EEA and EIONET emission data reporting

Martin Adams, Air and Climate Change programme, EEA.

Content

- The European Environment Information and Observation network (EIONET) and EEA
- Reporting of EIONET annual priority dataflows - emissions
- Emission-related resources – EMEP/EEA Guidebook, emission models and software etc.

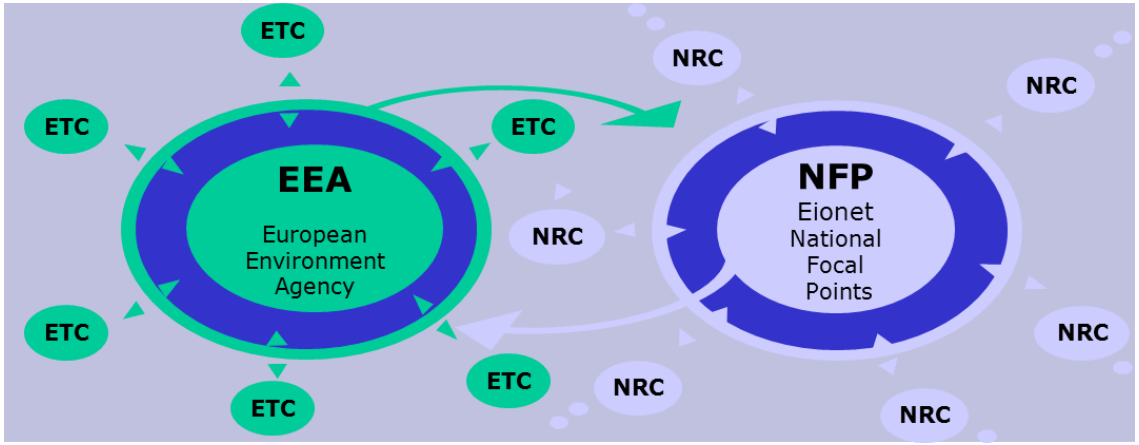
Explaining EIONET

- The European Environment Information and Observation network (EIONET) was established by EEA's founding (EU) Regulation in 1990
- It is a partnership network between the EEA, its 32 member countries (EU-27 + Iceland, Liechtenstein, Switzerland and Turkey) and 7 West Balkan cooperating countries.
- The EEA coordinates EIONET activities, working closely with the National Focal Points (NFPs), typically national environment agencies or ministries in the member countries.
- A. Çagatay Dikmen is the Turkish NFP.

EIONET
European Environment Information and Observation Network

EIONET – NRC for air pollutant emissions

- The NFPs are responsible for coordinating networks of National Reference Centres (NRCs), bringing together around 1000 experts from over 350 national institutions
- The National Reference Centre (NRC) for air and GHG emissions is the *Mitigation of Air Pollution and Climate Change* group.
- National NRC contact points nominated by the NFP for the mitigation NRC are A. Teoman Sanalan and Evren Türkmenoğlu



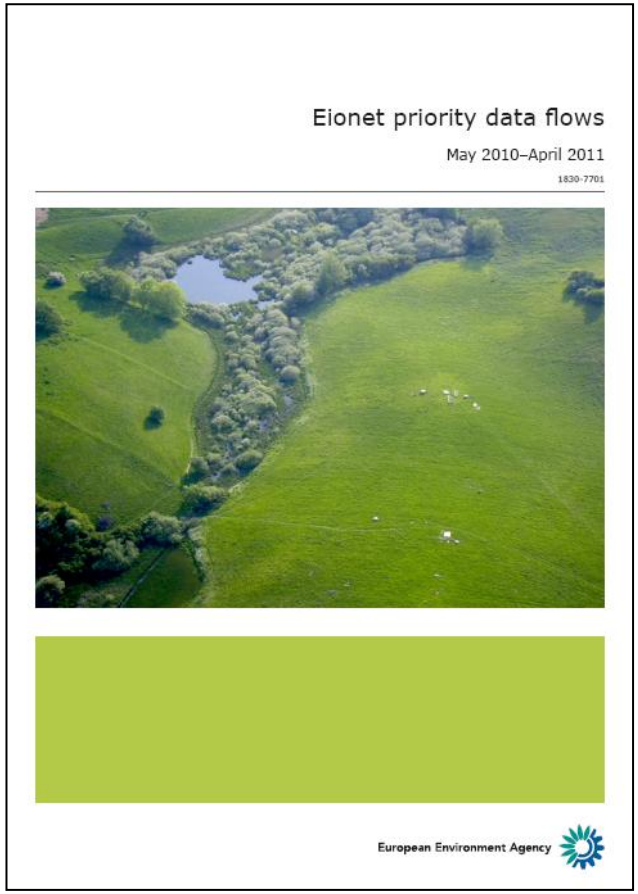
Regular activities of the EIONET emissions NRC

- Annual reporting of ***EIONET priority dataflows***
- Provide expert/country reviews of a number of EEA products (e.g. draft reports, indicators) (EIONET planner)
- Provide feedback on EEA's proposed annual work programme for the air and climate mitigation area
- Funding to attend regular Eionet NRC meetings - the air pollution NRC meeting is held each year jointly with UNECE's Task Force on Emission Inventories and Projections group (TFEIP)
- Invitations to expert technical workshops held at EEA

EIONET
European Environment Information and Observation Network

EIONET priority dataflows

- EEA has agreed with EIONET that countries each year should report certain '**priority dataflows**'
- These dataflows are generally based upon existing EU or international reporting obligations
- The provision of high-quality data helps EEA & EIONET to achieve its mission to provide 'timely, targeted, relevant and reliable information'



EIONET priority dataflows

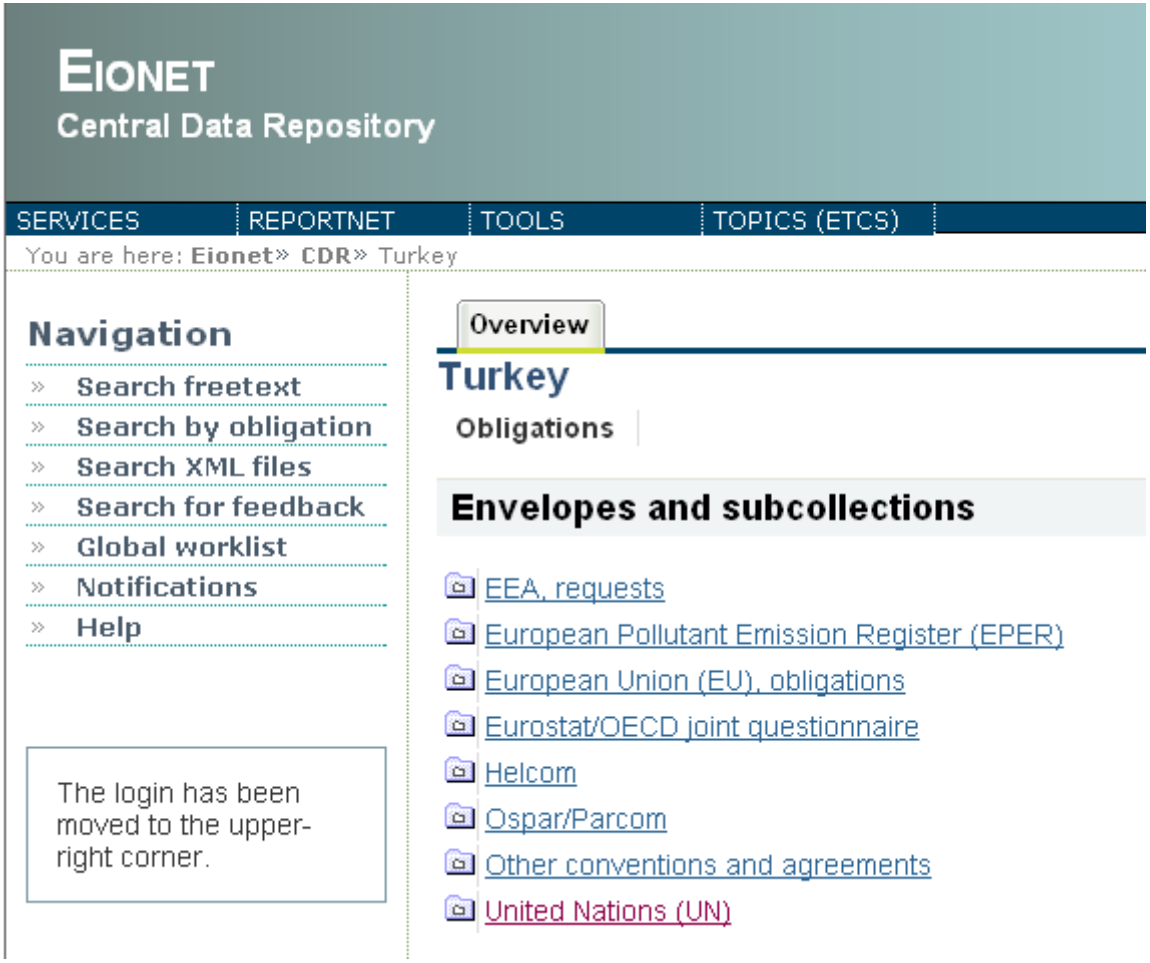
- EIONET online tools – REPORTNET, including
  - Central data repository (CDR)
  - Reporting obligations database (ROD)

http://www.eionet.europa.eu/reportnet

EIONET
European Environment Information and Observation Network

EIONET priority dataflows

- The Central data repository (CDR) is used by countries to upload data.
- CDR can be used to deliver data to the LRTAP Convention and European Commission (NECD)



EIONET priority dataflows

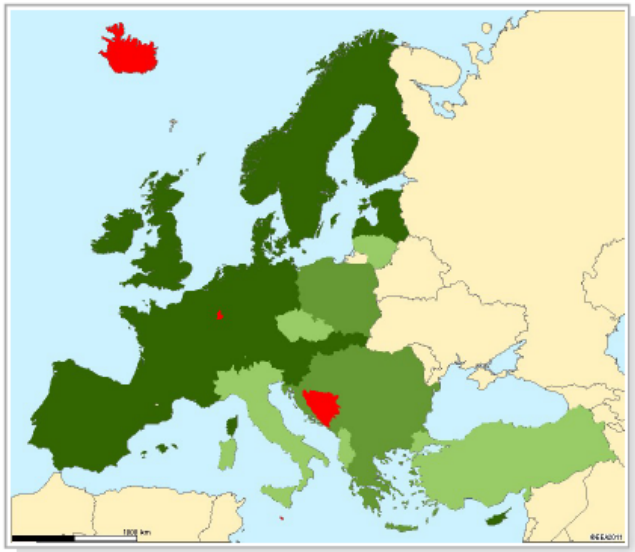
- The priority dataflows for emissions are:
  - AE1 – LRTAP Convention air pollutant emissions data
  - *AE1b – NEC Directive data (for EU Member States)*
  - AE2 – UNFCCC greenhouse gas emissions data
  - *AE2b – EU GHG monitoring mechanism data (for EU MS)*
  - *E-PRTR (for countries reporting to E-PRTR)*

EIONET priority dataflows

- Each year, the performance of countries in delivering these priority dataflows is assessed against standard quality criteria
- Country ‘rankings’ are calculated and published to help countries identify the institutional resources they need for regular reporting
- It also encourages countries towards better performance through ‘compétition amicale’, concentrating on achievements made

Reporting to April 2011: AE1 LRTAP data

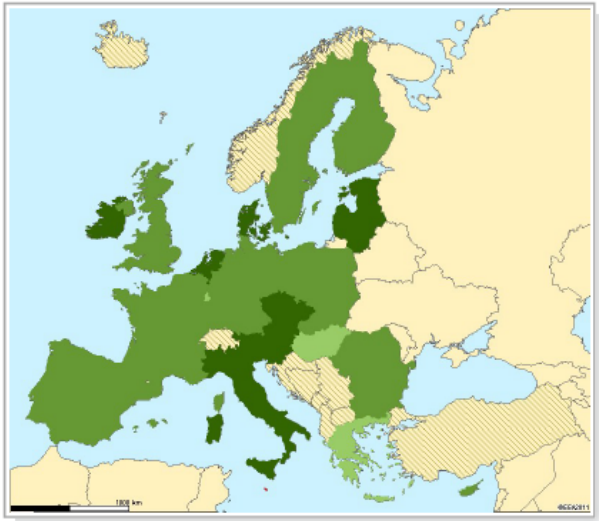
	Complete time series available for all requested pollutants SO_2, NO_X, CO, NMVOC, NH_3 (at least 1990-2009) and PM_{10} (at least 2000-2009) by 15 February 2011.
	Data available on time (by 15 February 2011).
	Data delivered after 15 February 2011.
	No delivery available.



	19 countries with a score of 3 points: Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, Ireland, Latvia, Netherlands, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom
	9 countries with a score of 2 points: Bulgaria, Croatia, Former Yugoslav Republic of Macedonia, Greece, Hungary, Montenegro, Poland, Romania, Serbia
	6 countries with a score of 1 point: Albania, Czech Republic, Italy, Liechtenstein, Lithuania, Turkey
	4 countries did not deliver data: Bosnia and Herzegovina, Iceland, Luxembourg, Malta

Reporting to April 2011: AE1b NEC data

	NEC data available in CDR by 31 December 2010 and in the format specified and without modifications to the reporting template.
	NEC data delivered in time (by 31 December 2010).
	NEC data delivered after 31 December 2010.
	No NEC data delivered.
European datasets	National Emission Ceilings Directive Inventory in EEA Data Service Air pollutant emissions (NEC Directive) data viewer in EEA Data Service



	10 countries with a score of 3 points: Austria, Czech Republic, Denmark, Estonia, Ireland, Italy, Latvia, Lithuania, Netherlands, Slovenia
	13 countries with a score of 2 points: Belgium, Bulgaria, Cyprus, Finland, France, Germany, Poland, Portugal, Romania, Slovakia, Spain, Sweden, United Kingdom
	3 countries with a score of 1 point: Greece, Hungary, Luxembourg
	1 country did not deliver data: Malta
	This data flow is not applicable (N/A) to 11 countries: Albania, Bosnia and Herzegovina, Croatia, Former Yugoslav Republic of Macedonia, Iceland, Liechtenstein, Montenegro, Norway, Serbia, Switzerland, Turkey

Reporting to April 2011: AE2 UNFCCC data

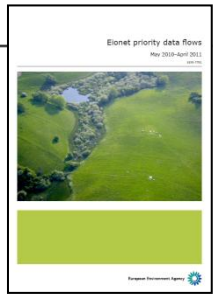
	Complete time series made available from 1990 to 2009 for all pollutants requested by data flow project: CO_2, CH_4, N_2O, HFC, PFC and SF_6 made available in specified XML format by 15 April 2011.
	Data in XML format available on time (by 15 April 2011).
	Data delivered with delay (after 15 April 2011) or not in XML format.
	No delivery available.
European datasets	Greenhouse gas emissions data published through EEA Data Service Greenhouse gas emissions data viewer in EEA Data Service

	29 countries with a score of 3 points: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland, United Kingdom
	2 countries with a score of 2 points: Iceland, Turkey
	3 countries with a score of 1 point: Former Yugoslav Republic of Macedonia, Hungary, Slovakia
	4 countries did not deliver data: Albania, Bosnia and Herzegovina, Montenegro, Serbia

EIONET reporting performance - Turkey

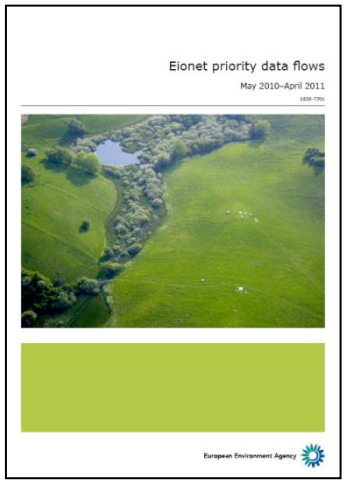
Table 2.37 Data flow analysis for Turkey

Data flow name	Progress 2010-2011	Remark
AE1: LRTAP data		Partial time series (2008) for three of the requested pollutants (NOx, NMVOC, SOx) plus CO delivered on time in CDR. LRTAP/EMEP emission inventory status report not available.
AE1b: NEC data	N/A	Data flow is relevant for EU MS countries only.
AE2: UNFCCC data		Complete time series delivered on time to UNFCCC and then uploaded to CDR. CRF XML format not yet available. National inventory report provided.
AE2b: EU GHG data	N/A	Data flow is relevant for EU MS countries only.



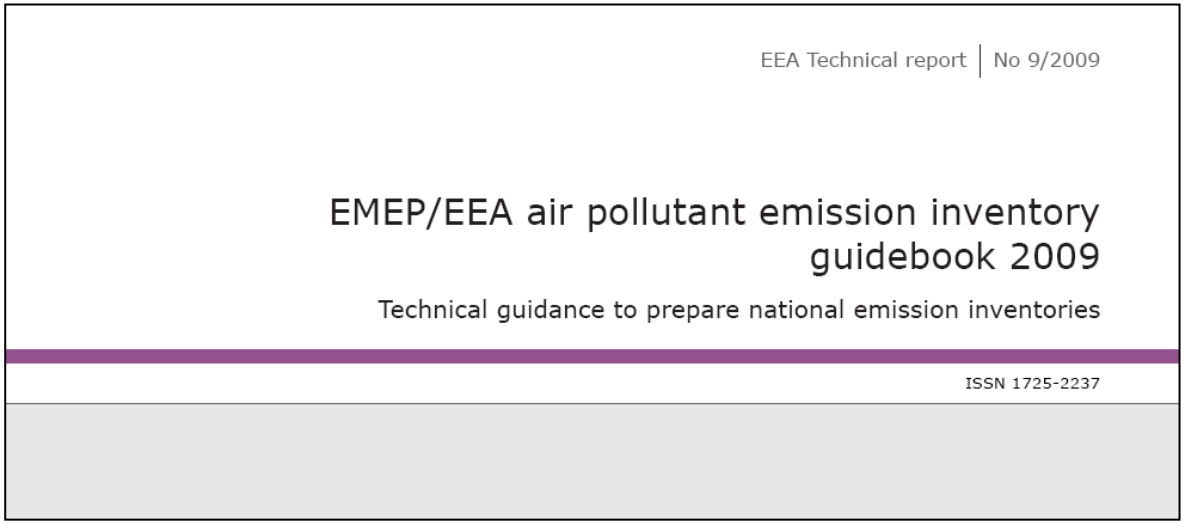
- Over the last years AE1 =  , so a significant improvement in 2011!

Overall EIONET reporting performance - Turkey



http://www.eionet.europa.eu/dataflows/

Resources for emission inventory compilers: EMEP/EEA Guidebook



What is it?

- The 'EMEP/EEA Air Pollutant Emission Inventory Guidebook' (the 'Guidebook') provides information on emission inventory principles and specific methods for emission sources

Where:

- www.eea.europa.eu/emep-eea-guidebook

Resources for emission inventory compilers: EMEP/EEA Guidebook

Why is it needed?

- The Guidebook assists Parties to the LRTAP Convention and EU Member States to meet their emission reporting obligations
- The Guidebook has two key functions:
  - to provide procedures to enable users to compile emission inventories that meet inventory quality criteria for Transparency, Consistency, Completeness, Comparability and Accuracy (TCCCA criteria);
  - to provide methods and emission factors for inventory compilers at various levels of sophistication
- In addition, the Guidebook may be used to report some pollutants to the UNFCCC and to other international bodies (UNEP Stockholm Convention, PRTRs etc.)

Resources for emission inventory compilers: EMEP/EEA Guidebook

UNECE Reporting Guidelines 2009 ECE/EB.AIR/97

- *11. Parties shall **as a minimum** use the methodologies in the latest version of the EMEP/EEA Guidebook… to estimate emissions and projections for each source category…*

  …Parties can use national or international methodologies that they consider better able to reflect their national situation, provided that the methodologies produce more accurate estimates than the default methods, are scientifically based, are compatible with the Guidebook, and are documented in their IIRs…[informative inventory reports]

EMEP/EEA Guidebook - background

Who looks after the Guidebook?

- The Guidebook is a joint cooperation between UNECE/EMEP (responsible for the Guidebook's technical content) and EEA (host/publishers, fund the regular update of a number of chapters).
- The UNECE TFEIP and its 'expert panels' maintains the content of the Guidebook chapters.

What is in the Guidebook?

- The guidebook is structured to provide the user with:
  - a) general information on the basic principles of constructing an emissions inventory and
  - b) the specific estimation methods and emission factors to compile an inventory

Resources for emission inventory compilers: EMEP/EEA Guidebook

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EMEP/EEA air pollutant emission inventory guidebook — 2009

Technical report No 9/2009

The EMEP/EEA air pollutant emission inventory guidebook (formerly referred to as the EMEP CORINAIR emission inventory guidebook) provides guidance on estimating emissions from both anthropogenic and natural emission sources. It is designed to facilitate reporting of emission inventories by countries to the UNECE Convention on Long-range Transboundary Air Pollution and the EU National Emission Ceilings Directive. The EEA publishes the Guidebook, with the UNECE's Task Force on Emission Inventories and Projections having responsibility for the technical content of the chapters. A list of corrections and changes made to individual chapters since the 2009 version of the Guidebook was published can be found in the revision logfile.

Published: 19 Jun 2009

Themes

Air pollution

Published by

- EEA (European Environment Agency)

Contents

- EMEP EEA Guidebook 2009 revision log.pdf [47.4 kB]
- Part A: general guidance chapters
  - 1. Foreword, table of contents, introduction and acknowledgements
    - 1. Foreword, table of contents and introduction.pdf [458.3 kB]
    - 1.a. Acknowledgements.pdf [18.5 kB]
  - 2. Key Category Analysis and Methodological Choice.pdf [213.9 kB]

Resources for emission inventory compilers: EMEP/EEA Guidebook

Part A – General guidance chapters

- Introduce the general principles and good practice requirements for emission inventories.
- Very closely aligned to the international reporting requirements under UNFCCC as defined in IPCC Guidelines etc.
- Part A Contents
  - 1. Foreword and introduction
  - 2. Key Category Analysis and Methodological Choice
  - 3. Data Collection
  - 4. Time Series Consistency
  - 5. Uncertainties
  - 6. Inventory Management, Improvement and QA QC
  - 7. Spatial Emissions Mapping
  - 8. Projections

Resources for emission inventory compilers: EMEP/EEA Guidebook

Part B – Sectoral guidance chapters

- 1.A. Combustion
  - 1.A.1 Combustion in energy industries GB2009 update June2010.pdf [653.8 kB]
  - 1.A.2 Combustion in Manufacturing Industries and Construction.pdf [204.0 kB]
  - 1.A.3.a Aviation_annex.zip [129.6 kB]
  - 1.A.3.a Aviation update December 2010.pdf [225.0 kB]
  - 1.A.3.b Road transport update June 2010.pdf [937.4 kB]
  - 1.A.3.b Road transport annex HDV files.zip [1.2 MB]
  - 1.A.3.b.v Gasoline evaporation.pdf [252.4 kB]
  - 1.A.3.b.vi Road tyre and brake wear.pdf [226.5 kB]
  - 1.A.3.c Railways.pdf [182.6 kB]
  - 1.A.3.d Navigation GB2009 update March 2011.pdf [265.7 kB]
  - 1.A.3.e.i Pipeline compressors.pdf [14.7 kB]
  - 1.A.4 Small combustion.pdf [705.6 kB]
  - 1.A.4 Other Mobile GB2009 update June2010.pdf [457.1 kB]
- 1.B. Fugitive Emissions from Fuels
- 2. Industrial processes
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    - 2.A.1 Cement production.pdf [197.7 kB]
    - 2.A.2 Lime production.pdf [158.9 kB]
    - 2.A.3 Limestone and dolomite use.pdf [44.1 kB]
    - 2.A.4 Soda Ash production and use.pdf [104.8 kB]
    - 2.A.5 Asphalt roofing.pdf [158.0 kB]
    - 2.A.6 Road paving with asphalt.pdf [187.0 kB]
    - 2.A.7.a Quarrying and mining of minerals other than coal.pdf [34.4 kB]
    - 2.A.7.b Construction and demolition.pdf [34.7 kB]
    - 2.A.7.c Storage, handling and transport of mineral products.pdf [43.5 kB]
    - 2.A.7.d Other mineral products.pdf [286.5 kB]

Resources for emission inventory compilers: EMEP/EEA Guidebook

Each sectoral guidance chapter provides different types of methods for estimating emissions.

- Simple (Tier 1) methods are given for all sources and substances
- More advanced (Tier 2) methods are given that should be used for key categories.
- Further information is given for advanced (Tier 3) approaches for key categories where suitable methods are available (e.g. road transport).

Resources for emission inventory compilers: EMEP/EEA Guidebook

- Tier 1 methods apply a simple linear relation between activity data and emission factors. The activity data is derived from statistical information (energy statistics, production statistics, traffic counts, population sizes, etc.). Tier 1 emission factors are chosen to represent 'typical' or 'averaged' process conditions.
- Tier 2 methods use similar or more detailed activity data, but apply country-specific emission factors; and using information on process conditions, fuel qualities, abatement technologies, etc.
- Tier 3 methods go further; these may include using facility level data and/or sophisticated models e.g. PRTR data or data from emission trading schemes for industrial emissions, or models like COPERT for road transport emissions.

Resources for emission inventory compilers: EMEP/EEA Guidebook

Typical structure of a sectoral guidance chapter

Contents

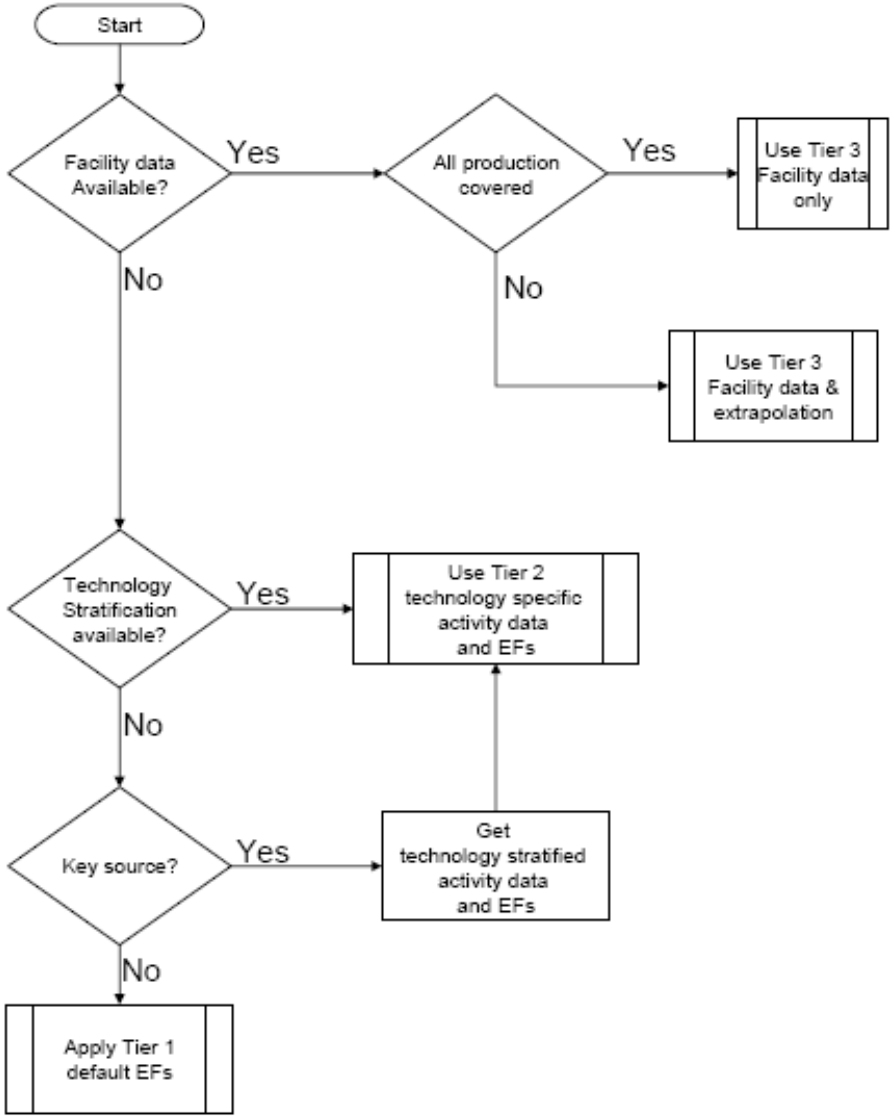
Resources for emission inventory compilers: EMEP/EEA Guidebook

- The guidebook follows the example of the IPCC Guidelines by providing **decision trees**
- These assist inventory compilers to make the most appropriate methodological choice, taking into account data availability and the importance of the source
- In general, it is good practice to use higher tier methods (T2, T3) for key categories.
- Importance of transparency – informative inventory reports should describe the methods and data used to estimate emissions.

Resources for emission inventory compilers: EMEP/EEA Guidebook

Example decision tree for

2.A.1 Cement production



Resources for emission inventory compilers: software products

EEA also supports the development and maintenance of several software tools for emission inventories:

- COPERT road transport emission inventory software. Developed for Europe's vehicle fleets, used by majority of Member States for GHG and air pollutant inventories

- CollectER emission inventory database system

Regular training workshops and technical helpdesk support offered to users

www.eea.europa.eu

www.eea.europa.eu/themes/air

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Resources for emission inventory compilers: software products