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The politics of rapid urban transformation

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This paper addresses the potential for urban change in relation to rapid transitions and the 1.5 °C target. Interventions to achieve rapid urban transformation are typically framed in technical and economic terms. This means that the social and political conditions for rapid urban transformations may be overlooked. We address this gap by highlighting recent insights from sociology, human geography and urban studies that consider how the transformative potential of technical interventions is conditioned by social and political dynamics. The paper highlights three dimensions of such dynamics — the politics of governance, infrastructure and everyday practice — and proposes six areas where the understanding of the politics of rapid urban transformation can be improved.

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Introduction: urban transformation and the 1.5 °C target

The Paris Agreement's aspirational goal to limit global warming to 1.5 °C will require rapid and deep reductions in greenhouse gas emissions [1]. Urban challenges must be considered in any such mitigation pathway [2], because of the relationship between urbanization, environmental degradation, land-use change and consumption [3], and the significant emission reduction potential in compact and well-planned urban development [4–7]. The political agency of urban governments — often based on experimental governance arrangements, cross-sectorial partnerships, and international networks — is now considered to play a decisive role in meeting global temperature targets [8•,9,10,11•,12••].

The empirical literature on rapid urban decarbonization is scarce, and it follows that modelling and integrated assessment have to date been the dominant approaches to gauge urban 1.5 °C pathways. These approaches assess mitigation options in urban infrastructure, transport, buildings, and waste, and typically frame barriers and opportunities for transition in technical and economic terms [1,2,13]. They often assume price mechanisms to be the key driver of change, and the most rapid pathway to transition is accordingly regarded to be economic investment in technologies and infrastructure [14]. However, it is also recognized that the results from these scenarios 'say little about political or social feasibility' of the mitigation options [15]. Even economically attractive mitigation strategies may therefore remain unexploited unless appropriate governance frameworks are in place [16•,17].

At the same time, a number of ongoing developments in the literature discuss the political and social conditions for urban transition and transformation. In contrast to scenarios framing change in technical and economic terms, these perspectives tend to describe urban change in terms similar to how Pelling *et al.* [18] describe *transformation*; a 'reorientation of development pathway towards social justice and sustainable development', which involves fundamental change at multiple levels, including institutions, behaviours, values, and technologies. Such transformations are inherently political, leading to unequal outcomes and struggles over different transformation pathways [19,20,21•,22].

In this article, we critically discuss what such perspectives on urban change tell us about the political conditions for rapid urban transformation. We review research from sociology, human geography, and urban studies that emphasizes how technical interventions are always conditioned by social and political dynamics. We label these contributions *relational* perspectives on urban transformation, as they consider the role of social, political and material relationships in shaping cities [23–27]. Three dimensions of these dynamics are discussed: governance, infrastructure, and everyday life.

The social and political dynamics of urban transformation

Relational perspectives on cities and urban governance see cities as created and changed through the various types of relationships that constitute them — socially, politically, and materially [24–27]. They underscore

aspects of urban development that the technocratic discourse often hides from view. In so doing, they highlight all those complexities and contingencies that determine how technical interventions or economic incentives actually work — and do *not* work — in the contexts in which they are implemented.

For example, relational perspectives emphasize the role of informality and unintended consequences of design [25], the contingency of how urban change unfolds [11•,28,29], and see urban development as unfolding in 'contradictory and uneven processes' [30]. Research in low-income settings further highlights the unevenness and informality of urban change. In those settings, large parts of the city may be out of the bounds of formal means of governance [31]. However, informal practices shape the development of high-income and low-income cities alike — albeit in different ways [25,32]. Formal arrangements and contracts often depend on informal networks to be effective, and both state and private actors may operate 'informally to bypass formal regulations' [32].

Relational perspectives also look at how urban development is structured by the political economy of urban development, such as financial interests, housing markets, intercity competition, and entrepreneurial forms of governance [21•,33,34]. Moreover, a preoccupation with questions of politics, power and 'dissensus' is common throughout this work, which mirrors a rising interest in the underpinnings of political power across social science more broadly [31,35,36].

Urban studies has also explored how material forces and non-human agency are conditioning urban life [10,25,29]. The flexible relationship between everyday practices and urban infrastructure results in unequal patterns of urban energy demand and well-being [37••]. For instance, highly uneven urban mobility — often structured along social, gendered and ethnic lines [38,39] — indicates that a given urban structure accommodates multiple patterns of everyday life and energy consumption. Furthermore, relational perspectives on urban change understand urban change as occurring *between* cities (as opposed to simply *in* them). They highlight the interactions between cities, how 'policies that work' are quickly mobilized from one place to another [40••,41], and the role of local work in translating policies that worked elsewhere [42•,43••].

In other words, this literature considers a wide range of contingent and contextual factors that, arguably, constitute the fundamental processes shaping urban development. Within this broad range of contributions, we take a focused look at how three key political dimensions of urban change — governance, infrastructure, and everyday life — may enable and constrain rapid transformation in line with the 1.5 °C target.

The politics of governance

The rise of city-scale actions as a key dimension of the global climate change agenda has led to an increasing interest in how urban governance arrangements may adequately facilitate urban climate transformations. Scholarship pertaining to urban climate governance highlights the operation of climate mitigation activities across multiple scales, institutions and places [8•,9,10]. Emphasizing the politics of governance highlights how innovations are emerging not just in the *content* of politics, but also in their *form*.

Cities are increasingly seen as laboratories to demonstrate and test new policies and technologies. 'Urban living labs' have become popular methods for operationalizing collaboration between various actors, such as municipal actors, businesses, civil society organizations, and academia [8•,44,45]. Urban climate change governance is therefore understood through the lens of experimentation — as driven by practical and tentative intervention in concrete urban contexts. This research often underscores the pluralist, incremental and dispersed nature of urban interventions [8•,12••,44]. This may undermine more transformative and systemic interventions that involve greater risk [12••]. An assessment of urban sustainability experiments in Asia emphasized that policy change was often a trigger for successful experiments, and that local governments were a key actor [17]. The example of Durban has highlighted the role of individual champions (e.g. mayors, politicians, civil servants, NGOs and business) in mobilizing these changes [12••,46].

Scholarship also examines the role of networked governance arrangements, including formal urban climate networks (e.g. ICLEI and C40) and informal circuits of knowledge [12••,40••,41,47,48]. These studies show that policies and technologies are not simply 'transferred' from one urban context to another; they are typically translated and altered [40••,41,47] and the institutionalization of policies depends on significant political efforts at the local level [42•,43••,49]. The ability of local interventions to travel across wider policy contexts and geographical settings is closely dependent on the underlying political and institutional context [40••,50], as well as vertical linkages to state and national levels of governance [17]. While urban research overwhelmingly has looked to the influence of policy models from the global North, there is an increased interest in South-South policy learning [51], as well as comparative gestures of research that break with established North-South divides altogether [52].

Experimental and networked urban climate governance may expedite local collaboration and enable rapid mobilization of policies, technologies, resources and experiences. However, their transformative potential in other places or scales may be limited by the fact that transition experiments are grounded in specific historical and