



**Japan's initiative for supporting
developing countries
in developing GHG Inventory
&
GHG Inventory as a key to
mitigation actions in a MRV manner**

18th Asia-Pacific Seminar on Climate Change

2-3 March, 2009

Hanoi, Vietnam

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Outline



- Japan's initiative for supporting developing countries
 - Workshop on GHG Inventories in Asia (WGIA)
- GHG Inventory as a key to mitigation actions in a MRV manner
 - Bali Action Plan, Kobe Initiative of G8 Environment Ministers Meeting, and WGIA6
- Challenges in developing GHG inventories and possible ways forward
 - Some thoughts based on discussions at WGIA meetings



Japan's initiative for supporting developing countries

Workshop on GHG Inventories in Asia (WGIA)

Overview of WGIA



Workshop on GHG Inventories in Asia

Objective	To support countries in Asia to improve the quality of inventories via regional information exchange
Style	Annual workshop since 2003
Participants	One researcher + One government official from 14 countries + UNFCCC Secretariat, etc.
Funds	Ministry of the Environment, Japan

Overview of WGIA



□ Countries that have participated:

Cambodia, China, India, Indonesia, Japan, Republic of Korea, Laos, Malaysia, Mongolia, Myanmar, Philippines, Singapore, Thailand, Vietnam.

□ WGIA meetings in the past

WGIA1 – Phuket, Thailand, 13-14 November 2003

WGIA2 – Shanghai, China, 7-8 February 2005

WGIA3 – Manila, Philippines, 23-24 February 2006

WGIA4 – Jakarta, Indonesia, 14-15 February 2007

WGIA5 – Kuala Lumpur, Malaysia, 6-8 September 2007

WGIA6 – Tsukuba, Japan, 16-18 July 2008

Major Activities

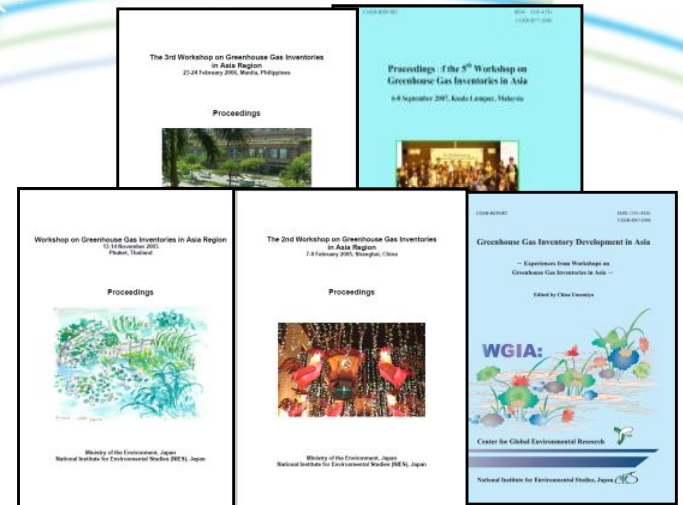
- Share countries' efforts and practices
- Discuss common issues and possible solutions
- Publication

- *Proceedings of each meeting*
- *“Greenhouse Gas Inventory Development in Asia - Experiences from Workshops on Greenhouse Gas Inventories in Asia” (2006)*

- Collection and dissemination of information

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

- Online-network (mailing list)



WGIA Online-Network Activities



- ◆ Discussion of WGIA topics
 - ▣ To develop the contents of the workshop most relevant to its participants
- ◆ Sharing useful information on GHG inventory and climate change
- ◆ Facilitating further exchange of experiences/information in the preparation of Second or Third National Communications
 - ▣ Country or region-specific emission factors that were used in GHG inventories in Initial National Communications (INC) as well as newly developed EFs since the submission of INC
 - ▣ List of experts' publication related with climate change issues and GHG inventory
 - ▣ Information about awareness raising activities related to climate change and GHG inventory in WGIA-participating countries



◆ Status of data collection/submission

□ *Country or region-specific emission factors*

- Cambodia, China, India, Republic of Korea, Lao P.D.R., Malasia
- 119 (Energy: 34, Industrial Processes 7, Agriculture: 22, LULUCF: 35, Waste: 21)

□ *Publication list*

- India, Indonesia

□ *Information about awareness raising activities on climate change and GHG inventory*

Country or region-specific emission factors (example)

Inventory Sector	Source Category	Gas	Description	Value	Unit	Source of Data
Energy	1A - Fuel Combustion Activities	CO ₂	Emission factor for combustion of Crude oil	20.0	tC/TJ	Measurements by Korea Institute of Petroleum Quality and Korea Polytechnic University
Energy	1A - Fuel Combustion Activities	CO ₂	Emission factor for combustion of Gasoline	19.7	tC/TJ	Measurements by Korea Institute of Petroleum Quality and Korea Polytechnic University
Energy	1A - Fuel Combustion Activities	CO ₂	Emission factor for combustion of Kerosene	19.5	tC/TJ	Measurements by Korea Institute of Petroleum Quality and Korea Polytechnic University
Energy	1A - Fuel Combustion Activities	CO ₂	Emission factor for combustion of Heating oil	19.5	tC/TJ	Measurements by Korea Institute of Petroleum Quality and Korea Polytechnic University
Energy	1A - Fuel Combustion Activities	CO ₂	Emission factor for combustion of Diesel	19.8	tC/TJ	Measurements by Korea Institute of Petroleum Quality and Korea Polytechnic University

Other activities of WGIA



- Collaboration with other projects in the region
 - Regional Capacity Building Project for Sustainable National GHG Inventory Management Systems in Southeast Asia (SEA Project)
 - Improvement of Solid Waste Management and Reduction of GHG Emission in Asia (SWGA)

	2006	2007	2008	2009
UNFCCC/KP	SB24 COP12/ MOP2	SB26 COP13/ MOP3	SB28 COP14/ MOP4	SB30 COP15/ MOP5
IPCC	← 2006 GL	EFDB		
WGIA	Philippines WGIA3	Indonesia WGIA4 Malaysia WGIA5	Japan WGIA6 Kobe Initiative	Korea (tbc) WGIA7
Other events			G8 in Japan	
	SEA Project	●	●	●
	SWGA	●	●	●

SEA Project: Regional Capacity Building Project for Sustainable National GHG Inventory Management Systems in Southeast Asia

SWGA: Improvement of Solid Waste Management and Reduction of GHG Emission in Asia



GHG Inventory as a key to mitigation actions in a MRV manner

Bali Action Plan, Kobe Initiative of G8 Environment Ministers Meeting, and WGIA6

Measurable, Reportable and Verifiable Actions

Bali Action Plan (Dec 2007)

1. (b) (ii) Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner.

Declaration of Leaders Meeting of Major Economies (May 2008)

10. To enable the full, effective, and sustained implementation of the Convention between now and 2012, we will “Intensify our efforts without delay within existing fora to improve effective greenhouse gas measurement.”

G8 Environment Ministers Meeting (May 2008)

Chair's Summary

“It was noted that setting up and running GHG inventories in developing countries is of fundamental importance and G8 countries should consider supporting capacity building in developing countries for the collection and provision of data.”

“Kobe Initiative”

- Aiming at holding meetings together with the outreach countries.
- 1. International research network on low-carbon societies
- 2. Analysis on bottom-up sectoral mitigation potentials
- 3. Promotion of co-benefits among relevant policies
- 4. Capacity building support for developing countries on inventories and data collection (MRV: Measurability, Reportability, and Verifiability)

GHG Inventory as a key to mitigation actions in a MRV manner



- 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 various policies.
 - 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.

WGIA6 (July 2008 in Japan)

◆ Held as the first meeting of Kobe Initiative

“Capacity building support for developing countries on GHG inventories and data collection (measurability, reportability, and verifiability)” as part of the “Kobe Initiative”

◆ Discussed:

- Promotion of international cooperation
- Uncertainty assessment
- Time series estimates and projections
- Sector-specific issues
- Key category analysis (Hands-on training)

◆ 74 participants from 13 countries in Asia as well as International organizations, etc.



Outcomes of WGIA6 (1)

The participants agreed upon various issues such as...



1. Measurability, Reportability, and Verifiability (MRV)

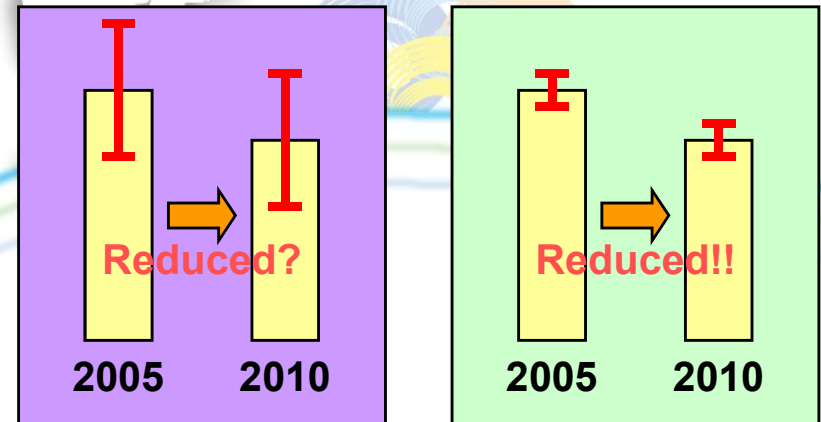
- Inventory-related data collection is important to pursue MRV.
- All countries including non-Annex I countries should be encouraged to make efforts to accurately estimate GHG emissions:
 - ✓ at a macro level (i.e., national inventory); as well as
 - ✓ at micro levels (e.g., at corporate, plant and household levels).

2. Promotion of International Cooperation

- It is necessary to promote information exchange and collaborative relationship among donor countries.
- Networking existing networks in different regions would be useful.

Outcomes of WGIA6 (2)

The participants agreed upon various issues such as...



3. Uncertainty Assessment (UA)

- UA is important to improve the accuracy of GHG inventory with a view to developing mitigation policies and monitoring their impacts.
- It was suggested WGIA participating countries voluntarily implement UA and share the results/lessons learnt at the next WGIA meeting.

4. Time Series Estimates and Projection

- Time series estimates and projections are beneficial in developing mitigation policies and measures.
- Sustainable institutional arrangements should be established. It will facilitate development and continuous improvement of time series estimates.
- Case-studies by some countries were encouraged.

Outcomes of WGIA6 (3)

The participants agreed upon various issues such as...



5. Awareness Raising about GHG Inventory and Mitigation

- It is importance to raise awareness of a wide range of stakeholders.
- A template for inventory experts to communicate with policy-makers would be helpful. It was suggested that the WGIA and SEA projects should cooperate to develop such a template.
- A roster of regional experts and relevant institutes needs to be prepared.

6. Hands-on Training on Key Category Analysis

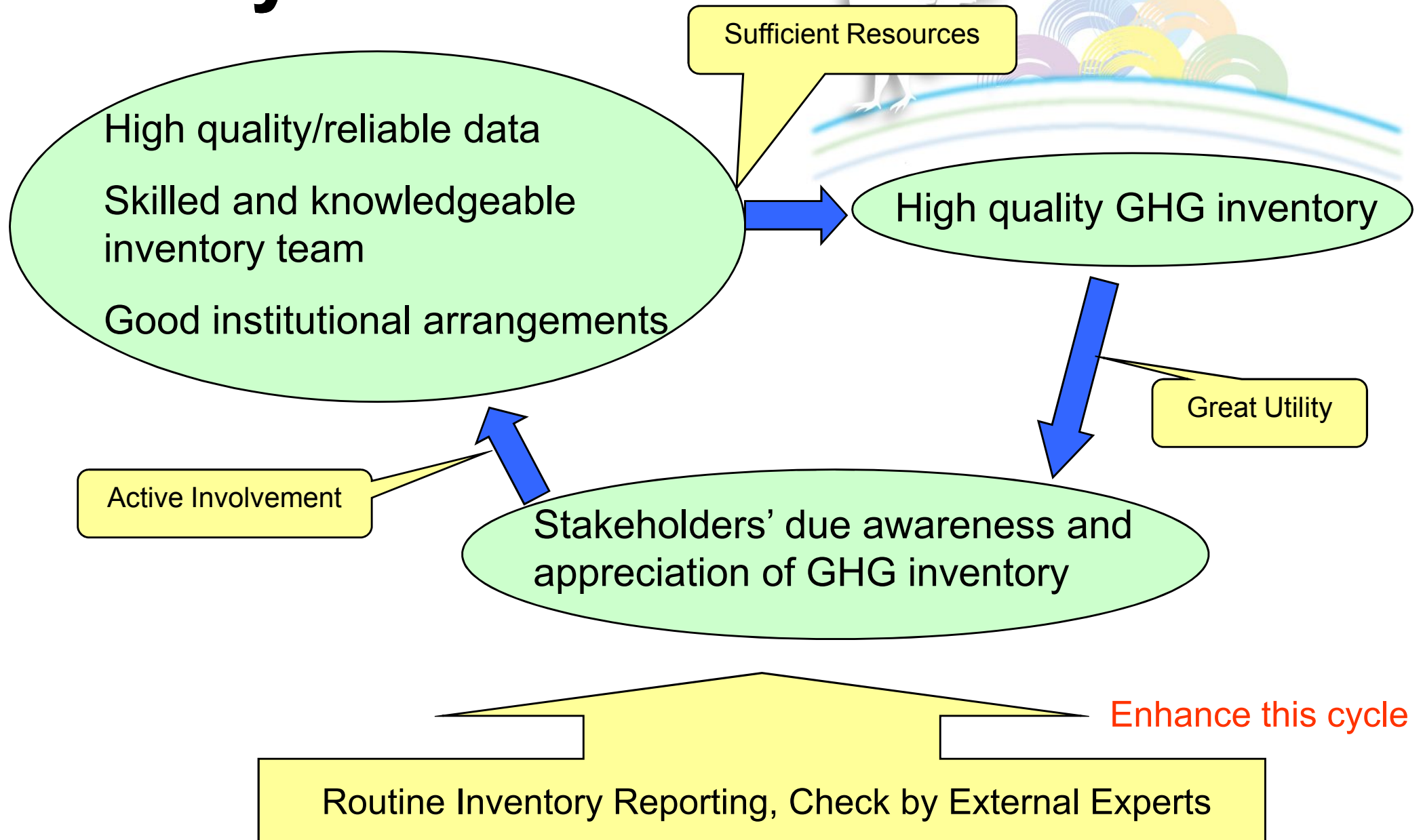
- Hands-on training on KCA was found to be very helpful.
- Need for continued support to this kind of training was recognized.



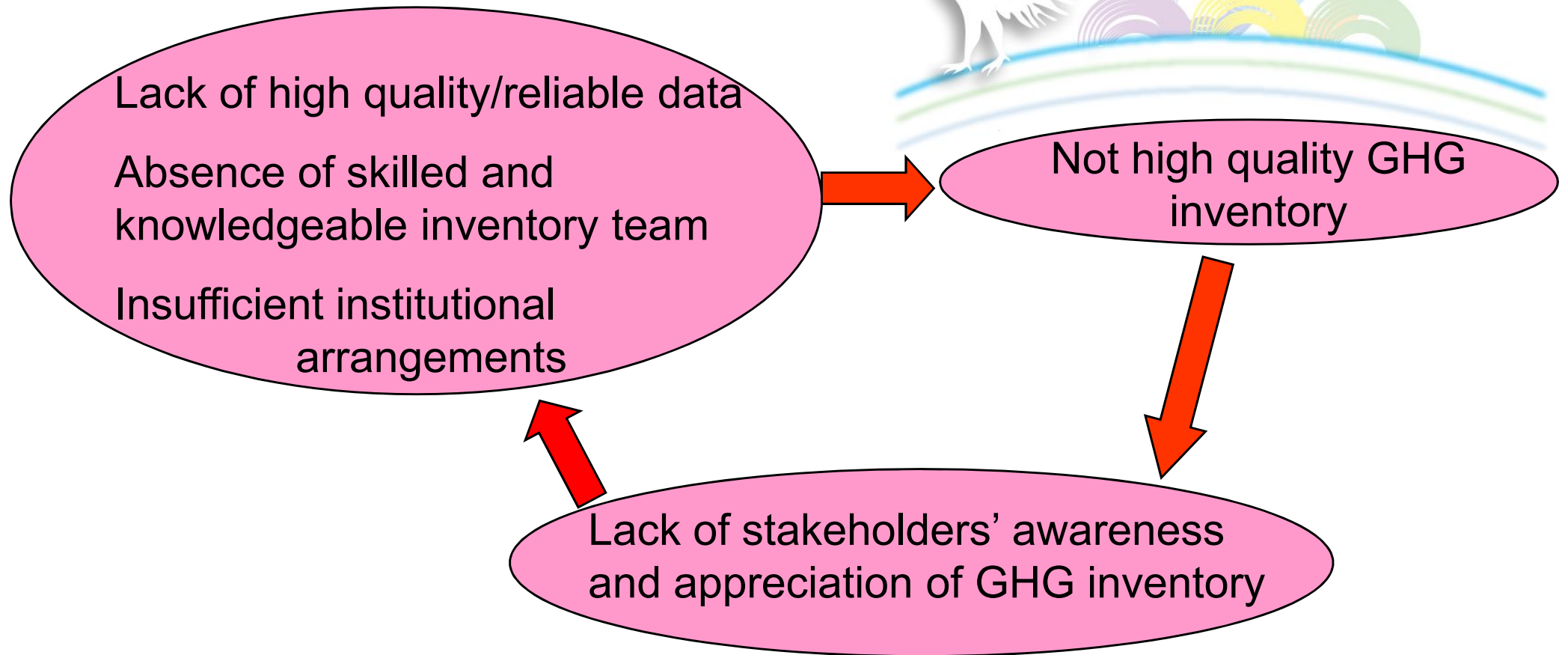
Challenges in developing GHG inventories and possible ways forward

Some thoughts based on discussions at WGIA meetings

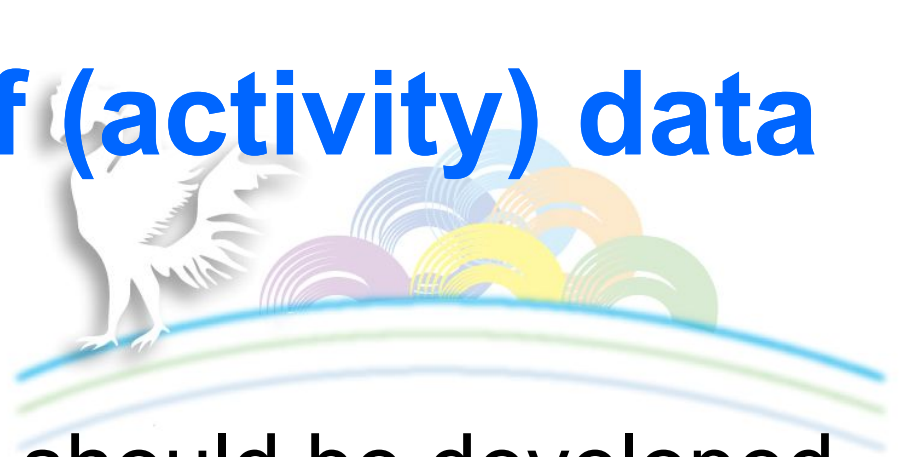
Ideally...



Actually, many NAI Parties have difficulties...



To overcome lack of (activity) data



- Desirably, official statistics should be developed (particularly for key categories).
- A possible way forward:
 - Take stock of (key) categories in which better activity data are needed.
 - Learn from the other countries' experiences
 - What kind of official statistics are used?
 - For what purposes those statistics were originally developed by whom (which ministry), and how they are used?
 - Persuade/induce relevant ministries to develop such official statistics, emphasizing its usefulness for their own policy purposes.

To improve institutional arrangements



- Need to enhance involvement of relevant ministries/agencies and other stakeholders.
- Awareness-raising is key.
 - Education/Training Needs
 - Officials (at various levels) – Role of Emission Inventories, co-benefits, need to influence high-level decision makers
 - Public – Climate Change, Emissions and reductions, ways to reduce personal emissions, simplified estimation methods
 - Industry/Companies – Climate Change, Emissions and reductions, projects (CDM etc.)
 - *Essential to successful inclusion of F-gases in inventory reporting*
 - Need to promote GHG Inventory across agencies
 - Links to other issues – energy security, food security etc.

To improve capacity of inventory team and inventory process



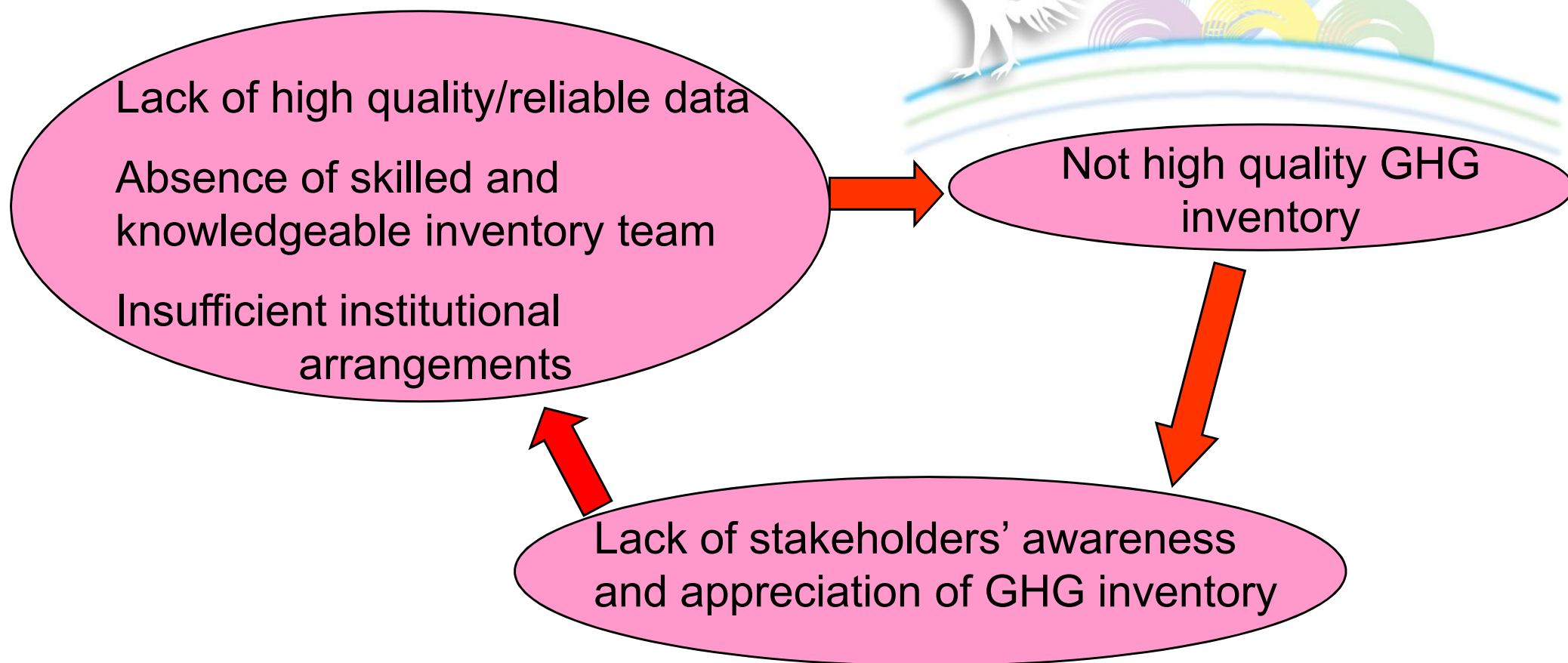
- Routinizing inventory compilation!! – it will help:
 - improve inventory team’s skill
 - facilitate data collection
- Currently, NAI countries compile their inventories only as part of NCs not on a regular basis.
- In the future, routine inventories (e.g., annually or every two years) can be encouraged?
 - On a voluntary basis? – May need some incentives
 - Mandatory? – Will need revision of UNFCCC guidelines to separate GHG inventories from NCs

To improve capacity of inventory team and inventory process

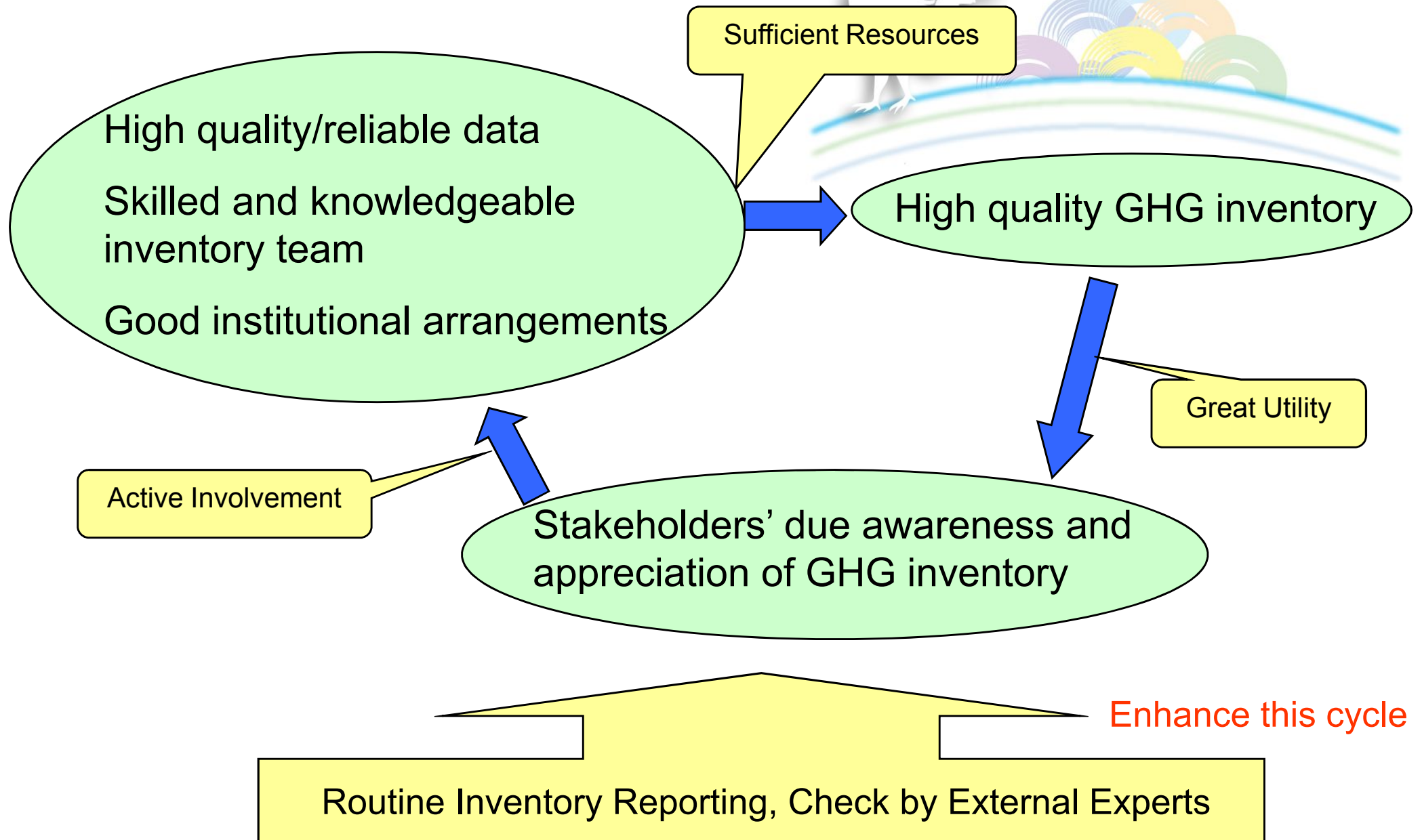


- Check by external experts may be helpful.
 - Quality assurance (QA)
 - Inventory team will improve their skill through interaction with external inventory experts.
 - Inventory team can identify categories/gases that should be prioritized in their work to improve the overall quality of inventory.
- Cross-checking of inventories among some countries as informal process – will it work?
 - Korea and Japan have provisionally initiated such cooperation. (Waste sector)

Currently...



In the future...





Thank you

GIO website: <http://www-gio.nies.go.jp/index-e.html>

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