INTRODUCTION

1 EMISSIONS AND EMISSION INVENTORIES

Substances emitted into the atmosphere by human and natural activities are the cause of many current and potential environmental problems, including:

- Acidification and eutrophication
- air quality degradation
- global warming/climate change
- damage and soiling of buildings and other structures
- stratospheric ozone depletion
- human and ecosystem exposure to hazardous substances.

It is necessary to have quantitative information on these emissions and their sources in order to help:

- inform the policy makers and the public;
- define environmental priorities and identify the activities and actors responsible for the problems;
- set explicit objectives and constraints;
- assess the potential environmental impacts and implications of different strategies and plans;
- evaluate the environmental costs and benefits of different policies;
- monitor the state of the environment to check that targets are being achieved;
- monitor policy action to ensure that it is having the desired effects;
- ensure that those responsible for implementing the policies are complying with their obligations.

There are many types of sources of atmospheric emissions and many examples (often millions) of each type, for example:

- power plants;
- refineries;
- incinerators;
- factories;
- domestic households;
- offices and public buildings;
- cars and other vehicles;
- fossil fuel extraction and production sites;
- fossil fuel distribution pipelines;
- animals and humans;

- fertilised land;
- trees and other vegetation;
- vegetation fires.

It is not possible to measure emissions from all of the individual examples of these sources or, in the short term, from all the different source types. In practice, atmospheric emissions are estimated on the basis of measurements made at selected or representative samples of the (main) sources and source types.

The basic model for an emission estimate is the product of (at least) two variables, for example:

- an activity statistic and a typical average emission factor for the activity, or
- an emission measurement over a period of time and the number of such periods emissions occurred in the required estimation period.

For example, to estimate annual emissions of sulphur dioxide in grams per year from an oil-fired power plant you might use, either:

- annual fuel consumption (in tonnes fuel/year) and an emission factor (in grams SO_2 emitted/tonne fuel consumed), or
- measured SO_2 emissions (in grams per hour) and number of operating hours per year.

In practice, the calculations tend to more complicated but the principles remain the same.

Emission estimates are collected together into inventories or databases which usually also contain supporting data on, for example: the locations of the sources of emissions; emission measurements where available; emission factors; capacity, production or activity rates in the various source sectors; operating conditions; methods of measurement or estimation, etc.

Emission inventories may contain data on three types of source, namely point, area and line. However, in some inventories all of the data may be on area basis - region, country, sub-region etc.

Point sources - emission estimates are provided on an individual plant or emission outlet (usually large) usually in conjunction with data on location, capacity or throughput, operating conditions etc. The tendency is for increased amounts of information on point source emissions to become available as legislative requirements extend to more source types and pollutants, and 'access to information' initiatives increase the availability of such data.

Area sources - smaller or more diffuse sources of pollution are provided on an area basis either for administrative areas, such as counties, regions etc, or for regular grids (for example the EMEP 50x50 km grid).

Line sources - in some inventories, vehicle emissions from road transport, railways, inland navigation, shipping or aviation etc are provided for sections along the line of the road, railway-track, sea-lane etc.

2 INTERNATIONAL REQUIREMENTS FOR EMISSION INVENTORIES

2.1 UNECE Convention on Long-Range Transboundary Air Pollution

The Convention on Long Range Transboundary Air Pollution (LRTAP) was adopted in Geneva in 1979. Reporting of emission data to the Executive Body of the Convention is required in order to fulfil obligations regarding strategies and policies in compliance with the Convention and implementation of the Protocols under the Convention. These Protocols are:

(i) The 1984 Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP);
(ii) The 1985 Helsinki Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes;
(iii) The 1988 Sofia Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes;
(iv) The 1991 Geneva Protocol on the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes;
(v) The 1994 Oslo Protocol on Further Reduction of Sulphur Emissions;
(vi) The 1998 Aarhus Protocol on Heavy Metals;
(vii) The 1998 Aarhus Protocol on Persistent Organic Pollutants;
(viii) The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone.

When submitting data to the Executive Body (UNECE/CLRTAP Secretariat), Parties should follow the requirements described within the EMEP Reporting Guidelines[1]. These guidelines request that Parties submit annual national emissions:

- from 1980 to the latest year for the Main Pollutants (NO_x, CO, NMVOC, SO_2 and NH_3),
- from 1990 to the latest year for various Heavy Metals and POPs, and
- from 2000 to the latest year for particulate matter ($PM_{2.5}$, PM_{10} and TSP).

Parties should report emissions data in the Nomenclature for Reporting (NFR) format developed by EMEP/TFEIP. Emissions data should be reported for year X-2 by the 15th February each year. For example, Parties were requested to submit data for 2005 to the

[1] UNECE (2003). Guidelines for Estimating and Reporting Emission Data under the Convention on Long-Range Transboundary Air Pollution. (ECE/EB.AIR/80): Economic Commission For Europe: Air Pollution Studies No. 15. Available from www.unece.org/env/eb/Air_Pollutionwithcover_15_ENG.pdf

Executive Body (UNECE/CLRTAP Secretariat) by 15 February 2007. The Guidelines also encourage Parties to provide an Informative Inventory Report (IIR) to document their submitted inventory data, and request that Parties periodically report:

- projected emissions;
- activity data;
- emissions from large point sources; and
- spatially disaggregated emission data within the 50km x 50km EMEP grid.

Parties should use this EMEP/CORINAIR Atmospheric Emission Inventory Guidebook both as a reference book on good emission estimation practice and as a check-list to ensure that all relevant activities are considered and their emissions quantified. Parties are requested to document in a transparent manner in their IIR where the Guidebook methodology has been used and where not. If another methodology has been used Parties are requested to provide additional explanatory information.

2.2 European Community National Emission Ceilings Directive: 2001/81/EC

The National Emission Ceilings Directive (NEC Directive)[2] (2001/81/EC) sets upper limits for each Member State for the total emissions in 2010 of the four main pollutants responsible for acidification, eutrophication and ground-level ozone pollution (SO_2, NO_x, VOCs and ammonia). As the pollutants concerned are transported in large quantities across national boundaries, individual Member States could not in general meet the underpinning objectives of the Directive to protect human-health and the environment within their territory by national action alone.

With regard to establishing and reporting emission inventory data, the Directive specifies that Member States shall prepare and annually update national emission totals for the pollutants SO_2, NO_x, VOCs, and NH_3, and emission projections for 2010. Additionally the Member States shall also by 31 December each year, report to the Commission and European Environment Agency their national emission inventories and emission projection for 2010; final emissions data should be submitted for the previous year but one and provisional emissions for the previous year. Data reported by Member States under the NEC Directive is compiled and made available through the website of the EEA's DataService: http://dataservice.eea.europa.eu/.

To help ensure harmonised and consistent emission information is reported by Member States, the NEC Directive requires that Member States shall establish emission inventories using the methodologies agreed upon by the Convention on Long-Range Transboundary Air Pollution (LRTAP Convention) and are requested to use the EMEP/CORINAIR Emission Inventory Guidebook in preparing these inventories and projections.

[2] Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants. OJ L 309, 27.11.2001, p.22.

2.3 United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol

"The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve stabilisation of greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner" (Article 2).

All Parties to the Convention shall "develop, periodically update, publish and make available to the Conference of the Parties, in accordance with Article 12, national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties" (Article 4, paragraph 1(a)).

Parties are required to annually report emissions and sink estimates by 15 April for the last year but one (and any years where recalculations have occurred) of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6),. For example data for 2006 should be reported by 15 April 2008 to the UNFCCC Secretariat. Parties should also provide information on emissions of carbon monoxide (CO), nitrogen oxides (NO_x) and non-methane volatile organic compounds (NMVOCs) and are encouraged to provide information of emissions of sulphur oxides (SO_2).

UNFCCC requires Parties to use the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories ('IPCC Guidelines') and the 2000 Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. Both reports can be downloaded at http://www.ipcc-nggip.iges.or.jp/public/. Parties may use different methods ('tiers'), giving priority to those methods which are believed to produce the most accurate estimates for the key source categories - following the decision trees of the good practice guidance. Parties can also use national methodologies which they consider better able to reflect their national situation provided that these methodologies are compatible with the IPCC Guidelines and are well documented (FCCC/SBSTA/1999/L.5). Within the framework of UNFCCC efforts are aimed at ensuring transparency, consistency, comparability, accuracy and completeness of inventories. A 'common reporting format' (CRF) inventory nomenclature is used for preparing and providing access to, annual updated, detailed and complete national inventory reports for all years.

The 1997 Kyoto Protocol to the UNFCCC commits Annex I Parties to individual, legally-binding targets to limit or reduce their greenhouse gas emissions. The Protocol's monitoring procedures are building on existing reporting and review procedures under the Convention. They also involve additional accounting procedures to monitor Parties' holdings and transactions of Kyoto Protocol emission trading units. With respect to reporting requirements under the Kyoto Protocol:

- Article 5 commits Annex I Parties to having in place, no later than 2007, national systems for the estimation of greenhouse gas emissions by sources and removals by sinks;

- Article 7 requires Annex I Parties to submit annual greenhouse gas inventories, as well as national communications, at regular intervals, both including supplementary information to demonstrate compliance with the Protocol;
- Article 8 establishes that expert review teams will review the inventories, and national communications submitted by Annex I Parties.

Further information on the UNFCCC and the Kyoto Protocol is available at http://unfccc.int/.

2.4 European Community Greenhouse Gas Monitoring Mechanism: Council Decision 280/2004/EC

Within the European Community, Council Decision 93/389/EEC as amended by Council Decision 99/296/EC, established an initial Community greenhouse gas monitoring mechanism. This required Member States (MS) to annually report to the European Commission anthropogenic CO_2 emissions and removals by sinks for the six Kyoto Protocol greenhouse gases.

These Decisions were subsequently replaced by the present European Community Greenhouse Gas Monitoring Mechanism Decision 280/2004/EC[3]. As stated by the European Commission, the purpose of this decision is to monitor all anthropogenic greenhouse gas emissions not controlled by the Montreal Protocol in the EC Member States, to transpose related requirements under the Kyoto Protocol into EC Law and to evaluate progress towards meeting greenhouse gas reduction commitments under the UNFCCC and the Kyoto Protocol.

The Decision and its accompanying Implementing Provisions specifically implement the reporting obligations and guidelines required by the UNFCCC and the Kyoto Protocol within the MS. They also provide for the harmonisation and reporting of emission projections at Member State and Community-level.

The European Environment Agency assists the Commission, as appropriate, with monitoring activities, especially in the scope of the Community inventory system, and in the analysis by the Commission of progress towards the fulfilment of the commitments under the UNFCCC and the Kyoto Protocol. The greenhouse gas inventory data reported annually by both the Member States and the European Community is available through the DataService of the EEA: http://dataservice.eea.europa.eu/.

[3] Decision 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol, OJ L 49 of 19.02.2004, p. 1, and
Commission Decision 2005/166/EC: of 10 February 2005 laying down rules implementing Decision No 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol Annex III, OJ L 55/57 of 1.3.2005

3 INITIATIVES DEVELOPING ATMOSPHERIC EMISSION INVENTORY METHODOLOGIES

There have been several major international initiatives over the past years that have built on each other and helped develop the emission inventory methodology to its current state. These include:

- the CORINAIR Programme and subsequent work by the European Environment Agency Task Force;
- the Co-operative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollutants in Europe (EMEP) and its Task Force on Emission Inventories and Projections (TFEIP);
- the IPCC/OECD/IEA Greenhouse Gas Emissions Programme and the subsequent National Greenhouse Gas Inventory Programme, hosted by Japan, which has continued the activities of the IPCC/OECD/IEA.

3.1 CORINAIR and the EEA Task Force

Council Decision 85/338/EEC (OJ, 1985) established a work programme concerning an "experimental project for gathering, co-ordinating and ensuring the consistency of information on the state of the environment and natural resources in the Community". The work programme was given the name CORINE - CO-oRdination d'INformation Environnementale and included a project to gather and organise information on emissions into the air relevant to acid deposition - CORINAIR. This project started in 1986 with the objective of compiling a co-ordinated inventory of atmospheric emissions from the 12 Member States of the Community in 1985 (CORINAIR 1985).

The CORINAIR 1985 Inventory covered three pollutants - SO_2, NO_x, and VOC (total volatile organic compounds) - and recognised eight main source sectors: combustion (including power plant but excluding other industry), oil refineries, industrial combustion, processes, solvent evaporation, road transportation, nature and miscellaneous.

The project also developed:

- a source sector nomenclature - NAPSEA, Nomenclature for Air Pollution Socio-Economic Activity and SNAP, Selected Nomenclature for Air Pollution - for emission source sectors, sub-sectors and activities
- a Default Emission Factor Handbook and
- a computer software package for data input and the calculation of sectoral, regional and national emission estimates.

The CORINAIR 1985 Inventory was developed in collaboration with the Member States, Eurostat, OECD and UNECE/EMEP. The Inventory was completed in 1990 and the results have been published (Eurostat, 1991; CEC, 1995) and widely distributed in tabular and map forms.

It was agreed in 1991 to produce an update of CORINAIR for 1990 (CORINAIR 1990). This update was performed in co-operation with EMEP and IPCC-OECD to assist in the

preparation of inventories required under the Long Range Transboundary Air Pollution (LRTAP) Convention and the UN Framework Climate Change Convention (UNFCCC) respectively.

The CORINAIR90 system was made available to:

- the 12 member states of the European Community in 1990: Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and United Kingdom
- 5 EFTA countries: Austria, Finland, Norway, Sweden and Switzerland
- 3 Baltic States: Estonia, Latvia and Lithuania
- 9 Central and Eastern European countries: Albania, Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia and
- Russia.

This collaboration:

- produced a more developed nomenclature (source sector split) - SNAP90 - involving over 260 activities grouped into a three level hierarchy of sub-sectors and 11 main sectors
- extended the list of pollutants to be covered to eight (SO_2, NO_x, NMVOC, NH_3, CO, CH_4, N_2O and CO_2)
- extended the number of sources to be considered as point sources (there were over 1400 large point sources in the CORINAIR85 inventory)
- recognised that an emission inventory needs to be complete, consistent and transparent
- extended the availability of the CORINAIR system to 30 countries
- increased awareness of CORINAIR and the need to produce an inventory within a reasonable time-scale to serve the requirements of the user community (policy-makers, researchers etc).

The CORINAIR 1990 Inventory recognised 11 main source sectors (as agreed with EMEP, see below):

- Public power, cogeneration and district heating plants
- Commercial, institutional and residential combustion plants
- Industrial combustion
- Production processes
- Extraction and distribution of fossil fuels
- Solvent use
- Road transport
- Other mobile sources and machinery
- Waste treatment and disposal

- Agriculture
- Nature.

Data were provided on large point sources on an individual basis and on other smaller or more diffuse sources on an area basis, usually by administrative boundary at the county, department level (NUTS level 3). The sources provided as point sources were:

- Power plant with thermal input capacity >=300MW
- Refineries
- Sulphuric acid plant
- Nitric acid plant
- Integrated iron/steel with production capacity >3Mt/yr
- Paper pulp plant with production capacity > 100kt/yr
- Large vehicle paint plant with production capacity > 100000 vehicles/yr
- Airports with >100000 LTO cycles/yr
- Other plant emitting >=1000t/yr SO_2, NOx or VOC

  or >=300000t/yr CO_2

The goal of CORINAIR90 was to provide a complete, consistent and transparent air pollutant emission inventory for Europe in 1990 within a reasonable time scale to enable widespread use of the inventory for policy, research and other purposes. Data from CORINAIR90 was finalised and published by the EEA (see under section 5) in 1996 and 1997.

CORINAIR90 was followed by CORINAIR94, an expanded European air emission inventory for 1994 prepared by the EEA and its then European Topic Centre on Air Emissions (ETC/AE). In 1995 the ETC/AE developed the CORINAIR 94 methodology and software, which were made available to the 18 EEA member countries and other interested countries (e.g. Switzerland, Malta) in January 1996 and to 13 Central and Eastern European countries in June 1996. Based on the submitted emission estimates from the countries, a final report describing the assessment was published by EEA in 1997.

The CORINAIR Technical Unit, followed by the European Topic Centre on Air Emissions (ETC/AE), worked closely with the IPCC/OECD/IEA to ensure compatibility between the joint EMEP/CORINAIR Atmospheric Emission Inventory Guidebook and reporting formats and the IPCC Guidelines and reporting formats. This was achieved by means of the preparation by ETC/AE of the revised SNAP97, distributed in 1998 and included in this present version of the Guidebook. SNAP97 is fully in line with the 1996 Revised IPCC Guidelines.

3.2 EMEP and the Task Force on Emission Inventories and Projections (TFEIP)

The Cooperative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollutants in Europe (EMEP) (formed by a Protocol under the UNECE Long Range Transboundary Air Pollution Convention) arranged a series of workshops on Emission Inventory Techniques to develop guidelines for estimation and reporting of emission data for SOx, NOx, NMVOCs, CH_4, NH_3 and CO under the Convention. The 1991 Workshop agreed to recommend that:

- a task force on emission inventories (TFEI) should be established by the Executive Body of the Convention to review present emission inventories and reporting procedures for the purpose of further improvement and harmonisation, and
- the EMEP Steering Body should approve the guidelines prepared by the workshop for estimation and reporting for submission to the Executive Body of the Convention. These guidelines included a recommendation that emission data should be reported as totals and at least for the 11 major source categories agreed with the CORINAIR project and other experts for the CORINAIR 1990 Inventory (see above).

The Task Force on Emission Inventories (TFEI) was initiated in 1991 following agreement by the Executive Body for the Convention on Long-Range Transboundary Air Pollution. The task force was set up under the EMEP Steering Body with leadership from the United Kingdom and support from Germany and the European Community (including the European Environment Agency). In 1995 the Executive Body agreed that the TFEI should continue beyond June 1995 and combine with the Task Force on Emission Projections to become the **Task Force on Emissions Inventories and Projections (TFEIP)**.

The TFEIP Secretariat is currently provided by Norway and is supported by the other signatories to the Convention including the European Community, through the European Commission and the European Environment Agency (EEA). The website of the TFEIP is: http://tfeip-secretariat.org.

The Task Force on Emission Inventories and Projections develops the EMEP emission inventory, based on emission data from Parties, and provides a technical forum and expert network to harmonize emission factors, establish methodologies for the evaluation of emission data and projections and identify problems related to emission reporting.

The objectives of the TFEIP are therefore:

- to provide a technical forum to discuss, exchange information and harmonise emission inventories including emission factors, methodologies and guidelines;
- conduct in-depth evaluation of emission factors and methodologies in current operation and
- co-operate with other international organisations working on emission inventories with the aim of harmonising methodologies and reporting requirements, and avoiding duplication of work.

The TFEIP meets these objectives through the holding of one or two annual meetings (usually sponsored by the host country), by guiding the annual review process, developing the EMEP/CORINAIR guidebook and through the operation of a number of expert panels.

The first meeting of the task force was held in London (UK) in 1992) and established eight expert panels to progress the work of the task force. The second meeting was held in Delft (Netherlands) in 1993 and agreed the specification for the joint EMEP/CORINAIR Emission Inventory Guidebook. The third meeting was held in 1994 in Regensburg (Germany) and reviewed first drafts of the Guidebook and considered how to integrate into the task force work previously developed by the task force on emission projections. The fourth meeting was held in 1995 in Oslo (Norway) and reviewed/assessed the second draft of the Emission Inventory Guidebook and considered how to develop the second phase of the Task Force.

Following the 1995 joining of the Task Force on Emission Inventories with the Task Force on Emission Projections, subsequent meetings of the TFEIP were held in 1996 in Oxford (UK) (5^{th}), resulting in finalisation of the first edition of the Guidebook (EEA, 1996), in 1997 in Apeldoorn (Netherlands) (6^{th}), in 1998 in Wismar (Germany) (7^{th}) and in 1999 in Roskilde (Denmark) (8^{th}), resulting in finalisation of the second edition of the Guidebook (EEA, 1999). Since then the TFEIP has met in Rome (Italy) in 2000 and in Geneva (Switzerland) in 2001, where revised EMEP reporting procedures were presented and discussed. Following this meeting the Task Force set up an editorial sub-group to revise and finalise these Guidelines, in response to comments received, for submission to the Steering Body. Following this the Steering Body adopted the new Reporting Guidelines (ECE/EB.AIR/80) for estimating and reporting emissions data. At least one meeting of the TFEIP has been held each subsequent year: in Córdoba, Spain (2002); Warsaw, Poland (2003); Pallanza, Italy (2004); Copenhagen, Denmark and Rovaniemi, Finland (2005); Amersfoort, Netherlands and Thessaloniki, Greece (2006); and Dessau, Germany and Dublin, Ireland (2007). These meetings have focussed on a variety of issues according to the mandate of the TFEIP, including supporting countries in their emissions reporting under LRTAP, holding capacity-building workshops, making proposals for revised Reporting Guidelines, and developing an inventory review procedure.

Expert panels

The TFEIP currently operates five expert panels sponsored by signatories to the Convention. Membership of the panels is open, with individual members of the panels being drawn from across the whole of the UNECE area. Three technical panels cover the main source categories combustion and industry, transport, agriculture and nature. A panel on review has been established to coordinate the annual review of emissions data submitted by Parties under the LRTAP Convention, and a panel on projections supports Parties in improving emission projections, and understanding the implications for policy.

The five expert panels are:

- Expert Panel on Combustion and Industry
- Expert Panel on Transport
- Expert Panel on Agriculture and Nature
- Expert Panel on Review
- Expert Panel on Projections

The first three ‘technical’ panel leaders, with support from other members of the panel, will:

a) Collect/review available information on activities and inventory methodology (emission estimates, emission factors, activity statistics etc.) allocated to the panel; this should

include national and international methodologies for emission inventories using both emission factor and plant specific.

b) consider the significance of each of these activities in terms of their contribution to emissions, the scope to sub-divide activities and the case for adding related activities (not included specifically in the latest nomenclature;

c) prioritise the order in which activities will be addressed for inclusion in the Guidebook;

d) consider the scope for simplifying the methodologies to be recommended so that they can be adopted by the widest range of countries yet maintain a reasonable level of accuracy. There is no point in recommending a methodology which requires detail beyond the available information or is beyond the financial resources of most countries or the time-scales of the inventory programme;

e) prepare text, tables, figures etc. to the required format in priority order;

f) circulate draft text etc. for review, correction, amendment by the rest of the panel;

g) submit agreed text etc. to publisher or to lead panel;

h) continue to collect data on activities already submitted in item 6 for later updates;

i) liaise with lead/supporting panel leader as necessary;

j) liaise with/participate in the Verification expert panel;

k) attend Co-ordination Group Meetings are required;

l) make proposals for further research/study to improve the methodology.

Queries or offers of contributions to the technical work of the Expert Panels may be made by contacting the relevant Expert Panel leader.

Names and contact details for the respective Expert Panel leaders are provided through the Expert Panel link on the website of the TFEIP http://tfeip-secretariat.org.

3.3 The IPCC/OECD/IEA Programme on National Greenhouse Gas Inventories and the National Greenhouse Gas Inventory Programme (NGGIP)

In February 1991 the OECD held a workshop in Paris on greenhouse gas emission inventory methodology to consider the OECD report 'Estimation of Greenhouse Gas Emissions and Sinks' (Background Report). The workshop produced (OECD, 1991) consensus on:

a) a basic methodology document as the best available starting point for work on consistent national emission estimates and
b) a proposed plan for a two-year programme of work to improve and disseminate the inventory methodology.

The Intergovernmental Panel on Climate Change (IPCC) subsequently adopted the Work Programme to be carried out by IPCC Working Group 1 with support from OECD and IEA and recognised that method development effort should (IPCC, 1992):

a) build on available information - both best available scientific data from ongoing research and currently available inventories and methods
b) provide a simple default method accessible to all participating countries
c) allow more detailed methods - those countries which have detailed emissions inventory capabilities should be encouraged to use them to provide the best possible data to the IPCC
d) have careful documentation and review procedures to ensure consistency and transparency of results.

This Work Programme prepared Draft Guidelines for National Greenhouse Gas Inventories in three volumes - Reporting Instructions, Workbook and Reference Manual - in the six official languages of the United Nations for world-wide review during 1994. These guidelines were revised, updated and issued as a three volume set of Guidelines in early 1995 prior to the first Conference of the Parties held in Berlin in March-April 1995. The Guidelines were revised in 1996 and 1997 through a series of expert workshops on agricultural soils, waste, new gases/industrial processes, land-use change and fuel combustion followed by a formal review process. This resulted in the three volume set “Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories” (IPCC/OECD/IEA, 1997).

The Guidelines cover the main sources of the three major greenhouse gases - CO_2, CH_4 and N_2O - and three additional groups of greenhouse gases - HFCs, PFCs and SF_6.

The IPCC Guidelines specifies six main sectors for reporting emissions and removals:

- All Energy (Combustion + Fugitive)
- Industrial Processes
- Solvent and other Product Use
- Agriculture
- Land Use Change and Forestry

- Waste.

Under work since continued by the IPCC Task Force on Inventories, various other inventory guidance material has been developed. The guidance includes advice on choice of methodology, emission factor, activity data, and uncertainties, and on a series of quality assessment and quality control procedures, which may be applied during the preparation of greenhouse gas inventories. The material includes the:

- 2006 IPCC Guidelines for National Greenhouse Gas Inventories;
- Good Practice Guidance for Land Use, Land-Use Change and Forestry (2003);
- Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (2000).

IPCC material is available from the website of the IPCC National Greenhouse Gas Inventories Programme, Technical Support Unit, at http://www.ipcc-nggip.iges.or.jp. Alternatively requests may be sent by mail to:
Technical Support Unit,
IPCC National Greenhouse Gas Inventories Programme,
c/o Institute for Global Environmental Strategies,
2108-11 Kamiyamaguchi, Hayama, Kanagawa,
240-0115 Japan.

4 MULTI-MEDIA INTEGRATED INVENTORIES AND POLLUTANT RELEASE AND TRANSFER REGISTERS

A number of initiatives have occurred over the last decade concerning the development of source-oriented inventories that cover emissions made to various media including releases to air, water and soil and/or waste releases and transfers. Such multi-media inventories are commonly referred to as Pollutant Release and Transfer Registers (PRTRs). Internationally, the Kiev Protocol (to the UNECE Aarhus Convention) on Pollutant Release and Transfer Registers establishes PRTR requirements for Parties. The OECD has also for a number of years run a PRTR programme providing guidance to countries that are interested in establishing a PRTR. Within the European Union, two such initiatives covering multi-media releases are the European Pollutant Emissions Register (EPER) and the European Pollutant Release and Transfer Registers (E-PRTR). Each of these initiatives is described in the following sections.

4.1 UNECE Aarhus Convention: Kiev Protocol on Pollutant Release and Transfer Registers

The Kiev Protocol on Pollutant Release and Transfer Registers[4] was signed in Kiev, May 2003 by 36 countries and the European Community. As a protocol to the UNECE Aarhus Convention, its objective is "to enhance public access to information through the establishment of coherent, nationwide pollutant release and transfer registers (PRTRs)". The PRTR protocol does not directly regulate pollution from emitting sources, rather it ensures that there is public access to information concerning the amount of pollution released from such sources. Having such information publicly available is expected to exert a significant downward pressure on levels of pollution.

The Protocol places a number of requirements on Parties. Under the Protocol, PRTRs developed by Parties should be based on a reporting scheme that is mandatory, annual and covers multimedia releases (air, water, land) as well as transfers of waste and waste water. A number of other minimum requirements are also defined within the Protocol, that PRTRs should:

- be publicly accessible and searchable through the Internet;
- cover releases and transfers of at least 86 pollutants covered by the Protocol;
- cover releases and transfers from certain types of major point source (e.g. thermal power stations, mining and metallurgical industries, chemical plants, waste and waste-water treatment plants, paper and timber industries);
- accommodate available data on releases from diffuse sources (e.g. transport and agriculture); and
- allow for public participation in its development and modification.

Following the adoption of the Protocol, a Working Group on PRTRs was established to prepare for the entry into force of the Protocol. The Working Group has the mandate of assisting Parties to prepare for the Protocol's implementation, by the preparation of guidance documents, the sharing of information and experiences etc. Documents related to the tasks

[4] http://www.unece.org/env/pp/prtr.htm

being undertaken by the working Group are available from the website: http://www.unece.org/env/pp/prtr.wg.htm.

4.2 OECD PRTR

For a number of years, the OECD has supported countries who are considering establishing a national pollutant release and transfer register (PRTR). The Guidance Manual for Governments, published in 1996 [OCDE/GD(96)32[5]], was developed through a series of workshops which addressed the key factors countries should consider when developing a PRTR: why should a country establish a PRTR; what are the goals/objectives of the system and which chemical substances should be reported; how should the data be disseminated; and how should a PRTR system be implemented.

Based on the recommendation of a workshop held in Canberra Australia on Release Estimation Techniques (RETs), a Task Force on Pollutant Release and Transfer Registers was established in 2000, which is part of the OECD's Environment, Health and Safety Programme. Its main tasks are to continue to improve RETs and make them widely available, to facilitate the sharing and comparing of PRTR data between countries, to advance and improve the use of PRTR data and to identify, analyse and develop tools and provide guidance to promote PRTR establishment.

As described on the website of the OECD, the work of the OECD, its member countries and its PRTR TF has resulted in:

- Establishment of the Resource Centre for PRTR Release Estimation Techniques (RETs)[6] in 2004, which provides a clearinghouse of guidance manuals/documents of release estimation techniques for the principal pollutant release and transfer registers developed by OECD member countries. The manuals and documents include descriptive information on the sources of pollution and the pollutants that are released, as well as information on emission factors, mass balance methods, engineering calculations, and monitoring information;
- Resource Compendium of PRTR Release Estimation Techniques, (2005 and subsequent updates)[7];
- Report on uses of Pollutant Release and Transfer Register Data and Tools for their Presentation (2005), which includes over 100 examples of uses of PRTR data from many different countries and a variety of PRTR systems as well as several available tools that provide assistance for the effective use of PRTR data, such as geographic information system (GIS), toxicity weighting, normalization, risk screening and environmental indicators;
- Framework for Selecting and Applying PRTR Release Estimation Techniques (2005), which provides general principles to be applied in producing comparable and representative PRTR data and in the selection and application of estimation techniques;
- Centre for PRTR Data (2006)[8], which is a database developed by the TF on PRTRs and for which Japan served as a lead country in its development. The purpose of this

[5] http://www.olis.oecd.org/olis/1996doc.nsf/LinkTo/ocde-gd(96)32.
[6] http://www.oecd.org/env_prtr_rc/
[7] http://webdomino1.oecd.org/COMNET/ENV/tf-prtr.nsf

database is to share PRTR data as widely as possible within the OECD area, consistent with the OECD Council Recommendation C(96)41/Final, as amended by C(2003)87. The data is compiled on a national or regional level. The database does not include data of individual sites or facilities.

4.3 European Pollutant Emission Register (EPER)

In 1996 the EC Directive on Integrated Pollution Prevention and Control was adopted (Directive 96/61/EC[9]). Its purpose is to achieve integrated prevention and control of pollution arising from activities listed in Annex 1 of the Directive, through permits to be issued by the Member States. In 1997 a Committee was formed according to Article 19 of the IPPC Directive to establish the format and particulars of the "inventory of principal emissions and sources responsible" (i.e. the European Pollutant Emissions Register or EPER) provided for in Article 15(3) of the Directive.

A subsequent Commission Decision defined the reporting requirements for EU Member States under the European Pollutant Emission Register[10]. The Decision obliged Member States to deliver a triennial report on emissions of 50 pollutants to both air and water from industrial facilities i.e. point sources. Thirty-seven of these pollutants concerned emissions to air. Not all industrial plants within EU Member States were captured within EPER's reporting scope, only those activities which were listed in Annex A3 of the EPER Decision were included. Pollutant-specific reporting thresholds are defined (Annex A1 of the EPER Decision) to identify which facilities should have reported emissions. The thresholds were set at a level to ensure that around 90% of the emissions of the industrial facilities covered by the EPER Decision were included within EPER. This prevented an unnecessarily high reporting burden on small industrial facilities.

The first reporting year under the EPER Decision was 2001, with Member States reporting this data in 2003. The second reporting year was 2004, with data being provided by the Member States in 2006. For the reporting year 2007 onwards, EPER will be replaced by the European Pollutant Release and Transfer Register (E-PRTR – see below). Reflecting this development, the EPER Decision was repealed in 2007[11].

The EPER Decision obliged the European Commission to make EPER data publicly accessible. This was done through the EPER website (http://eper.ec.europa.eu/), hosted by the EEA. The website allows emissions data to be downloaded for approx. 9,200 industrial

[8] http://www.oecd.org/env_prtr_data/

[9] Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control Official Journal L 257 , 10/10/1996 p. 0026 – 0040 (http://ec.europa.eu/environment/ippc/index.htm

[10] Commission Decision of 17 July 2000 on the implementation of a European pollutant emission register (EPER) according to Article 15 of Council Directive 96/61/EC concerning integrated pollution prevention and control (IPPC), (2000/479/EC) OJ L 192/36 (http://eper.ec.europa.eu/eper/documents/comission_17072000.pdf)

[11] Communication from the Commission establishing formal recognition that a certain act of Community law in the field of environment has become obsolete (2007/C 110/01). Official Journal C 110/1. 16/05/2007 . (http://eur-lex.europa.eu/LexUriServ/site/en/oj/2007/c_110/c_11020070516en00010001.pdf)

facilities in the 15 Member States of the EU (as well as Norway and Hungary) for the year 2001 and approx. 12,000 facilities in the 25 Member States of the EU and Norway for the year 2004. Data may be selected and viewed by pollutant, activity (sector), air and water (direct or via a sewerage system) or by country. It is also possible to see detailed data on individual facilities and to perform map searches.

Reports reviewing the reported datasets (2001 and 2004) were published in 2004 and 2007 respectively[12]. The 2007 report includes an analysis comparing the point-source emissions, as reported in the second reporting cycle of EPER, with data reported by countries in other international emission reporting requirements (LRTAP and UNFCCC).

4.4 The European Pollutant Release and Transfer Register (E-PRTR)

E-PRTR is the European Community's European Pollutant Release and Transfer Register. The E-PRTR is based on Regulation (EC) No 166/2006[13] and is intended to succeed EPER and fully implement the obligations of the UNECE PRTR Protocol. The E-PRTR has a wider and more comprehensive scope than its predecessor EPER. It will cover more than 91 substances released to air and water from industrial installations in 65 different sectors of activity (respectively 50 substances and 56 sectors under EPER), and will also include transfers of waste and waste water from industrial facilities to other locations as well as data on emissions caused by accidents on the site of the facilities. One important further difference will be that data on releases from diffuse sources (such as road traffic, agriculture, domestic heating, shipping etc) will also be included.

The first reporting year under the E-PRTR will be for the year 2007, this data will be reported by Member States in June 2009, with the reported data being made publicly available by the European Commission and EEA later that year. Unlike EPER, for which data was reported every three years, data reported by MS under the E-PRTR will be published annually.

To assist countries in preparing for the implementation of the E-PRTR the Commission, in co-operation with the Member States and other stakeholders, has published a guidance document for implementation of the E-PRTR which is available in 14 languages: http://eper.ec.europa.eu/eper/gaps.asp. This will be extended to 22 languages by the end of 2008.

[12] http://eper.ec.europa.eu/eper/EPERReview.asp?i=

[13] EC Regulation 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC, OJ L33 of 4.2.2006, p. 1.

5 THE EUROPEAN ENVIRONMENT AGENCY

The European Environment Agency (http://www.eea.europa.eu/) was established by EC Regulation 1210/90 (updated in 1999 (Regulation 933/1999) and commenced operation in Copenhagen on 30 October 1993.

The overall objective of the Agency as specified in the Regulation is "to provide the European Community and the Member States with objective, reliable and comparable information at European level enabling them to take the requisite measures to protect the environment, to assess the results of such measures and to ensure that the public is properly informed about the state of the environment".

The geographical scope of the Agency's work is not confined to Member States of the EU; membership is open to other countries that share the concerns of the EU and member states and the objectives of the Agency. The Agency currently has 32 member countries:

- 27 European Union Member States - Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, Spain and The United Kingdom.
- EU candidate country Turkey
- Iceland, Liechtenstein and Norway (European Economic Area countries)
- Switzerland.

EEA also cooperates with the countries of the West Balkans: Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia and the former Yugoslav Republic of Macedonia.

The strategy and annual workplans of the EEA are made publicly available[14]. The current 2004-2008 strategy of the Agency is aligned with the 6th environment action programme, and describes the Agency's objectives across four major thematic areas: tackling climate change, tackling biodiversity loss/understanding spatial change, protecting human health and quality of life (including a priority on air quality issues), use and management of natural resources and waste. Important products of the EEA include its regular State of the Environment reports published around every 5 years. The latest report in this series is 'The European environment - State and Outlook Report 2005'[15].

The EEA works closely with the European environment information and observation network (Eionet). Eionet is a network of the EEA and its member and participating countries. It consists of the EEA itself, five European Topic Centres (ETCs) and a network of around 900 experts from 37 countries in over 300 national environment agencies and other bodies dealing with environmental information. Through Eionet, the EEA coordinates the delivery of timely, nationally validated, high-quality environmental data from individual countries (including a variety of official air emissions and air quality data). This forms the basis of the

[14] http://www.eea.europa.eu/documents/
[15] http://reports.eea.europa.eu/state_of_environment_report_2005_1/en

integrated environmental assessments that are disseminated and made accessible through the EEA website.

5.1 European Topic Centre on Air and Climate Change (ETC/ACC)

To assist in delivering the objectives of its annual workplan, the EEA has established five centres of thematic expertise, the European Topic Centres (ETCs), including one topic centre on air and climate change. The present European Topic Centre on Air and Climate Change (ETC/ACC) is a consortium of 11 European organisations led by the Netherlands Environmental Assessment Agency (MNP) and involving:

- Umweltbundesamt Dessau (UBA-D)
- Norwegian Institute for Air Research (NILU)
- Umweltbundesamt Wien (UBA-V)
- AEA Technology (AEAT)
- Aristotle University of Thessaloniki (AUTh)
- Czech Hydrometeorological Institute (CHMI)
- Norwegian Meteorological Institute (MET.NO)
- Regional Environmental Center (REC)
- TNO-MEP
- Öko-Institute

The ETC/ACC performs a number of air emission-related tasks on behalf of the EEA. Details of the annual workplan of the ETC/ACC are available at http://air-climate.eionet.europa.eu/workplan. Typically the workplan of the ETC/ACC in the area of air emissions includes:

- the provision of policy support; supporting the EEA in EU and European environmental policy and legislative frameworks, including for example in areas such as the NEC Directive, LRTAP Convention, and IPPC;
- contributing to the annual joint EMEP/EEA review of emissions inventory data submitted by countries under the LRTAP Convention and NEC Directive;
- compilation of the annual European Community LRTAP Convention inventory submission and associated inventory report to assist the European Community (EC) as party to the UNECE/LRTAP Convention;
- compilation of an annual European Community NEC inventory and status report;
- compilation of a gap-filled air emissions dataset (including air pollutants and greenhouse gases) for EEA countries for use in EEA assessments, reports and factsheets, primarily by using EMEP/LRTAP Convention and UNFCCC data;
- preparation of a number of indicator factsheets on air emissions covering EEA member countries;
- updating of systems and tools to assist countries in reporting air emissions data e.g. through updating sections of this EMEP/CORINAIR Guidebook, and updating and improving software tools such as the COPERT4[16] software programme that calculates air pollutant emissions from the road transport sector.

All data and reports published by the EEA are available on its website http://www.eea.europa.eu/.

[16] http://lat.eng.auth.gr/copert/

6 THE EMEP/CORINAIR GUIDEBOOK

6.1 The Purpose of the Guidebook

The aim of the Guidebook is to provide an up-to-date comprehensive summary of emission inventory methodology for each of the pollutants and sources to be quantified.

The Guidebook is systematically organised and will be maintained as the reference document for emission inventory methodology. It provides guidance on methodology that could be adopted/followed without making or suggesting that such adoption is mandatory. The methodology can be used for national, regional and local emission inventories.

6.2 The Structure of the Guidebook

The Guidebook is structured in Chapters with each technical chapter presenting information to a common format. The common format for each chapter is a key feature of the Guidebook, designed to ensure that users (familiar or unfamiliar with the technical details of the area covered by each section) can readily locate and understand the essential aspects of the area covered.

Emission inventory nomenclature and hence the Guidebook will develop over time. This Third edition of the Guidebook addresses the source sector split and activity list given by SNAP97 (see CONTENTS) and the new Nomenclature For Reporting (NFR). The relationship between SNAP97, NFR and the IPCC96 formats is included in Guidebook – see the CONTENTS list.

Each chapter of the Guidebook covers a homogeneous Source Sector, Sub-sector, Activity or Group of Activities as listed in SNAP97. For example, a Section might cover Sector 2 (Commercial, institutional and residential combustion) or Sub-sector 4.4 (Processes in inorganic chemical industries) or Activity 9.2.1 (Incineration of domestic or municipal wastes) or 3.3.1 (Combustion Plant >=300MW).

Each chapter is as self-contained as possible. It provides, in most cases, the main reference point for information and guidance on the essential requirements for compiling the emission estimates for the emission source covered. In some cases, the text will direct the user to supplementary documents and other relevant data sources that will help completion of this compilation.

An example of a supplementary document would be the ‘COPERT4’ User Manual and computer program, which may be used in conjunction with the Guidebook to work up the required inventory for mobile emissions. Examples of other relevant data sources could be reports or on-line databases with information on Best Available Technology and/or emission factors used elsewhere (for example the IPCC 1996 Revised Guidelines for National Greenhouse Gas Inventories and subsequent IPCC documents on good practice).

6.3 The Development of the Guidebook

Development of the EMEP/CORINAIR Guidebook was initiated in 1993 when the TFEI agreed a specification for an Emission Inventory Guidebook (the 'EMEP/CORINAIR Guidebook'). The first edition of the Guidebook was subsequently completed in 1996 and published and distributed by the EEA (on paper, CDROM and the EEA Internet site). The second edition of the Guidebook was officially launched in 1999; with the third edition released in 2001.

Updates of the Guidebook content (methodology, emission factors etc) are performed regularly; the latest final version of the Guidebook is always available for download from the website of the EEA: http://www.eea.europa.eu. The final official version of chapters are approved by the TFEIP at its annual meeting and the subsequent Steering Body meeting of CLRTAP/EMEP before being made available on the EEA Internet website.

6.4 Guidebook Format

Subject to further development by the TFEIP, the common format for each Chapter is as follows (small changes have been introduced since the structure was originally agreed at the meeting of the Task Force held in Delft in May 1993):

SNAP SECTOR, SUB-SECTOR OR ACTIVITY CODE(S)	
SOURCE SECTOR, SUB-SECTOR OR ACTIVITY TITLE(S)	
NOSE CODE(S)	
NFR CODE(S)	
ISIC CODE(S)	
1. Activities included	Provides for chapters covering a source sector, sub-sector or parts thereof, codes and names for each of the activities covered within this chapter. Notes any related emission sources not included in the chapter.
2. Contribution to total emission	Provides tables summarising current state of knowledge on (a selection of) national and multi-national (CORINAIR, EMEP, OECD, UNFCCC) data on weight and percent contributions to total emissions for each relevant pollutant. Sectors and sub-sectors producing more than one percent of total emissions of any pollutant should be disaggregated as far as practicable within these tables to show contributions from the main sub-sectors and/or activities producing at least one percent of the most significant pollutant.
3. General	
3.1 Description	Provides a general introduction to explain what the section covers. Use ISIC, NACE, PRODCOM (or other) codes and definitions where these can help in the definition of the activities covered.

3.2 Definitions	Provides definitions of important terms.
3.3 Techniques	Describes the relevant techniques/technologies (reference may be given to additional sources of information).
3.4 Emissions	Presents the relevant pollutants and describes where and how they are emitted.
3.5 Controls	Describes the controls/abatement techniques available, how these have been introduced over time and their effects on emissions. Each of the above should include reference to the source of the definitions of terms and classification.
4. Simpler methodology	The purpose of the simpler methodology is to enable users to determine whether emissions from this activity are significant. Describes the minimum acceptable approach for quantifying emission from this source. The rationale for the approach should be presented and should have been confirmed as acceptable by several experts (some of whom will use this approach and some a more advanced approach). Appropriate base statistics and emission factors to be used should be clearly specified and explained.
5. Detailed methodology	The detailed methodology should be used for those sources that have been identified as significant. It describes the methodology, the benefits in terms of detail, improved accuracy and precision etc. and how it relates to the simpler approach. (In some case the simpler and detailed methodology may be the same).
6. Relevant activity statistics	Provides lists and possible sources of statistics/data on activities relevant to the estimation of emissions. Example activities are fuel consumption, traffic, industrial consumption/output and example data sources are national statistics offices, Eurostat, UNECE, OECD, IEA.
7. Point source criteria	Lists the current criteria to be used to split sources into point and area/line sources.
8. Emission factors, quality codes and references	Provides tables of emission factors for each pollutant, medium, technique, activity and fuel covered with associated quality codes and references (to the literature sources of the emission factors). Where appropriate and available, uncontrolled techniques should be given first and the temporal development of emissions/abatement should be included.
9. Species profiles	Provides available information on species profiles, for example NOx and VOCs, with associated quality codes 8A-E) and references, as for emission factors above.
10. Uncertainty estimates	Provides current estimates in the uncertainties of base statistics, emission factors, disaggregation factors and emission estimates as percentages and/or quality codes (A-E).
11. Weakest aspects/priority areas for	Provides a summary of these aspects with

improvement in current methodology	suggestions/proposals on how they can be addressed or on how they are being addressed.
12. Spatial disaggregation criteria for area sources	Provides recommendations for activity or surrogate statistics to be used for spatial disaggregation.
13. Temporal disaggregation criteria	Provides a summary of what is known or what needs to be considered to disaggregate annual totals to shorter time periods.
14. Additional comments	Any comments not mentioned elsewhere, which may assist the estimation of emissions from this activity.
15. Supplementary documents	Provides a summary of documents which are to be used in conjunction with the Guidebook and which provide supplementary information necessary for completion of this part of the inventory, for example COPERT manuals.
16. Verification procedures	Describes verification procedures relevant to this section and who should apply them (national expert, central team, statistical office etc.). The Verification Export Panel will provide advice/examples to the other Panel Leaders to help develop this section.
17. References	Provides list of references quoted within this section.
18. Bibliography	Provides a list of other relevant literature which is not referred to but which might be useful for extra background reading should further information be required.
Release version, date and source	Includes the chapter release version number, date of preparation or revision, list of author(s) plus people/organisations responsible for further updates.
Point of Enquiry	A current contact point for questions on the chapter.