BUILDING BETTER: A CIRCULAR FUTURE FOR THE BUILT ENVIRONMENT

BUILT ENVIRONMENT

BY TAMANNA WADHWANI AUGUST 23RD, 2022

A new report from the Holland Circular Hotspot explores the impact of our buildings on the environment and how a circular economy can address these challenges.

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ACE Hub collaboration partner Holland Circular Hotspot recently released its latest report entitled *Circular Buildings: constructing a sustainable future*. The publication focuses on the building industry and its current environmental impact and explores how applying circular principles can help solve these pressing challenges in a resource-constrained world. The publication also shares

compelling case studies of best practices and circular innovations from the Netherlands.

Here, we summarise the key learnings and takeaways that industry participants and policymakers could look to implement across the EU as well as internationally.

The way we are currently building is not sustainable

Buildings are an integral part of a well-grounded economy, providing us with shelter, workplaces and connecting people and communities. However, the building industry has a very large environmental footprint due to its historically energy inefficient design, the embodied energy of building materials and the ongoing impact of their use. Buildings alone represent nearly half of the world's construction sector and contribute around 38% of the world's greenhouse gas emissions. As noted in the report, buildings are also responsible for half of all extracted materials, half of the total energy consumption, one-third of water consumption and one-third of waste generation globally. The magnitude of this impact will only keep growing without significant change in the industry.

With rapidly increasing pressures such as population growth, high demand for materials, migration of people into urban areas and the upsurge in energy consumption, the building industry is facing challenges that must be addressed immediately. However, there is still potential to transform and futureproof this sector.

The circular building economy is the way forward

The circular economy and its principles offer new opportunities with the potential to address the industry's environmental footprint across all stages of the supply chain. This includes the design and development stage, operational stages as well as the end-of-life of buildings.

During the initial phase, principles such as using circular design strategies to build structures that can be dismantled and repurposed after the building's lifespan can help reduce the building's footprint. This can be further supplemented by using bio-based and renewable materials as opposed to virgin resources. Once built, a proper asset management procedure must be put in place to ensure materials and products within the building are regularly maintained and renovated to extend their lifespan for as long as possible. At the end of a building's lifespan, methods such as recycling and reusing resources will be critical to reducing construction and demolition material waste, which could instead be used again as secondary raw materials for new structures.

The report also recommends other techniques such as material passports to track the journey of products across their lifecycle, product-as-service models and circularity measurement tools to ensure high-quality reuse and assist in making informed decisions along the way.

Best practices and innovations from a Dutch context

The Netherlands has always been a front runner when it comes to implementing circular economy principles. Their need for ever-emerging technology and constant circular innovation has been driven by the region's challenging terrain and scarcity of natural resources. However, the Dutch have shown development that is within planetary boundaries and in alignment with nature is both possible and hugely beneficial for their domestic economy.

The report provides case studies of successful dutch companies that exhibit best practices and are making an impact in the building sector. These have been distributed into 9 categories: i) circular policies, ii) circular procurement, ii) measuring circularity, iv) circular design strategies, v) technical and material innovations, vi) business models, vii) material passports and data strategy, viii) circular marketplaces and ix) supply chain collaborations.

We cannot achieve circularity alone

As stated by the World Resource Institute, cities are expected to contribute nearly three-quarters of our world's energy use by 2030. Given how much time we spend living, working and conducting activities within buildings this is not entirely surprising. However, if we are to reach our climate and emissions targets, we cannot do it without addressing both how we construct buildings and how we operate inside them.

The building and construction industry includes stakeholders from various sectors ranging from construction, demolition, contractors, wholesalers, financiers, real estate investors, architects, public and private clients, developers, government, science and education. Therefore, tangible change in this sector can only be achieved by taking a systems approach that is both cross-border and cross-sector.

The report ultimately lists three main recommendations as part of an action plan to make our buildings circular:

1. We must go circular together by building partnerships that go beyond regional, national and international boundaries.
2. We must develop a standardised set of frameworks for climate-neutral and circular infrastructure to enable the construction sector to become more sustainable. We must also form ‘coalitions of the willing’ consisting of working groups to create these frameworks, as well as ‘coalitions of the doing’ to take immediate action and adopt cutting-edge practices.
3. We must integrate circular economy actions across other policies and plans like the Climate and Energy and Sustainability related actions.

For a more detailed breakdown of how we can transform the buildings industry toward a circular future, read the *Circular Buildings: constructing a sustainable future* report.

Positive Actions

Learn more about the Australian Circular Economy Hub

Tamanna Wadhwani

Tamanna moved from India to Australia to pursue a degree in environmental science and conservation biology. After learning about the concept of a circular economy in 2020, she worked with various organisations in this sector and is interested in solving complex climate change and waste management problems. She loves to communicate with people about all things sustainability or animals. Outside of work, Tamanna is a budding hip hop dancer who also loves travelling, cat cuddles and reading.

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