



INSPECTION **B**ODY FOR
EMISSION INVENTORIES

ENVIRONMENT **umwelt**bundesamt^U
AGENCY AUSTRIA

QUALITY MANUAL: IBE C0 Preamble

Quality Manual

of the

INSPECTION **BODY FOR
EMISSION INVENTORIES**

at the

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- *Abkürzungen CA und SC eingefügt und SL gelöscht*
- *Inhaltsverzeichnis C2 aktualisiert*

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0 PREAMBLE

The Environment Agency Austria has been entrusted by law with the preparation of Austria's emissions inventory. Strict and binding guidelines have been set up by the international community to ensure fairness and effectiveness within the system, and to contribute to the achievement of the overall goal, which is to lower anthropogenic pressures on Earth and to preserve the environment.

Besides strict compliance with these guidelines, absolute reliability of emission inventories is necessary for the functioning of the system. This can only be achieved by ensuring strict independence and impartiality.

To fulfill this task, the *Inspection Body for Emission Inventories* has been established by and within the Environment Agency Austria.

A basic QA/QC system is obligatory for emission inventory compilers; the Environment Agency Austria, aware of the importance of impartiality, has implemented an even more sophisticated quality management system (in line with *ISO/IEC 17020 Conformity assessment – General criteria for the operation of various types of bodies performing inspection*). Accreditation against this standard requires, in addition to an effective QMS, personnel of high competence and compliance with impartiality and independence requirements.

In 2005, the “Inspektionsstelle Emissionsbilanzen” (Inspection Body for Emission Inventories) was first granted accreditation in line with ISO/IEC 17020¹, which was renewed at the beginning of 2011, 2016 and 2020.

The Inspection Body conforms to the requirements of a third party inspection body (type A) according to Annex A.1 ISO/IEC 17020. It operates a quality management system (QMS) in accordance with ISO/IEC 17020 chapter “8.1.2 Option A” and the regulations of the Austrian Accreditation Law.

¹ “Since 23 December 2005 the Umweltbundesamt has been accredited as Inspection Body for emission inventories, Type A (ID No. 0241), in accordance with EN ISO/IEC 17020 and the Austrian Accreditation Law (AkkG), by decree of Accreditation Austria (first decree, No. BMWA-92.715/0036-I/12/2005, issued by Accreditation Austria / Federal Ministry of Economics and Labour on 19 January 2006).”



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0.2 Matrix ISO/IEC 17020 and quality manual

EN ISO/IEC 17020:2012	IBE Quality Manual
4 General requirements 4.1 Impartiality and independence 4.2 Confidentiality	IBE C1.6 IBE C1.7, IBE C3.8
5 Structural requirements 5.1 Administrative requirements 5.2 Organisation and management	IBE C1.5, C1.6 IBE C2.2, IBE C2.3
6 Resource requirements 6.1 Personnel 6.2 Facilities and equipment 6.3 Subcontracting	IBE C1.5.3, IBE C1.5.4, IBE C1.5.5, IBE C2.2, IBE C2.3 IBE C1.5.6 IBE C3.6
7 Process requirements 7.1 Inspection methods and procedures 7.2 Handling inspection items and samples 7.3 Inspection records 7.4 Inspection reports and inspection certificates 7.5 Complaints and appeals 7.6 Complaints and appeals procedure	IBE C3.1 Not relevant IBE C2.5, IBE C3.3 IBE C3.5 IBE C3.10 IBE C3.10
8 Management system requirements 8.1 Options 8.2 Management system documentation 8.3 Control of documents 8.4 Control of records 8.5 Management review 8.6 Internal audits 8.7 Corrective actions 8.8 Preventive actions	IBE C1, IBE C2 IBE C2.1, IBE C2.5 IBE C2.5 IBE C2.5 IBE C2.6 IBE C2.7 IBE C2.8 IBE C2.8



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0.3 List of quality and technical procedures (except SOPs)

Quality procedures:

IBE Q1 Personnel

IBE Q2 Documents and records

IBE Q3 Review and improvements

EMI Q1 Emission inventories

EMI Q2 Service contracts (german)

Technical procedures:

EMI T1 Data management (german)

EMI T2 Uncertainties (german)



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0.4 Terms, definitions and abbreviations

<i>Term</i>	<i>Definition</i>	<i>Abbr.</i>
IBE general		
	Inspection Body for Emission Inventories; <i>Abbreviation is used for general QMS documents, relevant to all personnel and tasks of the IBE.</i>	IBE
Inspection	Inspection under the terms of ISO/IEC 17020; for the IBE inspection activities are the preparation of the emission inventory following SOPs	
Emission inventory	Inventory of emissions (and removals) of air pollutants pursuant to the relevant specifications and guidelines (in particular the guidelines of the IPCC and the LRTAP GPG). <i>Used in this manual to specify technical procedures.</i>	EMI
Managing Directors	Managing directors of the Environment Agency Austria.	MD
Functions of the IBE		
Head of the IBE	(Technical) manager of the IBE („Technischer Leiter“ der Inspektionsstelle gemäß EN ISO/IEC 17020 Kapitel 5.2.5 und „oberste Leitung“ der Inspektionsstelle gemäß EN ISO/IEC 17020 Kapitel 8.2.1 sowie AkkG 2012 §12 Abs. 1 Z2 in Personalunion)	HI
Quality representative	Member of top management who has the responsibility and authority to ensure that processes and procedures needed for the management system are established, implemented and maintained, and to report to top management on the performance of the management system and any need for improvement.	QR
Inspector	Staff member performing inspections	
Staff member	personnel of the IBE, is appointed to different functions of the IBE	SM
Sector expert	Inspector appointed to EMI with the overall responsibility for a CRF/NFR category.	SE
Sector <u>lead-co-ordinator</u>	Sector expert , who has the technical lead for the appointed sector Sector experts with an additional, coordinating function (one per sector)	SL <u>SLSC</u>
Project manager	Project manager for one task of the IBE	PM
Data manager	Data manager (for one task) of the IBE	DM



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<i>Term</i>	<i>Definition</i>	<i>Abbr.</i>
<u>Cross-sector Analyst</u>	<u>Staff member responsible for performing the Key Category and the Uncertainty Analysis</u>	<u>CA</u>
Report coordinator	coordinator of an inspection report of the IBE	RC
Inventory Support	Expert supporting the inventory team nationally or internationally	IS
Review Responsible	personnel of the IBE; point of contact for (technical) expert review team; responsible for correspondence with (T)ERT and all related organisational tasks	RR
QMS of the IBE		
documentation	Used in this manual related to the documentation of the QMS, i.e. comprises all documents:	
document	Used in this manual related to the documentation of the QMS, i.e. the quality manual and quality and technical procedures.	
record	Used in this manual for an physical or electronic document (paper or file) containing evidence of actions or results that have been performed or prepared following the procedures defined in this quality manual.	
Implementation audit	Type of Internal audit at the IBE testing the implementation of its QMS	
Conformity audit	Type of Internal audit at the IBE testing the conformity of its QMS with the requirements of the ISO/IEC 17020 and the AkkG	
	Chapter of the quality manual	C
Quality procedure	Definition of procedures for QM activities of the IBE	Q
Technical procedure	Definition of procedures for activities supporting the tasks of the IBE, e.g. data management	T
	Standard operating procedure issued by the IBE for estimating emissions (or removals)	SOP
	Wildcard for filenames for a date e.g.: Jan11	DATE
	Wildcard for filenames for a four digit year date	YEAR
	Wildcard for consecutive numbers	X or XX
	Wildcard for filenames for a name with no further specifications	NAME

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Term	Definition	Abbr.
Definitions from 2006 Guidelines		
Quality objectives	A key component of a QA/QC plan [<i>implementation at the IBE is the quality manual</i>] is the list of data quality objectives, against which an inventory can be measured in a review. Data quality objectives are concrete targets to be achieved in the inventory preparation. They should be appropriate, realistic (taking national circumstances into account) and allow for an improvement of the inventory. Where possible, data quality objectives should be measurable. Such data quality objectives may be based upon and refined from the inventory principles.	
Inventory principles	Transparency, Accuracy, Consistency (internal consistency as well as time series consistency), Completeness, Comparability, [= TACCC] Timeliness and Improvement	TACCC
Transparency	Transparency means that the assumptions and methodologies used for an inventory should be clearly explained to facilitate replication and assessment of the inventory by users of the reported information. The transparency of inventories is fundamental to the success of the process for the communication and consideration of information.	
Accuracy	Accuracy is a relative measure of the exactness of an emission or removal estimate. Estimates should be accurate in the sense that they are systematically neither over nor under true emissions or removals, as far as can be judged, and that uncertainties are reduced as far as practicable. Appropriate methodologies conforming to guidance on good practices should be used to promote accuracy in inventories.	
Completeness	Completeness means that an inventory covers all sources and sinks and gases included in the IPCC Guidelines for the full geographic coverage in addition to other existing relevant source/sink categories which are specific to individual countries (and therefore may not be included in the IPCC Guidelines).	
Consistency	Consistency means that an inventory should be internally consistent in all its elements over a period of years. An inventory is consistent if the same methodologies are used for the base year and all subsequent years and if consistent data sets are used to estimate emissions or removals from sources or sinks. An inventory using different methodologies for different years can be considered to be consistent if it has been estimated in a transparent manner taking into account the guidance in Volume 1 on good practice in time series consistency.	
Comparability	Comparability means that estimates of emissions and removals reported by Parties in inventories should be comparable among Parties. For this purpose, Parties should use the agreed methodologies and formats.	
<i>Timeliness</i>	<i>Conforming to the reporting requirements on time</i>	
<i>Improvement</i>	<i>Improving the inventory in terms of the inventory principles.</i>	

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Emissions (Removals)	The release (removal) of air pollutants to the atmosphere over a specified area and period of time.	
Source (Sink)	Any process, activity or mechanism of release (removal). Notation in the final stages of reporting is the positive (+) (negative (-)) sign.	
Uncertainty	Lack of knowledge of the true value of a variable that can be described as a probability density function characterizing the range and likelihood of possible values. Uncertainty depends on the analyst's state of knowledge, which in turn depends on the quality and quantity of applicable data as well as knowledge of underlying processes and inference methods.	
Quality Control	<p>is a system of routine technical activities to assess and maintain the quality of the inventory as it is being compiled. It is performed by personnel compiling the inventory. The QC system is designed to:</p> <ul style="list-style-type: none"> (i) Provide routine and consistent checks to ensure data integrity, correctness, and completeness; (ii) Identify and address errors and omissions; (iii) Document and archive inventory material and record all QC activities. <p>QC activities include general methods such as accuracy checks on data acquisition and calculations, and the use of approved standardized procedures for emission and removal calculations, measurements, estimating uncertainties, archiving information and reporting. QC activities also include technical reviews of categories, activity data, emission factors, other estimation parameters, and methods.</p>	QC
Quality Assurance	<p>is a planned system of review procedures conducted by personnel not directly involved in the inventory compilation/development process. Reviews, preferably by independent third parties, are performed upon a completed inventory following the implementation of QC procedures.</p> <p>Reviews verify that measurable objectives (data quality objectives, see Section 6.5, QA/QC Plan.) were met, ensure that the inventory represents the best possible estimates of emissions and removals given the current state of scientific knowledge and data availability, and support the effectiveness of the QC program.</p>	QA
Validation	<p>is the establishment of sound approach and foundation.</p> <p>In the context of emission inventories, validation involves checking to ensure that the inventory has been compiled correctly in line with reporting instructions and guidelines. It checks the internal consistency of the inventory. The legal use of validation is to give an official confirmation or approval of an act or product.</p>	

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Verification	<p>refers to the collection of activities and procedures conducted during the planning and development, or after completion of an inventory that can help to establish its reliability for the intended applications of the inventory.</p> <p>For the purposes of this guidance, verification refers specifically to those methods that are external to the inventory and apply independent data, including comparisons with inventory estimates made by other bodies or through alternative methods. Verification activities may be constituents of both QA and QC, depending on the methods used and the stage at which independent information is used.</p>		
Good Practice	<p>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.</p> <p>Good Practice covers choice of estimation methods appropriate to national circumstances, quality assurance and quality control at the national level, quantification of uncertainties and data archiving and reporting to promote transparency.</p>		
Legal requirements			
1996 IPCC Guidelines	<p>Guidelines of the IPCC for estimating emissions (and removals) of greenhouse gases:</p> <p>Intergovernmental Panel on Climate Change. Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories. 1997. Edited by J.T. Houghton, L.G. Meira Filho, B. Lim, K. Tréanton, I. Mamaty, Y. Bonduki, D.J. Griggs and B.A. Callander. [rev. 1996 IPCC Guidelines]</p>	IPCC 1996	GL
IPCC Good Practice Guidance	<p>Guidelines of the IPCC for good practice of estimating emissions (and removals) of greenhouse gases:</p> <p>Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. The Intergovernmental Panel on Climate Change (IPCC), 2000.</p>	GPG	
	<p>Separate volume of the GPG for LULUCF:</p> <p>Good Practice Guidance for Land Use, Land-Use Change and Forestry, The Intergovernmental Panel on Climate Change (IPCC), 2003.</p>	LULUCF GPG	
2006 IPCC Guidelines	<p>Guidelines of the IPCC issued 2006 (revision of the IPCC guidelines and the IPCC GPG)</p> <p>IPCC (2006): 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Programme Eggleston H.S., Buendia L., Miwa K., Ngara T. and anabe K. (eds). Published: IGES, Japan.</p> <p>http://www.ipcc-nggip.iges.or.jp/public/2006gl/</p>	IPCC 2006	GL



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EMEP Guidebook	EMEP/EEA air pollutant emission inventory guidebook —prepared by the UNECE/EMEP Task Force on Emissions Inventories and Projections, published by European Environment Agency (formerly referred to as the EMEP CORINAIR emission inventory guidebook). Published Versions: 2009, 2013, 2016, 2019 (latest)	EMEP GB
Environmental Control Act	“Umweltkontrollgesetz”: Bundesgesetz über die Umweltkontrolle und die Einrichtung einer Umweltbundesamt Gesellschaft mit beschränkter Haftung, BGBl. I Nr. 152/1998	UKG
Austrian Accreditation Law	“Akkreditierungsgesetz”: Bundesgesetz über die Akkreditierung von Konformitätsbewertungsstellen (BGBl. I Nr. 28/2012)	AkkG 2012
	“Emissionshöchstmengen-Gesetz Luft”: Bundesgesetz über nationale Emissionshöchstmengen für bestimmte Luftschadstoffe, BGBl. I Nr. 34/2003	EG-L
EU GHG Monitoring Mechanism	No. 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC)	EU MM
Effort Sharing Decision	Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community’s greenhouse gas emission reduction commitments up to 2020	ESD
Implementing Regulation	Commission implementing regulation (EU) No .../2014 of ... on structure, format, submission processes and review of information reported by Member States pursuant to Regulation (EU) No 525/2013 of the European Parliament and of the Council	
NEC Directive	Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC	NECD
OTHER		
eligibility	Permission for a party to the Kyoto protocol to participate in the Kyoto Mechanisms	
adjustment	Adjustment of emissions or removals by the review team (made if the original estimate is not in line with the guidelines)	
Review (process)	External reviews by UNFCCC, UNECE or the EC	
	United Nations Framework Convention on Climate Change	UNFCCC



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Term	Definition	Abbr.
COP	Conference of the Parties of the UNFCCC; agrees on rules regarding implementation of the UNFCCC.	
MOP	Meeting of the Parties to the Kyoto Protocol; agrees on rules for implementing the Kyoto Protocol	
	Intergovernmental Panel on Climate Change	IPCC
	European Commission	EC
	United Nations Economic Commission for Europe	UNECE
	Convention on Long-range Transboundary Air Pollution	LRTAP
Party	Country that has ratified a convention or protocol.	