Transition from Revised 1996 IPCC Guidelines to 2006 IPCC Guidelines

Africa Regional Workshop on the Building of Sustainable National Greenhouse Gas Inventory Management Systems, and the Use of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

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Objective

A general understanding of the key differences of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories (hereinafter referred to as the Revised 1996 IPCC Guidelines) and the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (hereinafter referred to as the 2006 IPCC Guidelines).

2006 IPCC Guidelines

- Produced based on, inter alia:
  - ✓ Revised 1996 IPCC Guidelines
  - ✓ GPG2000
  - ✓ GPG-LULUCF
  - ✓ Experiences from the UNFCCC technical inventory review process.
- Consistent with earlier guidelines – evolution rather than revolution

Key Improvements

- **Accuracy** - includes updated methods and improved default values based on up-to-date information thus improving the overall accuracy of estimates. Guidance for all sources and sinks now gives actual annual estimates, as opposed to the earlier "potential" methods;
- **Completeness** - more sources and sinks are covered as they have been identified since 1996. Guidance on land-use sectors has been made more complete and consistent across all land uses. More fluorinated GHGs are included as information on their use and release has become available;
- **Reduced scope for errors** - The categories have been restructured to reduce the possibilities for double counting or omissions;
- **Clearer guidance** - Integrating all the good practice guidance into the methodology report ensures that users can more easily find all the relevant information they need;
- **More efficient use of resources available** - The most appropriate choice of method has been made easier by incorporating and updating the earlier good practice guidance into the individual sector methods. Differing methodologies and their selection enable inventory developers with limited resources to complete their national estimates while also allowing those with greater resources to use more detailed and accurate methods.

Specific developments since 1996

The 2006 IPCC Guidelines contain five volumes:

- ✓ Volume 1: General Guidance and Reporting;
- ✓ Volume 2: Energy;
- ✓ Volume 3: Industrial Processes and Product Use (IPPU);
- ✓ Volume 4: Agriculture, Forestry and Other Land Use (AFOLU);
- ✓ Volume 5: Waste.

No drastic changes at the individual category level.

“New” categories explicitly added

In each sector, there are some source/sink categories that were not explicitly covered in the Revised 1996 IPCC Guidelines.

- It should be noted that these source/sink categories are not necessarily “new” because these emissions/removals could have been included in the “Other” categories even when using the Revised 1996 IPCC Guidelines.
- Any significant sources of emissions should be covered in national GHG inventories.
- Absence of technical inventory methodology in the IPCC Guidelines for certain sources does not mean that national inventories do not need to cover such sources.

Volume 1 - General Guidance and Reporting

- Introductory advice - a new section providing for an overview of GHG inventories and the steps needed to prepare an inventory for the first time
- Extended advice on data collection
- Improved Key Category Analysis - better integrated across emission and removal categories

Volume 2 - Energy

- The structure of the energy sector is similar between the Revised 1996 IPCC Guidelines and the 2006 IPCC Guidelines
- Fuel combustion and fugitives as the two subsectors of the energy sector

Categories explicit added:

- ✓ Treatment of CO_2 capture and storage (CCS)
- ✓ CH_4 from abandoned coal mines
- ✓ Catalytic converters using urea
- ✓ Uncontrolled combustion and burning of coal deposits

Etc.

Mapping of Energy categories

2006 GLs Category		1996 GLs (+ GPG) Category	
1A	Fuel Combustion Activities	1A	Fuel Combustion Activities
1A1	Energy Industries	1A1	Energy Industries (IE: charcoal production – 1B1)
1A2	Manufacturing Industries and Construction	1A2	Manufacturing Industries and Construction
1A2f - 1A2m	Non-Metallic Minerals --- Non-specified Industry	1A2f	Other
1A3	Transport	1A3	Transport
1A3a	Civil Aviation	1A3a	Civil Aviation
1A3b	Road Transportation	1A3b	Road Transportation
1A3bvi	Urea-based Catalysts	IE (2B1	Ammonia Production)
1A3c	Railways	1A3c	Railways
1A3d	Water-borne Navigation	1A3d	Navigation
1A3e	Other Transportation	1A3e	Other Transportation
1A4	Other Sectors	1A4	Other Sectors
1A5	Non-Specified	1A5	Other (Not elsewhere specified)

2006 GLs Category		1996 GLs (+ GPG) Category	
1B	Fugitive Emissions from Fuels	1B	Fugitive Emissions from Fuels
1B1	Solid Fuel	1B1	Solid Fuels
1B1a	Coal Mining and Handling	1B1a	Coal Mining
1B1ai3	Abandoned Underground Mines	1B1ai	Underground Mines
1B1b	Uncontrolled Combustion, and Burning Coal Dumps	1B1c	Other
1B1c	Solid Fuel Transformation	1B1b	Solid Fuel Transformation
1B2	Oil and Natural Gas	1B2	Oil and Natural Gas
1B2a	Oil	(1B2a, 1B2c)	
1B2ai	Venting, 1B2aii Flaring	1B2ci	Venting and Flaring – Oil
1B2aiii	All Other	1B2a	Oil
1B2b	Natural Gas	(1B2b, 1B2c)	
1B2bi	Venting, 1B2bii Flaring	1B2cii	Venting and Flaring – Gas
1B2biii	All Other	1B2b	Natural Gas
1B3	Other Emissions from Energy Production	IE (Other fugitive emissions (e.g. from geo thermal) not included in 1B2)	
1C Carbon Dioxide Transport and Storage		IE (Could be 1B2c)	

Volume 3 - Industrial Processes and Product Use

- New gases and “new” categories (= categories that were not explicitly mentioned in the 1996 Guidelines)
- Clearer guidance on non-energy uses of fossil fuels
- Guidance to enable estimation of actual emissions of fluorinated compounds
- Some categories have been reorganized and refined such as for other process use of carbonates and petrochemical and carbon black production

Categories explicit added:

- ✓ Caprolactam, glyoxal and glyoxylic acid production
- ✓ Titanium dioxide production
- ✓ Petrochemical and carbon black production
- ✓ Lead production
- ✓ Zinc production
- ✓ Thin-film-transistor flat panel displays, photovoltaic and heat transfer fluid
- ✓ Sulfur Hexafluoride and per-fluorocarbons from other product use (Military applications and accelerators)

Etc.

Mapping of IPPU categories

2006 GLs Category		1996 GLs (+ GPG) Category	
2A	Mineral Industry	2A	Mineral Products
2A3	Glass Production	2A3 2A4	Limestone and Dolomite Use Soda Ash Production and Use
2A4	Other Process Uses of Carbonates		
2A5	Other	2A7	Other
2B	Chemical Industry	2B	Chemical Industry
2B1	Ammonia Production (CO_2 removed for urea production should be deducted.)	2B1	Ammonia Production (CO_2 removed for urea production should not be deducted.)
2B4	Caprolactam, Glyoxal and Glyoxylic Acid Production	2B5	Other
2B6	Titanium Dioxide Production	2B5	Other
2B7	Soda Ash Production	2A4	Soda Ash Production and Use
2B8	Petrochemical and Carbon Black Production	2B5	Other
2B9	Fluorochemical Production	2E	Production of Halocarbons and Sulphur Hexafluoride
2B10	Other	2B5	Other

2006 GLs Category		1996 GLs (+ GPG) Category	
2C	Metal Industry	2C	Metal Production (+2A3, 2A4)
2C1	Iron and Steel Production	2C1	Iron and Steel Production
2C2	Ferroalloys Production	2C2	Ferroalloys Production
2C3	Aluminium Production	2C3	Aluminium Production
2C4	Magnesium Production	2C4	SF_6 Used in Aluminium and Magnesium Foundries
2C5	Lead Production	2C5	Other
2C6	Zinc Production	2C5	Other
2C7	Other	2C5	Other
2D	Non-Energy Products from Fuels and Solvent Use	(1A, 2A5, 2A6, 3)	
2D1	Lubricant Use	1A	Fuel Combustion Activities
2D2	Paraffin Wax Use	1A	Fuel Combustion Activities
2D3	Solvent Use	3A	Paint Application
		3B	Degreasing & Dry Cleaning
2D4	Other	2A5	Asphalt Roofing
		2A6	Road Paving with Asphalt
		3C, 3D	

2006 GLs Category		1996 GLs (+ GPG) Category	
2E	Electronics Industry (IC or Semiconductor, TFT-FPD, Photovoltaics, Heat Transfer Fluid)	2F6	Other
2F	Product Uses as Substitutes for Ozone Depleting Substances	2F	Consumption of Halocarbons and Sulphur Hexafluoride
2G	Other Product Manufacture and Use	(2F6, 3D)	
2G1	Electrical Equipment	2F6	Other
2G2	SF_6 and PFCs from Other Product Uses	2F6	Other
2G3	N_2O from Product Uses	3D	Other
2G4	Other	2F6	Other
		3D	Other
2H	Other	(2D1, 2D2, 2G)	
2H1	Pulp and Paper Industry	2D1	Pulp and Paper
2H2	Food and Beverages Industry	2D2	Food and Drink
2H3	Other	2G	Other

Volume 4 - Agriculture, Forestry and Other Land Use

- Integration of agriculture and land use, land-use change and forestry
- Consolidation of previously optional categories (e.g., CO_2 emissions and removals associated with terrestrial carbon stocks in settlements)
- Detailed methods on harvested wood products (HWP)
- Guidance on emissions from managed wetlands

Categories explicit added:

- ✓ Indirect NO2 from manure management
- ✓ Carbon dioxide emissions from urea fertilization
- ✓ Nitrous oxide from nitrogen mineralization associated with loss of soil organic matter resulting from change of land use or management of mineral soils (subcategory in direct N2O emissions from managed soils)

Etc.

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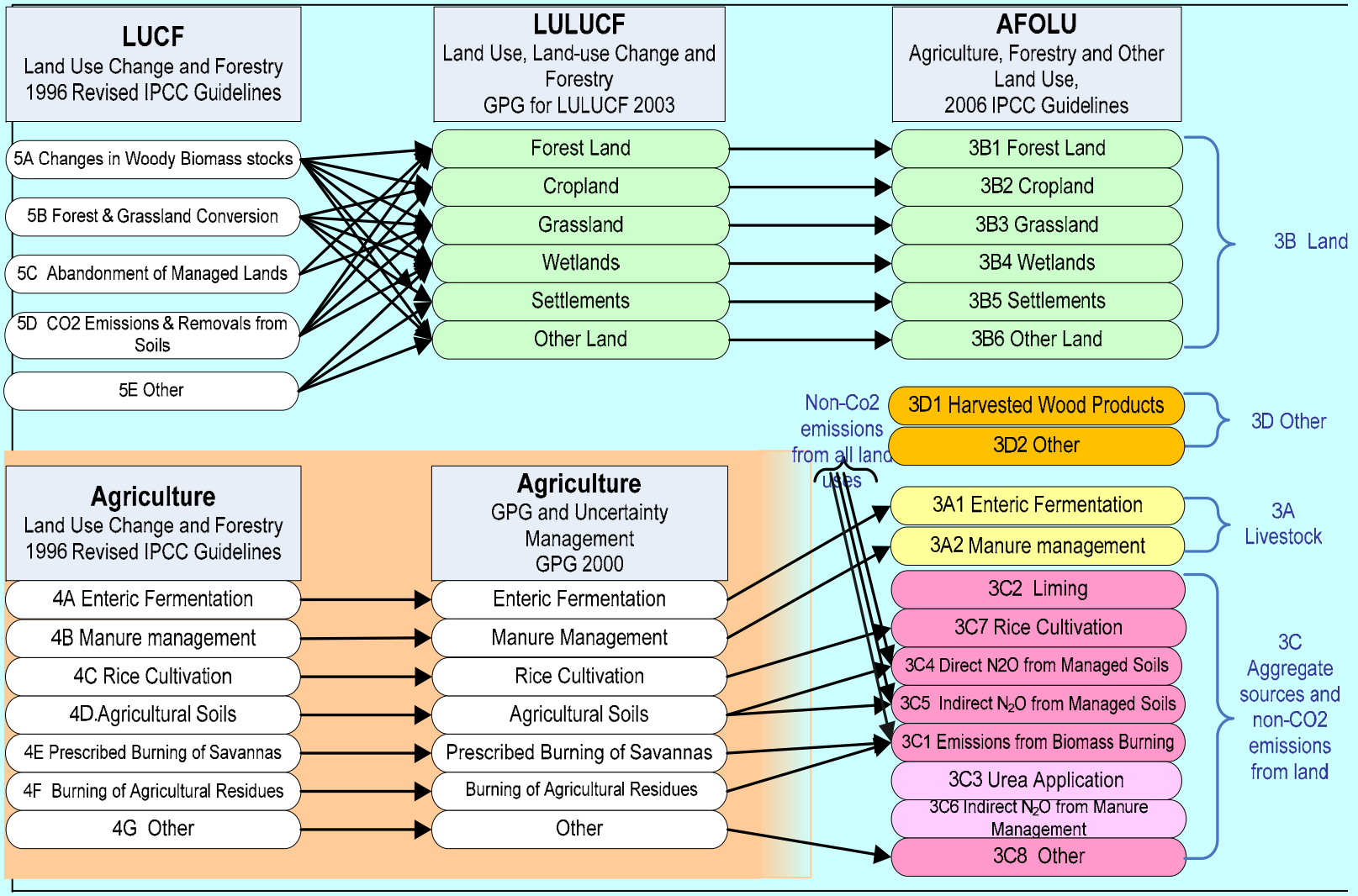
Mapping of AFOLU categories



Volume 5 - Waste

- Improved methodology for methane from landfills
- Guidance on carbon accumulation in landfills
- Guidance on biological treatment and open burning of waste

Category explicit added:

- ✓ Uncategorized waste disposal sites
- ✓ Biological treatment of solid waste

Mapping of Waste categories

2006 IPCC Guidelines Category			Revised 1996 IPCC Guidelines and GPG 2000 Category	
Managed Waste Disposal Sites	Anaerobic Semi-aerobic	4A1	6A1	Managed Waste Disposal on Land
Unmanaged Waste Disposal Sites		4A2	6A2	Unmanaged Waste Disposal Sites
Uncategorized Waste Disposal Sites		4A3	6A3	Other
Biological Treatment of Solid Waste		4B		
Waste Incineration		4C1	6C	Waste Incineration
Open Burning of Waste		4C2		
Domestic Wastewater Treatment and Discharge		4D1	6B2	Domestic and Commercial Wastewater
Industrial Wastewater Treatment and Discharge		4D2	6B1	Industrial Wastewater
Other		4E	6D	Other

Relevant to all volumes

- Improved guidance on indirect emissions of CO_2 and N_2O – clearer and more complete

Thank You

Any Questions?

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