

Spatial planning can hinder or enable just energy transitions: insights from urban China

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Chinese planning has stated that urbanisation should be more human-centred

China plays a significant role in the global climate regime as the largest carbon dioxide emitter, producing approximately a quarter of global emissions (UNEP, 2019). In the past four decades, China has urbanised rapidly with 60.6% population living in urban areas by 2019.¹ While this process has been associated with increasing manufacturing power and rapid economic growth, it has brought unprecedented urban expansion and infrastructure development, resulting in significant consumption of materials and natural resources as well as carbon emissions (Feng et al., 2014). The urbanisation pathway in China is characterised by ‘high input, high consumption, and high emissions’ (Qi et al., 2020: 24). In response to global environmental and urban agendas, the Chinese government has proposed various urban policies and initiatives, such as the eco-city, low carbon city, sponge city, and National New-type Urbanisation Plan (2014-2020). The 14th Five-Year Plan (2021-2025) has highlighted the promotion of human-centred new-type urbanisation. All these agendas signify the government’s stated determination to deliver and manage urbanisation and urban development in a more environmentally sustainable and human-centred manner.

Sustainable urbanisation has been hindered by institutional challenges in China, particularly at the local level.

Due to multiple and parallel programmes relating to low-carbon city initiatives, duplicated efforts have been made, which caused complexity and confusion (Khanna et al., 2014). In

¹ The figure is used in China’s 14th Five-Year Plan (2021-2025).

addition, the absence of explicit definitions and consistent guidelines for low carbon plans has given rise to challenges for implementation (Khanna et al., 2014). A set of institutional barriers have constrained the implementation of environmental policies in Chinese cities including the deficiency in the current environmental planning system, inadequate political and economic incentives to local implementers, insufficient public and private participation, as well as limited financial, technical, and political capacity of local implementation agencies (Kostka, 2014).

A Chinese human-centred approach to new-type urbanisation requires further elaboration
Just transitions are not only about the distribution of benefits and pressures for producers and users, but also about the process of policy formulation, decision-making, and governance. Furthermore, the interpretation must be rooted in various dimensions such as spatial equity and urban-rural equity. China's urbanisation rate is predicted to reach 80% by 2050 with Chinese cities expecting to attract additional 255 million residents (UN DESA, 2019). This creates opportunities for the country's transition to carbon neutrality if high-quality urbanisation is delivered. According to a recent report '*Seizing the Urban Opportunity*' by the Coalition for Urban Transitions,² low-carbon investments in Chinese cities could result in economic returns of \$7.7 trillion by 2050, 15.2 million new jobs by 2030, and a reduction of 90% GHG emission from Chinese cities by 2050. However, more efforts will be required to deliver the transformation, including reforms of land management, resident registration system, urban financing, urban planning and design, environmental management, and local governance (World Bank and Development Research Centre of the State Council, the People's Republic of China, 2014).

Spatial planning could reduce energy demand and address spatial and social inequalities
While technology innovation and renewable energy are important to address climate challenges, spatial planning can play a vital role in ensuring spatial equity and making just transitions happen. At the macro level, it is essential to promote integrated spatial planning and low-carbon development. Traditionally, China's planning system is characterised by fragmented and overlapped planning administration (Wang and Shen, 2017). In 2018, the Chinese government established its new Ministry of Natural Resources to integrate planning duties of different departments, which provides an opportunity to place policy intervention in a consistent and strategic manner. While the impact from this institutional change remains unclear, a consistent strategic plan associated with clearly defined scope and targets

² <https://urbantransitions.global/en/publication/seizing-the-urban-opportunity/seizing-chinas-urban-opportunity/>

could make a difference in bringing about policy transfer upon implementation at the lower levels, combined with implementation and evaluation frameworks.

Rapid urbanisation in China has created varied socio-spatial landscapes between different cities, which has created enormous challenges for just transitions. A city not only creates emissions within its territory, but also imposed emissions to other areas via interregional supply chains (Feng et al., 2014). Also, this process varies across different localities. For example, from the perspective of embodied energy, over 70% of CO₂ emissions for Beijing, Shanghai, and Tianjin were produced outside these cities, while approximately 48% of CO₂ emissions for Chongqing occurred outside the city (Feng et al., 2014). With differentiated embodied energy patterns, the transition strategies at the local level must be tailored to and embedded within local contexts such as local industrial structure, natural resources, socio-cultural characteristics, local governance, and capacity, as well as keeping in line with the strategic plan and guidelines at the macro level.

Spatial planning can shift individual behaviours and enable public participation

In the urban and transport scholarship, there has been good evidence showing the linkages between urban planning/design, how people live and travel, and carbon footprint (e.g., Hankey and Marshall, 2010; Lee and Lee, 2014; Li et al., 2018). In this context, a just transition is concerned with how planning exerts disproportionate impacts on different groups regarding accessibility to urban facilities, individual behaviours, and associated carbon emissions. For example, the findings from a recent ESRC-NSFC Newton Fund project '*Eco-urbanisation*'³ have confirmed different degrees of spatial mismatch between jobs and housing within the Beijing Metropolitan Region. Residential estates have expanded into the suburbs while ongoing industrial clustering in central urban districts and northern inner suburban districts has created socio-spatial varied commuting patterns, in which the highest socio-economic status (i.e., income, education, housing) have the longest commute and largest carbon footprint from transport (Zheng et al., 2019). To address carbon inequalities, spatial planning can shape the location of jobs and housing and promote quality neighbourhoods in response to residents' needs. From a top-down perspective, planning and policy making need to comprehensively evaluate short-term and long-term spatial impacts with particular attention to environmental and social justice. From a bottom-up perspective, spatial planning could act as a catalyst to promote community participation to shape sustainable individual behaviours and co-produce solutions.

³ <https://www.ppgis.manchester.ac.uk/eco-china/>

The current policy discourses in China with the 14th Five-Year Plan and an updated National Determined Contribution in the works have offered an opportunity for just transitions to low-carbon/carbon-neutral cities and urbanisation. Considering China's urbanisation characteristics, current institutional context, and potential challenges and opportunities, achieving just transitions in urban China in the context of the climate crisis calls for concerted efforts from multiple levels and different stakeholders, from macro policy design and regulations to locally adapted initiatives and individual behaviour change. To engage with various actors, especially the most vulnerable groups, the whole process requires an inclusive way to improve collaboration and co-production.