despite widely varying levels of resources and expertise. These methods and parameters can also be used within the structure of the previous Guidelines.

The use of the *2006 IPCC Guidelines* will facilitate reliable, complete national estimation of emissions and removals that are consistent over time and comparable between countries. Their use will make inventories more transparent and accurate.

They are available for free download from the NGGIP website and users are encouraged to print and distribute them widely.

Categories Added since the Previous Guidelines

Fuel Combustion	**Other Uses of Fluorinated Gases**
CO_2 - Transport and Storage	Electrical Equipment
Urea-based Catalysts (Road Transport)	Military Applications
Fugitive Emissions from Fuels	Accelerators
Abandoned Underground Mines	Medical Applications
Mineral Industry	Propellant for Pressure and Aerosol Products
Glass Production	**Ozone Depleting Substances Substitutes**
Ceramics	**Land Use**
Non Metallurgical Magnesia Production	Complete, consistent treatment of fires
Chemical Industry	Liming
Caprolactam, Glyoxal & Glyoxylic Acid Production	Urea Application
Titanium Dioxide Production	Indirect N_2O Emissions from Manure Management
Petrochemical and Carbon Black Production	Harvested Wood Products (methods now provided)
Metal Industry	**Waste**
Lead Production	Biological Treatment of Solid Waste
Zinc Production	Open Burning of Waste
Electronics Industries	**Other**
Integrated Circuit or Semiconductor	Indirect N_2O Emissions from the Atmospheric Deposition of NO_x and NH_3 (excluding agricultural sources)
TFT Flat Panel Display	
Photovoltaics	
Heat Transfer Fluid	

The 2006 IPCC Guidelines are available as free download from our web site:

http://www.ipcc-nggip.iges.or.jp/

This site also contains earlier editions of the IPCC Guidelines and supporting material such as the Emissions Factor Database. A CDROM version is also available for those with problems downloading the files. The Guidelines have been translated into all UN languages and these are also available on the website.

Technical Support Unit of the IPCC Task Force on National Greenhouse Gas Inventories
Institute for Global Environmental Strategies (IGES), 2108-11 Kamiyamaguchi, Hayama, Kanagawa, 240-0115 Japan
Tel: +81-46-855-3750
Fax: +81-46-855-3808
mail: http://www.ipcc-nggip.iges.or.jp/mail
TSU Head: Dr. Simon Eggleston

IPCC NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME

WMO
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
NATIONAL GREENHOUSE GAS INVENTORIES PROGRAMME
UNEP

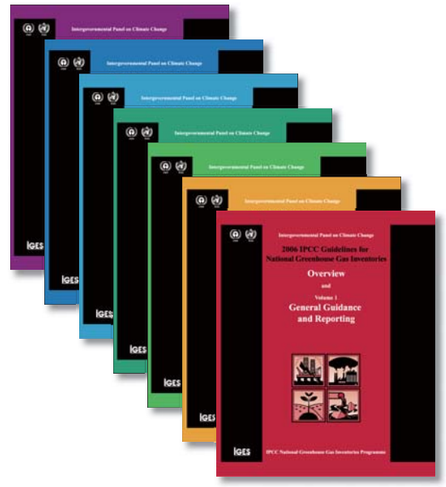
2006 IPCC Guidelines
for National Greenhouse Gas Inventories

The *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (*2006 Guidelines*) have now been published. They are freely available either on CDROM or can be downloaded from internet.

http://www.ipcc-nggip.iges.or.jp/

The *2006 Guidelines* are a significant step forward in the production of high quality national estimates of emissions and removals of greenhouse gases. They are the result of the work of over 250 authors over 2 years, and have been extensively peer-reviewed. They build on over 10 years of inventory development work by the IPCC and experience gained in using earlier IPCC guidance. The *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* (*Revised 1996 Guidelines*), together with the two volumes on inventory good practice (see Good Practice Guidance box) currently have to be used by so-called 'Annex I' Parties to the United Nationas Framework Convention on Climate Change (UNFCCC) (developed countries). All other Parties to the Convention should also use the *Revised 1996 Guidelines* while the use of the Good Practice Guidance is only encouraged. The UNFCCC is now considering the new *2006 Guidelines*.

The *2006 Guidelines* were reviewed by experts and governments twice before their acceptance by the IPCC in Mauritius in April 2006. Over 6000 comments from



around the world were considered by the authors. This widespread authorship and extensive review has ensured that the Guidelines contain the best available information and guidance.

While the *2006 Guidelines* were developed in response to a request by the Parties to the UNFCCC they can be used more widely (see Emission Inventories box). Therefore the *2006 IPCC Guidelines* have been developed starting from

2006 Guidelines - Contents

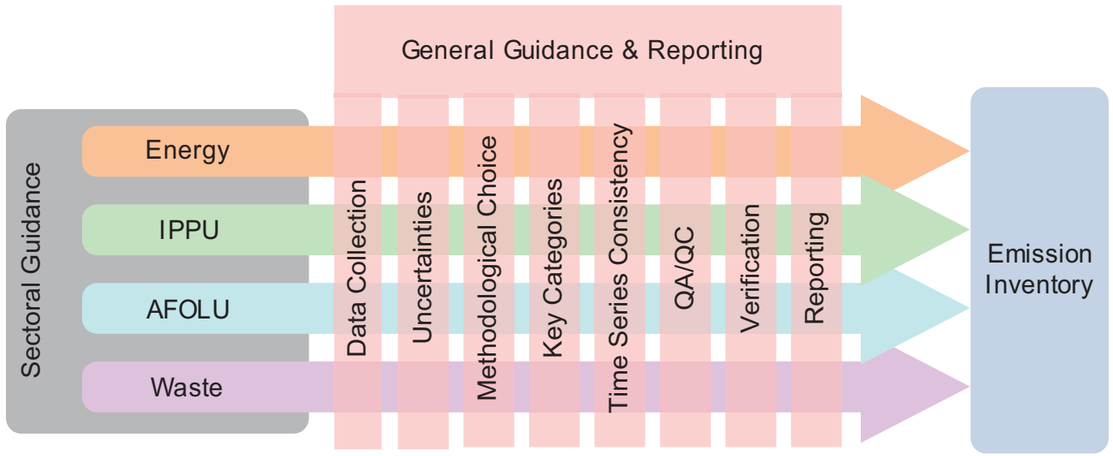
***Volume 1 – General Guidance and Reporting*:**
gives general information on inventory compilation, QA/QC, uncertainty and guidance on the choice of methods.

***Volume 2 – Energy*:**
covers the use, production and transport of energy. Includes coverage of carbon dioxide capture and storage.

***Volume 3 – Industrial Processes and Product Use* (*IPPU*):**
covers industrial processes such as metal production, petrochemicals and other chemical production. Also covers the use of products including fluorinated gases.

***Volume 4 – Agriculture, Forestry and Other Land Use* (*AFOLU*):**
integrates agriculture with all other land uses and changes in land use. Covers agricultural sources such as livestock, manure management and fertiliser use as well as emissions and removals of greenhouse gases from differing land uses such as forestry, grasslands and settlements.

***Volume 5 – Waste*:**
covers the collection, treatment and disposal of wastes including solid wastes, landfills and waste water treatment.



Relationship between General and Sectoral Guidance

the previous *1996 Guidelines*, the two volumes of *Good Practice Guidance* together with new scientific and technical knowledge to improve methods and default values of emission factors and other parameters. The usability of the new *Guidelines* in countries with limited resources and/or experience has been a major consideration in the drafting process. The choice of methods by inventory compilers has been structured and made consistent throughout the *Guidelines* so that inventory compilers with considerable resources and expertise can use sophisticated methods while those with fewer resources can still use comparable good practice methods.

Volume 1 of the *2006 Guidelines* provides an overview of the management and process of developing inventories while the remaining volumes give sector specific guidance (see the figure above).

Major Improvements

In addition to the many improvements to default values and individual methods the *2006 IPCC Guidelines* include a number of major improvements. The table overleaf shows the categories added since the earlier guidance. The *2006 Guidelines* have been restructured compared to the *Revised 1996 Guidelines*.

Two new sectors have been created by the amalgamation of previously separate sectors:

- *Industrial Process and Product Use* (IPPU) combining Industrial Processes and Solvent and Other Product Use Sectors
- *Agriculture, Forestry and Other Land Use* (AFOLU) combining Agriculture with Land Use, Land-Use Change and Forestry (LULUCF) Sectors.

Emission Inventories

National Greenhouse Gas Inventories are complete estimates of the anthropogenic annual emissions and removals of greenhouse gases from a country developed source-by-source and sink-by-sink. Inventories are a valuable tool for many users. Not only are they needed for reporting greenhouse gas emissions, they are a key input to policy makers and also to developing the scientific understanding of climate change. Good knowledge of emissions and removals of greenhouse gases:

- enables reduction policies to be developed in a cost effective way,
- allows different policy options to be compared,
- provides a simple monitoring mechanism to monitor implementation of these policies,
- are a key input to scientific studies of many environmental issues.

Good Practice Guidance

Good practice is a set of procedures intended to ensure that greenhouse gas inventories are accurate in the sense that they are systematically neither over- nor underestimates so far as can be judged, and that uncertainties are reduced so far as possible.

Good practice inventories are:

Transparent + Complete + Internally Consistent +

Comparable between countries + Accurate

The two volumes on inventory good practice are: "*Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*" and "*Good Practice Guidance for Land Use, Land-Use Change and Forestry*". These have now been updated and merged into the *2006 Guidelines*.

These combined sectors aim to reduce the risk of double counting, or omitting emissions, in these areas which naturally overlap.

By combining the Good Practice Guidance into the main text the overall result is a clear, more consistent and systematic manual. Volume 1 provides extended good practice guidance applicable to all sectors with an extended introduction providing an overview of emission inventory compilation. The guidance on data collection has been expanded with a dedicated chapter in Volume 1.

The guidance on the treatment of the non-energy use of fuels has been revised with any emissions now being reported in the Industrial Processes and Product Use Sector.

All emissions are now estimated as actual annual emissions. In earlier guidance some methods gave "potential" emissions, the total emissions from an annual activity that occur in the inventory year and into the future (for example emission of methane from landfills can occur for many years after the material is disposed of in the landfill). In the AFOLU Sector, previously optional categories, such as fires, settlements and wetlands, have been consolidated into the main guidance.

Care has been taken in these *Guidelines* to ensure that all the CO_2 estimates are of CO_2 emitted directly (ignoring any carbon from the oxidation in the atmosphere of other gases) thus improving the consistency between sectors.

Other Assistance

While the IPCC cannot provide training directly we are producing a number of tools and other support for users of the *2006 Guidelines*. These include:

***Emission Factor Database* (*EFDB*):** a collection of emission factors and other parameters to assist users in finding the most appropriate emission factors for their national circumstances. Users can download data for their own use and contribute by submitting new emission factors.

Inventory Software is now being developed. This software will implement the tier 1 (and most tier 2) methods in a simple way while assisting some of the QA/QC requirements.

NGGIP Website has copies of most of the publications of the IPCC National Greenhouse Gas Inventories Programme (IPCC-NGGIP) available. The Technical Support Unit of the IPCC Task Force on National Greenhouse Gas Inventories is maintaining a list of FAQ and other material to provide some simple answers to common questions.

Benefits

The *2006 Guidelines* are therefore the best available guidance, to date, on compiling national estimates of emissions and removals of greenhouse gases. They build on earlier guidance, over a decade of experience and a world-wide scientific and technical effort to produce the best guidelines possible that are applicable to all countries