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Technical Assistance for Assessment of Turkey's Potential on Transition to Circular Economy

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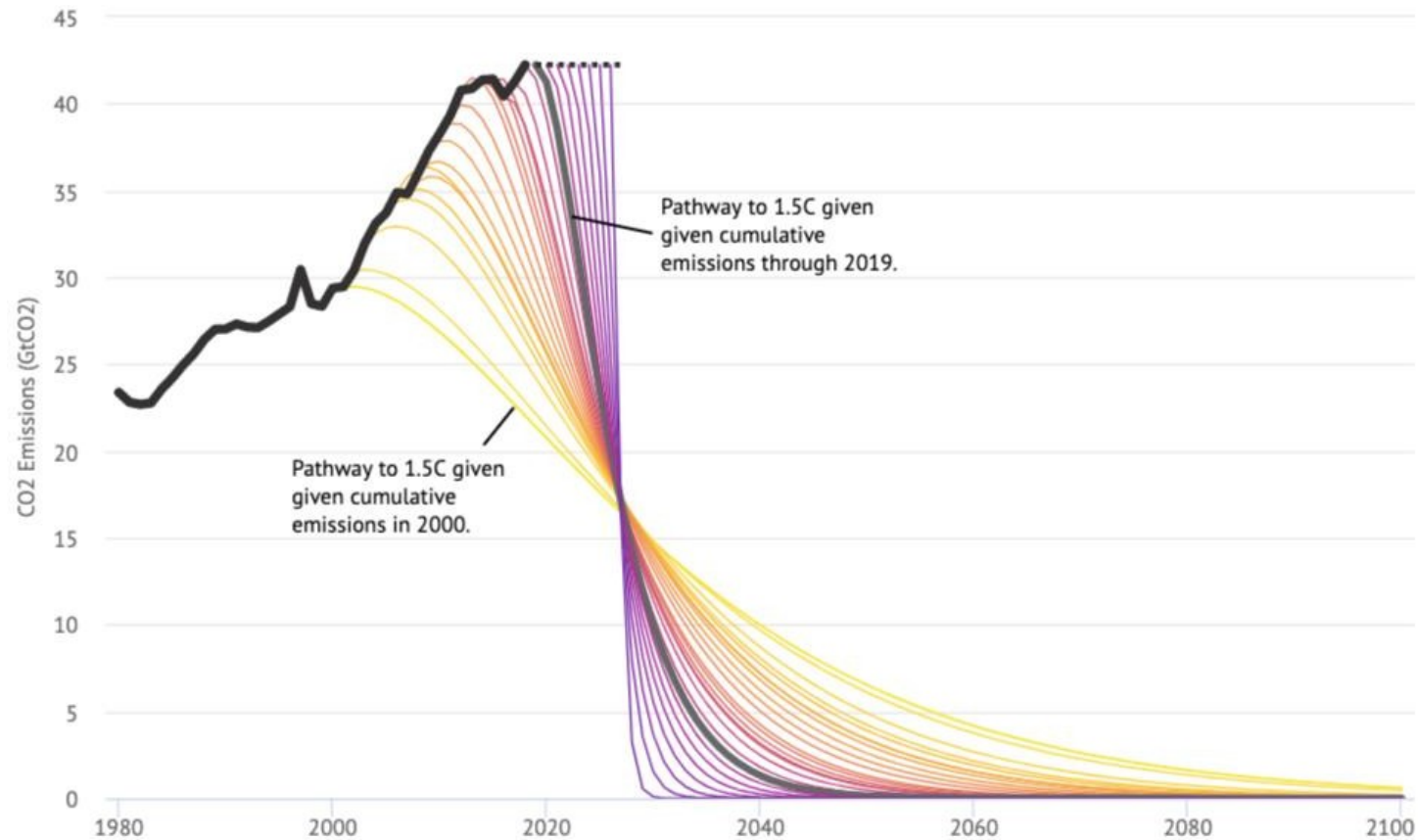
Circular Economy in Built Environment

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Activity 1.2.1. Circular Economy Training
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Avoiding climate disaster is the goal





Embodied emissions

Figure 2: Breakdown of embodied and operation carbon in buildings. Source: LETI Embodied Carbon Primer

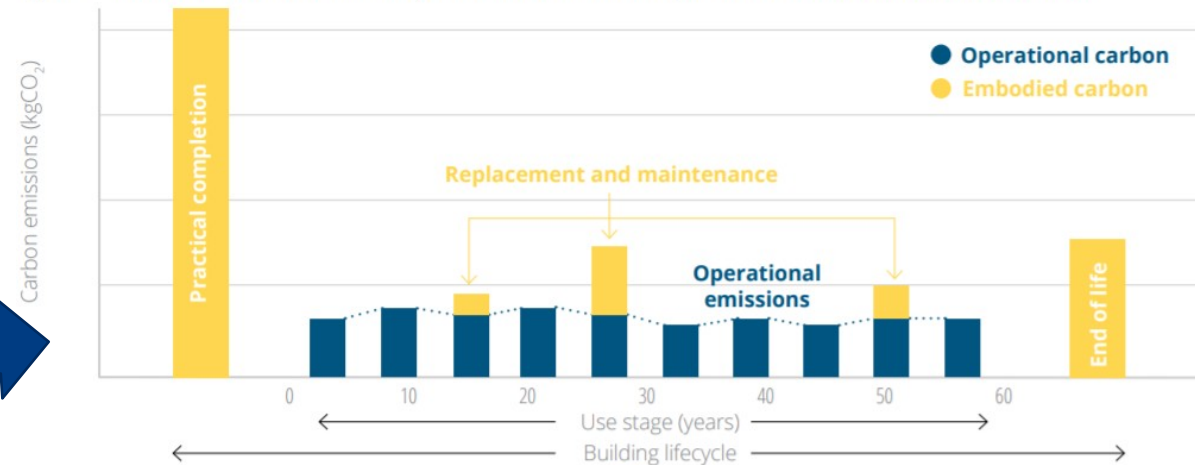
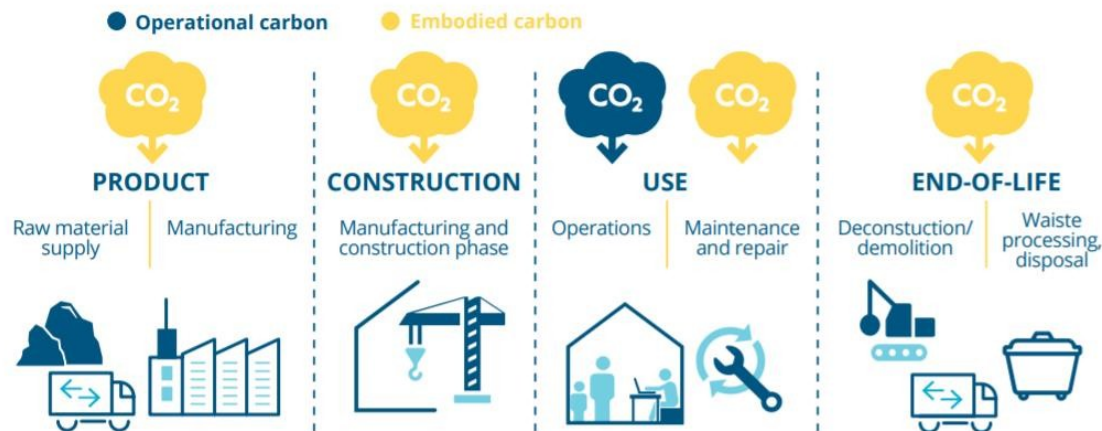


Figure 1: Embodied and operational carbon in a building's lifetime.



Source: BPIE. Diagrams from the Reports: Whole-life Carbon: Challenges and solutions for highly efficient and climate-neutral buildings / Introducing Whole-life Carbon metrics: Recommendations for highly efficient and climate-neutral buildings

Background



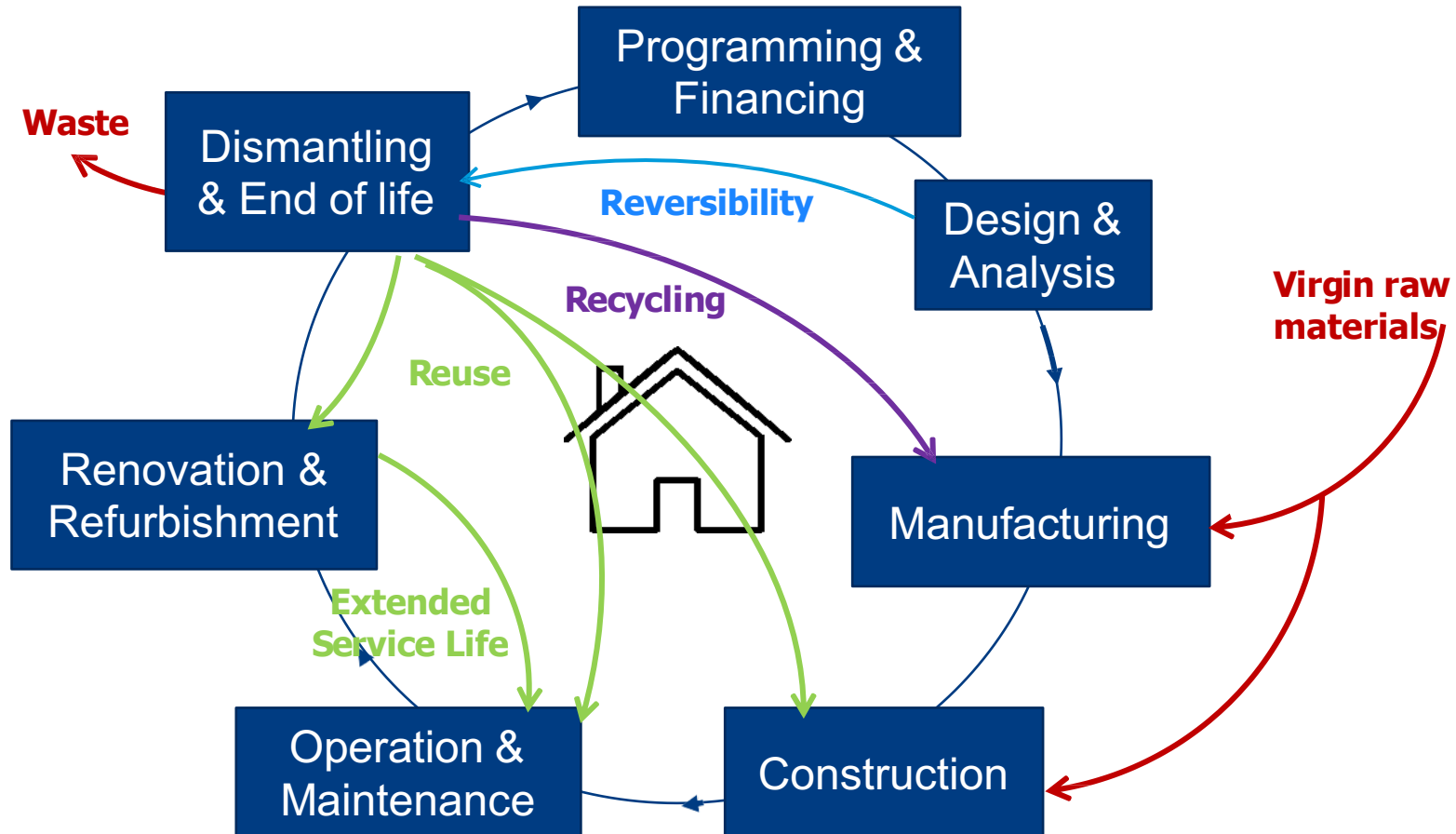
1/2 of all extracted materials



1/3 of waste generation

- Environmental impacts are embodied in materials and products.
- Building materials **generate 250mt of CO2 annually in the EU** + other associated impacts
- **11% of global emissions** are from embodied carbon of building materials

Circularity in buildings' Life Cycle





Product Level: Construction Product Regulation





CPR – Environmental objective

Based on harmonised industry standards, the CPR provides a framework for **placing construction products on the market**. Yet, it does not set minimum environmental or functional requirements. The objective is:

- *ensure the reduction of the environmental impacts embodied in buildings driven by **requirements on the embodied environmental impacts** (resource and water use, embodied carbon,..) of materials and products, **including through enhanced circularity**.*



CPR – Positive

- **Products are generally regulated for their environmental performance.** The integration of product requirements is a good first step to reducing the environmental impacts of products that should entail **the development of minimal requirements.**
- The Commission *is empowered to* define these requirements per product group. This will make regulating construction products **more transparent and participatory.**
- A **declaration of performance** covering both conformity with requirements and compliance with standards
- The **integration of re-used products** in the market.
- A new chapter covers **Member States incentives**, including Green Public Procurement.



CPR – Promising

- If the Commission develops minimum requirements per product category restricting the access to the market, this could phase out **the worst performing products**.
- The CPR opens the door to creating a **framework for used construction products** that will be used differently from the intended use assigned by the initial manufacturer.
- Manufacturers will be required to **design products** in a way that facilitates re-use, remanufacturing and recycling, namely by separation of components and materials.

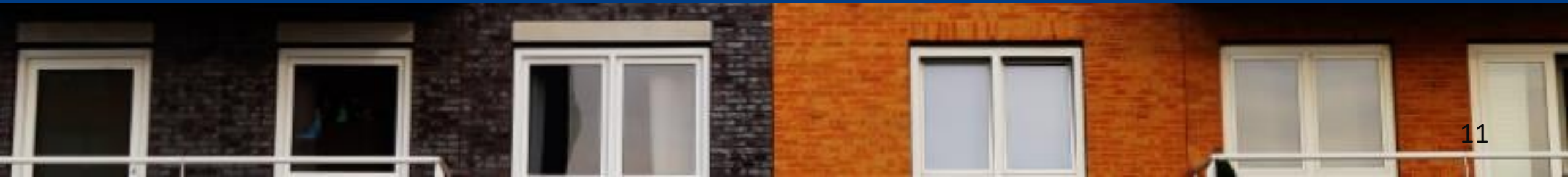


CPR – Untapped potentials

- Deliver sustainable construction products to the EU market, by setting appropriate **environmental performance requirements and limits.**
- Enable circularity, including a **clear framework for the use and promotion of reused materials.**
- Establish requirements for the development of decentralized data collection pending on manufacturers through **Digital Product Passports.**



Building Level: Energy Performance of Buildings Directive





EPBD – Environmental objective

The EPBD sets building level requirements for the EU and guides MS in implementation of relevant measures, and will now look at decarbonisation based on the current recast. The objective is:

- *improve the energy efficiency of the worst-performing buildings and the building stock to the highest level of performance through **low carbon deep renovations***



EEB - Untapped potentials

- Establishing ambitious **Whole Life Carbon (Lifecycle Global Warming Potential) roadmap**, requirements for setting targets, benchmarks, and limits for the reduction of the embodied and operational emissions.
- Including instruments and strategies that contribute **to the reduction of the Whole Life Carbon emissions, such as circularity, sufficiency and the use of low carbon and natural-based materials.**
- Promoting **reversibility and adaptability** of buildings.

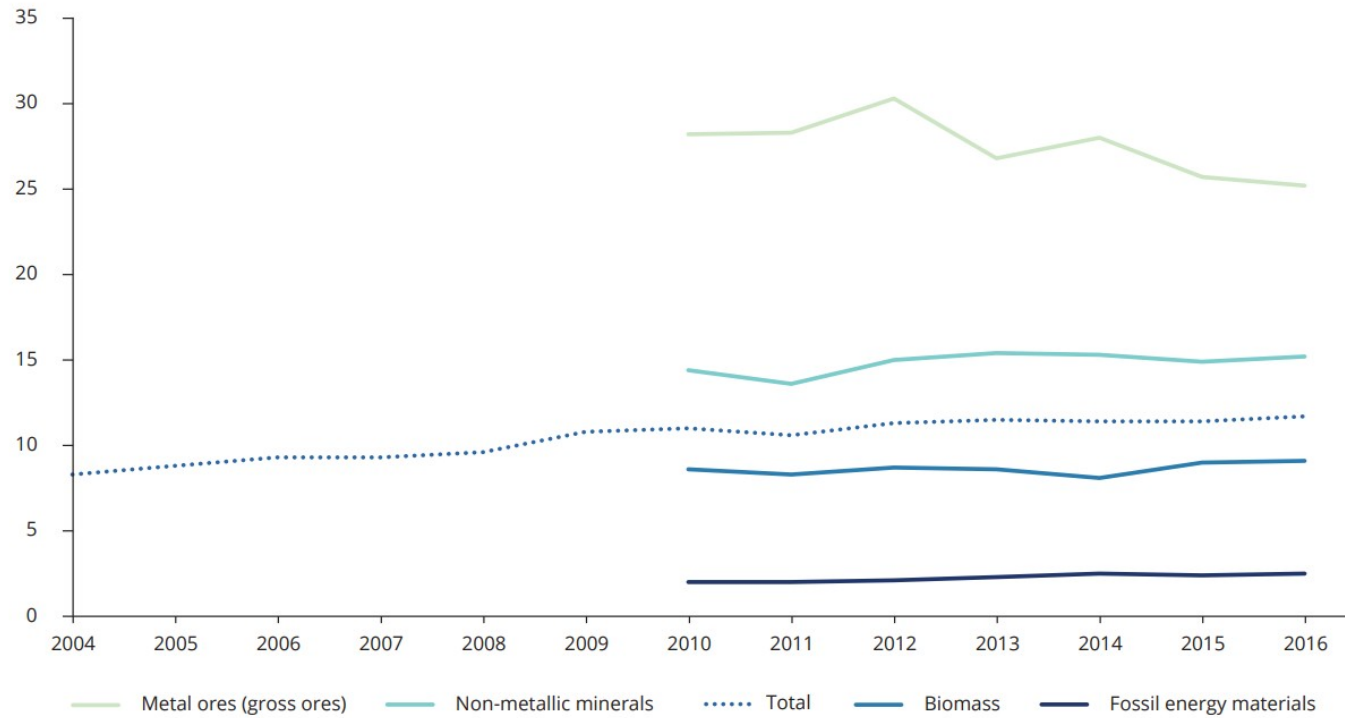


Circular targets - Circular market

Eurostat data (2020) – EEA report (2018)

FIGURE 9.2 Trends in the circular material use rate, EU-28

Circular material use rate (%)



Source: Eurostat (2019a).

Requirements for the Member States to set specific national targets for 2030 of at least 15% for use of secondary materials in buildings by 2025

15% of secondary materials available



Waste management level: Waste Framework Directive

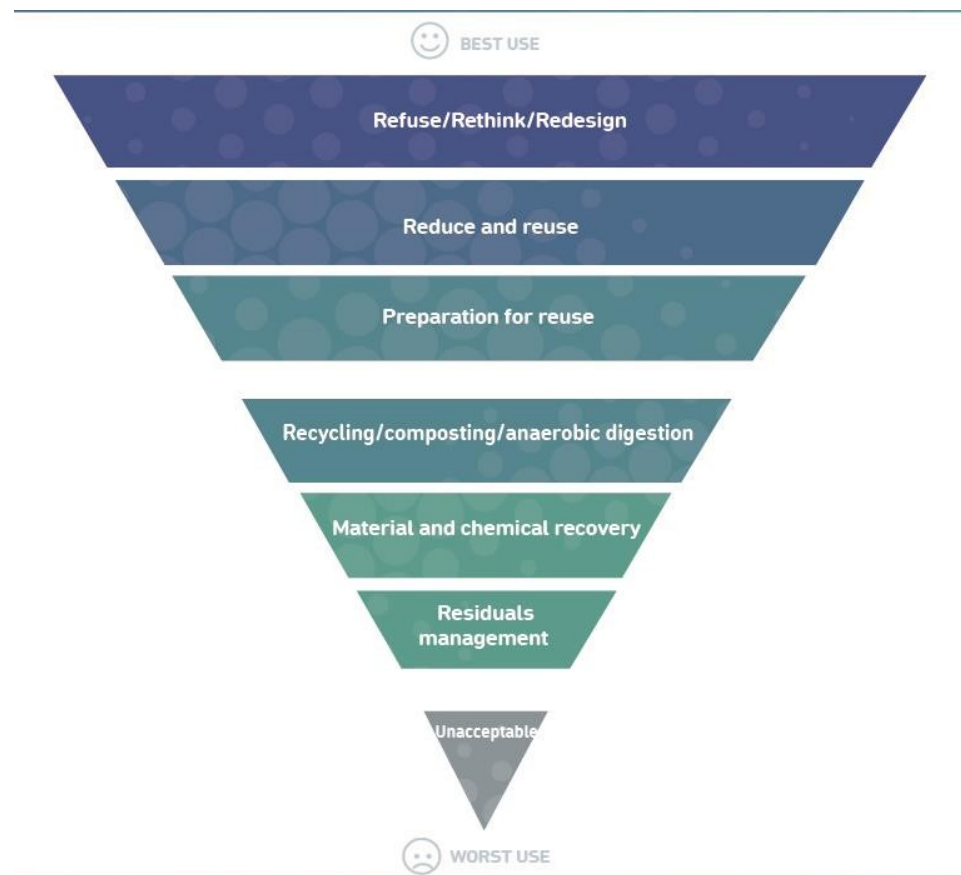




Background – EU Com

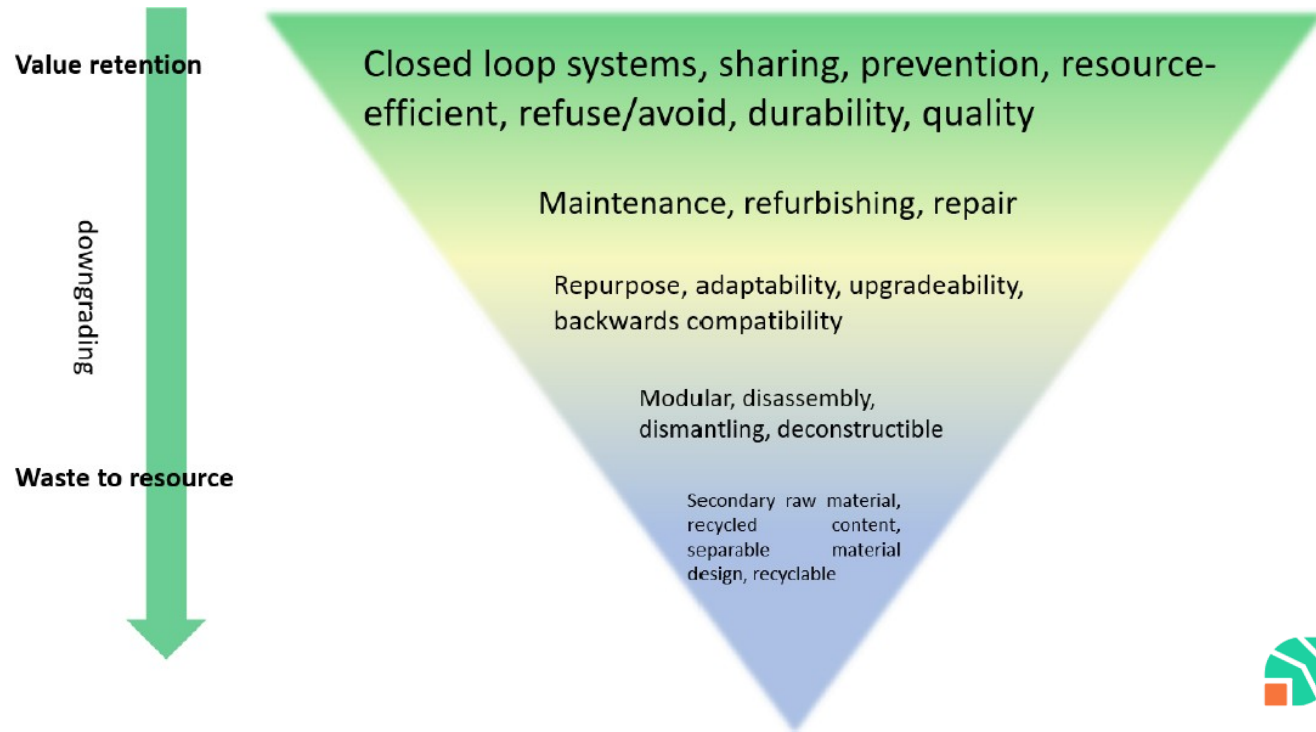
- Some components of CDW have a high resource value, while others may have a lower value, **but could still be easily reprocessed into new products or materials. Technology for the separation and the recovery of construction and demolition waste is well established, readily accessible and generally inexpensive.**
- **When it is not separated at source, construction and demolition waste can also contain small amounts of hazardous materials such as solvents and asbestos. These can pose particular risks to the environment and impede recycling.**
- Despite its potential, the level of recycling and material recovery of construction and demolition waste varies greatly across the EU, **ranging from less than 10% to over 90%.**

Waste and Circularity



- **Potential goal:** ensuring that reliable, harmonised standards promote preparation for reuse and material-efficient recycling. This way we can turn waste into a resource and close the loop in the most sustainable way.
- **Better product design** is also essential to limit the amount of waste, especially hazardous waste, and facilitate material recycling.

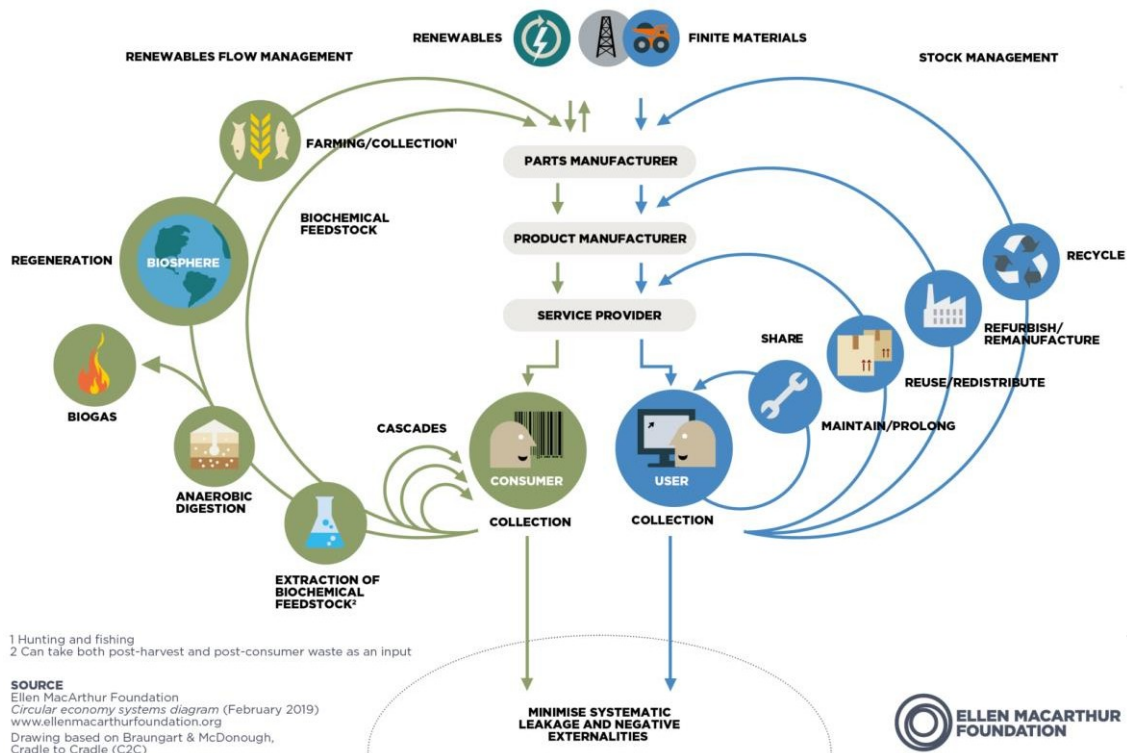
Policy/resources on C&DW



- Sustainable Product Initiative
- Construction and Buildings (EU Strategy for a Sustainable Built Environment)
- Less waste, more value



WFD- Policy/resources on C&DW

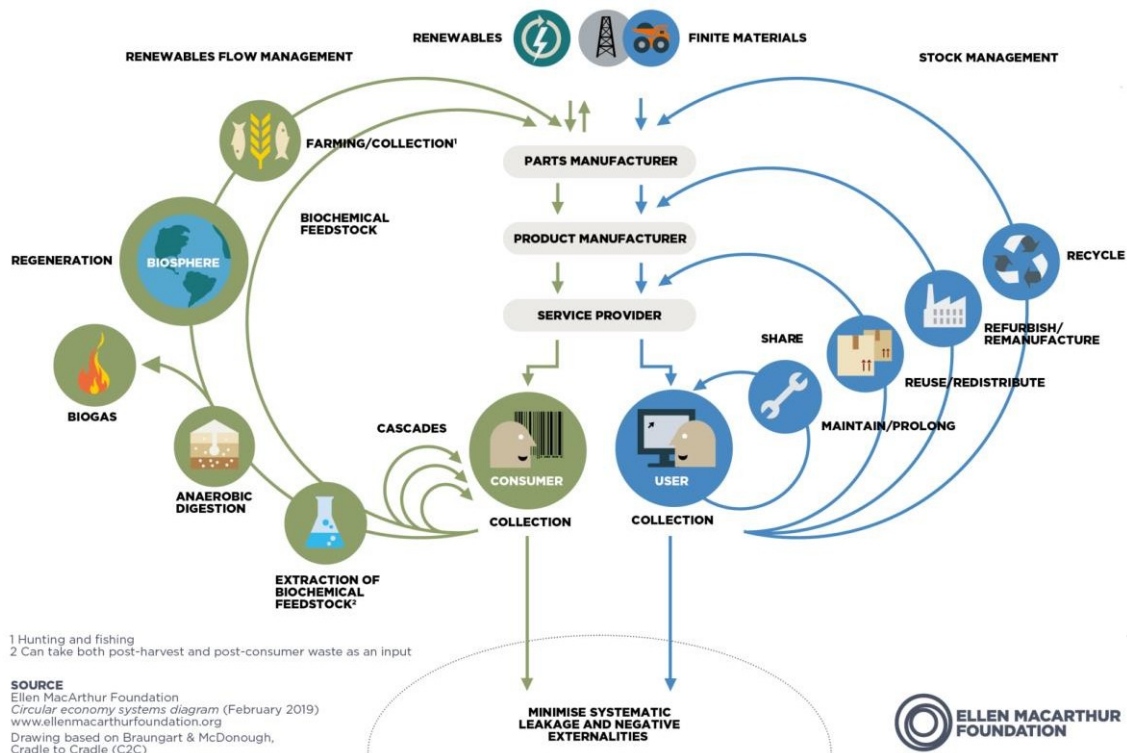


Waste Framework Directive:

- by 2020, the preparing for re-use, recycling and other material recovery of non-hazardous construction and demolition waste (excluding naturally occurring material defined in category 17 05 04 in the list of waste) shall be increased to a minimum of **70 % by weight**
- promote selective demolition to enable removal and safe handling of hazardous substances **and facilitate re-use and high-quality recycling by selective removal of materials and establishing sorting systems**
- **reduce waste generation**



Policy/resources on C&DW



Other policy tool:

- Construction and Demolition Waste Management Protocol - *non-binding guidelines on how to properly handle this waste stream.*
- Communication on Resource Efficiency Opportunities in the Building Sector
- Guidelines for the waste audits before demolition and renovation works of buildings
- Level(s)



WFD – **Untapped potentials**

- Preparing for **re-use**, **recycling a minimum of 90 % by weight**
- Mandating **pre-demolition** audits.
- Introducing targets for the **separate collection** of key material streams on a volume basis.
- Introducing **targets for the re-use of construction** products
- Introducing targets for **closed loop recycling** of construction products by weight
- Establish a calendar for **phasing out energy recovery of C&DW**



WFD – Untapped potentials

- Introduces more EU-wide end-of-waste criteria to support the **market uptake of secondary input materials and reusable products** which are safe to use in buildings.
- Mandates the **disclosure of waste product and material information** regarding reusability, recyclability and traceability.
- Mandates product and material **take-back schemes** for unused construction materials
- Establish national and regional **Extended Producer Responsibility** schemes in the construction sector.



EU Policy framework

Circularity is a cross-cutting issue

**CONSTRUCTION PRODUCT
REGULATION**

**ENERGY PERFORMANCE
BUILDING DIRECTIVE**

**WASTE FRAMEWORK
DIRECTIVE**

**Information
requirements**

(bill of materials)

**Minimum Performance
for circularity**

**Financial incentives
Proper market**

**Establishing benchmarks
for embodied emissions**

**Reversibility and
adaptability of buildings**

**Recycling/re-use rate for
construction products and
materials**

Prioritising renovations

Harmonised standards

Pre-demolition audits

Selective demolitions

Preparing for re-use,
**recycling a minimum of
90 % by weight**

Avoiding landfilling



EU Policy framework

Circularity is a cross-cutting issue

CONSTRUCTION PRODUCT
REGULATION

ENERGY PERFORMANCE
BUILDING DIRECTIVE

WASTE FRAMEWORK
DIRECTIVE

creating the **norms**
and **harmonising info**
on products placed
on the market

creating the **demand**
and **the market** for low
carbon construction
products

creating the **legal**
drivers and economic
incentives to reuse &
recycle construction
products



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Thanks for listening!

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