

Environment Balances WG91

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Environment Observation Conference 2006

Vienna, 2006-03-09

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1 Balances and directives

Resolution U9-1

Environment balances are anchored in all specialist laws.

2 Balance applications

Problems 1: The medial balance areas are not joined together. 2: The complexity trap. 3: There is no generally accepted structure for the mosaic, it must be set up together. WG91 is to harmonize balances for sites and areas (landscapes), factories and products as well as other evaluation approaches in terms of the environment observation conference.

3 WG Kick offs

To make progress here, the Community will set up working group WG91 balances.

4 Topics

Resolution U9-1

The analysis of environment statuses of small and large areas and their changes is to be simplified. In the medium term possibilities and limitations of environment balances are to be clarified.

The initial emphasis of the work will be: 1. Definition of terms 2. Collection of examples and unanswered questions and 3. feed back into the environment data model in accordance with resolution U1-4.

5 Teamwork

WG91 utilizes the pool data generated by working groups WG41-79 and the flux data generated by working groups WG81-89 and feeds its information back to WG02 and the specific working groups.

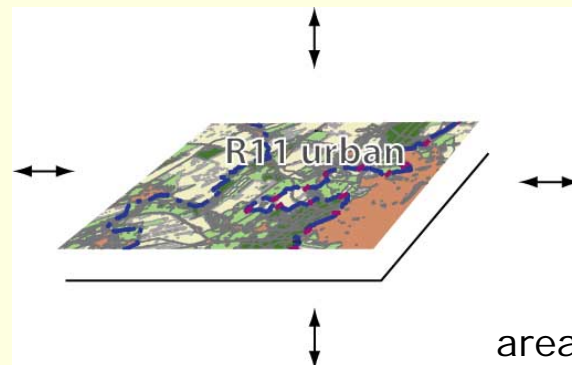
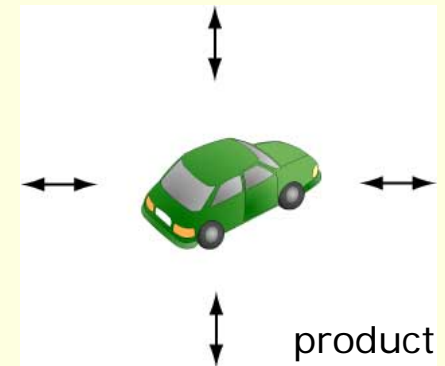
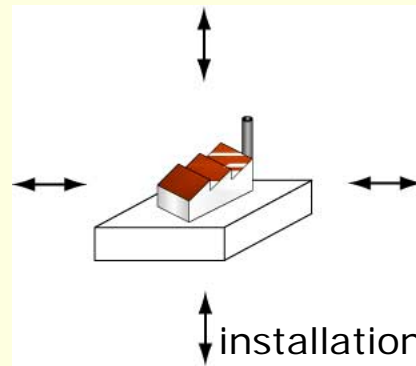
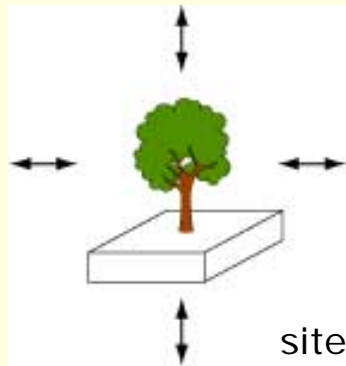
6 Central aim

Important long-term topics are: 1. Sink and source analysis, joining together of balancing areas and completion of balances 2. Relevance of re-emissions and gaseous, liquid and solid waste fluxes on environmental changes and 3. interaction of health, biodiversity, consumption of resources and substance balances.

1 Balances and directives

- **IPPC Integrated Pollution Prevention** Directive 96/61/EC: integrated assessment on a local level ... protection for the environment as a whole
- **Environment Management** Directive 2001/761/EC EMAS
- **Air Policy** e.g. TALuft... Assessment of N input into ecosystems
- **Nature Policy** FFH Directive 92/43/EWG
- **Soil Policy** e.g. BBodSchG
- **Water Policy** Directive 2000/60/EC
- **IPP Integrated Product Policy** Communication

2 Balance applications



application in figures

		Pool X/ha	Input X/ha a	Output X/ha a	Change X/ha a	Change %
Atmosphere	>0m	15	6,0	1,9	+4,1	26,7%
Biosphere	>0m	126	1,9	1,4	0,5	<0,1%
Pedosphere	<0m	58	1,4	0,01	<0,1	<0,1%
Hydrosphere	<0m	1	0,01	0,01	<0,1	<0,1%
		X/facility	X/facility a	X/facility a	X/facility a	%
Technosphere	>0m	100	98	98	<0,1	<0,1%

here: C-Balance forest site UMEG 2004
ID U914-MDWB1101-J0292-de

here: C-Balance UMEG 2005
ID U971-MDE101-de

3 Work Group kick offs

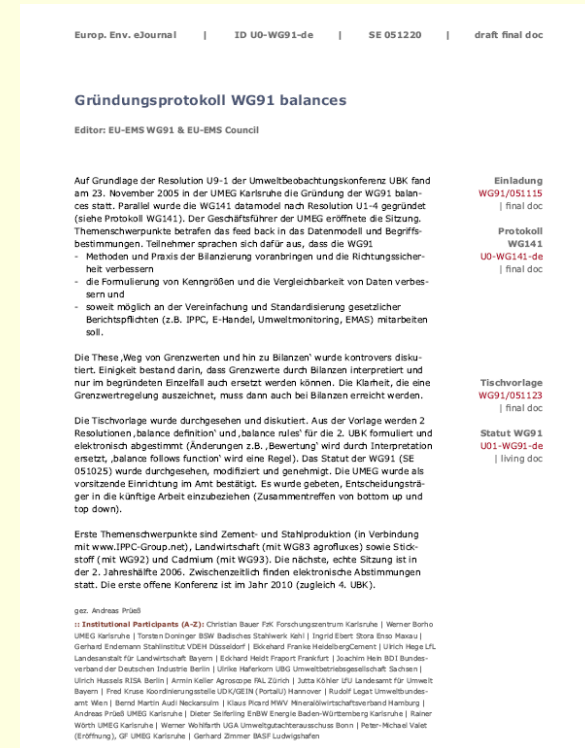
Karlsruhe 2005-11-23/24

WG91 balance rules

WG141 data model

WG92 nitrogen

WG93 trace elements



4.1 Balance definition en

- Environment balances are quantitative descriptions of pools and fluxes systems with regard to matter, energy or bio objects within a defined balance space (site, area, plant, product) and time.
- Environment balances have to be completed, reproducible and consistent as far as possible. If one of these requirements is not hold, it has to be pointed out.
- Environment balances often are complex and difficult to communicate. Therefore it is useful to abstract indicator values which represent their major properties.
- Not everything has to be quantified always. As a balancing introduction qualitative descriptions can be good.
- Assessments often require the overlay of quantitative balances from different type (e. g. matter with energy, bio balances). If this is not scientifically reasonable, it has to be pointed out.

4.2 Balance rules (1st draft)

- (1) Intended Interpretation
- (2) Design of balance system boundaries and time scale and identification of balance objects (gas-, fluid-, solidphase, substance, energy, biota) and spheres (atmo-, bio-, hydro-, pedo-, technosphere)
- (3) Realisation of the balance; Determination of pool, flux (input, output), change and live cycle data and parameters (U-values)
- (4) Definition of balance indicators including reasoning and review
- (5) Relations of balance objects and spheres and
- (6) Aggregations and changes in space and time
- (7) Linking of site, area, installations, product and service balances
- (8) Overall assessment of single indicators and indicator profiles including scientific limits and discussion of balance system boundaries
- (9) Dokumentation of methods, gaps and assumptions

4.3 Examples

- **Resolution U4-1...** The first topic of working group WG41 is the source of fine dusts and dust precipitation in terms of natural sources, the weather and health.
-> Data from Baden-Württemberg: <10 kg/ha a dust by industrial sources; dust deposition is about 100-200 kg/ha a. Where is the source ?
- **Resolution U7-2 ...** Increasingly, dust from field paths, from fields, the Sahara and “dust” raised determine the quality of air and plants. Natural material redistribution plays an important role for other flows too (e.g. sewage sludge and compost).
-> Data from Baden-Württemberg: 40-70% of sewage sludge and compost dry matter are inorganic compounds. Where is the source ?
- **Other example**
Pt-Emission on the Autobahn A5 takes 13 g Pt/km a (data UMEG). Less than 1 g Pt/km a is found in soils and plants at the roadside. Where is the sink ?

5 Teamwork

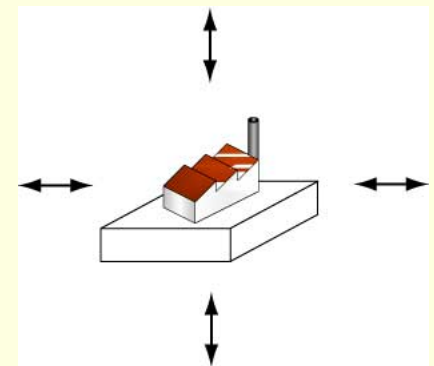
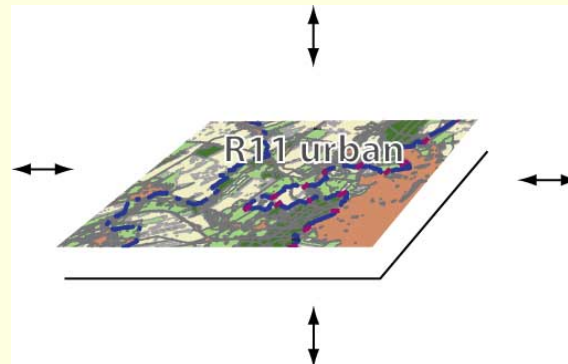
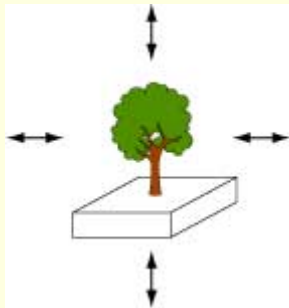
WG02 eJournal
WG141 data model
WG22 spatial structure
...

WG82-89 **WG91-98**

			Pool	Input	Output	Change	Change
WG41	Atmosphere	>0m	15	6,0	1,9	+4,1	26,7%
WG51	Biosphere	>0m	126	1,9	1,4	0,5	<0,1%
WG71	Pedosphere	<0m	58	1,4	0,01	<0,1	<0,1%
WG61	Hydrosphere	<0m	1	0,01	0,01	<0,1	<0,1%

WG99 prognosis

6 Central aim Facilitating the linking of site, area, installation and product balances by multiple use of data



-> data model WG141