

A Summary of the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories

Background

This report summarises additions and revisions to the *1995 IPCC Guidelines for National Greenhouse Gas Inventories (1995 IPCC Guidelines)*. It also describes efforts made by the IPCC to harmonise methods with others. The additions and revisions were accepted by the IPCC at its Twelfth Session held in Mexico City (11-13 September 1996) after acceptance by Working Group I at its Sixth Session held in Mexico City (10 September 1996) in accordance with IPCC procedures. They are called the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*. Within this report, a revision of an existing methodology or default data is referred to as a 'revision', 'revised method' or 'revised data'. Additional methods and default data are defined as 'new' methods or 'new data'.

Waste

1. The Chapter on Waste addresses various topics, including: improved waste disposal data, evaluation of the methodologies for solid waste and wastewater, definitions of activities and uncertainties of CH₄ emission estimates. The main improvements to the methods and default data are as follows:

2. Solid Waste

Site classification. A *new* term - solid waste disposal site - has been proposed to refer to all sites and to replace the terminology in *1995 IPCC Guidelines* for 'landfills' and 'open dumps'. The *new* term was proposed because experience suggests that the existing categories do not adequately include the entire range of waste disposal sites that exists in all countries. Solid waste disposal sites include all sites where waste is deposited and is likely to generate some methane. Sites are further classified according to the level of site management and depth.

Methane correction factor. The *new* site classification is used to derive a methane correction factor (MCF) to account for the methane generation potential of the site. The amount of methane produced depends in part upon the available oxygen and the level of compaction of the waste. In general, waste in managed sites potentially generates more methane than waste in unmanaged sites. Furthermore, the deeper the site, the greater the methane generation potential. The methane correction factor for each type of site reflects these differences in methane generation potential. The site classification recognises that some developing countries, or countries with-economies-in-transition, may have a majority of less-well managed or unmanaged sites, often with a lower methane-producing potential than well managed sites.

Waste data. A wide range of *revised* and *new* default data on waste generation, composition and disposal data in many additional developed and developing countries is provided. A definition for Municipal Solid Waste and a method for calculating the Degradable Organic Carbon content of various waste streams are now included in the *revised* Chapter.

Methodology. The default methodology was evaluated and retained. The methodology uses a zero-order equation requiring data on population, waste landfills, and waste composition as proposed by Bingemar and Crutzen (1987).

3. Wastewater

A *revised* method and default data for calculating emissions from wastewater and sludge is included. The amount of CH₄ produced from these systems depends upon several factors, including the characteristics of the wastewater and the management system, and temperature. These factors are highly dependent upon the waste treatment system used. The *revised* methodology allows countries to tailor the estimation approaches more precisely to their wastewater management systems. This is accomplished by the MCF that accounts for the differing CH₄ generating potential of different wastewater management systems. In addition, the *revised* methodology uses data that is commonly available from most countries, or which can be estimated by wastewater experts.

4. Human sewage

A *new* methodology and default data are provided for the estimation of N₂O nitrous oxide emissions from human sewage disposed to land, and in subsequent run-off to rivers and estuaries. There is no such methodology in *1995 IPCC Guidelines*.

References

Australian Methodology for the Estimation of Greenhouse Gas Emissions and Sinks (1996).

Joint EMEP/CORINAIR Atmospheric Emission Inventory Guidebook (1996), 1st Edition, European Environmental Agency.

1995 IPCC Guidelines for National Greenhouse Gas Inventories, Reporting Instructions (Volume 1); Workbook (Volume 2); Reference Manual (Volume 3).

LIST OF ABBREVIATIONS

CO ₂	Carbon dioxide
CH ₄	Methane
N ₂ O	Nitrous oxide
SO ₂	Sulphur dioxide
NO _x	Sum of nitrogen oxide and nitrogen dioxide
CO	Carbon monoxide
NH ₃	Ammonia
NMVOG	Non-methane volatile organic compounds

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