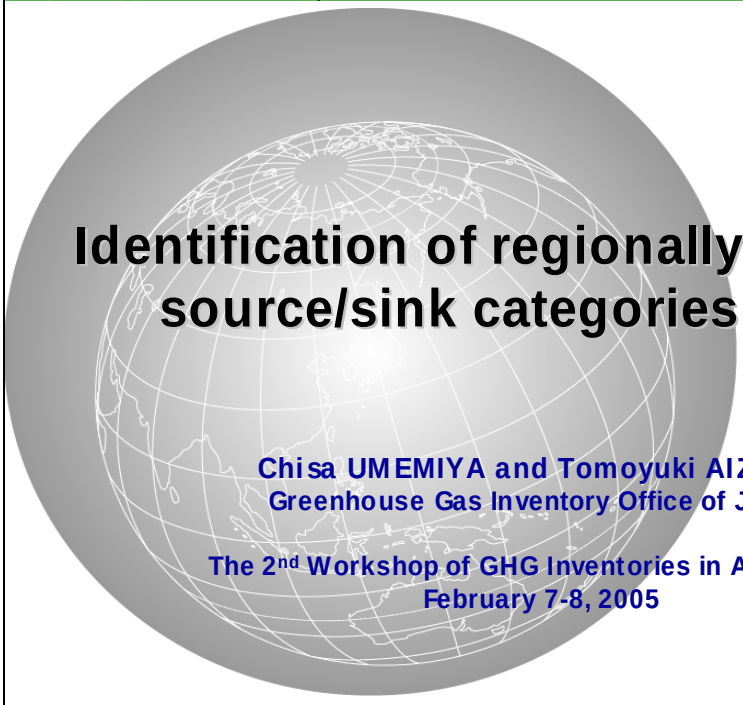

Identification of regionally-significant source/sink categories in Asia

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The 2nd Workshop of GHG Inventories in Asia region
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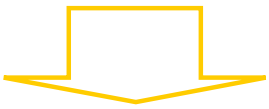
Outline

1. Purpose of presentation
2. Good experiences in other regions:

   UNDP-GEF Regional Capacity Development Project in Europe/CIS region
3. Regionally-significant source/sink categories in Asia
4. Summary

Purpose of presentation

- Network of Asia Region on GHG Inventories successfully established to:
  - Share experiences and information
  - Enhance technical and institutional capacity



How can we utilize Network of Asia Region more effectively in the future?

Let's see what other regions are doing!!

Good experiences in other regions

- *UNDP-GEF Regional Capacity Building Project*

✓ *Goal:* to strengthen capacity to improve quality of GHG inventories

✓ *Idea:* additional to efforts within a country while taking into account national priorities

✓ *Size:* participated by 12 countries in the regions

Source: Project document for Capacity-building for Improving the Quality of Greenhouse Gas Inventories in Europe/CIS region available at *http://www.gefonline.org/projectDetails.cfm?projID=1018 accessed on Dec. 2004*

Good experiences in other regions

UNDP-GEF Regional Capacity Building Project

Overview:

Region	No. of countries	Duration	Funds (million USD)
Europe/CIS	12	3 yrs since Jun. 2003	GEF:2.263 Co-finance*1: 0.994
West & Francophone Central Africa	14	3 yrs since Jan. 2004	GEF:2.992 Co-finance*2: 0.605

*1: 0.944 from Government in kind + 0.05 from Swiss Government

*2: Only from Government in kind

Good experiences in other regions

UNDP-GEF Regional Capacity Building Project

What they do:

Project objectives	Examples of actions
1) Strengthened national arrangements	"Country-solution" manual ; Review mechanism
2) Sustainable inventory team	Database of national experts; Awareness-raising campaign
3) Enhanced technical capacity	Training of trainers in GPG; National QA/QC plan
4) Improved methodology & EFs	Compilation of local EFs; ***Improved at least 3 regionally-significant EFs***

Regionally-significant source/sink categories in Asia

Methodology:

UNDP-GEF Capacity Building Project

1. Nation-by-Nation

- ✓ key category analysis nation-by-nation (level only)
- ✓ identify Top 5 KCs in each country
- ✓ count frequency of countries identifying as KC

2. Asia-combined inventory

- ✓ combine all countries' inventories into one Asia-combined inventory
- ✓ key category analysis (level only)

Influenced by large emitters!

Regionally-significant source/sink categories in Asia

Target:

Cambodia, China, India, Indonesia, Japan, Korea, Lao PDR, Mongolia, Philippines, Thailand, Viet Nam (Total 11)

Source:

Accessed on Dec. 2004

- NC1 with Base Year 1994, if not available, 1990 (8)
- NC2 with 2001 (Korea)
- ALGAS Report with 1990 (China)
- GHG Inventory for 1995 (Japan)

Regionally-significant source/sink categories in Asia

Perhaps, potential priority areas in Asia

	IPCC Categories		GHG	Freq.	Countries
#1	5.A	**Changes in Forest and Other Woody Biomass Stocks**	CO2	9	Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Mongolia, Philippines, Viet Nam
#2	1.A.1	**Fuel Combustion: Energy**	CO2	8	China, India, Indonesia, Japan, Korea, Mongolia, Philippines, Thailand
#3	4.C	**Rice cultivation**	CH4	7	Cambodia, China, India, Lao PDR, Philippines, Thailand, Viet Nam
#4	5.B	**Forest and Grassland Conversion**	CO2	7	Cambodia, Indonesia, Lao PDR, Mongolia, Philippines, Thailand, Viet Nam
#5	1.A.2	Fuel Combustion: Manufacturing Industries and Construction	CO2	6	China, India, Indonesia, Japan, Korea, Thailand
#6	1.A.3	Fuel Combustion: Transport	CO2	5	India, Japan, Korea, Philippines, Thailand
#7	4.A	Enteric Fermentation	CH4	3	Cambodia, India, Mongolia
#8	5.C	Abandonment of Managed Lands	CO2	3	Indonesia, Mongolia, Viet Nam
#9	1.A.4	Fuel Combustion: Other Sectors, e.g. Commercial, Residential	CO2	3	China, Japan, Korea
#10	4.D	Agricultural Soils	N2O	1	Cambodia
#11	5.D	CO2 Emissions and Removals from Soil	CO2	1	Viet Nam

Regionally-significant source/sink categories in Asia

Comparison to those in Europe/CIS region…

Unique to Asia!

Not including LULUCF

	Asia					Europe/CIS			
	IPCC Categories			GHG	Freq. (of 11)	IPCC Categories without LULUCF		GHG	Freq. (of 12)
#1	5.A	**Changes in Forest and Other Woody Biomass Stocks**		CO2	9	6.A	**Soild Waste Disposal on Land**	CH4	7
#2	1.A.1	**Fuel Combustion: Energy**		CO2	8	1.B.2	**Fugitive Emissions from Fuels: Oil and Natural Gas**	CH4	7
#3	4.C	**Rice cultivation**		CH4	7	4.A	**Enteric Fermentation**	CH4	6
#4	5.B	**Forest and Grassland Conversion**		CO2	7	1.A.3.b	**Fuel Conbustion: Transport – Road Tranportation**	CO2	6
#5	1.A.2	Fuel Combustion: Manufacturing Industries and Construction		CO2	6	4.D	Agricultural Soils	N2O	5
#6	1.A.3	Fuel Combustion: Transport		CO2	5	1.A.1	Fuel Combustion: Energy	CO2	3
#7	4.A	Enteric Fermentation		CH4	3	1.B.1	Fugitive Emissions from Soild Fuels	CH4	3
#8	5.C	Abandonment of Managed Lands		CO2	3	4.B	Manure Management	N2O	2
#9	1.A.4	Fuel Combustion: Other Sectors, e.g. Commercial, Residential		CO2	3	1.A.2	Fuel Combustion: Manufacturing Industries and Construction	CO2	2

Regionally-significant source/sink categories in Asia

Potential regionally-significant areas

Number of countries reporting

Impacts on region

	IPCC Categories		GHG	Freq.	Countries	No. of reports	Impacts (%)
#1	5.A	**Changes in Forest and Other Woody Biomass Stocks**	CO2	9	Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Mongolia, Philippines, Viet Nam	11	12.2
#2	1.A.1	**Fuel Combustion: Energy**	CO2	8	China, India, Indonesia, Japan, Korea, Mongolia, Philippines, Thailand	11	18.9
#3	4.C	**Rice cultivation**	CH4	7	Cambodia, China, India, Lao PDR, Philippines, Thailand, Viet Nam	10	5.6
#4	5.B	**Forest and Grassland Conversion**	CO2	7	Cambodia, Indonesia, Lao PDR, Mongolia, Philippines, Thailand, Viet Nam	11	8.7
#5	1.A.2	Fuel Combustion: Manufacturing Industries and Construction	CO2	6	China, India, Indonesia, Japan, Korea, Thailand	10	19.0
#6	1.A.3	Fuel Combustion: Transport	CO2	5	India, Japan, Korea, Philippines, Thailand	10	7.5
#7	4.A	Enteric Fermentation	CH4	3	Cambodia, India, Mongolia	11	4.1
#8	5.C	Abandonment of Managed Lands	CO2	3	Indonesia, Mongolia, Viet Nam	5	0.4
#9	1.A.4	Fuel Combustion: Other Sectors, e.g. Commercial, Residential	CO2	3	China, Japan, Korea	10	8.7
#10	4.D	Agricultural Soils	N2O	1	Cambodia	9	1.3
#11	5.D	CO2 Emissions and Removals from Soil	CO2	1	Viet Nam	4	0.0

Total 45.4 %

More reports can be generated?

Summary

Overall:

Our existing network has excellent potential
to evolve into more concrete project status
that can effectively contribute to an improved inventory

More precisely, my suggestion is:

- ✧ To improve accuracy of EFs and AD of regionally-significant categories since regional characteristics in key categories are identified
- ✧ To encourage information transfer in certain categories with insufficient reports by countries

→ ***Any other suggestions??***

Thank you very much!

Regionally-significant source/sink categories in Asia

Comparison to those in the world...

	IPCC Categories		GHG	Freq.
#1	5.A	Changes in Forest and Other Woody Biomass Stocks	CO2	9
#2	1.A.1	Fuel Combustion: Energy	CO2	8
#3	4.C	Rice cultivation	CH4	7
#4	5.B	Forest and Grassland Conversion	CO2	7

Not including LULUCF

IPCC Category		GHG	Brazil	EU	Former USSR	USA	World
Energy	Fuel Combustion	CO2	○	◎	◎	◎	◎
	Fugitive	CO2					
		CH4			○	○	
		N2O					
Industrial Processes		CO2					
		N2O					
		HFC					
		PFC					
		SF6					
Agriculture		CH4	△	△	△		△
		N2O		○		△	○
Waste		CH4					
Other		CO2	◎				
		CH4					
		N2O					

◎: First
○: Second
△: Third
most significant KCs

Source: CO2 Emissions from Fuel Combustion 2004 Edition (IEA, 2004)

Regionally-significant source/sink categories in Asia

KC analysis results of Asia-combined inventory

	Asia-Comboined						Level Assessment Result			
	IPCC Categories	GHG	No. of reports	Non-LULUCF (Gg CO_2eq.)	LULUCF (Gg CO_2eq.)	Absolute Value (Gg CO_2eq.)	Without LULUCF	Cumulative Total Without LULUCF	With LULUCF	Cumulative Total With LULUCF
	SUM			6,664,351	−240,107	8,502,028	1.0000		1.0000	
#1	1.A.2	CO2	10	1,618,644	0	1,618,644	0.2429	0.2429	0.1904	0.1904
#2	1.A.1	CO2	11	1,606,437	0	1,606,437	0.2410	0.4839	0.1889	0.3793
#3	5.A	CO2	11	0	−1,038,892	1,038,892	0.0000	0.4839	0.1222	0.5015
#4	5.B	CO2	11	0	743,372	743,372	0.0000	0.4839	0.0874	0.5890
#5	1.A.4	CO2	10	737,839	0	737,839	0.1107	0.5946	0.0868	0.6757
#6	1.A.3	CO2	10	640,530	0	640,530	0.0961	0.6908	0.0753	0.7511
#7	4.C	CH4	10	479,436	0	479,436	0.0719	0.7627	0.0564	0.8075
#8	4.A	CH4	11	346,245	0	346,245	0.0520	0.8147	0.0407	0.8482
#9	2.A	CO2	9	225,925	0	225,925	0.0339	0.8486	0.0266	0.8748
#10	1.B.1	CH4	10	202,258	0	202,258	0.0303	0.8789	0.0238	0.8986
#11	1.A.4	CH4	11	109,866	0	109,866	0.0165	0.8954	0.0129	0.9115
#12	4.D	N2O	9	109,827	0	109,827	0.0165	0.9119	0.0129	0.9244
#13	1.A.1	N2O	8	74,024	0	74,024	0.0111	0.9230	0.0087	0.9331
#14	2.C	CO2	8	66,851	0	66,851	0.0100	0.9330	0.0079	0.9410
#15	1.B.2	CH4	8	64,780	0	64,780	0.0097	0.9427	0.0076	0.9486
#16	4.B	CH4	11	62,292	0	62,292	0.0093	0.9521	0.0073	0.9559
	6.A	CH4	11	59,950	0	59,950	0.0090	0.9611	0.0071	0.9630
	5.C	CO2	5	0	35,168	35,168	0.0000	0.9611	0.0041	0.9671
	1.A.5	CO2	3	33,450	0	33,450	0.0050	0.9661	0.0039	0.9710
	4.B	N2O	2	30,721	0	30,721	0.0046	0.9707	0.0036	0.9747
	4.G	N2O	5	27,900	0	27,900	0.0042	0.9749	0.0033	0.9779
	6.C	CO2	8	26,383	0	26,383	0.0040	0.9788	0.0031	0.9810
	2.B	CO2	3	19,101	0	19,101	0.0029	0.9817	0.0022	0.9833

Regionally-significant source/sink categories in Asia

Nation-by-Nation & Asia-combined inventory

	IPCC Categories		GHG	Freq.	Countries	Combined	No. of reports
#1	5.A	Changes in Forest and Other Woody Biomass Stocks	CO2	9	Cambodia, China, Indonesia, Japan, Korea, Lao PDR, Mongolia, Philippines, Viet Nam	#3	11
#2	1.A.1	Fuel Combustion: Energy	CO2	8	China, India, Indonesia, Japan, Korea, Mongolia, Philippines, Thailand	#2	11
#3	4.C	Rice cultivation	CH4	7	Cambodia, China, India, Lao PDR, Philippines, Thailand, Viet Nam	#7	10
#4	5.B	Forest and Grassland Conversion	CO2	7	Cambodia, Indonesia, Lao PDR, Mongolia, Philippines, Thailand, Viet Nam	#4	11
#5	1.A.2	Fuel Combustion: Manufacturing Industries and Construction	CO2	6	China, India, Indonesia, Japan, Korea, Thailand	#1	10
#6	1.A.3	Fuel Combustion: Transport	CO2	5	India, Japan, Korea, Philippines, Thailand	#6	10
#7	4.A	Enteric Fermentation	CH4	3	Cambodia, India, Mongolia	#8	11
#8	5.C	Abandonment of Managed Lands	CO2	3	Indonesia, Mongolia, Viet Nam	–	5
#9	1.A.4	Fuel Combustion: Other Sectors, e.g. Commercial, Residential	CO2	3	China, Japan, Korea	#5	10
#10	4.D	Agricultural Soils	N2O	1	Cambodia	#12	9
#11	5.D	CO2 Emissions and Removals from Soil	CO2	1	Viet Nam	–	4