

Transformation as relational mobilisation: The networked geography of Addis Ababa's sustainable transport interventions

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sagepub.com/journals-permissionsDOI: [10.1177/0263775820963281](https://doi.org/10.1177/0263775820963281)journals.sagepub.com/home/epd**Jakob Grandin**  and **Håvard Haarstad**

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Abstract

Literatures on sustainability transition and transformation increasingly emphasise the role of spatiality and local agency. This paper argues that relational thinking has much more to offer this debate than presently acknowledged, particularly in revealing the geographical interconnections between dispersed nodes of action and innovation. We use relationality to show the interconnections at work in exchanging and negotiating sustainability interventions between cities and across scales. Using the mass transit planning process in Addis Ababa as a point of entry, we trace how the city's transformation is negotiated at the intersection of local agency, the Ethiopian national political setting and international networks. A host of actors from different scales come together as transformation is assembled by aligning extensive local experience with elements mobilised from elsewhere. This *relational mobilisation* perspective arguably infuses hope into the debate, because it opens new ways of identifying seemingly insignificant actions and actors elsewhere and recognising them as potential drivers of change.

Keywords

Networks, Addis Ababa, mobility, sustainability transformations, urban governance, climate change

Introduction

The need for rapid and deep societal transformation to respond to climate change has spurred a vibrant academic debate on conditions, contexts and pathways for

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transformation. In recent years, new actors have emerged as global climate governance has been rescaled and local-level actions have become more prominent (Bulkeley, 2016). Cities such as Oslo, Addis Ababa and New York are currently pursuing climate goals that are considerably more ambitious than those of their national governments or global commitments. Recent scholarship traces the emergence of new climate governance arrangements that build on voluntary climate action through loosely co-ordinated public, private and civic initiatives (Biermann et al., 2017; Castán Broto and Bulkeley, 2013; Marvin et al., 2018). These efforts have exposed a rich undergrowth of local agency that was previously concealed in national and multilateral accounts of climate governance.

However, this literature has less to say about the relational dynamics of how transformations are mobilised across space. The key questions are essentially spatial: Where does innovation take place? How is change mobilised to other places or scales, and by whom? How do particular interventions interact with local contexts, and how are they materialised through longer-term change?

In the literature, there tends to be a divide between gradual transitions driven by innovation (Geels, 2011; Köhler et al., 2019), and more pluralistic and unruly transformations (O'Brien, 2012; Olsson et al., 2014; Pelling et al., 2014; Scoones et al., 2015). These two perspectives have their own distinct conceptual histories and are only partly in conversation with each other. However, both perspectives have in common that they often build on what Scoones et al. (2020) refer to as 'systemic approaches' – typically multi-level transitions theory (MLP) and socio-ecological systems perspectives – that consider systems as relatively bounded, territorially stable and nested in a scalar hierarchy. Accordingly, the understanding of local transition and transformation initiatives is centred around a vocabulary emphasising local innovation and experimentation. However, when it comes to examining the actual *work* of transformation, systems approaches, by focusing on the system as a whole, 'have tended to diminish the role of individual agency, downplay the complexity of politics, power and asymmetries in human-environment dynamics' (Scoones et al., 2020: 67).

In this paper, we draw on the case of sustainable mobility in Addis Ababa to show how a closer engagement with relational thinking can help unpack the spatial dynamics of transformation. When actors in Addis Ababa engage with sustainable development, transformative interventions – here understood as directed actions to achieve urban change – rarely emerge from niches or within bounded systems. Instead, they are mobilised by innovations, technologies and interventions that are exchanged and translated *between* cities, facilitated by formal networks such as C40 Cities and the professional and personal networks of policy makers, planners, consultants and activists on a trans-urban scale. These urban transformation efforts are also shaped by different contexts on the ground, uneven power relations and the fact that some people and places are more connected than others (Bouzarovski and Haarstad, 2018; Grandin et al., 2018). Therefore, we need a theory of transformation that is more attuned to the relational, networked and scalar nature of contemporary processes of social change.

We aim to advance an understanding of transformation that reveals how transformations are mobilised as relational rather than as bounded endeavours. Our approach highlights the interconnections between geographically dispersed nodes of innovation and shows how local sustainability interventions are interconnected with 'multiple elsewhere' that shape and condition the opportunities for local change. This argument builds on the ongoing discussion on spatiality and geography in the sustainability transitions literature (Affolderbach and Schulz, 2016; Bridge et al., 2013; Sengers and Raven, 2015; Temenos et al., 2017). Indeed, Loorbach et al. (2020) argue that transformative innovations are locally rooted as well as globally connected. Explicating the nature of the relations and networks that

foster these global connections would however benefit from closer engagement with key ideas from human geography (see Binz et al., 2020).

Therefore, rather than spatialising systemic approaches to transition and transformation, we argue that we should *start* from the idea of relational spatiality (Massey, 2005) to foster a distinctly geographical approach. In discussing transformation as relational mobilisation, this paper draws on work that conceptualises the flow of ideas, people and matter across space and how those flows interact with local contexts – particularly the policy mobilities literature (e.g. McCann and Ward, 2011; Peck and Theodore, 2015; Robinson, 2013; Wood, 2014). But it also builds on work on mobility (Cresswell, 2010) and assemblage (Anderson et al., 2012). We advance that literature by mobilising its insights to help explain relational sustainability transformation. This means that we are less interested in how policy mobilities serve as conduits of neoliberalisation and depoliticisation (e.g. McCann, 2017; Peck and Theodore, 2015), and instead highlight the constructive, strategic and contextual agency involved in mobilising, translating and negotiating ideas and resources from elsewhere.

We conceptualise transformation as a process whereby local innovation and intervention is interconnected with multiple places and scales. Understanding transformation as relational mobilisation means bringing insights from relational thinking into discussions on transitions and transformation to a much greater degree than is currently done. ‘Relational mobilisation’ hence emphasises both the relational and mobile constitution of social phenomena (Massey, 2007; Söderström et al., 2013) and the local work involved in mobilising and aligning local and non-local resources and actors (cf. Cox, 1998). Our approach thus contributes to the thinking on how transformations are negotiated in local contexts that are interconnected with multiple geographically dispersed nodes of innovation through mobile practices.

The paper proceeds as follows. We start by assessing how spatiality and agency are understood in common approaches to transition and transformation. This is followed by a discussion of relational and mobile conceptualisations of change. After outlining our methodological approach, we apply these insights to examine the development of mass transit and climate planning in Addis Ababa. We interpret this work as a *relational mobilisation* which involves municipal agencies as well as international networks such as C40 Cities. We highlight how the three dimensions of transformation as relational mobilisation—namely interconnected settings, mobile relations and contextualised agency—come into play as urban transformation pathways are negotiated. Discussion and conclusions follow.

Spatialising transformation

It is widely recognised that the climate challenge requires drastic action (IPCC, 2018; McKinsey and C40 Cities, 2017; United Nations, 2015). Social science responses to this challenge have been predominantly framed within the sustainability *transitions* tradition and various approaches to sustainability *transformations*. Transitions research has often examined technical transitions in electricity, transport and urban sectors, and the literature highlights interactions between niche innovations and larger (often national) institutional structures that are slower to change (Geels, 2011; Grandin and Sareen, 2020; Köhler et al., 2019). In contrast, transformations are understood as a ‘fundamental change to the functioning of systems’ that may open ‘new areas of policy response’ (Pelling et al., 2014) and the transformations literature emphasises both the role of local agency and the unruly and political character of sustainability transformations from a range of theoretical points of departure (O’Brien, 2012; Scoones et al., 2015; Westley et al., 2011).

While grounded in distinct traditions, the transitions and transformation debates have in common that their analysis is often framed from within a systems approach that draws on systems thinking to identify interconnections between social, economic and technical systems (Scoones et al., 2020); this approach underscores that it is the systems and not the individuals that are unsustainable (Shove et al., 2015; Urry, 2004a). For instance, in the transitions literature, the ‘unit of analysis is [...] primarily situated at the ‘meso’-level of socio-technical systems’ (Köhler et al., 2019: 2). This approach highlights how societies and technological systems co-evolve, and how technological and institutional path dependencies lead to inertia that makes change difficult (Geels, 2004). From a sustainability transformations perspective, the socio-ecological systems approach draws on resilience theory to emphasise how social systems are interconnected with the ecological and planetary systems on which they are dependent. Scholarship in this tradition aims to assess the integrated effects of different policies and transformations and ‘is crucial to prevent undesirable and unintended outcomes of initiatives to move toward sustainability’ (Olsson et al., 2014: 5).

Systems approaches to sustainability can, as Olsson et al. (2014) cogently argue, give important guidance when policies are designed and their effects are assessed. However, when it comes to examining the actual *work* of transformation, the systems approaches prevalent in both the sustainability transitions and the transformations literature would benefit from further engagement with the spatial dynamics of social change. There are several areas where spatial and relational perspectives are starting to nuance and advance this theoretical landscape. We will highlight here three such areas.

First, systems approaches have tended to consider systems in transformation as *geographically bounded*, demarcated by political boundaries or the properties inherent in the system itself. The multi-level perspective has traditionally examined transitions that are nationally bounded, but with an empirical focus on the local level of protected niches where the innovation that instigates larger transition is understood to take place (Geels, 2011). As an indication of this, this literature accordingly has a profusion of concepts around local innovation, experimentation, urban living labs and incubators – protected spaces for innovation (Marvin et al., 2018).

However, this bounded spatiality has been challenged by a growing geographical literature on sustainability transitions, which emphasises spatial diversity, geographical unevenness as well as the translocal nature of transitions (e.g. Coenen et al., 2012). This is mirrored in the urban governance literature, which understands cities to be produced by the circulation of policy ideas, finance and people and emphasises relations and mobility (Castán Broto, 2017; Massey, 2007; McCann and Ward, 2011; Söderström et al., 2013). Here, the role of collaboration, learning and exchange *between* cities – hence the importance of connections between *different* systems – is underscored. To a degree, these perspectives are brought into the transitions literature. For instance, Sengers and Raven (2015) conceptualise a ‘spatialised’ niche model which highlights the role of translocal connections between multiple co-existing niches (see also Affolderbach and Schulz, 2016). This mirrors similar endeavours by Loorbach et al. (2020) to explicate the translocal character of transformative innovation. These efforts contribute to a more porous and spatially nuanced understanding of how transitions and transformations unfold.

A second area where spatial thinking has advanced transformations work is in understandings of systems. Often systems studied are understood to be relatively *coherent*,

complete and territorially stable entities. Both the MLP and socio-ecological systems approaches allow for the evolution, disintegration and reintegration of systems over time. However, this is understood to take place predominantly *within* the system; in other words, it occurs in the ways in which national institutional structures evolve (see Grandin and Sareen, 2020), or how relations between different components in a socio-ecological system are continuously made and remade as the system reorganises itself and occasionally shifts to a new regime (Holling, 2001; Olsson et al., 2014). The analytical emphasis is placed on *systemic* capacities in order to uncover both systemic barriers to change – for instance ‘traps’, or feedback loops that maintain undesirable trajectories – and tipping points that may unlock rapid transformation (e.g. Westley et al., 2011).

In contrast, geographers have pointed out that this interest in aggregate and systemic outcomes creates blindspots (Cote and Nightingale, 2012). The climate governance literature, drawing significantly on spatial thinking, paints a landscape that is fragmented, inherently contradictory and only loosely co-ordinated (Biermann et al., 2017; Castán Broto and Bulkeley, 2013; Marvin et al., 2018). For instance, conceptualising cities as ‘systems’ may obscure the fact that neither urban governance arrangements nor infrastructure have ever been complete or coherent (Simone and Pieterse, 2017). This unevenness, as political ecologists are quick to point out, means that transitions and transformations will always be political (Meadowcroft, 2011), contested (Castán Broto, 2015) and driven by trade-offs and compromise (Fenton, 2016).

The third area where spatial thinking has advanced transformations work is in highlighting *scale* and *scaling*. In systems approaches, scale is generally understood in terms of a nested hierarchy (Gibson et al., 2000), where ‘lower’ scales of smaller geographical reach are contained within ‘higher’ scales of larger spatial extent; transformations are regarded as dependent on interaction between these scales. For instance, resilience thinking assumes that systems operate in a ‘panarchy’, where smaller and faster systems are contained within larger and slower systems (Holling, 2001). Similarly, in MLP, scales are largely metaphorical and geographically non-specific, but nevertheless conceptualised as levels of phenomena that are relatively hierarchical. As in resilience approaches, change in ‘higher scales’ – regimes and landscapes – is assumed to be more structurally constrained than in the smaller niches (Affolderbach and Schulz, 2016).

In contrast, geography’s relational approaches to scale posit that scales are socially produced and mutually constituted – the ‘local’ and the ‘global’ are not distinct levels but ‘deeply interconnected as part of a continuum of social existence and praxis’ (Herod, 2011: xv). This perspective unveils how global systemic effects are actively produced by local-level practices and decisions, and emphasises local agency and responsibility with regard to problems on other scales (Massey, 2007). Similarly, work on social movements has underlined how even place-based movements are dependent on cross-scalar relationships for various types of resources, inspiration and support (Haarstad and Fløysand, 2007) – what Cox (1998) termed ‘spaces of engagement’. We argue that this relational perspective on scale allows a better understanding of how localised transformation processes are interconnected with larger processes, governance structures and networks (Bouzarovski and Haarstad, 2018).

In short, spatial thinking has both challenged and advanced mainstream work on transitions and transformation in several ways. We build on this work, but at the same time, our approach is different. Rather than spatialising MLP or resilience approaches, we take relational spatiality as the point of departure in order to foster a distinctly spatial approach to transformation. In the following section, we outline the key conceptual underpinnings of what we term *relational mobilisation*.

The relationality of urban transformation

Relational thinking helps conceptualise the interconnected geographies through which transformation – quite literally – *takes place*. The ‘relational turn’ in human geography understands places to be constituted by more or less distended social, political and material relationships, as opposed to characterising them according to some ‘essential’ properties (Anderson et al., 2012; Haarstad and Wanvik, 2017). Massey (2005, 2007), one of the main advocates of relational thinking in geography, thought of space as continuously produced through relations and highlighted difference, multiplicity and agency. Massey’s contributions have had a major impact on geographical theory, but relatively less impact on debates on work in sustainability transitions and transformations where geographers have often relied on frameworks imported from adjacent fields (Bridge et al., 2013; Hansen and Coenen, 2015).

The relational turn bears a family resemblance to wider trends in social theory. First, it shares clear affinities with assemblage thinking, which understand phenomena to be loosely connected and temporary gatherings of human and non-human component parts, brought together across different places and scales of governance (Anderson et al., 2012; Haarstad and Wanvik, 2017; McFarlane, 2011). Second, relationality is a key component in thinking around decentring and decolonialising common Eurocentric interpretations of the geographies of transition and transformation (Bridge, 2018; Nagendra et al., 2018; Simone and Pieterse, 2017), emphasising spatial interdependence and multiple nodes of innovation. Third, relational thinking also underpins the ‘mobilities turn’, highlighting how society is constituted by different forms of (inherently uneven) mobility of people, ideas, practices and technologies (Cresswell, 2010; Sheller and Urry, 2006; Söderström et al., 2013).

The policy mobilities literature has brought these insights into the discussion of policy making and implementation, emphasising the actors, artefacts and pathways involved in the mobilisation and translation of particular policies from one setting to another (McCann and Ward, 2011; Peck and Theodore, 2015). It has also stressed the local agency involved, as local administrations assemble policies from local parts as well as inspiration and resources from other places (Bulkeley, 2016; Robinson, 2011). Common to these currents of scholarship is the insight that places, people and institutions are intricately shaped and constituted by relationships with ‘multiple elsewhere’.

One such mobile policy, increasingly scrutinised by policy mobilities scholars, is bus rapid transit (BRT), a bus-based mass transit system with dedicated bus lanes, pre-boarding fare collection and advanced fleet management. Initiated in Curitiba, Brazil in the 1970s, BRT has been celebrated as a policy innovation from the Global South that has received international acclaim (Wood, 2015a). It has its own standards and manuals (ITDP, 2017) and is promoted internationally as a potent climate solution (McKinsey and C40 Cities, 2017). The critical research literature has unpacked how the ‘process of exchange between cities is asymmetrical, uneven and incredibly partisan’ and shaped by local political priorities (Wood, 2015a: 1071). For instance, study tours are both an opportunity for ‘experiential learning’ and a way to develop local political coalitions (Montero, 2016). The implementation of a BRT system involves the bundling of a number of different sometimes conflicting policies into a ‘policy package’ (Filipe and Macário, 2013). Wood (2015b) has shown that BRT adoption is highly dependent on local context and has in many places been subject to slow political deliberation rather than ‘fast policy’ transfer. Policy learning has furthermore concentrated on a small subset of hallmark cities with large-scale systems, while learning opportunities from other places are deliberately disregarded (Wood, 2015a; see also Schwanen, 2018); this selective learning has been reinforced by international networks

(Wood, 2015a). However, while BRT systems are generally pursued as large-scale projects that benefit large private companies at the expense of informal actors, they may also challenge neoliberalisation by placing mobility in the public sphere and increasing opportunities for collective action (Paget-Seekins, 2015).

Transformation as relational mobilisation

We draw on the three currents of scholarship discussed above – namely assemblage thinking, decentring social theory and the ‘mobilities turn’ – to conceptualise the interconnected geographies through which transformation is mobilised: what we refer to here as transformation as *relational mobilisation*. In other words, we are bringing insights from the relationality and mobility debates to bear on the transitions and transformations debates. This way we can account for both the way in which resources, policies and technologies are assembled *between* cities and the contextual processes of local negotiation and material change. In doing so, we are further conceptualising the role of strategic local agency in mobilising ideas from elsewhere. We will highlight three dimensions of transformation as relational mobilisation, namely (a) interconnected settings, (b) mobile relations and (c) contextualised agency.

Interconnected settings: Learning and exchange does not happen in a sequential chain of innovation and implementation from one city to another, but in multiple interconnected nodes of concomitant innovation. The interconnections between cities create spheres of innovation that are implicated in both trans-local and local (urban) spaces at the same time. New connections between places are generated through exercises like benchmarking and the identification and the promotion of best practices (Larner and Le Heron, 2002), thereby producing ‘global spaces of emulation and competition’ (McCann, 2008: 6). A bicycle planner in London and a bicycle planner in Malmö are engaged in the same interconnected sphere through networks, discourses and mobile policies concerned with project generation, funding opportunities and best practices on bicycle planning. Housing planners in the same cities may be equally well connected, but through very different networks and discourses. Consequently, when urban plans are developed, policy ideas circulate leading to ‘remarkably similar analyses, conclusions, and policy ambitions’ across cities (Robinson, 2011:15). This creates a complex spatial constitution where urban transformation is partially connected to many different (and potentially competing) trans-urban networks at the same time (cf. Massey, 2005). Hence, the continuous engagement with kindred initiatives elsewhere is an integral part of the local work of transformation. In turn, we need to examine the complex interconnected settings through which urban transformations are mobilised.

Mobile relations: Connections between transformation initiatives in different settings are created and maintained by different forms of mobility and travel. This creates what Urry (2004b: 28) describes as an “‘imagined presence’ through travelling objects, moving people, and moving images that carry connections across, and into, multiple other social spaces”. These mobilities, argues McCann (2008: 6), ‘facilitate the production of a particular form of relational knowledge in and through which policy actors understand themselves and their cities’ policies to be tied up in wider circuits of knowledge’. A planner from Stockholm may meet a city official from Portland face-to-face in a study trip, and they may subsequently share ideas in webinars or chat groups. Such connections are often facilitated by intermediaries—international city networks, consultants, donors, and public sector institutions such as the European Union—that are often involved in several similar initiatives at once and maintain connections between different nodes of innovation. As policy mobility

research has made clear, such agency is not neutral (Bulkeley, 2006). By framing best practices, transfer agents themselves shape the policies and technologies that are mobilised (McCann, 2008; Peck and Theodore, 2015; Prince, 2016).

A critical insight here is that the process or act of becoming mobile is political. Mobilities are grounded in particular material contexts, full of friction and inherently uneven: some people and things are highly mobile while others stay inert (Cresswell, 2010; Nikolaeva et al., 2019). Both physical and virtual mobility is differently constrained by borders, immigration regulations, the price of airplane tickets and access material infrastructure such as a reliable internet connection. This affects the type of ideas (and whose interpretation of them) that are able to travel to different settings to take part in urban transformation initiatives. Viewing relations through the lens of mobility, then, underscores the variegated meanings and practices involved in the uneven social production of relational space (Cresswell, 2010; Robinson, 2011). In turn, we need to assess how cross-spatial relationality and mobility are created, structured and distributed.

Contextualised agency: While relational and mobile, urban transformations are also stubbornly local affairs. They depend on local agency, political deliberation and negotiating particular material configurations (Peck and Theodore, 2015). Local actors may draw on resources and ideas from elsewhere (cf. Cox, 1998) in their work of ‘assembling’ transformations (Bulkeley, 2016). However, the local contexts are not simply surfaces on which mobile policy processes play out – they should also be recognised as arenas for proactive and strategic agency. Mobile ideas interplay with deeper institutional and personal policy histories (Borén and Young, 2012). Actors at the local level are often active in pulling these ideas together, combining them and reconfiguring them in creative and strategic ways (Haarstad and Wathne, 2019; Robinson, 2013; Wood, 2014) and may draw on experiences from other cities as argumentative resources to support particular policy pathways (Kennedy, 2016). At the same time, implementing these ideas in the built urban environment is not without dissonance – the local material context and political resistance may create considerable barriers to the enactment of particular sustainability policies (Castán Broto, 2015). In turn, we need to investigate how local contexts reconfigure urban transformation pathways.

In our framework, these three dimensions of transformation – interconnected settings, mobile relations and contextualised agency – constitute relational mobilisation. After a brief outline of our methodological approach, we will use the lens of relational mobilisation to discuss the ongoing efforts in Addis Ababa to develop sustainable transport and create a strategic climate action plan (CAP).

Methodology: Tracing the genesis of Addis Ababa’s transformation

The empirical basis for this paper is fieldwork conducted under the auspices of a larger research project that examines the role of collaboration between cities in climate and energy transformation. Our methodological approach seeks to examine transformations through the ‘circulations and connections which shape cities’ and ‘engage with urban outcomes through tracing their genesis by means of specific connections, influences, actions, compositions, alliances [and] experiences’ (Robinson, 2016: 15). This is similar to Peck and Theodore’s (2012: 24) notion of a ‘distended case study’, although we empirically centre our investigation in one particular city – Addis Ababa.

The case study draws on in-depth interviews, analysis of policy documents and ethnographic work at multiple locations. A total of 29 semi-structured interviews were conducted in person or through Skype with practitioners involved in mobility and climate policies in

Addis Ababa. Within Addis Ababa, this included officials at different municipal authorities as well as representatives from funding agencies, NGOs and consultancies. Among these, the C40 Climate Leadership Group was identified as particularly relevant due to their close engagement with both climate and transport projects in Addis Ababa. Interviews with representatives from the C40 Cities network headquarters were therefore conducted to learn about how the network sees its role in supporting collaboration between cities. Informants were identified through strategic sampling, which was later expanded through snowball sampling. The interviews covered themes such as the development and implementation of climate and mobility policies, how these policies interplay with the local institutional and material context, and the role of collaboration with other cities and organisations. Interviews were supplemented with participation at seminars, conferences and webinars related to urban transportation and climate policies. Finally, prolonged engagement with the material systems on the ground in Addis Ababa provided a nuanced understanding of the material, social, political and cultural contexts of transformation. Interview transcripts and field notes were analysed thematically, identifying themes concerning policy development, the role of international and local collaboration, and the role of the local context.

The networked geography of Addis Ababa's transformation

Addis Ababa, the capital of Ethiopia and the seat of the African Union, is undergoing rapid change brought about by population growth, new housing projects and urban renewal programmes (Angelil and Hebel, 2016). The population, estimated at 3.6 million in 2013, is expected to double to 9.8 million in 2037 (World Bank and GFDRR, 2015). To meet the changing transportation demand, Addis Ababa pursues a transit-oriented development strategy and a number of high-profile public transport initiatives (AACPPO, 2017). These projects combine social, environment and climate goals linked to the development of a CAP.

These initiatives have distinctly local dynamics: they are shaped by particular regulatory structures and material conditions specific to Addis Ababa. Their primary aim is not to replace cars (private ownership of cars is still low) but to ensure efficient connectivity in the city, reduce commuting times and accommodate rising transport demand (AACPPO, 2016). However, wider relationships are also in play. As for many cities (see Nikolaeva et al., 2019), different forms of scarcity underpin Addis Ababa's mobility strategies, including that of mobility services, road space, emissions space and hard currency. A keystone project is the development of a BRT system, an initiative that has brought together a number of local, national and international actors over the years.

Addis Ababa's urban initiatives are also shaped by national priorities and are embedded in the international agendas related to sustainable development, resilience and climate change, supported by active participation in the climate-oriented C40 Cities network as well as the resilience-focused 100 Resilient Cities network. Both networks have advisers in Addis Ababa who consult on different parts of the planning process. Through such networks, study tours and policy advice from friendship cities, experiences from elsewhere are continuously channelled into the projects. At the same time, the projects draw on the municipality's historical expertise in constructing and operating bus-based public transport.

Hence, Addis Ababa's sustainable mobility interventions bring together actors at multiple locations and scales. The BRT project is placed under the Addis Ababa Road and Transport Bureau, and involves the Transport Authority (which manages public transport), the City Roads Authority (which constructs and maintains roads), the Transport Management Authority (which allocates road space), the municipal express bus operator Sheger (which will eventually operate the BRT system) as well as the Addis Ababa City Planning Project

Office.¹ The work is led by a BRT project management unit placed at the Transport Programs Management Office (TPMO, see below), which also coordinates with consultants and funders. International organisations such as World Resources Institute (WRI) and Institute for Transport Development Policy (ITDP), Lyon Town Planning Agency (LTPA) and the C40 Cities network have provided direct input to various stages of the project. The project moreover depends on funding from the French development agency AFD.

Examining Addis Ababa's ongoing processes of change through the lens of relational mobilisation thus involves empirically accounting for both local dynamics and the way in which change is mobilised in networks. In the following sections, we will discuss Addis Ababa's urban transformation in light of the relational, networked and scalar nature of contemporary processes of social change.

Interconnected settings

We do not know exactly when the idea of constructing a BRT system in Addis Ababa first arose, but its origins date at least from the early 2000s. City officials may have brought the idea with them from one of their study tours, or it may have travelled with one of the parachuted experts and consultants who visit the city from time to time. As one official noted, 'there are a lot of experts coming and going as advisers to the city, so maybe... they brought the idea of BRT' (July 2018, personal communication). Creating high-capacity mass transit corridors along an east–west axis was in any case one of the priorities in the implementation of Addis Ababa's revised 2002–2010 master plan (Egis Rail and LTPA, 2010).

From the outset, the project has been built on international exchange. The first BRT feasibility study was conducted in 2010 by consultants from the French LTPA, Addis Ababa officials and the engineering firm Egis Rail (Egis Rail and LTPA, 2010). They identified and prioritised seven BRT corridors in the city. This was the culmination of a longer partnership in urban development between Lyon and Addis Ababa who became friendship cities in 1999. This was followed by intensive exchange, supported by the French development agency AFD, with a particular focus on the development of high-capacity bus corridors. The metropolitan area of Lyon, home to 1.7 million inhabitants, had involved the LTPA since 2005 to assess the potential of a transport-oriented urban development strategy channelling on urban growth to public transport hubs (Berger, 2010). In 2008, Addis Ababa city officials visited Lyon to discuss the implementation of mass transit projects, focusing on BRT and light rail (Egis Rail and LTPA, 2010).

Addis Ababa proceeded to organise and secure funding for the project, which brought new non-local actors onboard. The BRT project was placed at the TPMO, a special office formed to initiate, support and co-ordinate transport-related projects across authorities in Addis Ababa. They continued to work on the 'B2' corridor, a 16-km stretch connecting Wingate in the north to the new housing areas in the South. In subsequent years, a number of designs and revisions for this BRT corridor were commissioned. In 2015, AFD committed to an 85 million Euro soft loan to fund the project, which in turn led to further revisions. The new funders both called for revisions in the BRT corridor design and funded the engagement of external experts to review the technical designs provided by French consultancy firm Safege SAS and Ethiopian consultants Hammada Engineering (Endeshaw, 2016). When engaging in the project, AFD sees itself not only as a funder, but also as a mediator that can draw on experiences from similar projects in other cities:

We have similar experiences around the world. The fact that we have this transport team... based in Paris AFD headquarters—that's a very good asset for us. Because it is really

easy to compare, to discuss with colleagues, in order to advise the client. (AFD official, December 2018, personal communication)

International exchange was also facilitated by participation in international networks. By 2013, Addis Ababa's mass transit agenda had become increasingly connected to the international climate agenda. With enthusiastic support from then-Mayor (and former Minister of Transport) Deriba Kuma, Addis Ababa was among the first African cities to join the C40 network. Central to C40's official narrative is the role of continuous exchange and mutual learning between cities in the pursuit of 'large-scale, replicable projects' to curb climate emissions (Chikoko, 2013). This may enable a more rapid transformation; for instance, several cities committing to the same goals may create market signals that can accelerate innovation and support later transformation efforts (C40 officials, June 2018, personal communication). C40's Deputy Executive Director Kevin Austin highlighted that this may also decrease risk, reduce costs and spur action:

And also, it can help reduce the transaction cost. It is very, very costly to be the first but if you've got support and help or you've got groups of people working together you can sort of all be the first, or be the second. And it allows action to happen more quickly because you've got more resources, more thought, and you've also de-risked it. (Kevin Austin, May 2018, seminar at European Commission)

Through the C40 network, Addis Ababa officials connected with climate initiatives in other cities around the world. They were particularly involved in activities relating to solid waste management and transport (Ramboll, 2016), and Addis Ababa hosted a workshop for C40's transport-oriented development network in 2015. At the same time, Addis Ababa's sustainable urban development efforts gained increasing international recognition. Addis Ababa was shortlisted for the 2016 Guangzhou International Award for Urban Innovation for work on sustainable transport and won the C40 Award of the same year for its newly opened light-rail transit system.

Consequently, the design of the BRT corridor could draw on experiences from other cities. As part of the C40 Award, Addis Ababa received a resident C40 adviser who worked alongside municipal authorities on the BRT project for two years. The resident adviser supported stakeholder engagement workshops, assisted in modelling the climate change mitigation potential of BRT corridors and contributed to a branding and communications strategy. C40, together with WRI, also supported a study tour to India, where city officials visited BRT systems in four Indian cities. The importance of learning from other cities' experiences with different aspects of the BRT system – from corridor design to integrated fare and ticketing systems – is emphasised by city officials as they could 'take ideas from working systems and [try] to incorporate them in our design' (Addis Ababa officials, December 2018 and September 2019, personal communication). An official involved in Addis Ababa's BRT project also reflected on the value of learning both from failures and success stories through study trips:

[We] have seen failed BRTs and successful ones. So, you also understand the reason why it failed. We don't want to make the same mistakes... Because basically some of the issues that are not addressed there [in Dar es Salaam] are costing them. So now we are trying to address it here from the beginning, before we start the operation. (July 2018, personal communication)

In later years, international collaboration in Addis Ababa has also focused on climate planning at a strategic level. Since 2018, a new C40 adviser has been stationed at the

Addis Ababa Environment Protection Authority to facilitate the development of a strategic CAP. The CAP follows a standardised framework established by C40 Cities (2018) and is aligned with similar processes in other African cities. The C40 adviser is frequently in contact with his counterparts in other African cities, and knowledge and experience from different cities is shared at workshops and through digital tools (August 2018, personal communication).

Addis Ababa's urban transformation is hence implicated in a broader geography of urban change through participation in networks, friendship city agreements and exchanges facilitated by funding agencies. Addis Ababa authorities emphasise the importance of this continuous learning and exchange across cities, what we referred to as *interconnected settings*, for achieving local goals. At the same time, this gives external actors the power to influence projects in significant ways. We now proceed to examine how the relations between these different settings are produced and maintained.

Mobile relations

Urban planning in Addis Ababa has built on international collaboration for a long time, and these relations are maintained by people that travel, communicate and exchange experiences. The importance of bringing people together to build personal relationships is emphasised repeatedly in the official C40 narrative. C40 Deputy Executive Director Kevin Austin noted that when city officials meet and create friendships to the extent that they 'send birthday cards', they are more likely to help each other:

And the critical thing here is trusting relationships, that the little groups that we have of maybe 20 or 30 cities, they get to know each other. They go on workshops once a year where they meet in person....[They get] to know people to the extent that when they get back home they send birthday cards... And as they become friends, they are much more willing to help, because they really want their friend to deliver what is needed for their city. (Kevin Austin, May 2018, seminar at European Commission)

Creating spaces where trusting relationships can be formed is regarded as essential for enabling mutual learning. A C40 official described the workshops in the C40 network as 'closed door safe places' where city representatives can step back, reflect and share not only success stories but also difficulties and failures. In these settings, trust is regarded as important for sharing proposals that are not ready to be shared in public (C40 network manager, June 2018, personal communication).

The importance of meeting face-to-face for collaboration and exchange is recognised by Addis Ababa officials. An assessment of C40's impact in Addis Ababa by the consultancy firm Ramboll (2016: 9) concluded that 'workshops clearly offer the most useful interaction method, permitting participants to understand and discuss solutions and foster good quality knowledge sharing', noting that this type of face-to-face interaction is more difficult to achieve in other forms of (virtual) communication. As an official involved in Addis Ababa's BRT project observed, travelling to visit particular cities in person to experience transformation initiatives on the ground can be significant in mobilising political support for an initiative:

It doesn't simply come, you know, the support. Because they believe in it, they believe in the system. They have seen some systems working in other countries, and [were impressed by] how they did it. (Addis Ababa official, August 2018, personal communication)

However, maintaining relations between physical meetings remains an issue. A C40 official noted that '[t]he workshops are a great place to take a step back. But it is easy to get lost when you get back to your day-to-day job' (June 2018, personal communication; paraphrased from detailed notes). Similarly, the Ramboll (2016: 11) assessment noted that 'while C40 provided useful learning experiences, the capacity to implement the solutions in Addis and the necessary knowledge was sometimes lacking'. The C40 network uses webinars and one-to-one calls between cities to maintain relations (C40 official, June 2018, personal communication). While these encounters do not have the quality of face-to-face meetings, they can still be significant. For instance, after a group of C40 advisers met at an intensive training event, they maintained contact through virtual means. According to the Addis Ababa adviser:

Now we can talk personally. We use Viber and WhatsApp and interact through those apps. Whenever I have questions, I can send for someone to brief me on those issues. It is a good opportunity to get knowledge from different cities. It helps me to think in a bigger way and makes my job here easier. (August 2018, personal communication; paraphrased from detailed interview notes)

However, the ability to connect with other places is affected by material conditions on the ground. For Addis Ababa officials, participation in webinars was often constrained by poor internet connection speeds, time differences or workload. They therefore often found themselves reading summaries of discussions rather than directly participating in webinars; the C40 city adviser became an important node through whom information and experience was relayed. An official working on public transport in Addis Ababa noted that:

[The C40 adviser] pointed me to some webinars that I'm participating in. I don't participate directly due to connection issues and the time difference—if it is scheduled according to Latin American time it is not possible to participate from here. But I get the summaries of the discussions. (August 2018, personal communication; paraphrased from detailed interview notes)

Consequently, in important ways, the geography of Addis Ababa's transformation is produced by mobility. Officials may travel abroad to forge trusting relationships, or quickly exchange information in webinars or chat groups. The quality of these relationships is influenced by the different forms of mobility involved in sustaining them. We have referred to these as *mobile relations*. However, these relations are also grounded in particular local material settings that shape people's access to mobility, producing spatial unevenness. Next, we investigate how actors navigate these local contexts when mobilising transformative policies.

Contextualised agency

While officials in the Addis Ababa transport administration mobilise insights from other cities, they also build on local experience. The BRT project depends on funding and expertise from elsewhere, and officials involved in the project also report lack of previous experience in building BRT systems as one of their main challenges (December 2018 and September 2019, personal communication). At the same time, they highlight that bus-based public transit is not at all new to Addis Ababa; in fact, the municipality has operated the Anbessa public buses since 1945. In 2015, a new municipal company, Sheger city buses, was founded to provide an express bus service and to eventually operate the BRT.

An official involved in the project notes that the ability to build on local experience was an important factor in the decision to go for a BRT system:

BRT is basically bus-based operation, which resembles the operation of LRT [light rail transit]... We are quite familiar with bus-based transportation. That gives us an advantage in terms of operation and maintenance. We have more than 70 years of experience, even as an... operator. So that contributed a lot to going for BRT instead of other modes. (August 2018, personal communication)

The actual implementation of a BRT in Addis Ababa is consequently a stubbornly contextual affair. Officials observe that Addis Ababa's history of spontaneous (and not planned) growth has led to a poor and often narrow road network which is easily congested (Traffic Management Agency, September 2019, personal communication). The design and construction of a BRT lane hence inevitably runs into right of way issues, and certain road segments will need to be widened which leads to resettlement issues, delays and resistance. As one official noted: 'In Cairo for instance, they have a lot of road space..., in our case it is a challenge just to find road space' (Transport Bureau, September 2019, personal communication, paraphrased from detailed notes). As the BRT system moves towards operation, officials also anticipate that poor availability of hard currency may lead to delays in procuring spare parts and high down time of the rolling stock (Sheger buses, September 2019, personal communication).

The local institutional and organisational context is also emphasised. An official at the French development agency AFD noted that while the management of BRTs is similar across cities, the actual implementation of the project is a unique process (December 2018, personal communication). The project management unit at the TPMO coordinates with consultants, funding agencies and a range of municipal authorities involved in disparate parts of the project. Experts from different parts of the municipality also provide regular feedback on the BRT designs provided by consultants. Here, international best practice manuals are deployed to make the B2 BRT 'corridor a clear example for other corridors to come' by 'incorporat[ing] contemporary thinking in terms of complete street design [and] designing streets that are safe for pedestrians' (Addis Ababa official, December 2018, personal communication).

Experience from elsewhere is again mobilised: this time through support from ITDP, the international NGO specialised in BRT systems that has consulted with numerous cities in Africa. Its input was regarded as of 'really great help in providing these high-level concepts' to the project team (Addis Ababa official, December 2018, personal communication). At the same time, however, institutional fragmentation, the limited knowledge of BRT systems within the Addis Ababa transport administration and the consequent reliance on external partners to review design proposals are underscored as obstacles which lead to project delays (Addis Ababa official, September 2019, personal communication).

Officials also have to keep up with rapid urban development. The designs and plans for the Addis Ababa BRT project have been revised several times to accommodate rising public transport demand, which in turn has led to delays in the project. An Addis Ababa Transport Bureau official noted that it is important that the elements of the BRT system, such as stations and pedestrian crossings, 'are precisely the right size', which is difficult to achieve when the city is changing rapidly (September 2019, personal communication, paraphrased from detailed notes). Another official noted that it is 'challenging for the public transport sector to provide for this continually growing public transport demand' (December 2018, personal communication). The BRT is therefore understood to be a medium-term solution

that can (at least partially) meet current transport demand until more high-density transport options are economically available.

The ‘local’ scale in the development of mass transit in Addis Ababa is closely related to national priorities. Ethiopia’s national Growth and Transformation Plan has the goal of making Ethiopia a middle-income, climate-neutral and resilient economy by 2025. A key component of this plan is a modernisation strategy based on investments in large-scale infrastructure such as hydropower dams and railroads. By the time of the 2010 BRT feasibility study (Egis Rail and LTPA, 2010), the newly founded Ethiopian Railways Corporation had proposed the creation of an LRT system. Funded, constructed and initially operated by various Chinese enterprises, the system, consisting of two lines (34 km in total), was hailed as sub-Saharan Africa’s first LRT system when it opened in 2015.

While Addis Ababa’s public transport system is managed by the Addis Ababa Transport Authority, the LRT is administrated directly by the national Ethiopian Railways Corporation. Hence, actors and priorities on several scales directly shape Addis Ababa’s urban development; co-ordinating these actors can sometimes be a challenge. However, insights from the LRT project are continuously mobilised into the planning and design of the BRT corridors. A common critique of the LRT project is that it was poorly integrated into the city (Addis Ababa official, August 2018, personal communication). In the design of the BRT corridors, care is taken to avoid the same mistakes: for instance, by ensuring a safe crossing environment for pedestrians.

Thus, the implementation of new mass transit systems is situated in particular material and organisational settings that are continuously changing. The agencies that shape this system are always contextual, but not only ‘local’. A multitude of actors working at different scales come together as Addis Ababa’s BRT system is assembled by aligning extensive local experience with elements mobilised from elsewhere.

Discussion and conclusions

This paper contributes to the ongoing efforts to conceptualise and analyse the *work* involved in engendering deliberate sustainability transformations (cf. O’Brien, 2012). Our distinct contribution in this debate has been to develop a perspective on *transformation as relational mobilisation*. It is motivated by our efforts to account for the interconnected and cross-scalar character of processes and agencies that we encounter through our own research on urban change. It draws on the literature on mobility and relational space to examine how transformations are negotiated both within and across multiple, geographically dispersed settings that are interconnected through mobile practices. Bringing this into the understanding of transformation highlights the interconnectedness of events in various places and across different scales, and the vibrant contextuality of sites of innovation that actively shape transformation outcomes. As such, it may serve to nuance predominant perspectives on transition and transformation – typically building on multi-level transitions theory and resilience approaches – which, we have argued, tend to understand systems or niches as relatively bounded or isolated.

Transformation as relational *mobilisation* alludes to the work involved in mobilising: in bringing together and aligning disparate resources and actors. It also takes seriously the idea that mobility is not only about movement, but concerns practices and meanings as well (Cresswell, 2010). Accordingly, we need to account for the qualitative dimensions of being mobile across space, the ways in which people and ideas are changed by the very act of travel, so that (as T. S. Eliot observes), ‘You are not the same people who left that station/ Or who will arrive at any terminus’.

These ideas have been highlighted to some extent by the recent interest in policy mobility, which underscores how policies mutate as they are picked up and mobilised from one place to another. But they are not properly brought to bear on the sustainability transitions and transformations literature. Framing transformation as relational mobilisation draws on these insights, but puts them to use to examine the political potential and spatial dynamics of deliberate sustainability transformations: how mobile ideas are translated, negotiated and mobilised to achieve local objectives. This means that while the policy mobilities literature has had a predominant interest in unpacking and critiquing the role that mobile policies play in various forms of neoliberalisation, we are instead emphasising the constructive and strategic agency that go into mobilising sustainability transformations.

Our empirical analysis of the ongoing urban sustainability transformation in Addis Ababa has illustrated the need to think relationally about transformation: that we are hardly dealing with bounded, coherent or hierarchical entities. Using its BRT planning process as a point of entry, we have shown how it has been negotiated at the intersection of international networks with on-site embeddedness, local agency and the Ethiopian political setting. We underlined three relational spatial processes to describe what is occurring.

First, we highlighted the dimension of *interconnected settings*. Concurrent iteration and learning between multiple dispersed settings are central to Addis Ababa's ongoing climate and mass transit initiatives. This suggests that rather than a simple adoption of ideas from elsewhere, change is mobilised between multiple interconnected nodes of concomitant innovation. Our findings reinforce the observation made elsewhere (Wood, 2015a) that while BRT is celebrated as an example of South–South policy transfer, the actual mobilisation of a BRT policy bundle is a more spatially complex affair that involves a plethora of actors, many of whom are based in the Global North. Second, we pointed to the importance of accounting for *mobile relations* – the variety of connections between places and actors that produce an uneven relational space. By emphasising how these relations are constituted by mobility, we uncover material conditions that may enable or constrain participation in relational endeavours. The relational geography of Addis Ababa's urban transformation is not only about different 'transfer agents' and ideas arriving in new settings, but also about the human relationships that hold networks together. Finally, we showed how *contextualised agency* plays a distinct role in urban transformation. Addis Ababa's climate and mass transit projects are shaped by and assembled from distinctly local histories of public transport as well as national development agendas and ideas from elsewhere. Ultimately, then, transformations are stubbornly local affairs. Therefore, as policy mobilities scholars have been quick to observe, localities are not simply surfaces on which mobile policy processes play out – they are also arenas for proactive and strategic agency.

Thus, thinking of transformation as relational mobilisation is essentially about making use of a rich intellectual tradition to make sense of and achieve sustainable transformation. With all the talk of local action, living labs, incubators and niches – both in policy-making and in academic arenas – relational thinking can show how these are interconnected and mutually constituted. For sustainability transformations, the relationality of transformation processes also adds an element of *hope*. It opens new ways of seeing seemingly insignificant actions and actors elsewhere and recognising them as potential drivers of change. Moreover, it shows that transformative change does not necessarily depend on overcoming bounded systemic structures – they can also work through the mobilisation of partial and incomplete changes across 'multiple elsewhere'.

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Note

1. The transport authorities in Addis Ababa were reorganised in mid-2019. The TPMO was dissolved into the Transport Bureau and ceased to be a separate office. Furthermore, the Addis Ababa City Roads Authority and the municipal bus companies were placed directly under the Mayor’s office.

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