr. Hiroyuki UEDA with MURC Co., Ltd., (Session Chair)
  Dr. Takefumi ODA with GIO/CGER/NIES
  Ms. Masako WHITE with GIO/CGER/NIES (Rapporteur)

Inventories subjected to study

China

Inventory update results of year 2008

Republic of Korea:

National Inventory for 1990-2009 (KECO, 2012)

Materials used	China	RoK
Inventory Report or documents	- The document about Methodology used during the inventory compiler - The Data sources of activity and emissions factors	RoK Greenhouse Gas Inventory in Waste Sector 1990-2009, May, 2012
Spreadsheets	N/A	UNFCCC CRF Tables for 2009 Inventory

Point of Focus to Learn

Subcategory	On China's Inventory by RoK	On RoK's Inventory by China
6A SWDS	• Determining AD (Waste type, waste composition including 50 years of historical data) • Development of CS EFs (MCF, DOC)	• Determining and categorizing AD • Development of CS EF (DOC) • Estimating combined uncertainty • Editorial suggestions for Inventory report • Presentation of information in CRF tables
6B WWH	• Development of CS EFs (B_0, MCF)	• Determining and categorizing AD • Determining methodology (weighted MCF, Unit of Activity data) • Editorial suggestions for Inventory report • Presenting information in CRF tables
6C Incineration	• Estimating N_2O emissions • Determining AD (filling data gaps)	• Determining and categorizing AD • Estimating CO_2 emissions from biogenic wastes • Development of CS EFs (CO_2, N_2O emissions) • Editorial suggestions for Inventory report
General Issues	• Using different versions of IPCC GLs • Identifying key source categories • Estimating emissions from biological treatment • Associated uncertainty assessment in CS EFs	• Estimating overall uncertainty for waste sector • Details of expert judgment across sub-categories

Issues and findings - RoK

Subcategory	Issues		Findings
6A SWDS	1.	Determining waste composition	Advanced effort of calculating CS DOC annually based on annual national statistics on waste composition and carbon content surveyed every five years *(Good Practice)*
	2.	Estimating uncertainty	Getting motivated to use CS uncertainty instead of currently used default uncertainty in order to identify sources to be improved
6B WWH	3.	Determining EF for industrial wastewater	Determining EF for treatment facility based on actual measurement for each treatment process and integrated *(Good Practice)*
	4.	Selecting unit of AD	Now get motivated to try to estimate CH_4 emissions on COD base for industrial wastewater according to the IPCC Guidelines
6C Incineration	5.	Obtaining public understanding and cooperation for building Incineration facilities	Government's taking initiative to decree regulations for a community to treat waste generated within the community *(Good Practice)*

Issues and findings - RoK

Subcategory	Issues	Findings
6C Incineration	6. Monitoring of exhaust gas from incinerator for GHG inventory and other use	• Planning to implement a pilot project for monitoring fossil-fuel origin and biogenic CO_2 emissions from incinerator with 14C isotope at about 60 facilities across the country • Get motivated for seeking possibility of utilizing it as part of MRV tool for GHG inventory • Planning for information exchange on ongoing project between Korea and Japan
	7. Waste incineration practice	Possibility of contribution to the future IPCC GLs by providing scientific findings of waste incineration gained by much practice and experience in Korea and Japan

Issues and findings - China

Subcategory	Issues	Findings
6A MSW	1. Determining historical activity data before 1991 necessary for FOD method	Estimating statistically unavailable historical activity data such as waste generation before 1991 with driving force such as population and GDP for more accuracy *Good Practice*
	2. Determining activity data necessary for FOD method since 2005	Striving to conduct scientific research, examining research results and literature, and obtaining expert judgment to establish national statistic system to be used as normalized statistic index for GHG inventories *Good Practice*
	3. Estimating emissions in rural area	Possibility of underestimating CH_4 emissions in rural area since they have been excluded from activity data

Issues and findings - China

Subcategory	Issues		Findings
6A MSW	4.	Determining MCF	Determining MCF periodically reflecting country-specific waste management practice progressing over time based expert judgment *Good Practice*
6B WWH	5.	Determining B_0	Determining and applying CF B_0 for domestic and industrial wastewater based on years of accumulated expert's experience, knowledge, and judgment
General Issues	6.	Methodology improvement	Significantly Improved methodology in each sub-category since INC (1994 Inventory) *Good Practice*
	7.	Uncertainty assessment	Assessing uncertainty for the first time using IPCC default values Planning to conduct CF method in the future

Issues and findings

Common circumstances for both countries

➢ Decision making process and Institutional arrangement

✓ Dealing with different decision making organizations for scientific and policy matters (policy over science)

✓ Unable to publish or share inventories completed many months ago without approval from decision making organizations for policy matters

Benefit obtained from ML

- ✓ Learning the use of different IPCC Guidelines in neighboring countries

- ✓ Getting to know and understand neighboring country's inventories and circumstances

- ✓ Recognizing the current position of each country in relation to neighboring countries

- ✓ Obtaining useful information and advice for the issues to be addressed as the country's focus and needs change in consequence of rapid changes and progresses of NAI Parties' domestic situations

Benefit obtained from ML

- ✓ Utilizing the information and suggestions actually obtained from the ML to the improvement of inventories

- ✓ Fostering and strengthening participating countries' motivation, encouragement, and cooperation to improve national GHG inventories together among NAI Parties

Benefit obtained from ML

Comments from Observer (Vietnam)

- ✓ Recognizing other countries are also facing the similar issues to be addressed in Vietnam such as lack of statistic data

- ✓ Obtaining useful information not only from a country (China) that their current situation resembles to their own but also from a country (Korea) with advanced circumstances

- ✓ Learning other country's effort for addressing issues

- ✓ Getting motivated and encouraged, intending to share this experience and information with own inventory team

Suggestion for future ML

- ✓ Possibly (hopefully) exchanging more detailed information or the advice received on the raised issues

- ✓ Following up on the future plans shared during the discussion as the situation in each country develop

- ✓ Continuing to implement the Mutual Learning Programme annually
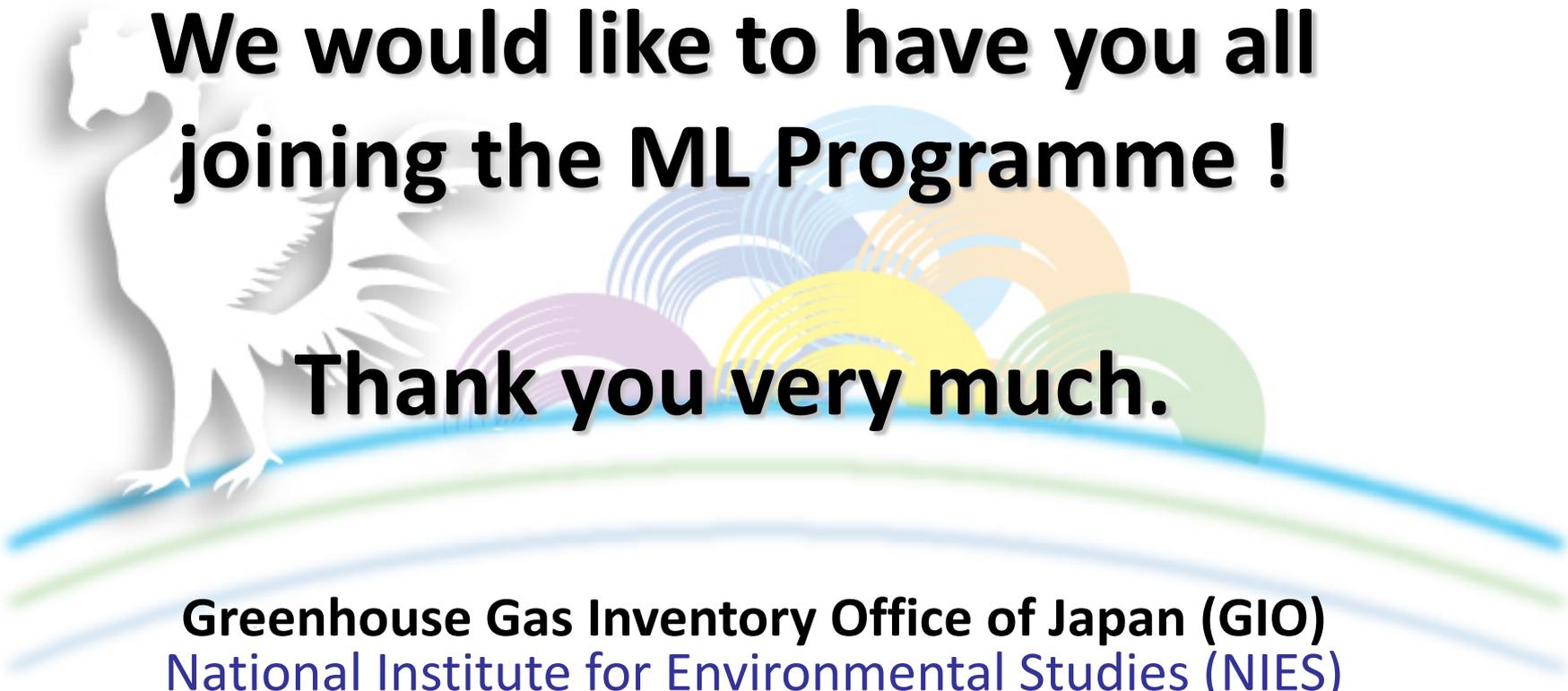
We would like to have you all joining the ML Programme !

Thank you very much.

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