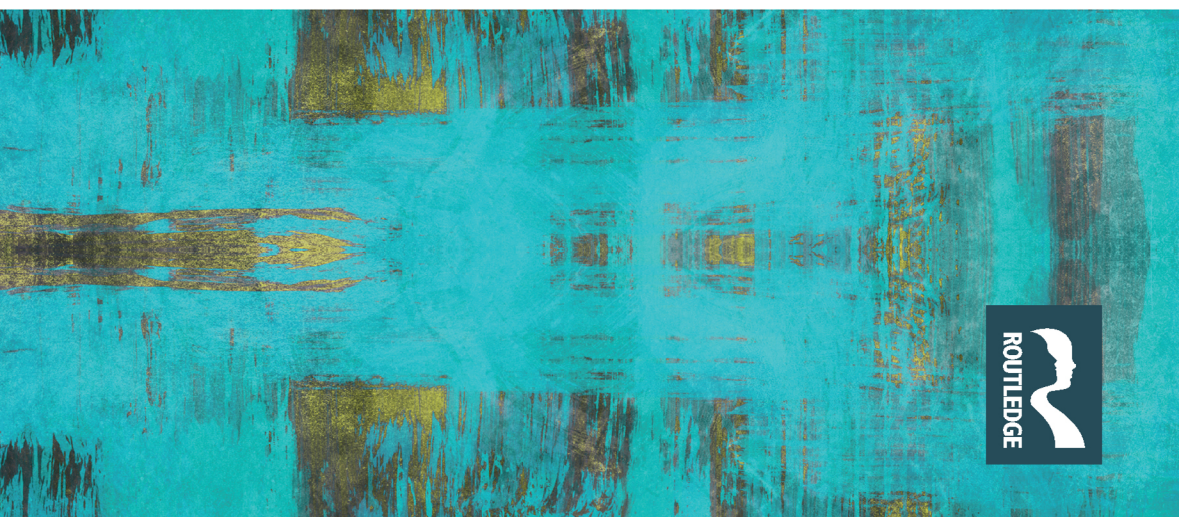
Transport and Society

ASSEMBLING BUS RAPID TRANSIT IN THE GLOBAL SOUTH

TRANSLATING GLOBAL MODELS, MATERIALISING INFRASTRUCTURE POLITICS

Malve Jacobsen



ROUTLEDGE

Assembling Bus Rapid Transit in the Global South

This book explores the mobile ethnography of Dar es Salaam, where consultants and politicians have planned and implemented a bus rapid transit (BRT) system for two decades. It analyses the dual processes of assembling BRT in the Tanzanian metropolis and establishing BRT as a policy model of and for the Global South.

The book elucidates how policy models are constructed and circulated around the globe and depicts the processes by which they are translated between, and materialise within, specific contexts. It presents the case of BRT to demonstrate how technocrats shape these processes through persuasive work aimed at disseminating and stabilising this transport model, and how local actors influence its adaptation in Dar es Salaam. The book adopts a 'double mobility' approach to show how this ethnography follows travelling consultants, circulating policies and moving buses to explore the fluidity of the BRT model. Linking key debates in policy mobility studies and Science and Technology Studies, enriched with postcolonial perspectives and geographies of transport and infrastructure, it offers new insights into the technopolitics of planning and implementing infrastructure systems.

This book will appeal to academics and students of human geography, transport studies, science and technology studies, and African and development studies interested in the technopolitics of transport planning.

Malve Jacobsen is a geographer specialising in urban and transport studies, Science and Technology Studies, and the relationships between Global South and North. She pursued BA and MA at Humboldt University Berlin and PhD at Goethe University Frankfurt, and currently holds a postdoc position at the University of Bonn.

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Officially, I am this book's sole author. But inspired by Ian Cook et al.'s notion that we researchers are always collectives, I like to think of this work as by *Jacobsen et al.* Even if the 'et al.' remains an idea, not materialised on the book's cover, the least I can do is acknowledging the co-work, exchange and support of the collective through which this book has emerged.

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Frankfurt, May 2020

Abbreviations

Tanzanian authorities with both English and Kiswahili names are used in their English version. Organisations whose original names are not in English are translated to English in brackets.

AFCS	automated fare collection system
BRT	bus rapid transit
CEO	chief executive officer
CCM	Chama Cha Mapinduzi (*Revolutionary Party*)
DARCOBOA	Dar es Salaam Commuter Bus Owners Association
DART	Dar es Salaam Rapid Transit
DCC	Dar es Salaam City Council
EU	European Union
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (*German Agency for International Cooperation*)
GoT	Government of Tanzania
ISO	International Organization for Standardization
ISP	interim service provider
ITDP	Institute for Transportation and Development Policy
ITS	intelligent transport system
JICA	Japan International Cooperation Agency
km/h	kilometres per hour
LAMATA	Lagos Metropolitan Area Transport Authority
LRT	light rail transit
MRT	mass rapid transit
NBS	National Bureau of Statistics
NGO	non-governmental organisation
NMT	non-motorised transport
pphpd	passengers per hour per direction
PPP	public-private partnership
PRT	private rapid transit
SP	service provider
STA	Sustainable Transport Award

STS	Science and Technology Studies
SUMATRA	Surface and Marine Transport Regulatory Authority
TANROADS	Tanzania National Roads Agency
TOD	transit-oriented development
TRA	Tanzania Revenue Authority
TZS	Tanzanian Shillings
UDA	Shirika la Usafiri Dar es Salaam (*Dar es Salaam Transport Company*)
UDA-RT	Usafiri Dar es Salaam Rapid Transit
UN	Habitat United Nations Human Settlements Programme
UNEP	United Nations Environment Programme
US	United States
USD	US Dollar
VETA	Vocational Education and Training Authority

Practical notes

Anonymisation

I have anonymised all names of individuals in order to protect their personal rights, and in order not to 'latch onto questions of individual responsibility' (Rottenburg 2009). All research partners have been given pseudonyms. References to interviews use the initials of the interlocutors' pseudonyms. However, I have retained the names of public figures, organisations, institutions and places. Full anonymisation would have severely reduced the applicable details and data.

Gender

When making general statements, I use *they/their/them* to include all genders.

I allocated *she/he* to authors from literature and to my research partners according to their name and, if possible, their own description. I decided against using gender-neutral language throughout the work since gender did play a role in certain contexts of my research, even if this role is often hard to specify.

Language

I have translated direct quotes from Kiswahili and German to English to increase readability. The *original* words are provided either directly after the translation or in endnotes. The only Kiswahili expression I have not translated is *daladala*, because doing so would have changed the original meaning and ignored specific context (see Chapter 1).

I have not corrected the language of the interviews because I aim to preserve the authenticity of conversations and situations, and because I do not want to reproduce the idea of a hegemonial 'standard' language (particularly not in postcolonial contexts).

DART timeline

The book focuses on the period from 2014 until 2018.

December 2000	The first line of *Transmilenio* starts operating
January 2003	Enrique Peñalosa visits Dar es Salaam
May 2007	The conceptual design and business plan for DART is completed The DART Agency is established
June 2007	Walter Hook and Lloyd Wright publish the first *BRT Planning Guide*
March 2008	BRT Lite opens in Lagos
April 2008	The World Bank approves the loan for DART's Phase 1
August 2009	The first African BRT *Rea Vaya* opens in Johannesburg
September 2010	President Kikwete launches construction works of DART's Phase 1
January 2012	ITDP publishes the first *BRT Standard*
February 2012	Construction works of DART's Phase 1 begin
May 2014	The transaction advisory team publishes the *DART Project Information Memorandum*
June 2014	The transaction advisory team organises the market consultation meeting in Dar es Salaam DARCOBOA and UDA merge to UDA-RT
September 2014	The Tanzanian Prime Minister decides for single SP and an ISP of two years
April 2015	UDA, UDA-RT and the DART Agency sign the *ISP Agreement*
August 2015	DART bus drivers training start with two prototype buses
September 2015	ITDP Africa starts officially operating from Nairobi UDA-RT's 138 buses and the AFCS arrive in Dar es Salaam

October 2015	Construction works of DART's Phase 1 are fully completed Magufuli, the former Minister of Works, becomes Tanzania's new President
January 2016	A new CEO takes over at the DART Agency UDA-RT does not get an exemption after a public hearing on the import duties
May 2016	UDA-RT pays import duties for buses and the AFCS to the TRA, and moves to Jangwani depot UDA, UDA-RT and the DART Agency sign the *ISP Addendum* DART Phase 1 starts operating
June 2016	The Tanzanian government starts first attempt to tender for a second SP
January 2017	President Magufuli officially inaugurates DART's Phase 1 The World Bank approves the loan for construction works of DART's Phase 3 and 4
May 2017	The Tanzanian government re-advertises the tender for a second SP
June 2017	DART wins the *Sustainable Transport Award*
November 2017	ITDP publishes the new edition of the *BRT Planning Guide*
June 2018	ITDP's webinar on DART goes online ITDP's *Mobilize* conference takes place in Dar es Salaam The first ITDP-led study tour goes to Dar es Salaam
June 2019	Construction works for Phase 2 start, financed by the African Development Bank
February 2020	The Tanzanian government starts another attempt to tender for a second SP

(To be continued)

1 Introducing bus rapid transit

During the first weeks of the Dar es Salaam Rapid Transit (DART) operations in May 2016, people were shouting *shusha* on their journeys. *Shusha*, meaning 'drop me off' in Kiswahili, is the common term used by passengers to tell the conductor of a Tanzanian minibus that they want to disembark. On some occasions, other passengers laughed at them behaving in a DART bus as if they were in a daladala, the Tanzanian minibus system and prevalent mode of public transport in Dar es Salaam.[1] On other occasions, fellow travellers showed them the stop buttons and explained to them how the new service of bus rapid transit (BRT) differs from daladala. One year later, the service delivery manager of the bus operator posted a photo in a WhatsApp group that serves as a discussion and information platform about operational DART issues. The photo showed a person standing at the roadside and reaching out their arm to flag down a bus, a common gesture to stop a daladala. Another member of the group commented the photo: 'Those villagers' (*Wakijiji* – people who have no idea how urban life works).

In many regards, DART is new – for Tanzania, for Africa and for global networks of transport planning. The new transport system has brought a lot of excitement and change to the city. During the first weeks of service, people marvelled at the buses, and boarded them, wide-eyed, while posting online the pictures they had taken of the buses. They discussed the function of devices and meanings of the signs, the comfort provided by the headroom and seats, and the new view of the city these ninety-centimetre-high buses afford. But why, some asked, do the buses lack air conditioning? And why do drivers stop only at stations, and not along the way when passengers wish to get on or off? For many Dar es Salaam residents, BRT was completely novel. But just a few months after the system's launch, they were using DART coolly, routinely. This new transport system has created new spatialities and temporalities in the urban area. Daladala operators are being rerouted, and residents and businesses need to clear space for the BRT corridor, depots and terminals. Despite transporting just a fraction of the passengers who ride daladala every day, DART has reshaped the city's outward appearance (see Figure 1.1). As the opening example of people attempting to hail a DART bus using daladala techniques illustrates, DART

Figure 1.1 The corridor of DART at Magomeni Junction (Ntevi 09/2016).

has also reshaped the driver-conductor-passenger relationship.[2] Instead of beckoning or shouting 'drop me off' (*shusha*), DART passengers must interact with other 'mediating technologies' (Latour 1994, 1999) to halt a bus. When they need to disembark, they push a red button to open the doors, which is accompanied by a warning signal. At the stations, passengers must pass through turnstiles before they can embark; it is not possible to hail a DART bus from the roadside. Thus, people need to adjust to 'the new art of bus travel' that discloses 'a whole new world', as one Tanzanian journalist described their first rides (Jensen 2016).

Images of DART's physical infrastructure have prevailed over those of daladala, be it in online image searches or on covers of Tanzanian newspapers. The new spatial and temporal effects of DART are repeatedly illustrated in the spectacular shortening of bus journey times: two hours by daladala have become forty minutes by DART. As the journalist Mngodo (2016) describes: 'The blue bus had become a magical capsule that took us through changing worlds within a 40 minutes' drive'. The visually most striking components of DART's physical infrastructure are the sky-blue city buses, the voluminous terminals and stations with cyan roofs, and the long BRT corridor. These material components embodying the promise of high passenger capacity and fast travel are in sharp contrast to daladala buses which are often former Japanese school buses running on unpaved, potholed roads, largely without terminals and stations. Hence, the different

appearances of daladala and DART reflect different understandings of urban mobility, whereby people experience DART as a modern, technology-mediated public transport service.

The introduction of this new transport system has led to a far-reaching social, political, economic and ecological transformation. New technologies and people appeared in the city, (re)negotiating practices and forms of governance. For instance, only for the first batch of DART operations, a company with more than eight hundred employees was created and more than twenty kilometres of concrete lanes were constructed. The materiality of the physical infrastructure shapes not only the narratives of BRT. DART's buses are also a symbol of innovation, velocity and comfort since they move a fair bit of people, speed up the city, require and request certain forms of behaviour from their users and drivers. The insertion of a new infrastructure not only creates improvements but also involves disruption, in this case relocations of residents and businesses, including daladala, and obstructions that have continued beyond the construction period. Because a BRT is not a closed system like a metro, constructing a BRT must involve cooperation with and constraints for other modes of transport. Assembling BRT involves the erasure of pre-existing structures, and hence gives rise to tensions that are only partially predictable (Ureta 2015: 13, 93ff.).

This sense of tension between new and old found expression in popular culture. For example, the performer Isack Abeneko uses colourful DART images in his music video about a young villager struggling with the fast pace of urban life (Abeneko 2017). Indeed, newness itself was a challenge, as the CEOs of the two major shareholders expressed to me in interviews. Gabriel Vassanji of the governmental DART Agency said: 'We have one big major challenge: This system is new to us, to all of us – for the government, public and investors' (GV 11/2016). And Heaton Galinoma from the service provider Usafiri Dar es Salaam Rapid Transit (UDA-RT) emphasised: 'The biggest challenge, which we are seeing from today is that we have suddenly entered the world [of] what I have called the "uncharted waters"' (HG 05/2016).

The journey of the BRT model

The story of DART begins in 2002, when the Institute for Transportation and Development Policy (ITDP) and other top global BRT consultants from Latin America and the US approached the Dar es Salaam City Council (DCC). The consultants offered the Tanzanian government the possibility to be part of a pilot project for BRT in African cities, funded by the UN Environment Programme, the Global Environment Facility (GEF) and the World Bank. Subsequently, necessary steps were pursued to realise DART. Funding was allocated; conceptual, technical and operational designs were made; and Tanzanian city officials attended study tours to Bogotá and Miami. In 2007, the Tanzanian government inaugurated a semi-autonomous

governmental agency, the DART Agency, which has been the central body coordinating and overseeing the whole process ever since. According to World Bank representatives, DART is planned as a 'top-class BRT' and will be among the 'big league' of global BRT (JK 10/2015). The system is planned in six construction phases and will contain 130 km of BRT corridor along the main road axes. Therewith, DART will be one of the most extensive BRT systems worldwide (DART Agency 2014a: 8). For the Tanzanian branch of the World Bank, DART has national priority because Dar es Salaam is the economic centre of Tanzania: 'If Dar doesn't work, the whole country has a problem' (BN 03/2015).

With the famous *Transmilenio* in Bogotá as its most prominent example, BRT has been circulating as a global policy model. It joins the ranks of other globally circulating best practices, such as the policy model of Business Improvement Districts (McCann and Ward 2010; Ward 2011), urban regeneration projects (González 2011) or harm-reduction drug policies (McCann 2008). Built to gradually replace a minibus system, *Transmilenio* began service in 2000 and has since served as the first comprehensive BRT system (Höhnke 2012: 28). Between 2004 and 2014, the number of cities with BRT grew by almost 400 per cent globally, reaching a total of more than 400 (ITDP 2014; see also Filipe and Maćario 2013: 151). Beginning in the late 1990s, technocrats have been disseminating the BRT model, circulating it particularly in the Global South; from Latin America to Southern and Eastern Asia and to Sub-Saharan Africa (Matsumoto 2006; Mejía-Dugand et al. 2012). Although designs for a bus system with a dedicated median lane and controlled entry points were developed for Chicago as early as 1937, the system *Rede Integrada de Transporte*, launched in 1974 in Curitiba, is commonly considered to be the first BRT (Muñoz and Paget-Seekins 2016). Narratives extolling the benefits of BRT – often created and circulated by BRT proponents and technocrats themselves – emphasise reducing greenhouse gas emissions and car dependency in US cities, or coping with rapid urban growth in Latin American, Asian and African cities. With the label 'high capacity at low cost', BRT is said to work exceedingly well for cities of the Global South (Hensher 2007; Wood 2015a). The global BRT success story continues with the model's arrival on the African continent. In 2008, *BRT Lite* was launched in Lagos; however, most scholars and consultants consider the first line of Johannesburg's *Rea Vaya*, launched in 2009, to be Africa's first BRT. *Rea Vaya* was followed by a series of South African BRT systems that were all modelled on the successful *Transmilenio* (Allen 2013; Behrens et al. 2016a: 11).

Based on an extensive analysis of policy mobilities of BRT between South Africa and South America, Wood (2015c) states that policy circulation is always a political process that is not rational but rather determined by aspirations, ideologies and the positioning of policy makers. Moreover, policy circulation comprises both physical and imagined mobilities to make cities become connected with each other. The perspective of mobile policies draws

on the new mobilities paradigm that goes beyond classic transport geography approaches and integrates the mobility of people, things and ideas across spatial and temporal scales so that 'transport is now enmeshed in other forms of circulation and flow' (Schwanen 2016: 132; see also Cresswell 2010, 2012a; Sheller and Urry 2006). Mobilities – understood as more than transport – as well as technologies and infrastructures are politically relevant and integral parts of social and cultural life. However, mobilities research and transport geography are only slowly opening up to postcolonial endeavours and theorising from the Global South. Perspectives and case studies that challenge the 'historical hegemony of predominantly western worldviews, concepts, theories, methods and research practices' (Schwanen 2017: 2) are both necessary and a fruitful enrichment for work on mobilities.

Assembling a travelling model, assembling this book

This book explores what happens when a policy model is implemented in a specific context, shaped, on the one hand, by technocrats and development cooperation agencies that aim to disseminate a transport model globally and, on the other hand, by an internally highly structured network of Tanzanian political-economic elite. It traces the circulation and translation of this travelling model (Behrends et al. 2014; Rottenburg 2009) in order to contribute to discussions on policy mobilities, global planning and infrastructural transition. BRT stands out due to its symbolic language, narrative and storytelling, which sells the transport model as a successful solution for cities of the Global South that not only improves urban transport, but also transforms the whole city, its economy and society. The assembling of BRT in Dar es Salaam demonstrates that BRT is indeed more than transport to the extent that its assembling does not happen without political controversy and deviations from the initial plan. Thereby, this research seeks to contribute to the growing debate on decolonising (geographical) knowledges by introducing BRT and DART – widely distributed transport models in the Global South – to current theorisations of global policies, travelling models and urban transportation.

Despite the lively debates and rapid growth of policy mobilities literature, detailed studies of processes of circulation, translation and mutation remain rare (Healey 2013; Robinson 2011). This research field is still relatively undertheorised, and perspectives drawing on (actor) network approaches or concepts of power configurations are still uncommon. However, such perspectives are necessary to analyse if and how travelling models are embedded into heterogeneous networks and hegemonial structures. Temporalisations, processuality and contingencies (see Li 2007) are particularly important when looking at the translation of BRT because translation implies displacement and mutation. Moreover, up to now mobilising and territorialising policy models have mainly been researched retrospectively; as a consequence, empirical studies have tended to focus only on successfully

circulated and implemented policies and disregarded mobilisation attempts that either failed or experienced unexpected transformations.

This book addresses this gap by means of what I call a 'double mobility' approach, for which I have adapted the classic Science and Technology Studies term 'gathering' (Law 2004). Combining methods of global ethnography, the approach allows the researcher to follow an ongoing process in multiple sites while following instances in a specific locale. My method follows mobilities and is itself mobile on two main scales: On a globally relational scale, I followed BRT both to the places where the transport model is created and from whence it is distributed, and to the places where it is materialised and adapted. This also included following BRT narratives virtually in policy papers, newspaper articles, webinars and online chat forums. On a more locally relational scale, I followed the transitional process in Dar es Salaam over space and time. I followed different stages of planning, implementing and operating DART, and I travelled with the buses along the corridor and spent many hours at depots, stations and terminals. I focus not only on broadly discussed global technocrats, international study trips and various policy documents, but also on materialisations and (present) absences of circulated knowledge and narratives, as well as on political controversies of the context in Dar es Salaam. Focusing on the materialisation of global policies, I participated in several DART's central moments of assembling, which were glamorous inauguration events and international visits, as well as moments of controversy and confusion.

This work goes beyond general assumptions of policy mobilities literature and BRT assessments from transport geography by taking more-than-human perspectives on DART and BRT. Following the policies and practices of BRT exposes the mutual shaping of technology and society, as well as the interconnectedness of technology and politics. This means going beyond mere descriptions of heterogeneous networks and technical analyses from a transport planner's point of view. Questions of power and distributed agency are crucial in the analysis. My aim is not to assess whether BRT actually is the only or best option for cities in the Global South with transport challenges and whether DART has been the right choice for Dar es Salaam. Instead, I track globally dominant discourses and their materialisations in Dar es Salaam from different perspectives.

In order to contextualise and conceptualise the processes of infrastructural translation and materialisation in Dar es Salaam, this book has two central objectives. The first is to tell an ethnographic story of transnational transport policies and international BRT planning, thereby tracing the ways in which ideals, experiences and expertise are assembled to an (im)mutable mobile and (presumably) successful BRT model. How do global policies mutate on the move and how fluid is the BRT model in the process of translation, i.e. in the process of transformation, displacement and adaptation? How do global models and their materialisations relate to each other and how are global models assembled in a specific locale? The second objective is

to provide a detailed analysis of processes of territorialisation and adaptation of the transport model in Dar es Salaam. Here, I do not analyse in detail the possible long-term effects of DART or socio-spatial and socio-economic changes, such as the structural reconfiguration of neighbourhoods and businesses along the BRT corridor. Rather, my focus is on technopolitical transformations, where I understand technopolitics as 'hybrids of technical systems and political practices that produce(d) new forms of power and agency' (Edwards and Hecht 2010: 619). I ask: How does a globally circulating transport model reshape the transport sector in Dar es Salaam under tensions and controversies? How might the new BRT system, labelled as the 'African BRT', influence other cities in their BRT plans, and does DART impact on the global BRT model? By drawing on vocabulary from Science and Technology Studies, I conceptually contribute to the studies of policy mobilities. I reveal how socio-technical translation – understood as the process of mobilisation and mutation (Callon 1986; Latour 1994) – of models, expertise and materials takes place in contexts of the Global South. I show how adaptation is inherent to translation, and that the subsequent deviation of the model does not risk its existence, since travelling models are fluid and mutable. I realise this framework in my own empirical work of assembling, which is the leading concept of this book.

Many scholars have worked extensively on the circulation of the BRT model. Nonetheless, concerns of translation and context-specific assembling, as well as a focus on power dimensions, remain underrepresented. I consider both cities and policy models as assemblages because they are performative, productive and emergent (Ureta 2015: 11–12). They consist of multiple and relational entities, technologies, politics and actors in diverse configurations, including models, techniques, materials and expertise from elsewhere. Assemblages stand for multiplicity and interdeterminacy, continual transformation and fluidity (McFarlane 2011a: 204, 2011b: 652; Salter 2013: 12). Urban assemblages are not only formed by flows of distributed agency, but they are also shaped by non-coherence, constraints and conditions (Allen 2011; Temenos and McCann 2013: 347). This is because power is not equally distributed (Farías 2011; Ureta 2014). Assemblages are not static; they are in a constant (un)making, (re)arranging, (re)organising, (de)stabilising and fitting together of its heterogeneous elements (see Deleuze and Guattari 2005; Wise 2005). Thinking of an assemblage as both a descriptor and a concept (Anderson and McFarlane 2011; McFarlane and Anderson 2011) is beneficial in gathering circulatory processes of global BRT and DART's assembling in Dar es Salaam.

Global assemblages and BRT

For decades, geographers and anthropologists have argued that the global is constituted locally and vice versa, since nothing purely local or global exists. Thus, neither an absolute territorialisation (understood as a relatively

defined and stable state) nor a complete deterritorialisation (understood as a mutable, undefined state) occurs in a globalised, relational world (Brenner 2004: 64; see also DeLanda 2006). Cities and other specific sites are always constituted through their relations with other places and scales, and they are continuously made through various situated practices. Like cities, policies are neither purely global nor purely local. In order not to fall back into the global-local dualism, scholars suggest thinking of mobile policies with concepts such as 'assemblage' and 'topologies'. Policies and policymaking are simultaneously relational and territorial, and mobile policies can be regarded as an outcome of an assembling process through which separate but interconnected sites are territorialised (Prince 2017: 335; Robinson 2013). My overall aim is to think between actors and beyond scales, and thus to think about the local globalness or global localness of circulating policies (Prince 2012; see also Peck and Theodore 2015). Thereby, I follow Roy's (2012) ethnography of circulations (see also Baker and McGuirk 2017). To this end, I chose Dar es Salaam with DART as my starting point and followed its multiple relations to globally acting protagonists and sites.

The conceptualisation of BRT in this book is deeply inspired by Ong and Collier's (2005) work on 'global forms' and 'global assemblages', which offers an approach to conceptualise global phenomena and anthropological problems beyond the local-global dyad (see also Collier 2006; Rabinow 2005). Global forms can be ideas, technologies or policies. They have the capacity to decontextualise and recontextualise as they are contextually unbound:

> Global forms can assimilate themselves to new environments, to code heterogeneous contexts and objects in terms that are amenable to control and valuation. At the same time, the conditions of possibility of this movement are complex. Global forms are limited or delimited by specific technical infrastructures, administrative apparatuses or value regimes, not by the vagaries of a social or cultural field. (Collier and Ong 2005: 11)

When global forms territorialise, global assemblages emerge as actual and specific articulations of these global forms. These articulations occur in specific situations and entail the formation of new relationships that can be material, collective or discursive. The global BRT model can be read as a global form, which territorialises in global assemblages – be it DART in Dar es Salaam, *Transmilenio* in Bogotá or a future BRT system in Nairobi. In order to emphasise the processuality and emergence of DART's assembling, I prefer the verb form 'assembling' over the noun 'assemblage(s)'.[3]

Since BRT has become a global phenomenon, the conceptualisation of global assemblages and global forms provides an appropriate and fruitful perspective for the translation process from global models, policies and ideals to socio-material practices. The global BRT model is significantly shaped by the ITDP, one of this book's protagonists. The NGO has

developed the *BRT Standard*, a tool for evaluating and classifying BRT systems, and to make global BRT less mutable within processes of de- and re-contextualisation. Conceptualising the *BRT Standard* as an 'immutable mobile', i.e. objects that hold their shape as they move (Latour 1986, 1987; Law 1986, 2002), raises the question of BRT's (im)mutability: on the one hand, BRT is a heterogeneous assemblage, and on the other hand, the proponents of the model attempt to reduce the model's heterogeneity. Building upon the term 'fluid technology' (De Laet and Mol 2000), I discuss whether technologies need to keep their shape in order to be able to move, or whether they can only be mobilised when they are fluid and flexible, i.e. mutable, translatable and adaptable to different contexts (see also Cook and Ward 2012; McCann and Ward 2013). Hence, to what extent does BRT function as a travelling model (see Behrends et al. 2014; Rottenburg 2009) that is articulated in an institutionalised standard?

As this work shows, DART has undergone various processes of adaptation and resistance. The most striking case of conflict and mutation arose from DART's operational model. Not only is the *BRT Standard* constantly changing through its regular updates and improvements (ITDP 2012, 2016a), but also DART does not appear the way it was planned and deviated from the original model. In interaction with diverse human and nonhuman actors, the BRT system is subjected to ongoing changes; it is continually developing and transforming. By inscribing regulations and experiences into the assemblage, every changing presence and absence of its components has an impact on the DART's shape. Whereas processes of de- and reterritorialisation are mutually constitutive, they are also highly conflictual, since they continually produce, reconfigure and transform the political-economic space (Brenner 2004: 64). Hence, the policies of DART are contingent assemblages full of suspense and tension. Competing interests and forces shape policies, a situation that might lead in some instances to resistance and in other instances to adaptation (Healey 2013: 1510; McCann 2011: 146).

Transport planning is technical and political. It has always been about decreasing travel times, raising the quality of service and reducing fuel consumption. In addition, planning implies persuasion, representing and realising certain ideas and interests more than others. Global consultants might become technocrats that are equipped with best practices and one-sided narratives. BRT planning has become global, and the dissemination of the model has been accelerating. This transport model is an example par excellence of circulating policy models: 'BRT has become the vogue' in urban Africa (Pirie 2014: 136). Global technocrats enable the global form to de- and recontextualise, but so too do various tools of mobilisation such as documents, standards and events. Not only do they provide expertise from the outside, they also become part of political decision making processes by producing 'ostensibly neutral and objective knowledge' (Prince 2017: 338). Building upon Mitchell's (2002) 'modern forms of expertise', Harvey and Knox conceptualise the work of (technical) experts as the 'resolution of

specific problems, which fold the social and the technical together to produce material rearrangements in the name of emancipatory transformation or "development"' (2015: 8). Expertise is subjective and normative (Collier 2006; Martin and Richards 2001) and thus exercises power. Technology has multiple meanings in BRT discourses that stand under increasing influence of technocrats and policy mobilisers. Knowledge and experiences, ideals and policies are inscribed into technologies (Anderson 2002: 649; Hommels 2005; Martin et al. 2012). The technical features of a BRT system enhance the alleged stability of the system, separating the new from the existing, redefining space and time (Pineda 2010: 137).

ITDP presents BRT at international transport conferences as: 'High quality, high capacity, high speed, customer oriented – not an old bus running in a bus lane' (ITDP 2018b). Being the most famous BRT proponent globally, the NGO synthesises BRT as being 'more than bus lanes' (see Figure 1.2). The organisation describes this transport model as 'the establishment of a transformed world-class public transport service that is customer oriented and run on sound economic principles' (ITDP 2017: 90). Along the lines of 'Think rail, see bus!', BRT systems aim to create a metro-like condition on the surface by combining the advantages of rail and bus systems (ITDP 2018a). Like rail, they should operate independently of road traffic and congestion through the use of dedicated lanes and off-board fare collection; like

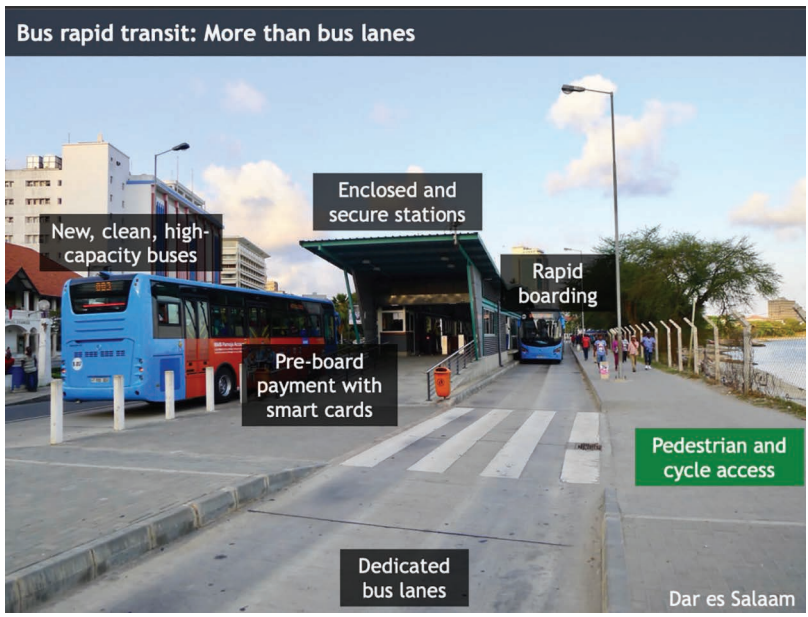

Figure 1.2 DART and BRT described as 'More than bus lanes' (ITDP 2018b).

bus systems, they should be cost-efficient in terms of construction, maintenance and operations. ITDP and its wider network of BRT proponents have successfully leveraged these advantages into a narrative of BRT as 'rapid' in two senses. First, BRT is supposed to be a rapid means of transport, moving people faster than minibuses or individual vehicles. Second, BRTs are claimed to be rapid in their implementation, constructed faster than rail-based systems. Global BRT proponents highlight the system's various advantages, including its high frequency and integrated fare structure:

> BRT is poised to provide significant travel-time savings, which obviously will yield economic benefits to the city, its businesses and its residents. In so doing, it can be expected to shape future growth, attracting new investments and developments along BRT corridors. (TG 12/2016)

It would be hard to find portrayals of BRT without enumerations of auspicious innovative characteristics promising direct improvements – primarily less congestion and more regulation of the public transport sector, as well as grand social, economic and ecological benefits – including in the battle against climate change (ITDP 2018c). Moreover, ITDP shows how a BRT system can even contribute to socio-economic integration and socio-political transformation:

> In Johannesburg, South Africa, the Rea Vaya BRT system is showing the world how high-quality transit can connect poor communities to opportunity and even help heal old wounds of racial segregation.
> (ITDP 2016b)

Thus, BRT must fulfil multiple tasks. The bus system has to offer fast and reliable transport services, reduce greenhouse gas emissions, and lead to social transformation and economic growth.

The African BRT

From the point of view of its proponents, it is vital that BRT succeeds in Dar es Salaam, because the Tanzanian metropolis is supposed to form the basis of an African BRT market for global consultants and international investors. In the early 2000s, ITDP declared that DART would become the first 'full' BRT system in Africa.[4] After South African BRT projects had overtaken DART in the late 2000s, DART operations finally started in 2016, and ITDP continued to use DART as a best practice for promoting BRT across the continent. Keen to spread BRT on the continent, ITDP is consulting an increasing number of African cities. Together with other global BRT actors such as engineering offices and development cooperation agencies, the BRT proponent uses DART to demonstrate that BRT is affordable – and thus possible – in African contexts.[5] Already in 2015, the chief technical advisor

of the DART Agency predicted that DART will influence the decision for or against BRT in African cities and beyond:

> Every other city, particularly in Africa, is working somehow – Kampala, Nairobi, Rwanda, Maputo – everybody's working on BRT and everybody's watching what's happening here. So if this fails, it's a disaster. Not just for this country and for the city. […] We are the guinea pig and everybody will look at Dar. And if it doesn't work here, then we will have big impact on the whole of Africa. And if it works, then everybody will come here.
>
> (HM 03/2015)

The advisor turned out to be right, even though DART continues to have serious operational issues and construction of further corridors is delayed again. DART has created and received attention that goes beyond the city, so that it may well shape the future imaginary of public transport in African metropolises. This attention puts pressure on the global BRT community to promote DART so that it would become a success – or at least so that it would look like a success. As *Transmilenio* has already shown, the narrative of success – constructed by global BRT consultants – is highly performative and becomes globally more present than assessments from the respective city itself about whether the system is presented and perceived as a success or not. This also implies that a BRT system can only reach to the status of best practice once it has global support. The need to succeed had been inscribed into DART from the start.

Point of departure

The DART project is part of a series of strategic programmes to improve urban transport in Dar es Salaam, which are funded by so-called development banks and foreign governmental agencies. The first phase, which is the focal point of this book, was mainly funded by a World Bank loan of 190 million USD (World Bank 2008). The Phase 1 corridor is located on Morogoro Road, the busiest and most congested road in the city and one of the main daladala routes (AM 09/2015; DCC 2007: 4–5). The corridor crosses the city centre and the market area, and connects to the ferry terminals that connect to the Eastern part of the city and to Zanzibar. For Phase 1, the resettlement of residents and businesses, and the relocation of approximately 1,800 daladala have been completed, and compensations have been paid. Due to complications originating from expropriating house owners, finding suitable construction companies and the need to update the initial conceptual design from 2007 (because of the tremendously increased traffic demand), the project development had been perpetually delayed (JK 10/2015; MN 03/2015). Construction of the physical infrastructure started in 2012. Three years later, buses and equipment for an intelligent transport system (ITS) were ordered, and staff were trained to operate the system. After a

delay of several years, bus operations began in May 2016. Because the stakeholders of DART and local operators have not yet come to an agreement for a long-term operational structure, an interim service provider currently operates the system. At the time of writing, an international tendering for a second bus operator is ongoing (Mirondo 2020). Despite its flaws and difficulties, DART has received mainly positive feedback from national media and international transport protagonists. Passenger acceptance is reflected in their high numbers, a remarkable and continuously increasing ridership. For the next three construction phases, funding has been secured so that detailed designs and construction works are in the pipeline. Nonetheless, an end of the implementation process is hard to predict.

Dar es Salaam is one of the fastest growing cities worldwide – the perfect match for BRT. Most BRT consultants use this fact as an opener in talks, papers and interviews. The need for a quick and sustainable public transport solution has been increasing dramatically over the past decade due to the interplay of several developments. Dar es Salaam is undergoing an immense process of urbanisation that goes along with urban sprawl, economic growth and an expanding middle class (NBS 2013: 26; Salon and Aligula 2012: 72). Consequently, the need for mobility has been rising, but neither urban roads nor public transport has been sufficiently extended and improved. Private car ownership and the volume of people and goods travelling to and through the city have been growing, so that congestion has become a serious problem within the urban agglomeration (Melbye et al. 2015; Mkalawa and Haixiao 2014). Accordingly, the Tanzanian country director of the World Bank (2017) sees BRT as vital for Dar es Salaam: 'The BRT is one of the most critical investments that can be made in Dar es Salaam, given the high rate of growth of the city'. From an economic point of view, congestion implies not only wasted time and air pollution but also financial loss. Similar situations and stories about 'the backlog of investment in transport and continued rapid urbanisation' (Pirie 2014: 133) can be found in several cities in the East African region. At the same time, politicians increasingly believe that improved mobility will have a deep impact on the quality of life and will foster sustainable development. This twofold situation has led to an increased engagement of international organisations in the field of urban transportation, and traffic is an increasingly central topic in global discourses. One of the major steps of the past decade was that urban mobility concerns became part of the Sustainable Development Goals (UN-Habitat 2015; see also Jacobsen 2015). In this context, GEF, UN Habitat and the German Agency for International Cooperation (GIZ) run the Sustainable Urban Transport Project in various regions worldwide. Likewise, within the World Bank project Dar es Salaam Metropolitan Development Project, public transportation and non-motorised transport facilities are central concerns (World Bank 2015a, 2015b).

When the modal share of non-motorised transport (NMT) and public transport is high, urban transport generates lower average carbon emissions