

The Austrian set-up for waste accounts

– experiences and practices

Development of waste accounting at the UN-level

SEEA solid waste accounts (1)

- Definition of solid waste: distinction between solid waste residuals and solid waste products
- Classification of solid waste: no standard international classification, indicative listing of types of solid waste based on EWC-Stat
- Structure of the supply table:
 - generation of solid waste residuals by industries and households
 - supply of solid waste residuals from the rest of the world (imports)
 - solid waste recovered from the environment
 - generation and imports of solid waste products

SEEA solid waste accounts (2)

- Structure of the use table:
 - the collection and disposal of solid waste residuals through various activities within the waste collection, treatment and disposal industry and through related activities in other industries.
 - the flow of solid waste residuals to the rest of the world (exports)
 - the flow of solid waste residuals direct to the environment.
 - the collection, recycling/reuse and exports of solid waste products

UN-statistics on waste

- In the Biennial Questionnaire of UNSD/UNEP on Environment Statistics data on the generation of waste by source is collected.

Line	Category	Unit	2009	2010
1	Agriculture, forestry and fishing (ISIC 01-03)	1000 t		
2	Mining and quarrying (ISIC 05-09)	1000 t		
3	Manufacturing (ISIC 10-33)	1000 t		
4	Electricity, gas, steam and air conditioning supply (ISIC 35)	1000 t		
5	Construction (ISIC 41-43)	1000 t		
6	Other economic activities excluding ISIC 38	1000 t		
7	Households	1000 t		
8	Total waste generation (=1+2+3+4+5+6+7)	1000 t		

Legal basis for waste accounting in the European Union

Communication of the Commission on GDP and beyond of 20.8.2009

- Recognition of the need to extent national accounts to environmental and social issues.
- Intention to develop a comprehensive environmental index comprising also waste generation and use of resources

European Strategy for Environmental Accounting (ESEA)

- environmental accounts at Eurostat are developed according to international standards for Integrated Environmental and Economic Accounting (SEEA)
- in ESEA 2008-2013 NAMEA Waste was identified as one of the “Secondary priority areas”.
 - Mid term goal: Further maturation of waste accounts utilising existing data.
 - Proposed actions: Development of methodologies, guidelines and procedures for validation for NAMEA waste

Regulation (EU) No 691/2011 on European environmental economic accounts

- legal framework for a harmonised collection of data on air emissions accounts, environmentally related taxes by economic activity and economy-wide material flow accounts
- foundation for further development of additional modules, with a view to adding them to this statistical law in the near future
- identifies waste accounts as one of the possible future modules of the environmental economic accounts
- three additional modules have already been proposed, waste accounts are not yet among them

Regulation (EC) No 2150/2002 on waste statistics

- establish a framework for the production of Community statistics on the generation, recovery and disposal of waste.
- requires breakdown of waste generation according to sources in such a way that waste statistics can be combined with business statistics
- aims at presenting data on waste generation in a manner which is consistent with the concepts and definitions of the national accounts

Waste Accounts as a part of Environmental Accounts in Austria

Integrated NAMEA

- shows material flows (use of materials, use of energy, air emissions and waste) and environmental expenditures, as well as environmental protection expenditures and environmental taxes together with economic data (gross value added, production value and working population)
- Uniform classification for economic and environmental data (ÖNACE), which allows the integration of these data
- The first integrated NAMEA in 2001-2002 for the reference year 1999
- Since 2003 annually compiled by Statistik Austria

Environmental Accounts

Ecologic Accounts
(Physical Data)

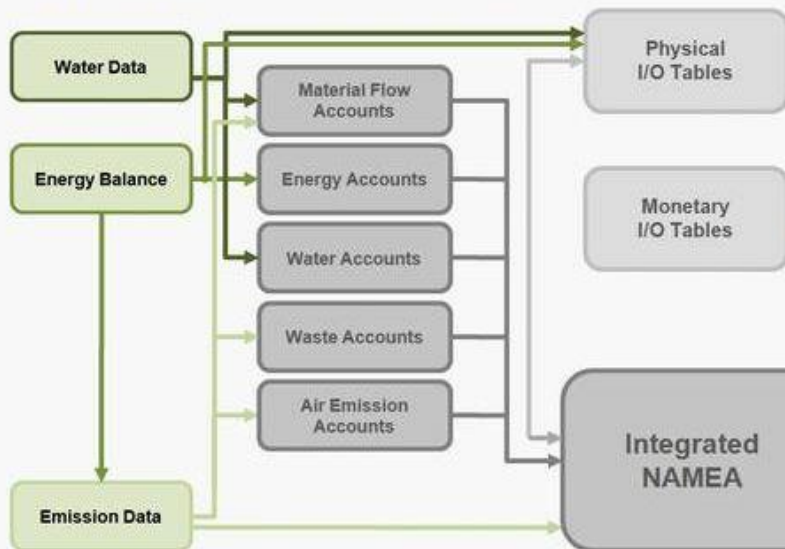


**Integrated- (Satellite)
Accounts**

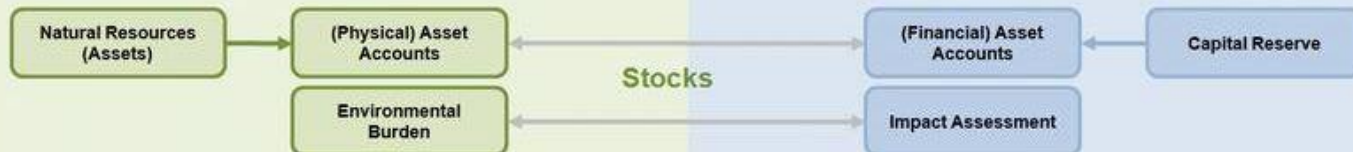
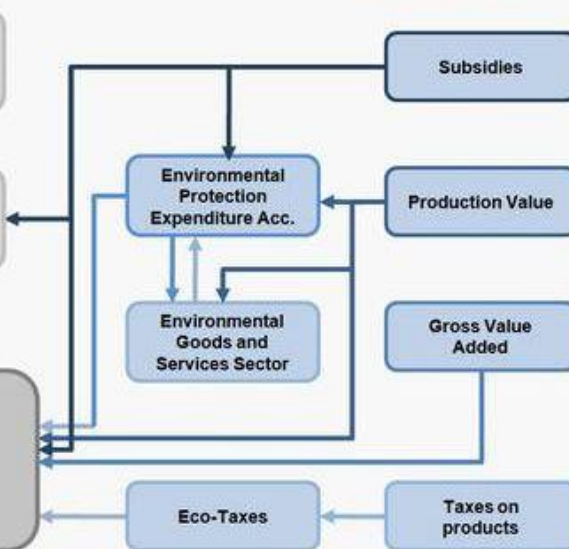


Economic Accounts
(Data from SNA)

Physical Flows



Financial Flows



Waste Accounts in Integrated NAMEA

- Annual data on the generation of hazardous waste for the reference years 1998-2010
 - based on consignment note data (1998-2009)
 - data for 2010 based on annual waste balances
- Data on the generation of non-hazardous waste for the reference years of the EU Waste Statistics Regulation (2004, 2006, 2008, 2010)
 - data for 2004-2008 based on the data of the Federal Waste Management Plan and statistical surveys
 - data for 2010 based on annual waste balances

Waste Statistics according to the Waste Statistics Regulation

European Waste Statistics Regulation

- **Regulation (EC) No 2150/2002 on waste statistics**
creates the framework for the production of Community statistics on the generation, recovery and disposal of waste
- Statistics are to be produced:
 - on the **generation** of waste according to Annex I
 - on the **recovery and disposal** of waste according to Annex II
 - using the statistical nomenclature set out in Annex III
- Reporting every second year in June
 - First time in 2006 on the reference year 2004

Statistics on waste generation (Annex I) - Coverage

- Statistics on waste generation cover:
 - all economic Activities (all NACE-Categories)
 - waste generated by households
 - including waste arising from recovery and/or disposal operations
 - all wastes except wastes excluded from the scope of the Waste Framework Directive (2008/98/EC)

Statistics on waste generation (Annex I) – Reporting structure

- Breakdown by economic activity and households (based on NACE Rev 2 classification)
 - 19 Categories
- Breakdown by waste type (EWC-Stat Rev 4, aggregating the waste categories of the European list of waste based on material types)
 - 51 Categories
- The data is to be presented at the national level (NUTS 0)

Set 1. Waste generation by waste category (EWC-STAT) and economic activities (NACE), tonnes/year

Waste item	activity item number		Hazardous	Dry	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	TA
	NACE Rev. 2 ➡				01_03	04_09	10_12	13_15	16	17_18	19	20_22	23	24_25	26_30	31_33	34_35	36+37+39	38	41_43	ex-cluded	46.77	HH	Total
	EWC-Stat Ver. 4																							
	Code	Description																						
1	01.1	Spent solvents	H																					
2	01.2	Acid, alkaline or saline wastes																						
3	01.2	Acid, alkaline or saline wastes	H																					
4	01.3	Used oils	H																					
5	01.4, 02, 03.1	Chemical wastes																						
6	01.4, 02, 03.1	Chemical wastes	H																					
7	03.2	Industrial effluent sludges		T																				
8	03.2	Industrial effluent sludges	H	T																				
9	03.3	Sludges and liquid wastes from waste treatment		T																				
10	03.3	Sludges and liquid wastes from waste treatment	H	T																				
11	05	Health care and biological wastes																						
12	05	Health care and biological wastes	H																					
13	06.1	Metallic wastes, ferrous																						
14	06.2	Metallic wastes, , non-ferrous																						
15	06.3	Metallic wastes, mixed ferrous and non-ferrous																						
16	07.1	Glass wastes																						
17	07.1	Glass wastes	H																					
18	07.2	Paper and cardboard wastes																						
19	07.3	Rubber wastes																						
20	07.4	Plastic wastes																						
21	07.5	Wood wastes																						
22	07.5	Wood wastes	H																					
23	07.6	Textile wastes																						
24	07.7	Waste containing PCB	H																					
25	08 (excl. 08.1, 08.41)	Discarded equipment (excl. discarded vehicles, batteries/accumulators)																						

Eurostat (2013). Manual on Waste Statistics.

http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-RA-13-015/EN/KS-RA-13-015-EN.PDF

Statistics on recovery and disposal (Annex II) - Coverage

- Statistics on recovery and disposal cover:
 - all treatment facilities that need a permit or have to be registered according to the Waste Framework Directive (2008/98/EEC)
 - all wastes except wastes excluded from the scope of the Waste Framework Directive (2008/98/EC)
- Excluded are:
 - preparatory treatment operations
 - non-economic waste treatment facilities (e.g. backyard composting).
 - recycling on the site of waste generation (internal recycling)
 - incineration at sea
 - co-incineration plants using specific biomass wastes

Statistics on waste treatment (Annex II) – Reporting structure

- Waste treatment (total quantities entering facilities for final treatment):
 - Breakdown by waste category (EWC-Stat Rev 4, aggregating the waste categories of the European List of Waste)
 - 51 categories
 - Breakdown by treatment categories (aggregating disposal and recovery operations of Annex I and Annex II of the WFD)
 - 5 categories
- The data is to be presented at the national level (NUTS 0)

Set 2. Waste treatment by waste category (EWC-STAT) and treatment category, tonnes/year

Waste item	treatment item number		Hazardous	Dry	1	2	3a	3b	4	5
	Treatment categories →				Energy recovery (R1)	Waste incineration (D10)	Recycling (R2 — R11)	Backfilling	Landfilling (D1, D5, D12)	Other disposal (D2, D3, D4, D6, D7)
	EWC-Stat Ver. 4									
	Code	Description								
1	01.1	Spent solvents	H							
2	01.2	Acid, alkaline or saline wastes								
3	01.2	Acid, alkaline or saline wastes	H							
4	01.3	Used oils	H							
5	01.4, 02, 03.1	Chemical wastes								
6	01.4, 02, 03.1	Chemical wastes	H							
7	03.2	Industrial effluent sludges		T						
8	03.2	Industrial effluent sludges	H	T						
9	03.3	Sludges and liquid wastes from waste treatment		T						
10	03.3	Sludges and liquid wastes from waste treatment	H	T						
11	05	Health care and biological wastes								
12	05	Health care and biological wastes	H							
13	06.1	Metallic wastes, ferrous								
14	06.2	Metallic wastes, , non-ferrous								
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17	07.1	Glass wastes	H							
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20	07.4	Plastic wastes								
21	07.5	Wood wastes								
22	07.5	Wood wastes	H							
23	07.6	Textile wastes								
24	07.7	Waste containing PCB	H							
25	08 (excl. 08.1, 08.41)	Discarded equipment (excl. discarded vehicles, batteries/accumulators)								
26	08 (excl. 08.1, 08.41)	Discarded equipment (excl. discarded vehicles, batteries/accumulators)	H							
27	08.1	Discarded vehicles								
28	08.1	Discarded vehicles	H							
29	08.41	Batteries and accumulators wastes								
30	08.41	Batteries and accumulators wastes	H							

Data sources and Methods used

Electronic Data Management in Austria

- There are several obligations of documentation, record-keeping and reporting imposed on waste holders by the Austrian Waste Management Act of 2002 and its ordinances
- The Electronic Data Management Environment (EDM) is an integrated e-Government system consisting of Internet applications and databases to support complex processes of documentation, notification, reporting and data analysis related to environmental protection .

EDM Portal

https://secure.umweltbundesamt.at/edm_portal/home.do

EDM Portal
Version 3.0.0.5

Home | Über EDM | Impressum | Helpdesk

Willkommen im Elektronischen Datenmanagement (EDM) des Lebensministeriums!

Anwendungen

- Suchen / Auswerten
- Berichte / Publikationen
- Formular Abfallinformation
- XML Validator

Informationen

- Aktuelles
- Anwendungen / Themen
- Recht
- Technische und organisatorische Spezifikationen
- IndustrieemissionsRL, IPPC Anlagen
- Aktuelles Abfallverzeichnis

Downloads

- Nach Kategorien
- Gesamte Liste mit Filter

Zuordnungstabellen

- Hauptzuordnungstabellen
- Referenzlisten / Zuordnungstabellen

Aktuelles

Gutmeldung zum heutigen Ausfall der EDM-Systeme 07.05.2013
Aufgrund technischer Probleme kam es heute zu einem kurzzeitigen Ausfall der EDM-Systeme in der Zeit von 09:27 Uhr bis 12:50 Uhr.
[...mehr](#)

Ausfall der EDM-Systeme 07.05.2013
Aufgrund technischer Probleme kommt es zur Zeit (seit 09:27 Uhr) zu einem Ausfall der EDM-Systeme.
[...mehr](#)

Technische Wartungsarbeiten am 08.05.2013 07.05.2013
Kurzfristige Unterbrechung der EDM Services
[...mehr](#)

Informationsaustausch im Umweltbundesamt Wien 03.05.2013
Einladung an Lösungsanbieter von Software-Lösungen mit EDM Anbindung
[...mehr](#)

Gutmeldung zum eBegleitschein-Ausfall 29.04.2013
Technische Probleme führten zu einem kurzen Ausfall der eBegleitschein Systeme.
[...mehr](#)

Neue Version für eBegleitschein ab sofort online 17.04.2013
Mit der neuen Version 2.5 wurden die erforderlichen Anpassungen an die neue Abfallnachweisverordnung 2012 umgesetzt.
[...mehr](#)

Gutmeldung zu den EDM Ausfällen 16.04.2013
EDM war aufgrund eines technischen Defektes kurzzeitig nicht erreichbar.
[...mehr](#)

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Registrierung

Registrierungsantrag: Zur Arbeit mit dem Elektronischen Datenmanagement ist ein Registrierungsantrag auszufüllen.

Registrierungsinformationen: Hier sind weiterführende Informationen zum Registrierungsantrag bereitgestellt.

Freiwillige Erfassung: Relevant für Gutachter und Fachpersonal

Zugangskennung vergessen / gesperrt: Sollten Sie neue Zugangsdaten benötigen, so finden Sie hier weiterführende Informationen.

Aktuelle eRAS Version: 9.1b.60.17

Annual waste balances

- According to the Waste Balance Sheet Ordinance 2008, waste collectors and waste processors have to report annual waste balance sheets electronically to the Provincial Governor not later than on 15 March of each year.
 - Covering pick-ups of waste from other legal entities, deliveries of waste to other legal entities, in-house waste movements and storage level information
 - Wastes received from initial waste producers shall be reported as total value per type of waste, broken down by the federal province of origin of the waste and by the economic sector of waste producer.

Separate methods of data analysis have been developed for:

- Waste from households and similar establishments
- Waste generated by industries and services
- Secondary wastes
- Treated quantities: incineration, landfilling, aerobic biological treatment, anaerobic biological treatment, material recycling...
- Imports and Exports

Allocation of generated quantities to the economic sectors

- NACE-codes of the generators in eRAS (central register of master data)
 - Have been compared with the Statistical Business Register
- Partly based on the information directly reported by the collectors/treaters in the annual waste balances
- In some cases the plausibility of the allocation can be checked based on the waste type
- Data on the economic sector of the generator is not always available: about 10 % of the total waste quantity has to be allocated based on „allocation keys“
- Exact determination of „pure household wastes“ is difficult

Practical use of waste accounts

Why to compile waste accounts? (1)

- The general purpose of the compilation of waste accounts is to analyse the interrelationship between economic activities and their environmental consequences
- Managing supply and demand
 - waste generation vs. treatment capacities
 - waste recovery ratios
 - priority setting and targets
 - Forecast of future development

Why to compile waste accounts? (2)

- Analysis of the environmental intensity of the economy
 - monitoring trends of coupling or decoupling
 - identification of relevant target areas
- Assessment of policy effectiveness
 - impacts of political measures or technical innovations
- Public awareness and information provision

Conclusions from the Austrian NAMEA-Waste study

- The total quantity of (hazardous/non-hazardous) waste per economic category does not correlate very well with the economic variables. → more detailed waste categories are necessary in order to find interesting correlations.
- Correlations could be identified between quantities of hazardous wastes generated and values of gross value added but not all combinations of a certain waste category and different economic categories show correlations with economic variables.

Conclusions from the Austrian NAMEA-Waste study

- The generation of waste is not always regular by nature. There are sometimes remarkable variations of waste quantities. Storage of waste may play here an important role. Peak values of gross value added and peak values of the generation of waste might appear in different years in the waste accounts even if they were caused by the same phenomenon.
- Changes in legislation may cause changes in waste quantities, even though the physical flows remain the same (e.g. changes in definition of waste/non-waste or haz./non.haz)
- A lot of background information on economics, waste management and industrial processes is needed in order to be able to interpret and in-depth explain NAMEA-type time series on waste generation.

Some crucial aspects

Definition of waste

- SEEA: "Discarded materials that are no longer required by the owner or user."
 - Where the unit discarding the materials receives no payment for the materials: „residual flow of solid waste"
 - Where the unit discarding the materials receives payment but the actual residual value of the material is small: „product flow of solid waste"
- The Austria waste accounts are based on the legal definition of the EU Waste framework Directive: "Any substance or object which the holder discards or intends to or is required to discard."
- Distinction between:
 - Waste / by-products
 - Waste / material after the „end-of-waste"
 - Primary wastes / secondary wastes
 - Wastes / „naturally occurring residuals"
 - Waste / waste water or gaseous residuals
 - Waste / second hand products

Classifications of waste and economic activities

- The level of aggregation of the initial data
 - More detailed breakdown allows more flexible aggregation for different purposes
 - Has an influence on the quality of the initial data
- The level of aggregation for analysis purposes
 - Too high but also too low level of aggregation might diminish the informative value of the results
- Confidentiality of the results?

Statistical unit

- Compatibility of the data on waste generators with the data in the Statistical Business Register
- According to the Waste Statistics Regulation statistical units for economic activities can be either local units (LUs) or kind-of-activity units (KAUs)
- The statistical unit used may have a major effect on the results.
 - Example: Combustion facilities may be allocated either to „Energy sector,, or „Waste treatment,, (allocation based on KAUs) or have to be spread over the economy (allocation based on LUs)

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