

The circular economy approach in the built environment: Measures for substituting raw materials

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RESOURCE EFFICIENT
CLIMATE NEUTRAL



NEED FOR CLIMATE PROTECTION & RESOURCE EFFICIENCY IN THE BUILDING SECTOR

- High land requirement
 - Sealing of surfaces
- High energy and resource consumption
- High waste generation
 - 55 % of total waste in Germany
- High GHG emissions, approx. 4 million tCO₂e in 2018

INITIATE INNOVATIONS TOGETHER

Within CEWI, companies work together with stakeholders from science, administration and politics to develop innovative cross-industry business models and pilot projects in the building sector with the following objectives:

1

to address key CO₂
reduction potentials

2

transform material usage

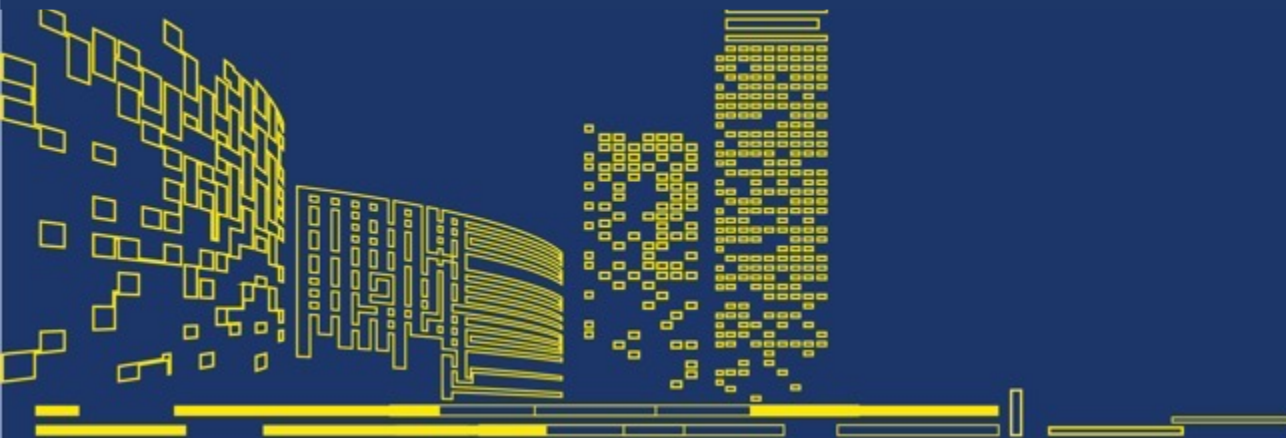
3

trigger systemic change

4

develop and communicate
entrepreneurial solutions

OPPORTUNITIES AND RISKS IN THE BUILDING SECTOR FOR THE IMPLEMENTATION OF A CLIMATE-NEUTRAL AND RESOURCE-EFFICIENT CIRCULAR ECONOMY (CE)



THE CE-APPROACHES

1|
Closing of
material cycles



Use resources and
materials as long as
possible

2|
Increasing
product and
material efficiency



Use as few resources and
materials as possible

3|
Life extension &
efficient use



Use products (intensively)
for as long as possible

4|
Substitution of
resources
and materials



Reduce/ avoid negative
impacts of resources/
materials/ products

THE SELECTED FIELDS OF ACTION



Lightweight construction in the building sector



Modular construction



Alternative living and office concepts



Circular building material trade



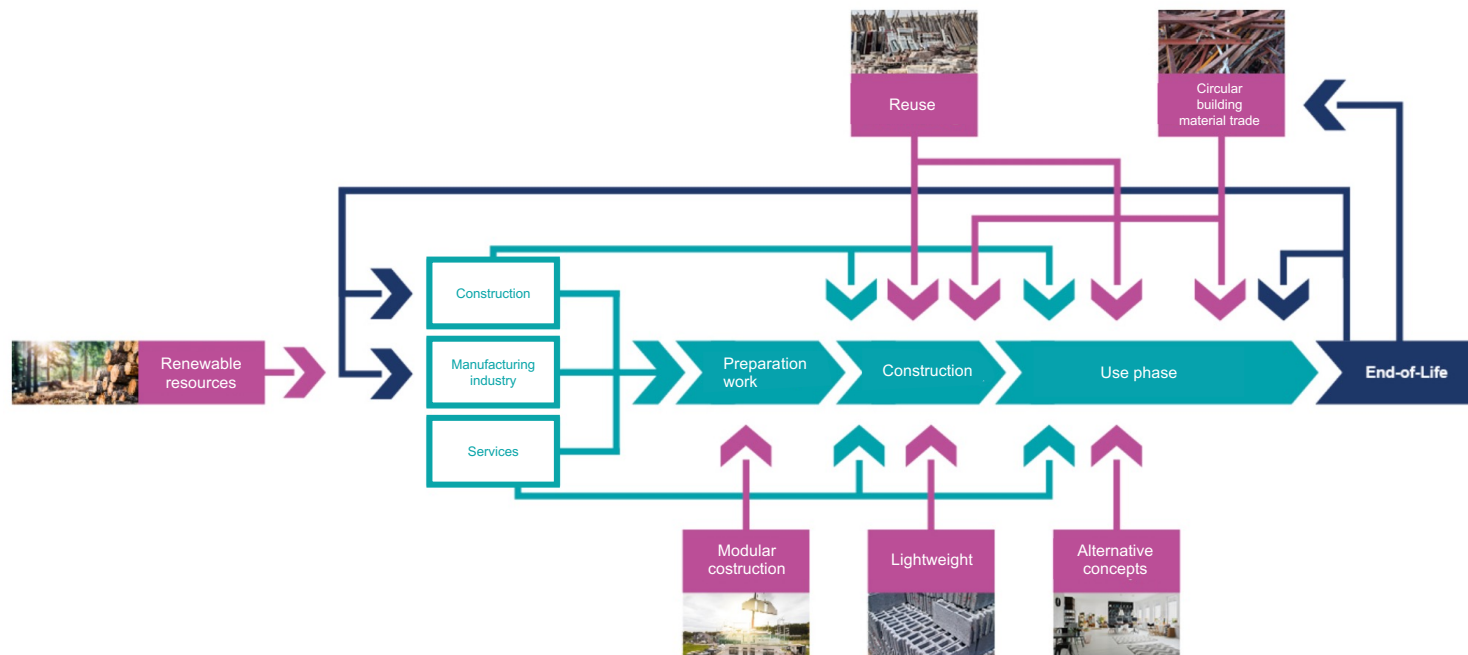
Reuse



Renewable resources



THE SELECTED FIELDS OF ACTION





SUSTAINABLE RESOURCES IN THE BUILDING CONSTRUCTION

Substitution of resources and materials

- The carbon footprint of building materials in Europe amounts to 250 million tCO₂ per year. (*Material Economics, 2018*)
- Wide variety of applications:
 - as construction material (e.g. wood, cardboard, straw, etc.) to replace concrete & steel construction
 - as insulation material (e.g. jute or flax)

Guiding questions

- *Would cooperation with farmers / foresters be feasible?*
- *Which building components or materials can be replaced?*
- *What characteristics must the renewable resource bring to the building construction (e.g. fire protection, etc.)?*



Renewable resources





SUSTAINABLE RESOURCES IN THE BUILDING CONSTRUCTION

Substitution of resources and materials

Climate neutrality

Energy savings in manufacturing and remanufacturing processes

Resource efficiency

Improved recirculation

State of development

Need for research regarding fire, sound, heat and moisture protection

Potential for business models

Wide range of possible applications

Evaluation

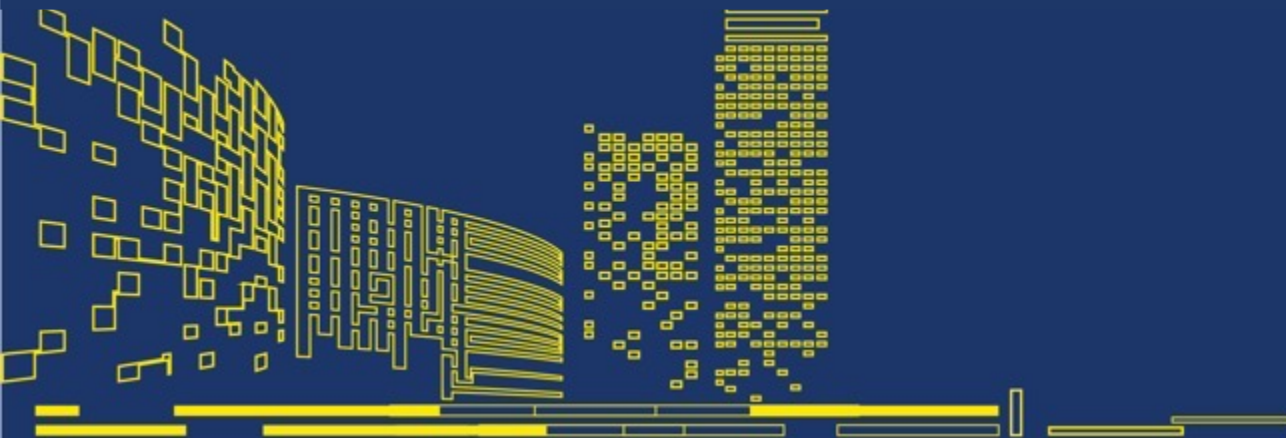
High positive contribution



Renewable resources



THANK YOU FOR YOUR ATTENTION



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**For more information
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www.cewi-projekt.de/en