

MAPS

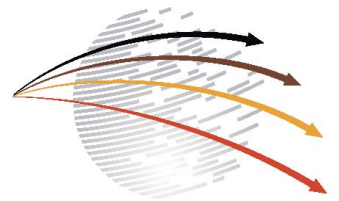
Provocateur Briefing Report

Forum on Development and Mitigation

DEVELOPMENT FOCUS

Urban Passenger Transport

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MAPS

Mitigation Action Plans & Scenarios

From 27-29 January 2014, over one hundred professionals working mainly in the climate change mitigation field, in Southern contexts, gathered at the Cape Town Waterfront for the Forum on Development and Mitigation (the Forum). The event was hosted by the Energy Research Centre of the University of Cape Town, the Centre for Policy Research in New Delhi, and the international Mitigation Action Plans and Scenarios (MAPS) Programme. As a feature of the Forum nine South African development experts, the 'Development Provocateurs' were invited to participate in the event and write a short reflective piece afterwards. These briefing notes considered the discourse at the Forum from the perspective of each Provocateur's particular area of expertise, looking at shared priorities, disconnects and other points of contact.

This briefing note responds from the perspective of 'Urban Passenger Transport' by Lisa Kane. The full set of briefings have been compiled into a compendium, available at www.devmitforum.ercresources.org.za and www.mapsprogramme.org.

The content of this brief is the responsibility of the authors. The views expressed in it are those of the author alone.

TRANSPORT

Introduction

This short paper gives reflections on transport development: how it was portrayed in the Forum on Development and Mitigation (the Forum), and the ways in which it is argued differently in the 'sustainable transport' field. I draw on experience from practice (as a specialist advisor on transport to Sustainable Energy Africa, www.sustainable.org.za, and the World Wildlife Fund, www.panda.org) and from the academic literature (as an ad-hoc University of Cape Town (UCT) lecturer at the Energy Research Centre on Sustainable Transport and current Honorary Research Associate at the Centre for Transport Studies, UCT). The focus is on passenger transport in urban areas. Freight, also important but operating far more under a trade/business logic, is not considered here.

Environment-Energy-Space

The matter of space, particularly urban space, was largely absent from the Forum discourse (except where highlighted by the provocateurs) and yet it is a central matter in the sustainable transport discourse, which argues for a multi-faceted view of transport emissions. From a sustainable transport perspective, distance travelled is a key variable. The more complex question, though, is what dictates distance travelled, and how this is facilitated, or not, by urban form (particularly density) at a city scale.

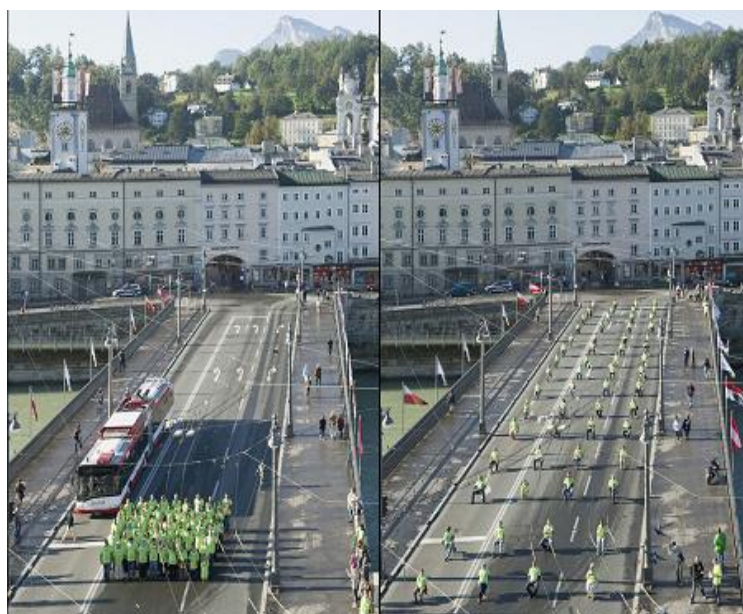


Figure 1: The space requirements of a bus load of people, compared with the same number by car

Source: www.fairkehr.net (with permission)

Low occupancy cars, it is argued, “consume” far more urban space per person travelling than efficient public transport or bicycles (see Figure 1). When parking space demanded for cars (and the inefficiencies of this) are factored in, then cars have been shown to ‘consume’ ten times more space per person, or more, than buses (Vasconcellos 2001). The implications of this are peak-hour congestion, vacant parking lots at night, and vacant household parking spaces by day. Congestion creates political pressure for road-building despite evidence that road building simply stimulates suppressed demand and has no long-term congestion benefits (Behrens & Kane 2004). High levels of road infrastructure, large house plots and sparsely populated retail and office nodes drive urban sprawl, and an urban *lifestyle* which almost *requires* a vehicle for movement – the typical United States (US) city model. The simplest aggregate measure of this lifestyle, as it plays out at city scale over time, is urban density. This has been demonstrated to have a strong relationship with energy use and emissions (See Figure 2, Newman& Kenworthy 1999).

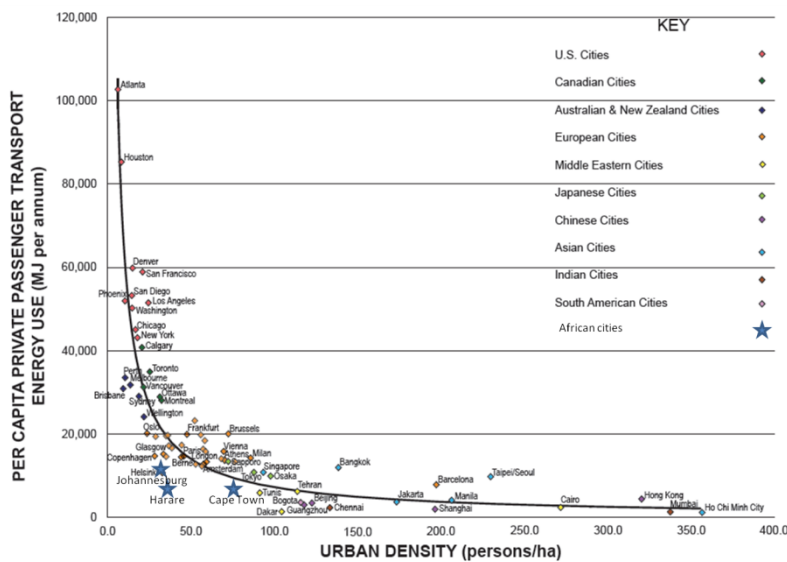
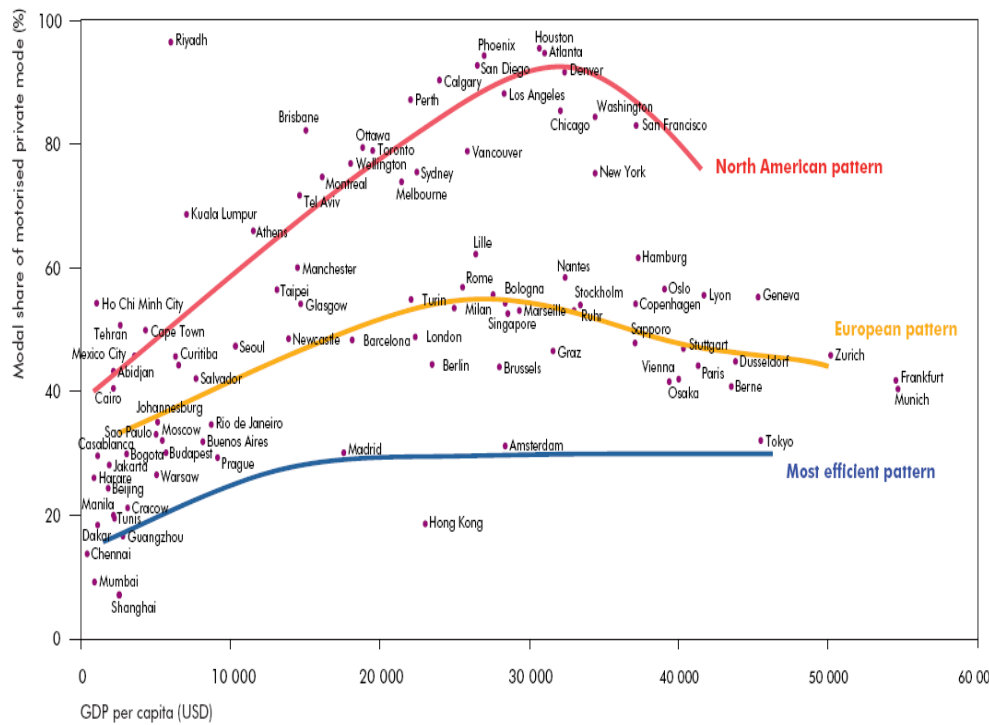


Figure 2: Urban density and energy use relationship

Source: J. Kenworthy, with permission

Tragically, then, a high-energy and high-emissions lifestyle is locked into these US cities thanks to their patterns of space use. In these contexts cost-efficient public transport is very difficult to implement, and cycling or two-wheeler use is not attractive, due to large average trip distances. Fortunately, many developing world cities, though, have relatively high densities, and so have opportunities to avoid this pattern. By contrast, African cities have traditionally adopted a US model of urban development, exacerbated by race separation policies. Unless that pattern is challenged, African cities will be locked into similar, high-energy, sprawling patterns (see Figure 3). Sprawling cities also create particular problems for the poor, who are most burdened by the costs of travelling vast distances (see Figure 4).



Source: UITP, 2006 (Courtesy of SYSTRA).

Figure 3: Mode share, GDP and city patterns

Source: http://www.uitp.org/advocacy/climate_change.cfm, accessed 1 Sept 2011

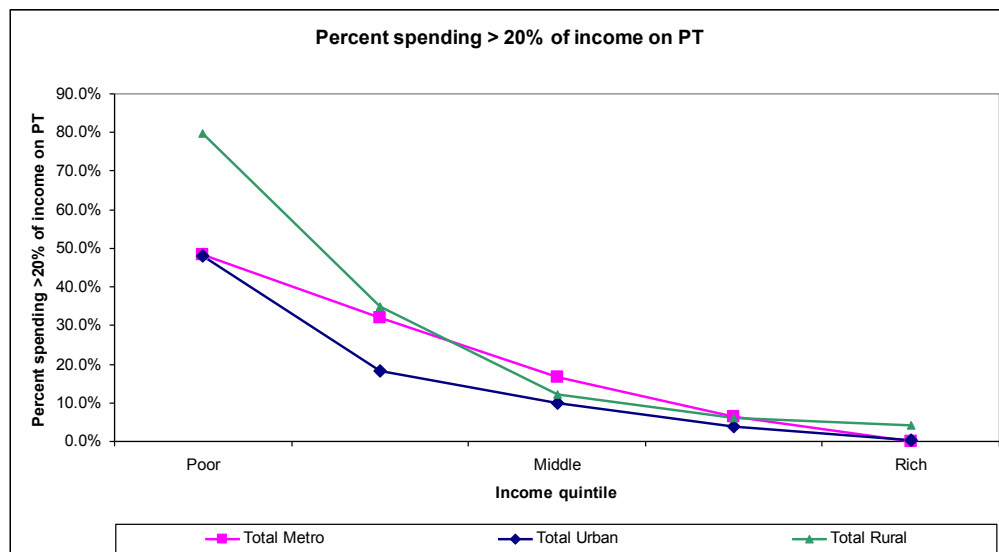


Figure 4: Percent of South African Households spending more than 20% of income on public transport, by income quintiles (2004)

Source: Kane 2006

Private vehicles, then, are deeply problematic in a Southern urban policy context. In both the academic literatures and increasingly in practice, these arguments have hit home and passenger transport planning is dominated by concerns for public transport. Nevertheless, the pressure to build more roads is ever-present, and likely will remain so, for cultural and economic reasons described further below.

How to: In this context, the management of the *public* space we call ‘roads’ becomes deeply important, as it is a key battleground for the prioritizing of lower- over higher- carbon transport lifestyles. It is also the battle ground between the private interests of the vehicle and oil companies, the public interest of the common good, and equity considerations. Assuming political will, there are various means for the state to ensure the common good prevails: financial (congestion, or other forms of charging) or physical-regulatory (bus and cycle lanes, pedestrian prioritization in various guises).

Congestion charging for road space, despite the long-standing and powerful economic arguments in its favour has proved to be deeply politically problematic to implement at a City level. Although there are examples in London, Stockholm, Singapore and Milan, it has had limited uptake elsewhere. Promoting it further requires cultural shift and a stepping out of the individually-focused mindset, into more concern for the good of the whole citizenry. This is a difficult but necessary task if transport passenger emissions are to be controlled.

By contrast, physically allocating space to lower-carbon modes *can* be popular at a local level, since it often generates much improved urban spaces, which people quickly see the benefits of. New York’s pedestrianisation of Times Square is a recent iconic example of this. In part this came as a result of long-term advocacy focused specifically on this matter. At present such issue-based advocacy (what Aditya Kumar of the Community Organisation Resource Centre (CORC) referred to at the Forum as the ‘middle ground’ activist work, the bridging between community and State) is limited in Southern contexts, although it has proved to be powerful lever for change elsewhere. The well-known Bogota and Curitiba examples of road-space changes have been attributed to powerful and persuasive political leadership, and points to a different, and context-dependent political model for change.



Figure 5: Allocation of road space in support of space equity and whole system efficiency

Source: Bruce Sutherland, Lisa Kane annotations

Physical-regulatory measures include dedicated lanes of all descriptions: high-occupancy vehicles, bus, rail, cycle and pedestrian. Dedicated lanes are a state intervention which stop the private vehicles monopolizing public road space by default. All of these state imposed lanes can be argued as an equity measure in favour of the poor (or those choosing lower-carbon lifestyles). Figure 5 illustrates the road space used by one person in a vehicle. If the same amount of space is allocated per person, then it enables a bus lane to be justified on a space-equity argument. This is a win for the environment since the energy efficiency of travelling by public transport is so much higher. Bus lanes are also, though, a win for public transport attractiveness since the space ‘saved’ by those travelling in the bus is put to good use, giving the bus a

time-travel advantage over the car. Such measures, though, can be unpopular with the more affluent, and more politically empowered vehicle owning public. They are also difficult to police in countries where the car registration processes are abused, and traffic control resources limited. Physical separation overcomes this enforcement problem to some extent, but is more expensive and less flexible.

‘Over-specification’ of vehicles and the meanings attributed to technologies

Regardless of the economic and environmental arguments described above, and intellectual pleas for the common good, the current middle-class aspirations in the South are to own a car. It is difficult to understand this from the perspective of a rational, efficiency minded city transport planner, but the history of vehicle development gives some hints as to how this came to be.

In the earliest days of mass motoring, at the beginning of the last century, the new vehicles on the city streets were viewed negatively, as the toys of the elite and later (as deaths on roads increased) the work of the devil himself (Norton 2008). Historical work shows how, during the 1920s and 1930s in particular the meaning of cars and motoring was highly contested, and the motor industries had to work hard to re-frame the ‘evil’ vehicle as benevolent, and aspirational. This work – referred to as the ‘social construction of motoring’ - was explicitly done by advertising, but implicitly done in many places (including the new traffic engineering profession). The social construction work, though, is never finalised and it continues to this day. It has been highly successful at selling sexual prowess, power, status, freedom and speed in the guise of cars (see Figure 6). Publicly funded public transport systems struggle to compete with such powerful promotion, by some of the world’s biggest corporate interest groups (see Figure 7).



Figure 6: Car advertising, constructing meanings for "vehicle" for over a century

Source: Various online sources

1	Royal Dutch Shell	481.7	26.6
2	Wal-Mart Stores	469.2	17.0
3	Exxon Mobil	449.9	44.9
4	Sinopec Group	428.2	8.2
5	China National Petroleum	408.6	18.2
6	BP	388.3	11.6
7	State Grid	298.4	12.3
8	Toyota Motor	265.7	11.6
9	Volkswagen	247.6	27.9
10	Total	234.3	13.7

Figure 7: Fortune top 10 companies by sales - dominated by oil and car interests

Source: http://money.cnn.com/magazines/fortune/global500/2013/full_list/

The matter of speed deserves a special mention here, as it retains a unique place in the public imagination of this motorised era we are in. There are many reasons to query the taken-for-granted design of vehicles for speed. Firstly, beyond an efficiency threshold, higher speed travel is more energy, and therefore emissions, intensive. Secondly, high-speed vehicles are more likely to cause serious injury or fatality in the case of collision. Not surprisingly, then, high-speed roads evoke perceptions of danger to those not in vehicles, and so discourage movement by walking, two-wheelers, or cycling. Thirdly, government speed limits restrict the permitted speed of cars to well below the vehicles' upper limit, bringing into question the need for vehicles to have such high speed potential. Rational decision-making would: reduce the upper limits of speed in vehicles for safety and energy efficiency reasons; scale up technologies which enable automatic driving and non-collision technologies; govern speeds to locally adopted limits.

How to: The popular refrain against measures to change vehicle design and operation is that it is overly restrictive. Cars, it is argued, are necessary for [what is currently seen as] the middle-class life. At the Forum Adrian Stone argued that cars are "over-specified". His argument is that, in pure technical terms much of the mass which makes up a large family SUV, or the power in the engine of a fast sedan, is not necessary for basic car movement. This additional mass and power-for-speed consumes much additional energy. This points to working with vehicle manufacturers and petrol companies to promote more modest specifications and so fuel consumption; while using regulatory and financial tools to penalize overspecification; and to create expanded cultural distaste for over-consumption in vehicle specification.

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