CHALLENGES TO MAINSTREAM THE USE OF EPDS IN CONSTRUCTION PUBLIC PROCUREMENT IN EUROPEAN CONTEXT

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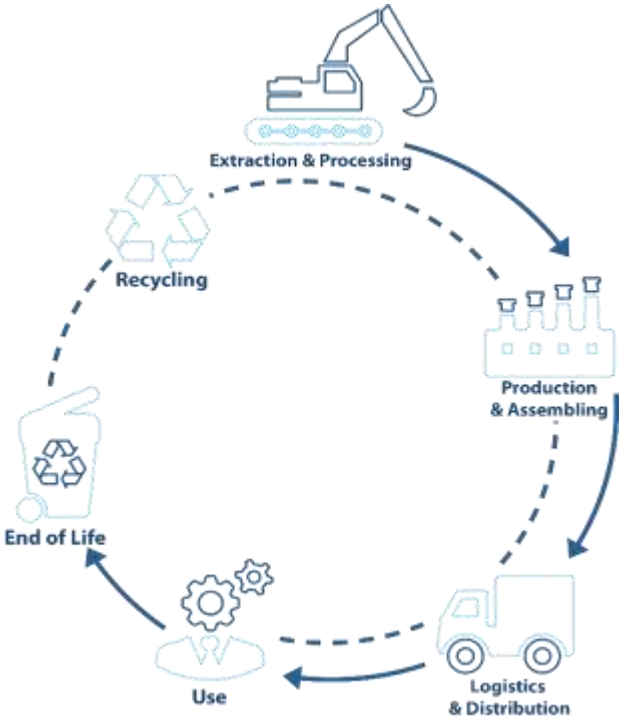
WELOOP | 1

WELOOP

Based on **North of France**.

Collaborating with **businesses**, **decision makers** and **institutions** to assess, comprehend, improve their **sustainability performance**.



Our Activities / Fields

Circular Economy

Sustainable consumption and production

Life Cycle Management

WELOOP (SERVICES)

LCM, Circular Economy and sustainability **strategy**.

Eco-design to implement sustainability.
Key Performance Indicators for progress.

Sustainability metrics based on Life Cycle Approaches.

Support **communication** based on **sustainability performances.**

Awareness raising and **training** to support sustainability implementation.

CONTEXT | 2

CONTEXT

More than a **third** of global resource consumption

40% of energy consumption in EU

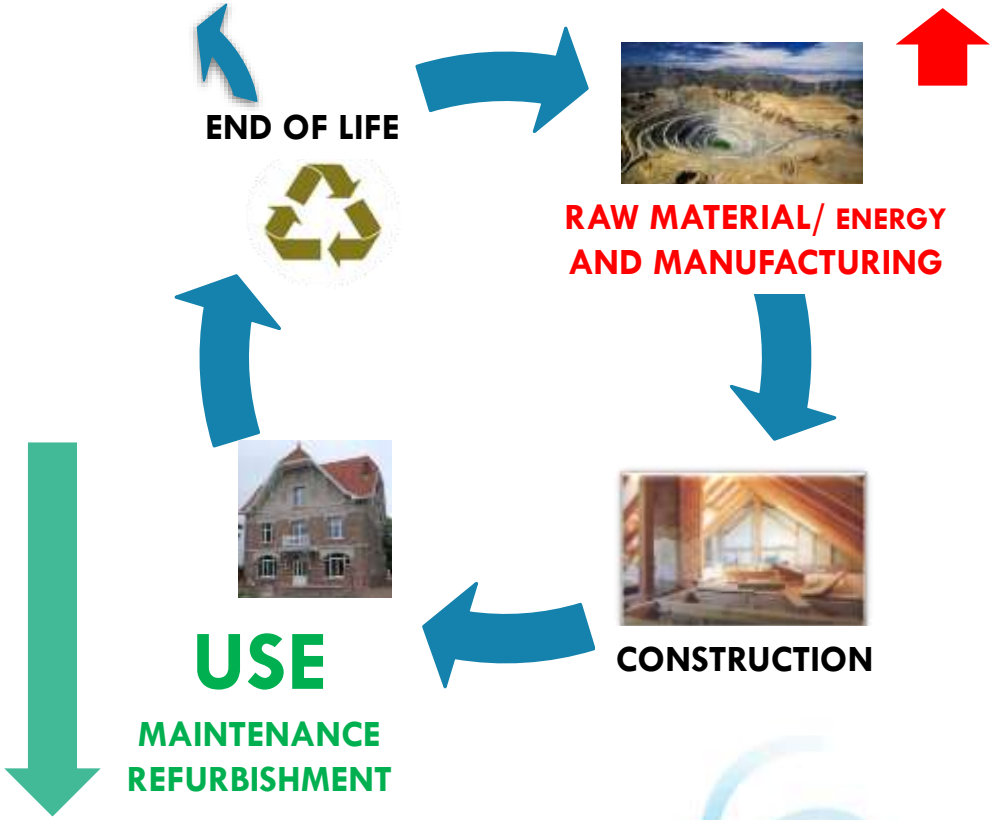
36% of CO_2 emissions in EU

1/3 of all wastes in EU (C&D) in EU

References: UNEP 2011, EU Commission 2016

CONTEXT – BUILDINGS

Energy-efficient house,
embodied energy in the construction represents **more than 75 years** of heating in equivalent energy

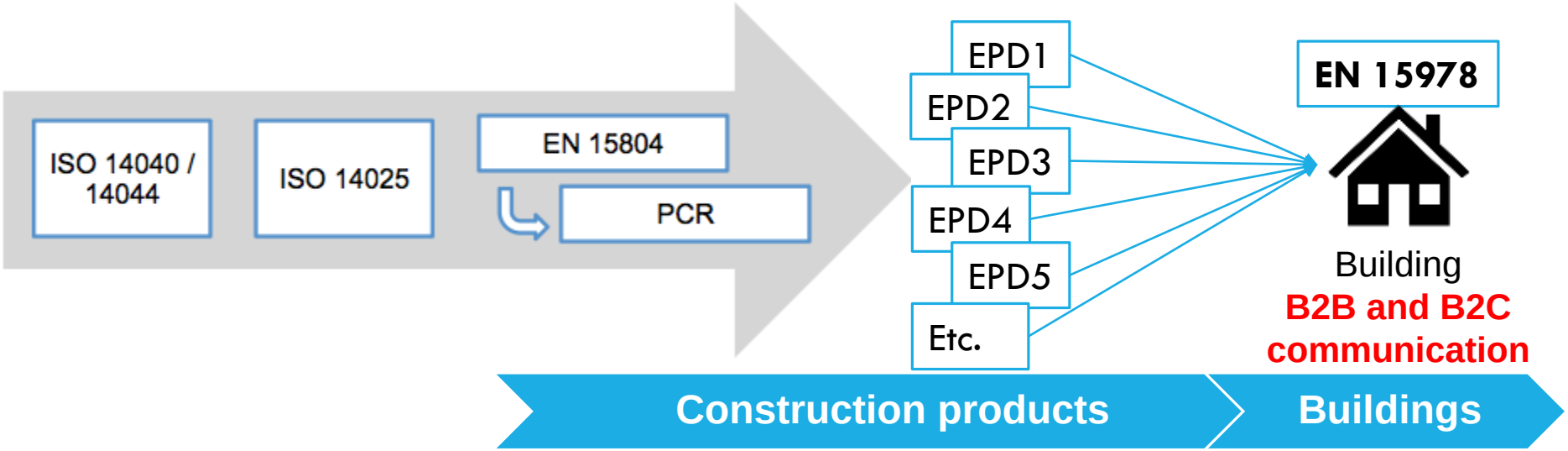


CONTEXT – EPD IN EU

Construction industry ➔ one of leading sectors in LCA

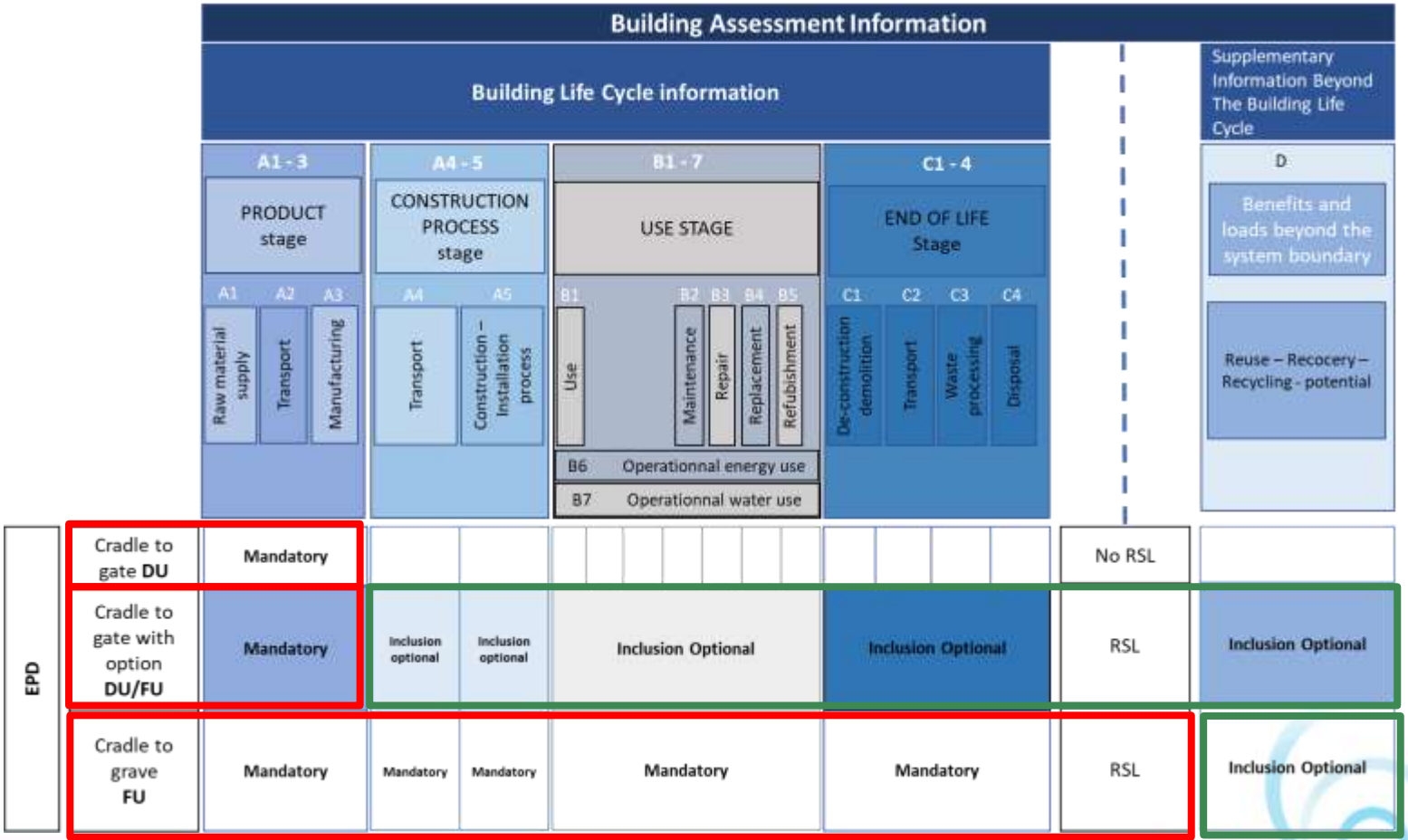
LCA used to assess: environmental impacts of **construction products and buildings.**

Significant efforts to develop and implement EPD by construction industry



Use of EPD is limited and challenging (Public Procurement) Why?

CONTEXT – EPD (EN 15804)



CHALLENGES TO MAINSTREAM | 3

1- COMPLEXITY OF EPDS / LACK OF KNOWLEDGE OF DIFFERENT KEY ACTORS

Complexity

(assumptions and results)

Impact categories	Units	A1	A2	A3	A4	A5	B	C1	C2	C3	C4	D
EN 15804 Abiotic depletion elements	kg Sb eq	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
EN 15804 Abiotic depletion - fossil	MJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
EN 15804 Acidification for soil / water	kg SO2 eq	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
EN 15804 Ozone depletion	kg CFC-11 eq	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
EN 15804 Climate change	kg CO2 eq	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
GWP C-content	kg CO2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
GWP Total	kg CO2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
EN 15804 Eutrophication	kg PO4--- eq	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
EN 15804 Photochemical ozone creation	kg C2H4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Renewable as energy	MJ gross cal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Renewable as raw material	MJ, net cal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total renewable energy resources	MJ gross cal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Non renewable as energy	MJ gross cal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Non renewable as raw material	MJ, net cal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total non-renewable energy resources	MJ gross cal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total Energy, primary (NU)	MJ	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Secondary material	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Renewable secondary fuel	MJ, net cal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Non renewable secondary fuel	MJ, net cal	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Net use of fresh water	m3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Hazardous waste	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Non-hazardous waste	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Radioactive waste	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Components for re-use	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Materials for recycling	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Materials for energy recovery	kg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Exported energy	MJ per EnCar	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

Simplification

VS

Lack of knowledge

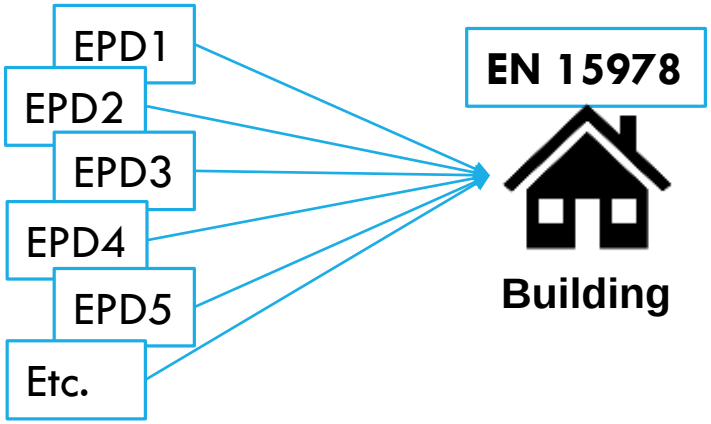
Training /Awareness

2- LACK OF EQUAL OPPORTUNITY FOR DIFFERENT COMPANIES AND PRODUCTS

Missing EPDs for companies with limited resources (ex. **SMEs**) is a **discriminatory** aspect.

- ✓ Reduce costs of EPDs,
- ✓ Develop supporting PCRs,
- ✓ Financial support from public authorities.

3- EPD - B2B AND B2C COMMUNICATION



At product level (or application level)
EPD is difficult be used in a context of decision making and benchmarking (for communication)

- Definition of Functional Unit,
- Benchmarking (define performance classes for representative products),
- Aggregation (aggregation of different modules, normalization and weighting, reduce non-essential indicators, etc.).

At building level (B2B and B2C)

- Mechanism to converge EPDs to the building need to assessed and simplified,
- Simplified tools are needed to mainstream use of EPDs,
- Missing tools for eco-design (marginal today).

Bâtiment à Énergie Positive & Réduction Carbone

4- PROLIFERATION OF METHODS

- Company X

Markets **Belgium, France, Netherlands and Germany**

For product Y (Same product for all these countries)

- **How many EPDs = 4**
- **How many verifications = 4**
- **How many times registration costs = 4**

Estimated cost ~ +++ euros

4- PROLIFERATION OF METHODS

1. In some countries if the national default database is not used the EPD is accepted but not usable in the framework of national schemes.
2. Scope of EPDs are different from country to country in EU

- Module arrangement are not the same.

- Module D is mandatory in Netherlands and optional in France.

- Module A to C is mandatory in France while several EPDs are cradle to gate with or without options.

ONGOING ACTIONS | 4

ONGOING ACTIONS

Training and awareness raising of different stakeholders all over construction value chain,

Participating actively and following initiatives providing benchmarking opportunities in decision making context (Ex. Building positive energy and carbon reduction in France),

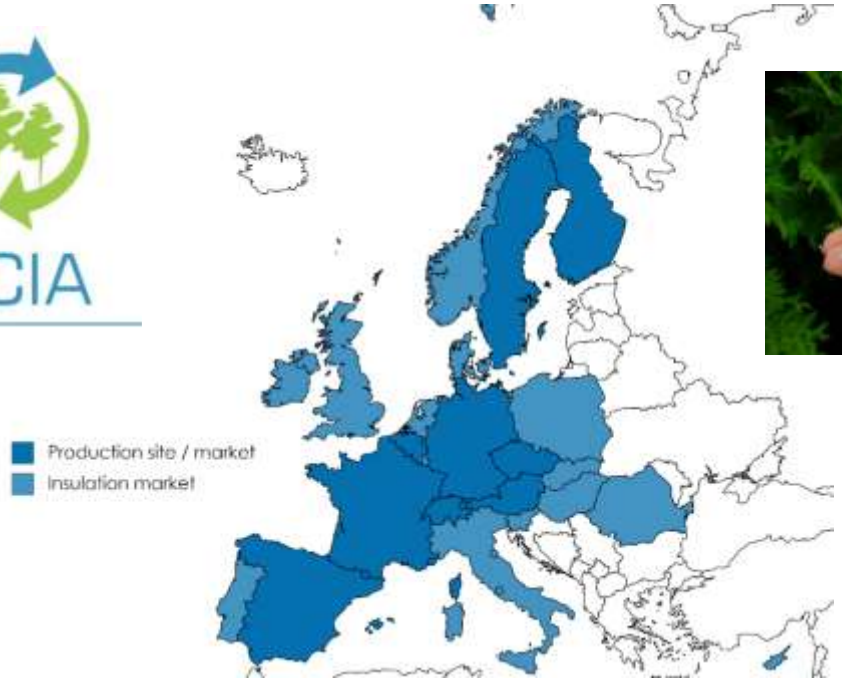
Participating actively in initiatives for harmonization,

Contributing actively to National and EU projects dealing with this topic.

ONGOING ACTIONS

Conducting together with our partners an EPD of **cellulose insulation product** valid for all EU market (for the first time) – assessment of time and resources,

ECIA



CAPEM
Cycle Assessment Procedure for Eco-Impacts of Materials

[avniR]
Life Cycle Assessment Platform
by cdae

Agrodome

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Impact categories	Units	EU, EN15804	NL	FR	BE	DE
EN 15654 Abiotic depletion elements	kg Sb eq	X	X	X	X	X
EN 15654 Abiotic depletion - fossil	MJ	X	kg Sb eq	X	X	X
EN 15654 Acidification for soil / water	kg SO2 eq	X	X	X	X	X
EN 15654 Ozone depletion	kg CFC-11 eq	X	X	X	X	X
EN 15654 Climate change	kg CO2 eq	X	X	X	X	X
EN 15654 Eutrophication	kg PO4--- eq	X	X	X	X	X
EN 15654 Photochemical ozone creation	kg C2H4	X	X	X	X	X
Human toxicity (HT)	kg 1,4-DB eq		X			
Human toxicity, cancer effects	CTUh				X	
Human toxicity, non-cancer effects	CTUh				X	
Ionising radiation, human health	DALY				X	
Particulate matter formation	DALY				X	
Pollution de l'air	m3			X		
Pollution de l'eau	m3			X		
Ecotoxicity, fresh water (FAETP)	kg 1,4-DB eq		X		X	
Ecotoxcity, marine water (MAETP)	kg 1,4-DB eq		X		X	
Ecotoxicity, terrestric (TETP)	kg 1,4-DB eq		X		X	
Energy, primary, renewable	MJ, gross cal	X	X	X	X	X
Energy, primary, non-renewable	MJ, gross cal	X	X	X	X	X
Total Energy, primary	MJ, gross cal	X	X	X	X	X
Renewable as raw material	MJ, net cal	X		X		X
Renewable as energy	MJ, net cal	X		X		X
Non renewable as energy	MJ, net cal	X		X		X
Non renewable as raw material	MJ, net cal	X		X		X
Renewable secondary fuel	MJ, net cal	X		X		
Non renewable secondary fuel	MJ, net cal	X		X		
Exported energy	MJ per EnCar	X		X		
Water, fresh water use	m3	X	X	X		X
BE Water depletion	m3				X	
Waste, non hazardous	kg	X	X	X	X	X
Waste, hazardous (incl. radioactive waste)	kg		X			
Hazardous waste	kg	X		X	X	X
Radioactive waste	kg	X		X	X	X
Components for re-use	kg	X		X	X	X
Materials for recycling	kg	X		X	X	X
Materials for energy recovery	kg	X		X	X	X
Secondary material	kg	X		X	X	X
Agricultural land occupation	species.yr				X	
Urban land occupation	species.yr				X	
Transformation tropical rain forest	species.yr				X	
Natural land transformation	species.yr				X	