
INTRODUCTION TO THE REFERENCE MANUAL

This *Reference Manual* is one of three volumes of the *Revised 1996 IPCC Guidelines for National GHG Inventories*. It provides a compendium of information on the various human activities which cause greenhouse gas emissions or removals to occur. It builds on work carried out in preparation of:

- OECD Report: *Estimation of Greenhouse Gas Emissions and Sinks, Final Report From the OECD Experts Meeting, 18-21 February 1991*, (OECD, 1991).
- *Proceedings of an International IPCC Workshop on Methane and Nitrous Oxide, Amersfoort, NL, 3-5 February 1993* (van Amstel, 1993).
- *1995 IPCC Guidelines*.

In preparing this document, the IPCC/OECD/IEA has also received valuable technical input from a number of international workshops and IPCC Expert Group Meetings. The overall purpose of these workshops was to provide a forum for experts to discuss ways to improve the methodologies and reporting procedures and to ensure widespread participation in the development process. Many of the recommendations received have been incorporated into this revised *Reference Manual*.

In general, the basic approach to estimating national emissions is similar across the various gases and human activities which are sources or sinks. Fundamentally, emissions are a product of activity data and emission factors. In reality, these calculations are often more complicated than this would indicate, with several steps being involved in the calculation of each of the general terms - activity data and emission factors. But it is useful to keep this general structure in mind as it provides an organising framework for all of the calculations and a means of evaluation and comparison.

The *Reference Manual* frequently provides a number of different possible methodologies or variations for calculating a given emission. In most cases these represent calculations of the same form but the differences are in the level of detail at which the original calculations are carried out. Wherever possible the methodology provides a "tiered" structure of calculations which describes and connects the various levels of detail at which national experts can work depending on the importance of the source category, availability of data, and other capabilities. All national experts are encouraged to work at the most detailed level which is possible and appropriate for their situation. The tiered structure ensures that estimates calculated at a very detailed level can be aggregated up to a common minimum level of detail for comparison with all other reporting countries.

The methodologies for the estimation of the emissions and removals of GHGs, which are presented and discussed in the *Guidelines*, are grouped by the main activity sectors, (chapters of this volume) namely, *Energy, Industrial Processes, Solvent and Other Product Use, Agriculture, Land Use Change and Forestry, and Waste*. In general, the source/sink activities are unique to their sector but there are cases, e.g., biomass burning, which occur in several sectors and are described in the chapters on *Land-Use Change and Forestry, Energy and Agriculture*.

The chapters are divided by subject areas and correspond to the same subject chapters in the *Workbook*. This document should be used by national experts as a reference tool to accompany the *Workbook* and the *Reporting Instructions* when constructing and reporting national inventories of GHG emissions and removals.

References

OECD (1991), *Estimation of Greenhouse Gas Emissions and Sinks, Final Report from the OECD Experts Meeting, 18-21 February 1991*. The Organisation for Economic Co-operation and Development, Paris, France, revised August 1991.

van Amstel, A.R. (ed.) (1993), *Proceedings of an International IPCC Workshop on Methane and Nitrous Oxide: Methods in National Emissions Inventories and Options for Control*, Amersfoort, NL. 3-5 February 1993. RIVM Report No. 481507003, Bilthoven, The Netherlands, July.

IPCC/OECD/IEA (1995), *IPCC Guidelines for National Greenhouse Gas Inventories*, IPCC/OECD/IEA Inventory Programme, Paris, France