switchasia

Funded by the European Union

Connecting SWITCH-Asia activities with

CLIMATE AND CIRCULARITY

BUILDINGS AND HOUSING

The European Union (EU) SWITCH-Asia Programme provides a platform for partnerships and networks between Europe and Asia, supporting the implementation of national strategies and action plans on Sustainable Consumption and Production (SCP) practices. With the assistance of the European Commission, Asian countries are supported to transition towards low-carbon, resource-efficient and more circular economies that contribute to poverty reduction. This briefing connects the SWITCH-Asia activities on climate and circularity for the building and housing sector.

Partnerships between Asian countries and the EU can bring needed mutual inspiration and create shared expertise. By jointly exploring how housing and buildings can play a key part in the transition to circularity and SCP, professionals from Asia and the EU can identify shared visions for the future and sharpen their local implementation priorities. This discussion can focus on governance issues as well as technological innovations, and encompass human-centred urban planning, infrastructure and technology.

A uniquely important sector

The building and housing sector is among the most resource-intensive and economically important sectors globally. Drastically reducing the emissions of buildings and construction is decisive for achieving the below 1,5 degrees Celsius ambition set forth in the Paris Agreement.

This sector is unique also in its importance: adequate housing is a basic human need, and is defined by the United Nations (UN) as a human right. Social and development agendas nationally and globally prioritise the provisioning of housing.

From an individual's perspective, housing is one of the key determinants of perceived quality of life that also shapes numerous other decisions that shape lifestyles and environmental footprint of societies. The built environment – building typology, materials used, resources required for operation and maintenance, infrastructure it relies on – influences development for decades to come. Decisions today can "lock in" decision-making for generations, for example, with regard to car dependency or land use, including biodiversity and green spaces. For all these reasons, the housing and building sector is critical for an economic transformation that respects planetary boundaries, and a keystone topic of SCP.

Climate change and the building sector

In the transition to a low-carbon, resilient and sustainable society and economy, buildings and construction activities play a critical role in the use of energy and are the biggest sources of greenhouse gas (GHG) emissions. They are responsible for more than 38% of global energy-related CO_2 emissions, higher than any other sector (UNEP, 2020). This is due to several factors some of which relate to emissions associated with using buildings – for example, space heating and cooling or use of electrical appliances and lighting – to large extent defined at the design and construction phases. A significant part of emissions comes from embodied or "upfront" carbon emissions result from materials, such as cement, steel and plastics, and from construction processes along building lifecycles (World Green Building Council, 2019). At the moment, more than 11% of global annual carbon emissions are generated by construction, renovation and demolition.

The importance of the sector is reiterated by the UN Sustainable Development Goals (SDGs) and the New Urban Agenda (NUA), where adequate housing is a key policy goal and commitment. This priority must be met in alignment of other SDGs, particularly SDG 11 on "Sustainable cities and communities", SDG 12 on "Responsible consumption and production", and the Paris Agreement to counter climate change.

Circularity and the building sector

In the past, the focus for transforming the building sector has been on energy efficiency and renewable energy supply. Equally important is building circularity, which prioritises minimization of materials use at all stages of building life cycle and on return of materials into the production and consumption cycles – actions that directly impact emissions over the long-term. Building and construction are responsible for estimated 50% of total use of raw materials (IEA 2019 Global Status Report for Buildings and Construction).

By extending the lifespan of buildings and eliminating waste by making their materials circular, energy and virgin material requirements as well as wastes and emissions are minimised. As a concept, the circular economy goes even further by considering health of humans and of natural systems as key concepts of "true" circularity. In this wider perspective, the building sector is judged from the perspective of its impact on ecosystem regeneration. This leads to a consideration of not only greenhouse gas emissions, but also material flows and resource efficiency (including water) across the lifecycle, minimization of harmful materials use, land use, and nature and ecosystem health. It also considers efficient utilisation of assets, and seeks to create efficiency and effectiveness in products and materials. As a key indicator, the full lifecycle costs per unit of output are calculated, including externalities.

The entire housing value chain can and must be revolutionised on this basis: to create a truly circular building sector, "closing loops" of resources is prioritised around its lifecycle, so that they are not lost or wasted. This new building future would allow for flexible use and modular design of buildings, optimised for durability and high utilisation – where building cores allow for change of use, for example, from residential to office or service space. Materials would be non-toxic, renewable and reusable, and building design would consider nature and ecosystems regeneration as well as health and human needs. As part of the built environment, the sector would support zero-waste, circular lifestyles, thereby regenerating and restoring natural capital and strengthening systemic resilience.

Prioritising the sector's circularity and increasing the durability and utilisation of building stock would also limit demand for increasingly scarce resources. This would result in better affordability and availability of resources, and minimise the need for high-emissions virgin mineral construction materials. Increased reliance on renewable materials such as sustainably-harvested bamboo and wood can also sequester carbon over time, contributing to emissions reduction strategies.

EU Priorities: Buildings and Housing

To be at the forefront of innovations and guide and incentivise private sector actors, the EU has put forward legislation including its Construction Products Regulation (CPR, starting in 2014); it also highlights the importance of building and construction for the green transition in its flagship Green Deal (2019). The EU further prioritises this sector in its new Circular Economy Action Plan as adopted in May 2020. As the building and housing stock in Europe is not expected to grow as dynamically as in Asia, one of the focus areas for the EU is the renovation of existing buildings for increased energy efficiency, through its "Renovation Wave" strategy (2020), which prioritises social housing. In addition, to recognise the comprehensiveness of the topic, more holistic approaches for a green transition of "the built environment" in its entirety, rather than focussing on buildings and construction, are being explored. In its "New European Bauhaus" initiative (2021), the EU connects the European Green Deal to living spaces by involving multiple stakeholders to envision a sustainable and inclusive future, going beyond buildings and towards societal transformation.

SWITCH-Asia activities

The EU in general and its SWITCH-Asia programme in particular have recognised the critical importance of this sector to further promote sustainability through SCP, making the construction, housing and buildings cluster a major pillar of their activities. This is done by technical assistance provided by the SCP Facility and the Regional Policy Advocacy Component at government-level, and through the Grants Programme in support of the regions' SCP-relevant entrepreneurs and SMEs. Since 2007, the SWITCH-Asia programme has implemented 15 grant projects contributing to Sustainable Housing in South Asia, Southeast Asia and East Asia. The programme is also providing technical assistance to Pakistan for developing a green building code and to Kyrgyzstan on promoting energy efficiency in the construction sector. It also supports the Government of Bangladesh to provide policy support for green buildings.

SWITCH-Asia seeks to contribute to connecting circularity and climate change mitigation, to define pathways for circular, low-carbon economies.

Important takeaways from SWITCH-Asia grants projects, assignments and stakeholder discussions

- For policymakers to set the frameworks for a circular, low-carbon building sector, it is important is to fully recognise the lifecycle of buildings, and to understand national, regional and local housing needs. It is important to consider local conditions and traditional solutions.
- Shaping these new frameworks can have many forms, for example as building codes, but also by incentive-setting as part of long-term climate strategies. Pricing in the cost of carbon emissions would change key variables for the sector.
- Metrics and accounting methodology to track building impacts, in particular with regard to GHG accounting and material use, are of high relevance. Methodologies need to be based on scientific insights.
- Scale-up of existing solutions is urgently needed while paying attention to the design and planning (buildings and cities), financing, and innovation. A system-approach at the level of policies and supply-chain must be employed to assure that scale up is happening swiftly and thoroughly.

> *"The building and construction sector is important for assuring sustainable development, as it is a key for addressing climate change, resource scarcity, and quality of life. Only by addressing them simultaneously, the needed sustainable and resilient development can be achieved. Smart, cross-sectoral, policy frameworks are urgently needed to provide opportunities for upscaling already existing practices at various stages of the sector's supply chains."*
>
> Zinaida Fadeeva, Team Leader, SWITCH-Asia SCP Facility

Literature: IEA 2019 Global Status Report for Buildings and Construction