

Circular Economy and the *Built Environment*

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*World Business Council for Sustainable Development
(WBCSD)*



WTO Geneva, 18 June 2024





Agenda

1. Circular Economy

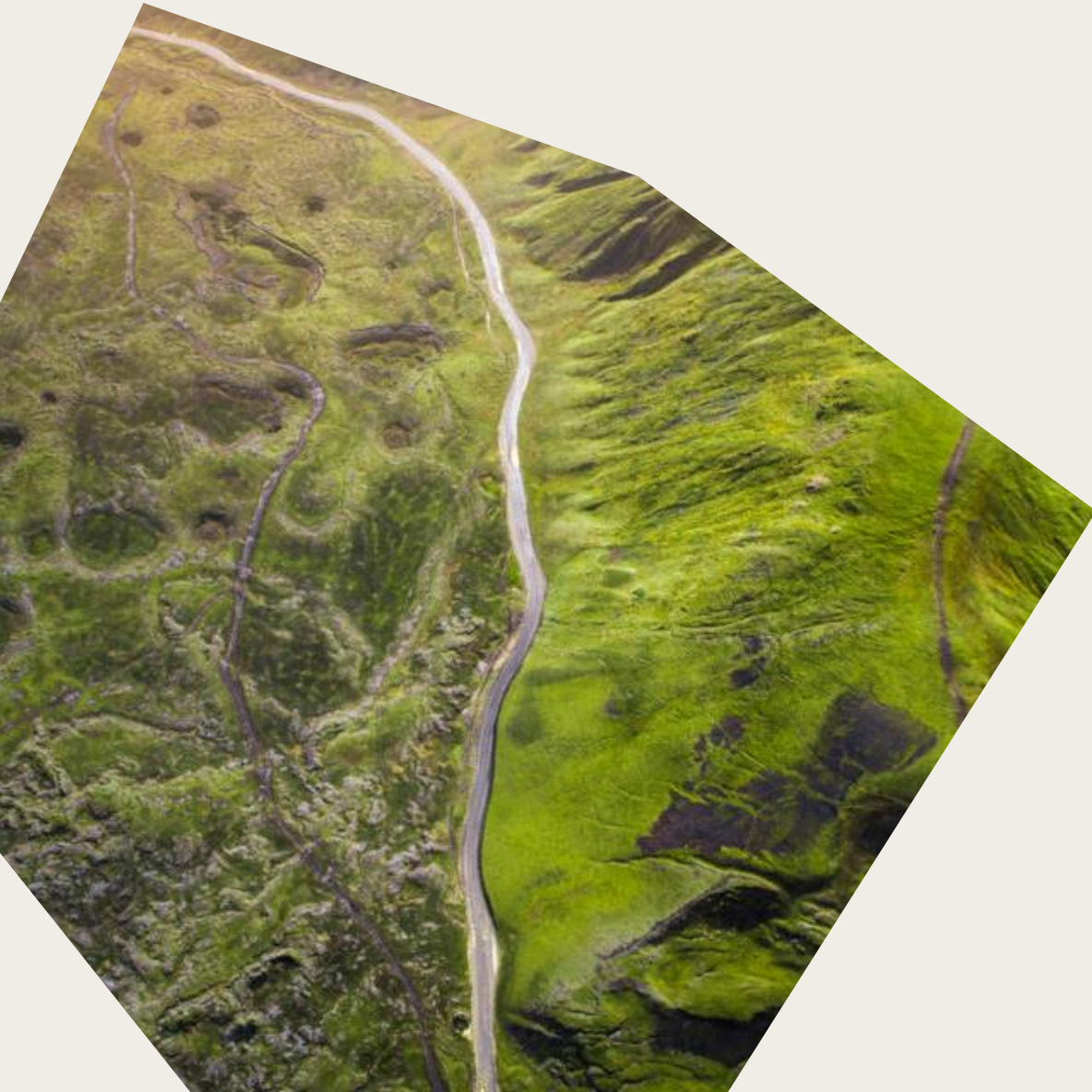
2. Circular Built Environment

3. Circular Buildings: *Measurement and Data*

4. Circular Built Environment: experience from around the world

1.

Circular *Economy*



Linear Business as Usual is Unsustainable

The take-make-waste economy leads to widespread resource depletion environmental impacts such as climate change, pollution and loss of biodiversity.

45-60%

GREENHOUSE GAS EMISSIONS
FROM PRODUCTS & MATERIALS

7.2%

CURRENTLY CIRCULAR

EXTRACTING NATURAL
RESOURCES OF TWO EARTHS

8.6%

RECYCLED MATERIALS AS
RAW MATERIAL INPUT

1.9%

REMANUFACTURING PRODUCTS
COMPARED TO NEW MANUFACTURING

Circle Economy's Circularity Gap Report 2023; Accenture's Waste to Wealth; World Resources Institute

39%

REDUCTION IN
GREENHOUSE GAS
EMISSIONS

32%

REDUCTION IN PRIMARY
MATERIAL CONSUMPTION
BY 2030

73%

BIODIVERSITY RECOVERY
BY SHIFTING TO CIRCULAR
FOOD AND AGRICULTURE

6M

NEW JOBS BY 2030

The Path Forward: *Unlocking the Circular Opportunity*

A circular economy is essential in optimizing resource use to meet society's needs for sustainable production and consumption, while allowing the systems providing these resources to regenerate.

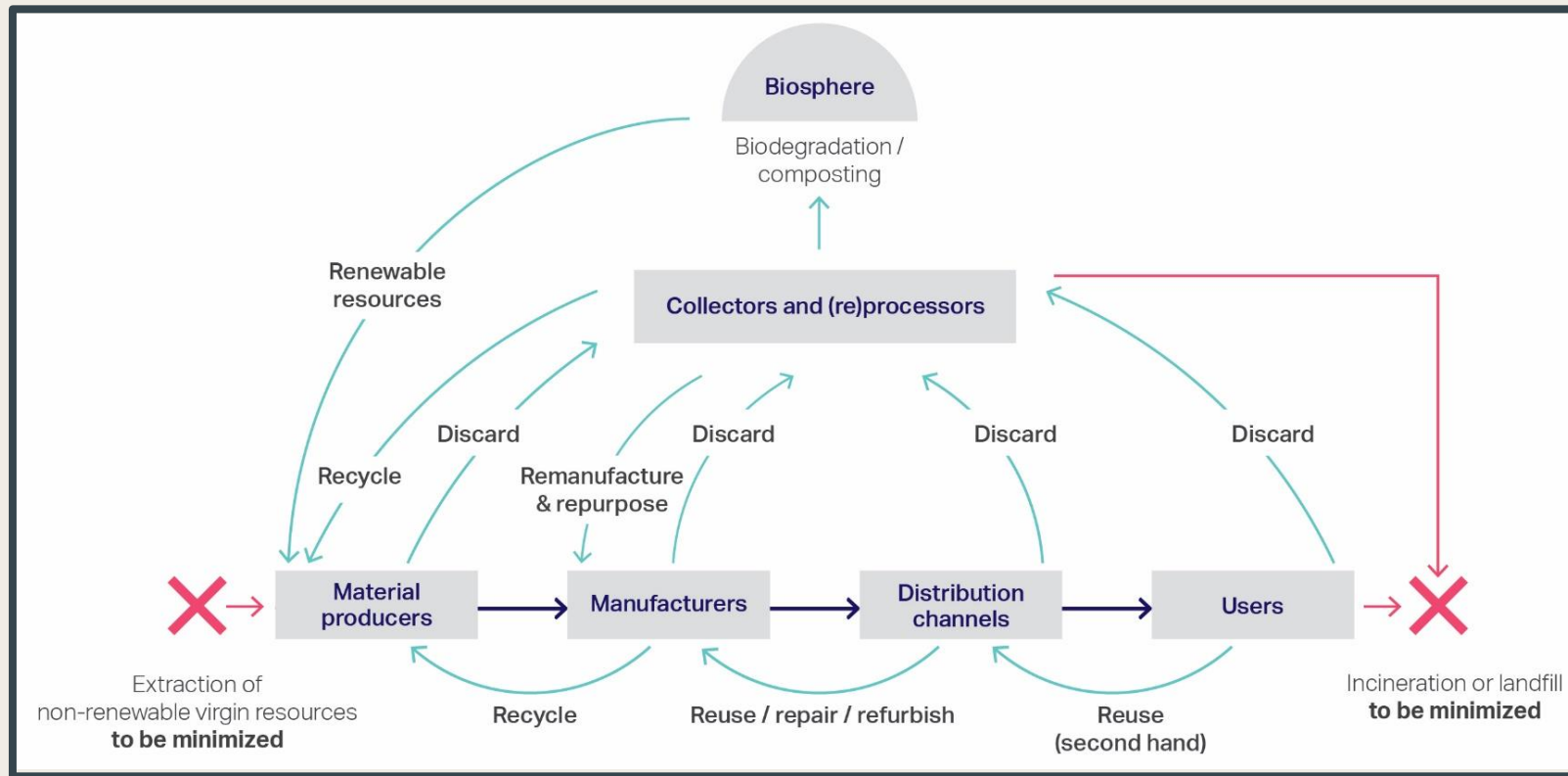


Circle Economy's Circularity Gap Report 2023; Accenture's Waste to Wealth; World Resources Institute

Circular economy: A value chain effort and opportunity

A \$4.5 trillion economic opportunity by reducing waste, stimulating innovation and creating employment

Accenture, Waste to Wealth; \$4.5T by 2030 and \$25T by 2050

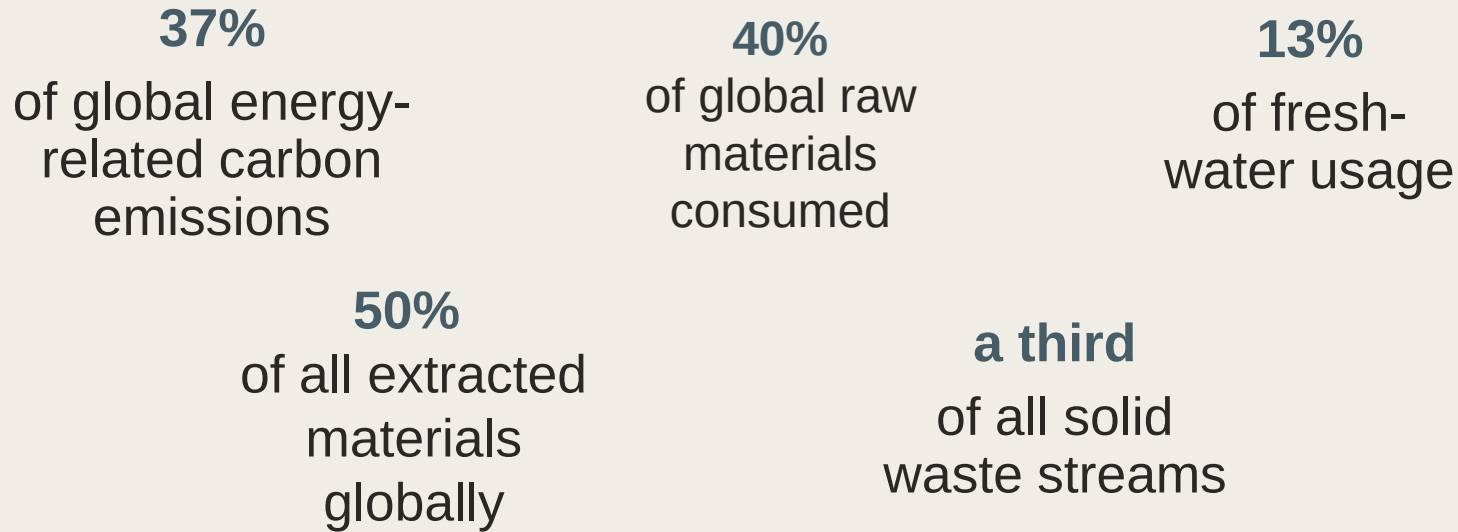


2.

Circular *Built Environment*

The environmental impact of buildings can improve thanks to circularity measurement

Today, the built environment is responsible for:



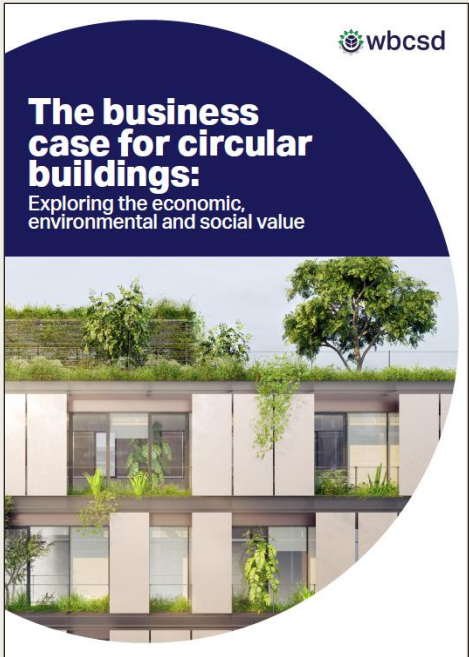
A shift to a circular economy can help the sector substantially:

- *reduce resource extraction*
- *reduce waste and pollution production*
- *support nature regeneration*
- *while guaranteeing equity, well-being and health for everybody worldwide,*

The business case for circular buildings

A circular building optimizes the use of resources while **minimizing waste** throughout its whole life cycle. The building’s **design, operation** and **deconstruction** maximize value over time using:

- **Durable products** and services made of secondary, non-toxic, sustainably sourced, or renewable, reusable or recyclable material;
- **Space efficiency** over time through shared occupancy, flexibility and adaptability;
- Longevity, resilience, durability, easy maintenance and reparability;
- Disassembly, reuse or recycling of embedded material, components and systems;
- Life-cycle assessment (**LCA**), life-cycle costing (**LCC**) and readily available digital information (such as building material passports).



[Download Report](#)

ECONOMIC VALUE CASE		BROADER VALUE CASE	
• Cost savings • Increased prices of products and services • New business opportunities • Financial flexibility • Value retention	SOCIAL VALUE		ENVIRONMENTAL VALUE
	• Local job creation • Strengthened brand • Stakeholder satisfaction • Cultural identity • Knowledge sharing		• Lowered CO₂ emissions • Minimized waste • Lower use of virgin materials • Improved material transparency

3.

Circular Buildings: *Measurement and Data*

Measuring circularity

Measuring the circularity is crucial as it allows stakeholders to understand the effectiveness of their circular initiatives, make informed decisions, and drive progress towards sustainability.

Here are some key reasons why measuring the circular economy is important:

- *Assessing Progress and Performance*
- *Identifying Opportunities and Challenges*
- *Supporting Decision-Making*
- *Demonstrating Value and Accountability*
- *Driving Competitive Advantage*
- *Enhancing Sustainability Reporting*
- *Fostering Collaboration and Innovation*
- *Enhancing Resilience and Risk Management*

When measuring **Circular Economy in buildings**, we should consider and measure:

- **Material flow**
- **Energy flow**
- **Water flow**

Understand what are the interconnection and impacts on

- **Climate**
- **Resilience**
- **Nature**
- **Society**

And the **business value**

Next steps: a **framework** for measuring circular buildings
-> CTI for buildings (WCEF, May 2025)



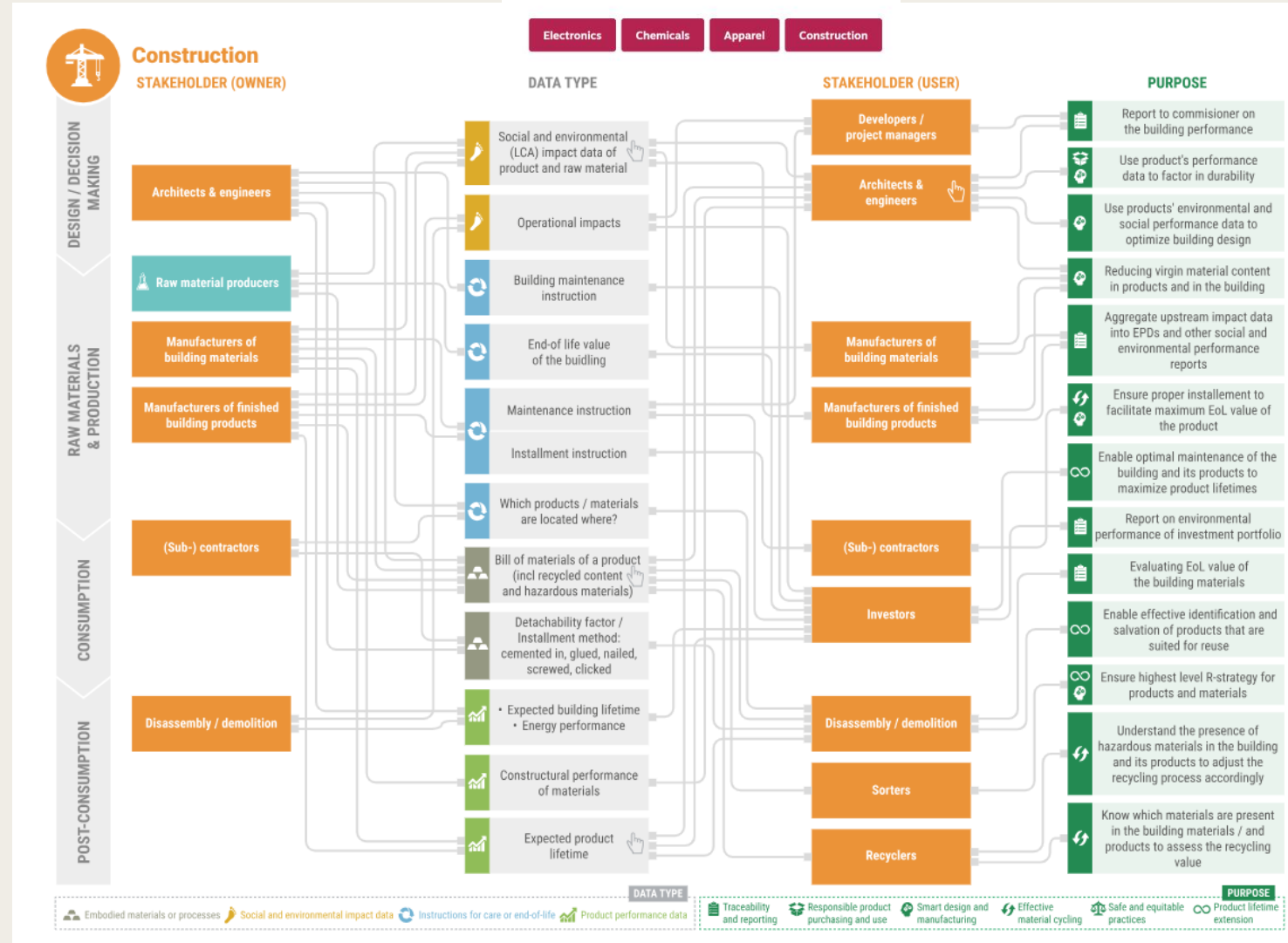
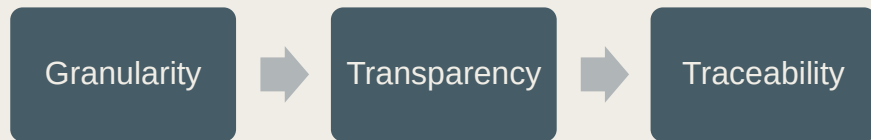
Measuring circular buildings
- key considerations

The importance of data

The use of data is crucial in **advancing** the principles and implementation of a circular economy.

Data enables stakeholders to **make informed decisions, optimize resource use, and measure the impact of circular practices.**

To guarantee the best results, data need:



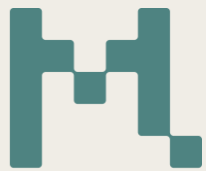
Digital Product Passport mapping, website

Material Passport

Companies need to understand the **level of circularity** of their buildings to act **toward improving their performance**.

To do so it is important to have access to a set of data that provide information about the content of buildings, that can also support trading of materials and components of buildings.

This type of tool goes by the name Material Passport. Some of the most used are:



madaster

[Madaster](#)



[Building Material Scout](#)



[Materials Passports
Platform prototype for
materials banking](#)



[Circulytics](#)



[One Click LCA](#)



[Cradle to Cradle](#)

4.

Circular Built Environment: *Policies around the world*

GlobalABC: Circular Built Environment (CBE)



The **CBE** aims to support the transition towards circularity in the buildings and construction sector by 2050, through supporting governments, the private sector and other stakeholders to

- 1) **increase awareness and buy-in;**
- 2) **build capacities;**
- 3) **advance technical, policy and market development related to the circular built environment,**

1 Transforming the Built Environment through Sustainable Materials

Goals: developing a sustainable **materials market** , raise the climate ambition of NDC, underline the importance of sustainable materials for buildings

Where: Bangladesh, India, Ghana and Senegal

Who: UNEP& BMZ supported UNOPS and UN-Habitat

When: 2022 -2024

2 Circularity Assessment Framework

Goals: develop a framework to measure the circularity at country level

Where: Bangladesh & Senegal

Who: UNEP & UNOPS supported by UN-Habitat

When: 2024

3 Social aspects of circularity through affordable housing

Goals: develop adequate affordable housing through the use of CE principles

Where: Kenya, Peru, Mexico, India

Who: Habitat for Humanity International

When: 2023- ongoing

Other projects

Circular Built Environment: Policies around the world

Various countries and regions are developing, implementing and integrating circularity principles and policies in their national/regional strategies:

Some information and examples in the next slides *(not exhaustive)*:

- Australia
- Canada
- Denmark
- European Union (EU)
- Finland
- Japan
- Netherlands
- United Kingdom



Circular Built Environment: Policies around the world

European Union (EU)

1. EU Circular Economy Action Plan:

Overview: Part of the European Green Deal, this plan outlines measures to transition to a circular economy, including in the construction sector.

Key Measures:

- Revision of the Construction Products Regulation to ensure materials are reusable and recyclable.
- Development of a circular economy framework for buildings to reduce lifecycle environmental impacts
- Promotion of sustainable building materials and methods.

2. EU Waste Framework Directive:

Overview: Establishes principles for waste management, including recycling and reuse of construction and demolition waste.

Key Measures:

- Set a target for 70% of construction and demolition waste to be recycled by 2020.
- Encourage member states to implement measures for material recovery and reuse.

3. Level(s) Framework:

Overview: A common EU framework for sustainable buildings, providing a set of indicators to measure and report on the sustainability performance of buildings.

Key Measures:

- Focus on lifecycle assessment and circularity.
- Encourage use of recyclable and reusable materials.

Circular Built Environment: Policies around the world

United Kingdom

1. UK Construction Strategy:

Overview: Aims to improve the sustainability of the construction industry by adopting circular economy principles.

Key Measures:

- Promote the use of recycled and sustainable building materials.
- Implement circular design principles in public procurement processes.

2. London Circular Economy Route Map:

Overview: Developed by the London Waste and Recycling Board (LWARB), it provides guidance for implementing circular economy practices in the city.

Key Measures:

- Support for circular construction projects.
- Encourage building designs that facilitate material reuse and recycling.

Circular Built Environment: Policies around the world

Netherlands

1. National Circular Economy Programme:

Overview: Aims to achieve a fully circular economy by 2050, with interim targets for 2030.

Key Measures:

- Encourage circular construction methods and materials.
- Support for pilot projects and innovations in circular building practices.

2. City of Amsterdam Circular Strategy:

Overview: Focuses on transitioning to a circular economy, including in the construction sector.

Key Measures:

- Promote the use of circular building materials.
- Implement circular principles in urban development projects.

Denmark

Circular Economy Strategy:

Overview: A national strategy to promote circular economy across various sectors, including construction.

Key Measures:

- Incentives for using recycled materials in construction.
- Support for research and innovation in circular building technologies.

Finland

National Roadmap to a Circular Economy 2016-2025:

Overview: Outlines steps for transitioning to a circular economy, with a focus on construction and demolition waste.

Key Measures:

- Promote the recycling and reuse of construction materials.
- Encourage circular design in building projects.

Circular Built Environment: Policies around the world

Australia

National Waste Policy:

Overview: Provides a framework for waste management and resource recovery, including construction and demolition waste.

Key Measures:

- Promote the recycling and reuse of construction materials.
- Encourage circular design in the built environment.

Japan

Act on Promoting Green Procurement:

Overview: Encourages the use of recycled and environmentally friendly materials in public construction projects.

Key Measures:

- Set standards for green procurement in public construction.
- Promote lifecycle assessment in building projects.

Canada

Canadian Construction Innovations (CCI):

Overview: Supports the adoption of innovative construction practices, including circular economy principles.

Key Measures:

- Encourage the use of sustainable and recycled building materials.
- Support research and development in circular construction methods.

Other global

[Allô Gravats, Senegal 2020](#), pag 64 onwards

[Zero Construction & Demolition Waste Management Practice, Shenzhen, China 2012](#), pag 72 onwards

[Sustainable and circular interventions in vulnerable communities: a proposal for social technology Brazil, ongoing project](#), pag 62 onwards

[Net-Zero_Homes_report_2022.pdf \(habitat.org\)](#)



Thank you!