

How do current policies support a transition towards a circular economy in the built environment?

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Abstract

Building and construction industry consumes huge quantities of materials in an unsustainable way. As a result of a linear design approach and economic model, at the end of use, but also throughout the cycle, buildings or parts of buildings are demolished and remnants treated as waste or –best case– down-cycled. This creation of waste as well as the use of virgin resources leads to an important environmental, economic and societal impact.

To create a sustainable built environment, the building sector needs to move towards a circular economy in which circular and dynamic buildings as well as their component and materials preserve value.

Policies and regulations in member states and across the EU will influence the ability to transition to a circular economy – positively and negatively. Within the H2020 Buildings As Materials Banks (BAMB) Project work is underway to understand where the opportunities and barriers lie in a complex and, sometimes contradictory, regulatory landscape.

This paper presents an overview of the current policy instruments that are considered to have relevance in relation to promoting, or possibly hindering, the adoption of circular economy opportunities in the built environment. The analysis of the current policy instruments has been done on a European level and on a member state level for 4 different countries being: Belgium, Portugal, Sweden and UK. The paper will mainly focus on the European Level and Belgium.

Keywords: Policy; EU; Belgium; Circular & dynamic buildings; Circular Economy.

Introduction

The building and construction industry consumes huge quantities of materials in an unsustainable way. As a result of a linear design approach and economic model, buildings or parts of buildings are demolished and remnants are treated as waste, or in the best case scenario – down-cycled.

This considerable creation of waste and the resulting consumption of virgin resources leads to important environmental, economic and societal impacts.

To create a sustainable built environment, the building sector needs to move towards a circular economy in which circular and dynamic buildings, as well as their components and materials, preserve their value throughout their lifecycles.

Policies and regulations in member states across Europe, as well as at the EU level, will positively and negatively influence the ability to transition to a circular economy. It is therefore essential to understand where the opportunities and barriers lie in a complex, and sometimes contradictory, regulatory landscape.

An overview is presented of the current policy instruments that are considered to have relevance in relation to promoting, or possibly hindering, the adoption of circular economy

practices in the built environment. The analysis of the current policy instruments has been done on a European level and on a member state level for 4 different countries: Belgium, Portugal, Sweden and the United Kingdom. These 4 countries have been chosen based on geographical distribution and their representativity with regards to the range of current practices in Europe. Further research will focus on the analysis of best practices worldwide in regards to supporting the transition towards a circular built environment.

Current policies instruments

When contemplating the different policy instruments that are considered relevant to promoting, or possibly hindering, the adoption of circular construction practices, binding legislation mainly focuses on energy performance and the management of construction and demolition waste.

This results from the transposition by Member States of the requirements of the revised Waste Framework Directive (2008/98/EC) and the revised Energy Performance of Buildings Directive (2010/31/EU) into their national legislation. The resulting level of obligation is dependent on the Member State and the (sub-) national context. While the Scottish government has e.g. developed a Zero Waste Plan, the Flemish government has set up a Regulation on recycled aggregates, and Sweden has developed The Swedish Waste Plan 2012-2017 and The Swedish Waste Prevention Program 2014-2017; in Portugal, waste management is not yet defined and implemented like in other EU countries.

Even within sustainable building and circular economy policy instruments, energy remains an essential focal point. The Flagship Initiative 4: “Resource Efficient Europe” of the 10-year strategy Europe 2020 proposed by the European Commission e.g. supports the shift towards a low carbon economy and the increase of the use of renewable energy sources, promoting energy efficiency.

Most sustainable construction policy instruments that comprise building materials’ (environmental) assessment and/or circular economy aspects, are voluntary instruments developed at the national or sub-national level.

Private certification schemes, being voluntary initiatives, have also demonstrated a positive impact on sustainable building design. This is the base on which the EU Framework for the assessment of the environmental performance of buildings is being developed. The framework aims to reduce the overall environmental impact throughout the life-cycle of buildings and to promote a more efficient use of resources in the construction and renovation of commercial, residential and public buildings by providing a voluntary reporting tool that enables its use as a module in certification schemes.

To promote a more efficient use of resources in the construction and renovation of commercial, residential and public buildings

To reduce the overall environmental impact throughout the life-cycle of buildings

Identified Barriers

The fragmentation of the policies over the different policy levels and the current complexity of the legislative frameworks may lead to a lack of integration of the different policies, and could in some cases even lead to contradictions. There is a need for cooperation between different government departments (including business/industry, finance and environment) in order to prevent the creation of new unintended policy barriers and to ensure that the policy response is designed to maximise system effectiveness.

It could be argued that a key barrier is presented in energy efficiency policies across Europe. The prioritisation of energy efficiency and high energy performance of buildings may unintentionally result in building design and materials that do not lend themselves to dismantling, refurbishment, reuse and high quality upcycling. It is not the high performance, per se, that could hamper the adoption of dynamic and circular building design, but the choice of construction techniques and materials to achieve the required performance.

Furthermore, the definitions provided by the EU Waste Framework seem to lack clarity. As a result, high recovery rates could correspond to the down-cycling of stony fraction used for road foundations (and other low grade applications), which is far from the definition of 'recovery' as understood within a 'Building As Materials Bank' approach.

An additional barrier can be seen in the fact that until recently many of the existing policies and instruments have been developed from a linear viewpoint, which does not take into consideration the potential reality of a circular built environment. For example, current urban regulations and building permits are based on a linear and static vision of buildings that may impede changes and transformations supported by reversible design and materials recovery. Similarly, some current financial incentives require complete ownership of buildings, which may be contradictory to new business plans and ownership models within a circular built environment.

The lack of knowledge and awareness of companies and technicians has also been identified as an important issue with regards to the implementation of effective resource and waste management, as well as the implementation of approaches and tools supporting the transition towards a circular construction sector, such as Materials Passports and reversible design.

Identified opportunities

Although the lack of clear definitions is seen as a potential barrier, the EU Waste Directive also offers an opportunity to support the transition towards a circular economy and construction industry. The Directive introduces the "polluter pays principle," leading to Landfill Taxes in several countries. The increasing cost of landfill provides an economic driver for alternative solutions which avoid end-of-life waste, such as reversible building design. Further clarification of the current definitions could also help to increase the quality level of the recovered, re-used and recycled materials.

Existing hard laws on energy performance, waste management and construction product regulations offer opportunities to address certain aspects supporting the implementation of dynamic and circular buildings. Extending these policy instruments by integrating circular and dynamic building design, management approaches and tools, would enable the development of an integrated approach meeting climate change, energy, environmental and economic objectives.

This integrated approach is essential if we want to avoid today's energy efficiency actions hampering tomorrow's recovery of valuable materials. The requirement found within the Energy Efficiency Directive, which stipulates that governments must renovate 3% of public buildings each year with the objective to improve energy efficiency Directive (Article 5, 2012/27/EU), presents an incredible opportunity to set the example, do things better and to respond to a variety of challenges in a sustainable and effective manner.

More recently, a new stage of policy development is underway. The Circular Economy Package (EU), Circular Economy Strategy (Scotland), Regional Program for Circular Economy (Brussels Capital Region), etc. have been adopted. All of these policy instruments recognise that the built environment is a key sector to introduce circularity. This provides a significant opportunity to reframe sustainable building policies and instruments to allow for a circular approach.

Conclusions

The analysis has emphasized that the fragmentation of policies over the different policy levels, as well as between the different policy areas, may lead to a lack of integration of the different policies. As a result, current regulation could hamper the transition towards a circular built environment. However, integrating dynamic and circular building aspects into existing policies through the extension or adaptation of the latter could lead to an integrated approach. This would enable meeting climate change, energy, environmental and economic objectives, while reducing contradictions and unintended policy barriers.

Furthermore, the building sector is characterized by a complex and multi-disciplinary value network, which is reflected by the wide range of policies impacting it. It is important to assess the impact of (future) policies on the different actors found within the network. Certain stakeholders, for example, demand regulation and quality assurance certification for reclaimed construction materials (comparable to the Construction Products Regulations (CPR) which offers a common language and harmonised rules for new construction products), which could allow for reprocessed, recycled and reused materials to be widely exchanged by providing confidence in their performance and quality. However, obliging a certification scheme for all reclaimed construction products could, depending on the type of construction product, have a contradictory effect and even distort existing second hand construction products networks, as a result of the complexity of the process and the resulting cost. It is therefore crucial to investigate the potential advantages and disadvantages for all actors of the value network.

Further research on best practices and the potential of existing voluntary programs, plans, strategies and tools will thus need to take into account the potential impact on all actors before formulating policy to better support the transition towards a circular and dynamic built environment.

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