



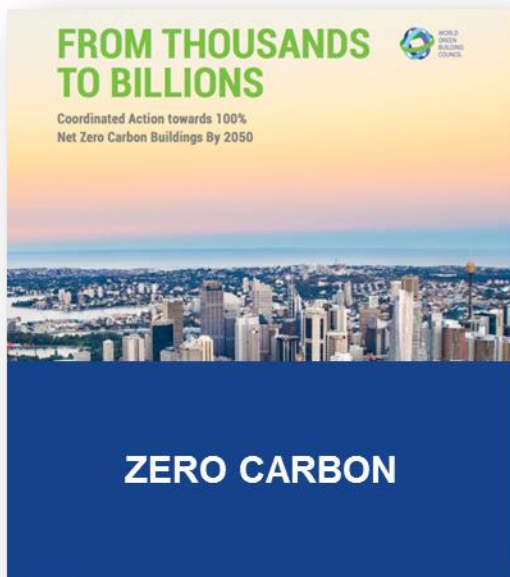
**Reduce materials intensity
for the building industry**



**Towards circular
buildings**



One of the 3 major trends on the building market



Did you know?

- ✓ Urban population will be multiplied by 2 in the next 30 years
- ✓ 40% of raw material is used today to manufacture building products and components
- ✓ China used more cement in the three years 2011-2013 than the USA used in the whole 20th Century
- ✓ Most of the growth in building and construction will happen in emerging markets



What do we have to deal with?

40% of solid waste streams in developed countries from construction and demolition

increasing resource extraction & scarcity

loss of biodiversity

GHG emissions

waste stockpiles

land degradation

....



Circularity is about...

RECYCLED CONTENT - RENEWABLE RAW MATERIALS

C&D WASTE MANAGEMENT & RECYCLING

DURABILITY - REPAIR – REMANUFACTURE - REUSE

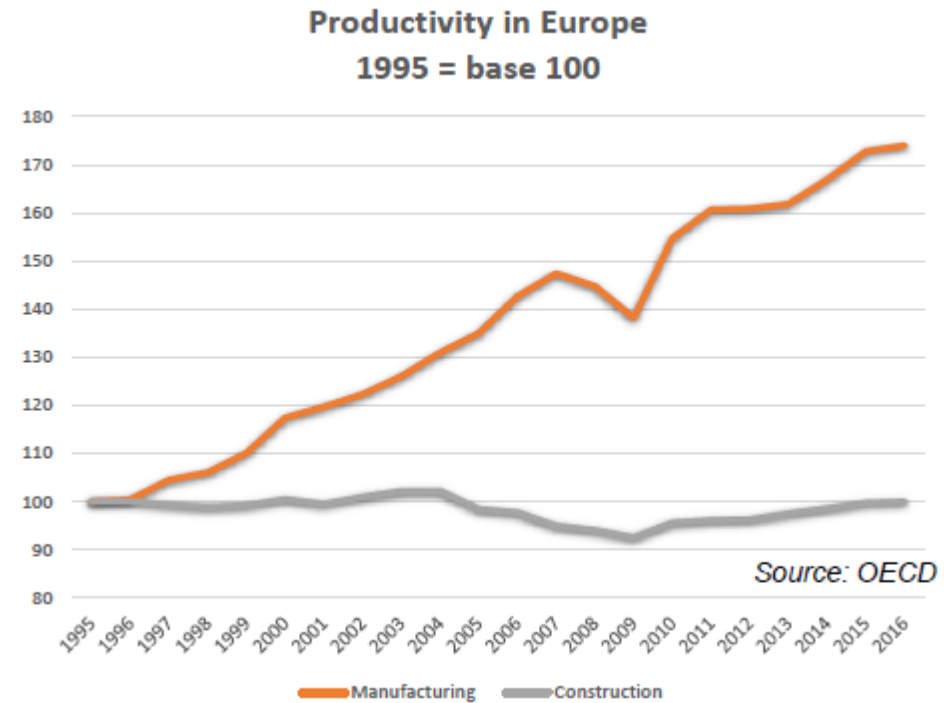
BANNED LANDFILLING

RESPONSIBLE SOURCING & INDUSTRIAL ECOLOGY



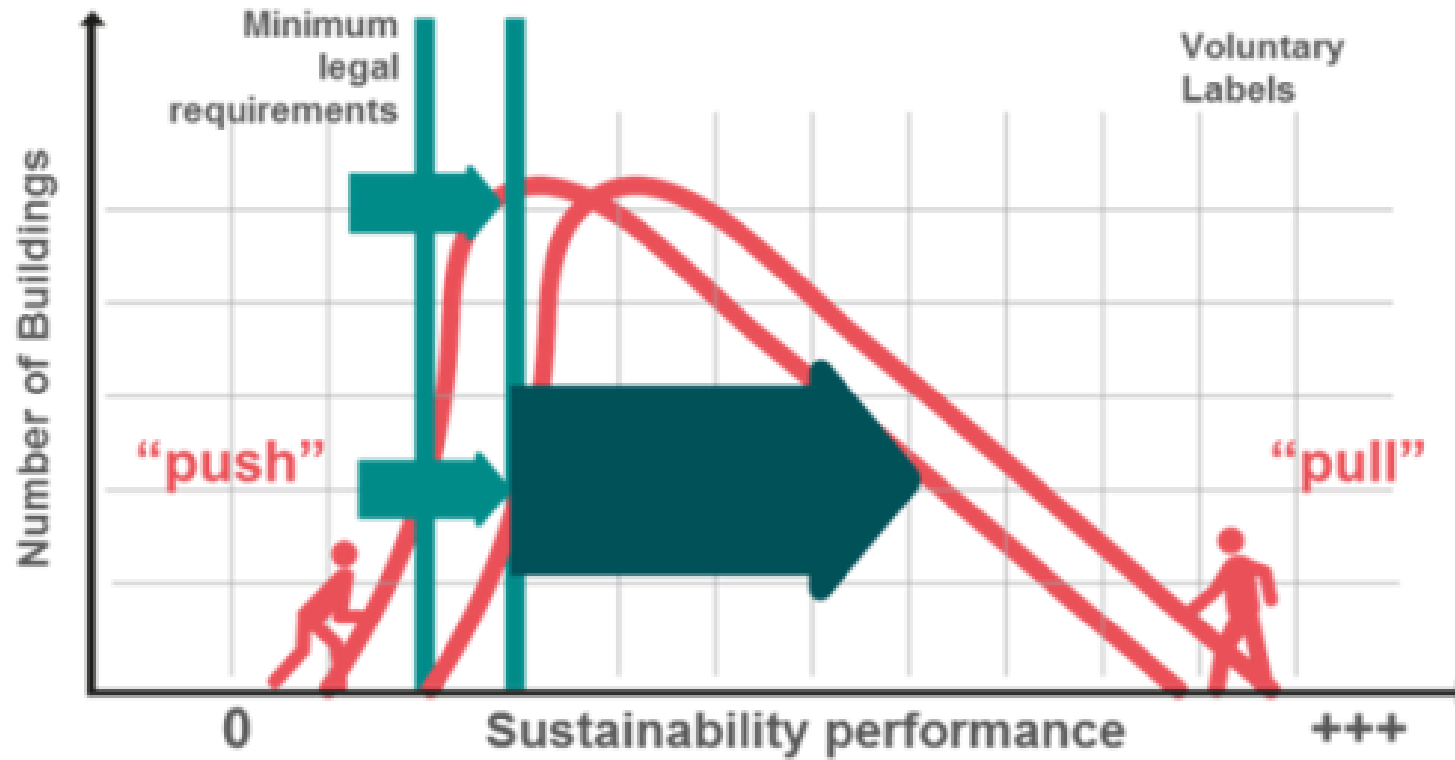
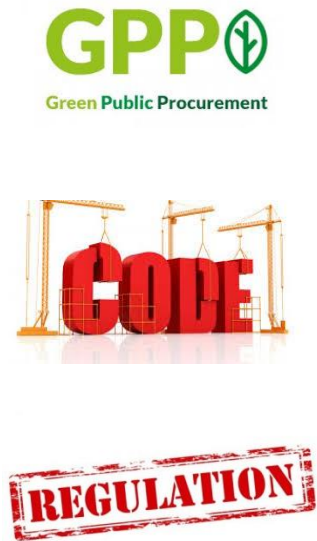
Low productivity and minimal improvements

- Building industry has difficulties to change its habits and modernize its processes
- Digital tools far from ubiquitously used, lagging other industries
- Materials use data limited => IEA 2° material demand analysis on-going + EU – JRC initiative now starting to consolidate data and make broadly available





Heavily specified industry





Demand for circularity in building labels

- Zero waste jobsites
- recyclable construction products
- products with a high(er) recycled content
- products containing no hazardous substances



BREEAM®





Policy developments - examples

*Italian Decree on Green Public Procurement of construction works (January 2016) defines minimum sustainability criteria, in particular a **minimum % of recycled content in materials** and a **minimum % of recyclable materials in the construction work**.*



*Construction is one of the 5 economic sectors selected by the government of the Netherlands to switch to a circular economy: **by 2050 buildings and other structures must be built, (re)used, maintained and demolished sustainably**. They must be energy neutral and made of sustainable materials.*





Policy developments - examples



Directive of the European Parliament and of the Council amending Directive 1999/31/EC on the landfill of waste:

In order to ensure proper application of the waste hierarchy, **as of 2030, restrictions on landfilling to all waste that is suitable for recycling and other material or energy recovery.**

Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste

Member States shall take measures to promote **selective demolition in order to enable removal and safe handling of hazardous substances and facilitate reuse and high quality recycling by selective removal of materials, and to ensure the establishment of sorting systems for construction and demolition waste ;**

By 31 December 2024, the Commission shall consider the setting of preparing for **reuse and recycling targets for construction and demolition waste and its material-specific fractions**



Customers need information...



Architecte:

Cie.

Client:

ABN·AMRO

Location:

Amsterdam



Reused jeans



“The new is unique in the Netherlands: the first built example of a purely sustainable and circular design.”



A tool : life cycle analysis for product, systems and buildings

- Standardized methodologies (EN15804 and ISO 21930)
- LCA results published in an EPD and third party verified
- 3 benefits
 - Objective communication
 - Comparison science based
 - Improvement of products (eco-innovation)



A large white outline of a house, consisting of a simple roofline and a rectangular base, positioned on the left side of the slide.

**Innovation is happening along points
of the value chain**



The Saint-Gobain approach

Ressource policy



Sustainable habitat

Pillars and working axes		Indicators
Advocate for sustainable construction	Leading by example	1 Number of Multi-Comfort projects
		2 Number of CARE:4 buildings
	Setting the ambition level & engaging with trendsetters:	3 Member of the Green Building Council (Yes / No)
		4 Existence of an advocacy plan identifying key issues and priorities
Develop & distribute sustainable solutions	Inventing tomorrow's solutions	5 Number of people trained to Eco-Innovation
		6 % of portfolios (based on turnover) analyzed with 360° tool
		7 Number of Eco-Innovation pilot projects
	Contributing to a resource efficient economy	8 Existence of a transversal Construction & Demolition waste project
	Raising awareness	9 % of products (based on turnover) covered by verified EPDs
		10 LCA (Life Cycle Assessment) resources (number of Saint-Gobain employees in FTE)





Gypsum and the circular economy



Among the 60 plasterboard factories currently in operation in 2017, **33 are recycling more than 80%** of their gypsum waste.



21 factories from **12 different countries** are using external gypsum recycle content (construction and/or demolition/deconstruction) into their plasterboard process.

- **Construction waste** : also called pre-consumer waste. It is usually the first waste to be recycled since it is easier to sort and less polluted.

- **Demolition/deconstruction waste** : also called post-consumer waste. It is highly important to consider traceability and contamination before re-introducing it back into the process.



Among the 12 countries, **9 countries** are proposing a recycling service to their customers.





Local recycling landscape

RECYCLING LANDSCAPE IN SPAIN

RAW MATERIALS

Gypsum supply	Quantity per year	Price	Evolution
Natural Gypsum	97%	25-4€/tonne	
D&G	0	-	-
Recycled (internal + external)	3%	12€/tonne in 2016	Expected to decrease

MANUFACTURING



LOGISTICS



Linear Gypsum Waste Journey

LANDFILL

INSTALLATION

- PB Construction waste : 5-10% of PB on-site
- Main contractor is the one managing the gypsum waste in 86% of tracked projects
- Projects do selective sorting of waste but the big majority does not sort GBW

Waste Journey Mapping 1 & 2

Waste Journey Mapping 1 & 2

END-OF-LIFE

- Demolition inventory is mandatory for non-residential buildings with a volume > 1000 m³ but is not respected

BUILDING LIFETIME

- LEEDS or BREEAM are more and more applied. Around 10% of projects tracked by CRM are certified

RECYCLING

- Placo® is reprocessing the external waste itself

LANDFILL

ALTERNATIVE ROUTES :
Agriculture, Cement



Glas and the circular economy

Flat Glas



- Increase of 20 de 30 % of cullet usage reduce energy consumption by 3 %
- The usage of 1t of cullet avoids the emission of 0,25 t of CO₂

Glasswool





Marketplaces for materials and products from deconstruction



“A digital marketplace for material reuse. Aims to connect people who are demolishing buildings with designers who want to reuse materials.”



« première marketplace consacrée au réemploi des matériaux de construction »



Une solution globale pour le réemploi des matériaux de construction





Leasing

Through leasing Desso offers a full service to its customers including installation, cleaning, maintenance and eventually removal. Instead of owning the carpet, customers view it as a service provided by Desso, who will then take back the carpet at the end of its life for recycling. Via this leasing construction collection of old carpet products is more easy and positively contributes to closing the loop.

Commercial Carpets

Products Services News & Events Customers Corporate Responsibility About



Services

DESSO 3D Textures™
Floor plans
Custom made design
Create your own AirMaster®
Carpet Take Back™
Programme
Carpet leasing
DESSO QuickFix™
Installation guidelines
Maintenance guidelines

Carpet leasing

Desso and De Lage Landen, a global provider of leasing, business and consumer finance solutions joined forces to offer Desso's customers a carpet leasing service option. This is a critical step in Desso's transition to the circular economy.



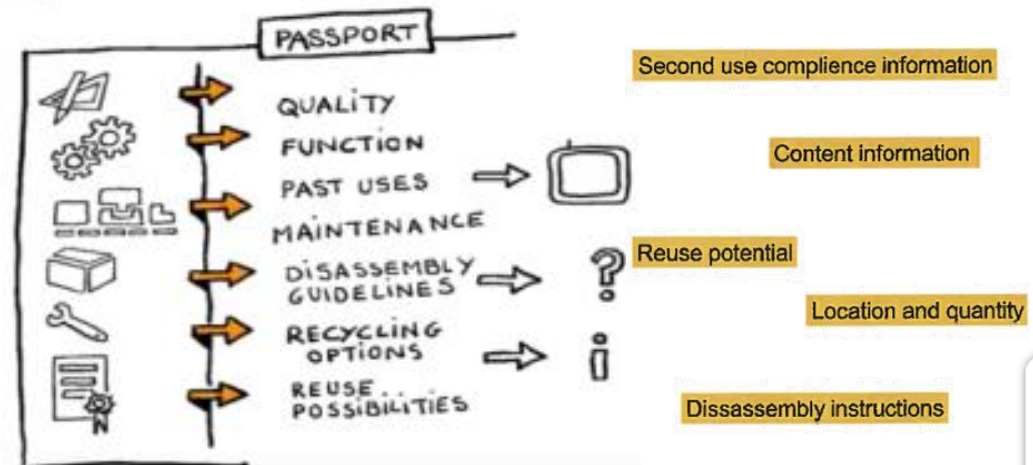
The BAMB project



Co-funded by the Horizon 2020
Framework Programme of the
European Union



**ENABLING A
CIRCULAR BUILD
INDUSTRY**



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Conclusion



B&C is at the edge of a revolution

