

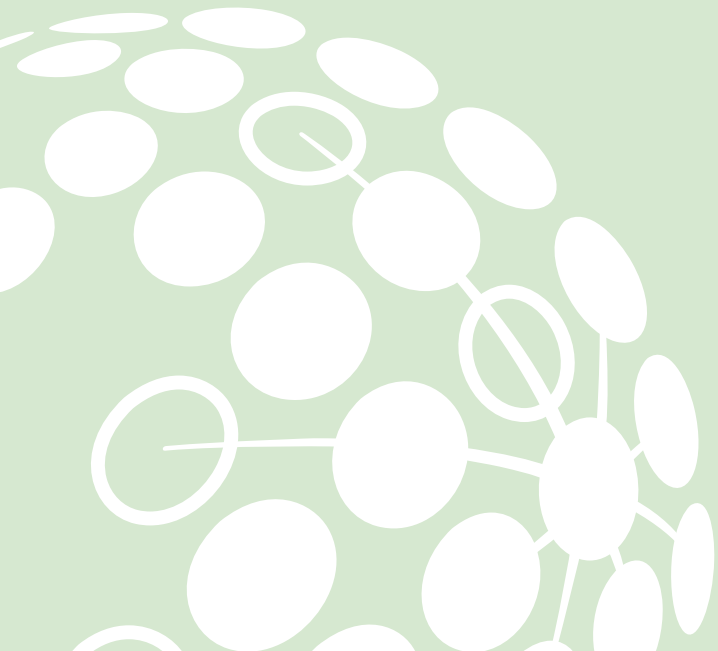
Issues Paper Series

CITIES OF THE FUTURE: WHAT SHOULD BE THEIR FORM?

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MELBOURNE SUSTAINABLE
SOCIETY INSTITUTE



Cities of the future: what should be their form?

Issues Paper No. 7 October 2016

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Acknowledgements Many thanks to Brendan Gleeson, John Stanley and John Stone for sharing insightful feedback on a draft of this paper and helping me to improve it.

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Citing this paper

Please cite this paper as Stanley, J 2016, *Cities of the Future: what should be their form?*, MSSSI Issues Paper No. 7, Melbourne Sustainable Society Institute, The University of Melbourne.

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ISBN: 978 0 7340 4945 2

Introduction

There are many conversations about cities being undertaken at present, reflecting the recognition that cities are important for our social, environmental and economic future. However, the topics largely remain fragmented, often failing to address inter-related issues. This Issues Paper argues that the achievement of a good future for society necessitates a comprehensive perspective on desired outcomes, recognising that at times competing choices or trade-offs have to be made.

Part of this conversation needs to be a comprehensive review of what makes a good life. Any conclusion about this must encapsulate the views of people, about the values they espouse and how to achieve meaning in life. Basic human needs must be met. There is remarkable common agreement and new empirical evidence about what these needs are (Read 2014). The most critical are physiological needs (the ability to breathe, have food and water, and sleep); followed by safety (security, health and freedom from violence); then love and belonging (friendship, family, and sexual intimacy); self-esteem, achievement, confidence and respect; and the top order is self-actualisation (morality, creativity, acceptance and lack of prejudice) (Maslow 1954). While Nussbaum (2005) covers similar territory, importantly she also adds ‘concern for other species’.

This paper reviews some of the challenges faced by cities and opens a discussion on some solutions that may offer pathways for achieving outcomes that meet environmental, social and economic imperatives, with a particular reference to transport. The paper looks at population and economic growth and how transport is being used by international agencies, such as the United Nations (UN) and banks, as a means of addressing poverty in industrialising countries through the promotion of economic growth. The paper proposes an alternative model—the 20 minute neighbourhood—which integrates land use and transport to meet social, environmental and sustainable economic outcomes. It outlines concerns about the on-going financing of non-sustainable transport modes and argues that now is a critical time to change direction and for financial support of the informal transport system. The paper gives particular reference to the Habitat III conference (the United Nations Conference on Housing and Sustainable Urban Development), held in Quito, Ecuador, on 17-20 October 2016. The conference closely aligns with the United Nations Sustainable Development Goals (SDGs), and sets a *New Urban Agenda* planned to be current for the next two decades.

The challenges faced by cities

While the form of cities varies greatly, a good city comprises fundamental components to support people and communities. These include basic infrastructure (water, energy, sanitation and waste collection), social infrastructure (housing, education and health services), accessibility infrastructure (transport and communication), and quality of life services (entertainment, safety, culture, sport, public spaces, open and natural spaces and places that engender quality and meaning). These need to be provided in a way that facilitates wellbeing without damaging the environment in the context of the global challenges. The UN reports that 700 million people still live in extreme poverty, particularly in southern Asia and Africa (UN 2016). Extreme poverty manifestations include hunger and malnutrition, limited access to education and other basic services, social discrimination and exclusion as well as the lack of participation in decision-making. The opportunity to limit global warming to a rise of 1.5°C to avoid tipping points and irreversible changes in the climate will close within the next four years (McKibben 2016). One and a half earths are required to meet the current demands humanity makes on nature, a position reflected in the decline of populations of non-human species by 52% since 1970 (World Wide Fund for Nature 2014). Two dominant pressures are compounding the difficulties in meeting these challenges, population growth and over-consumption. Not only do these trends infringe the rights of other species but the dramatic biodiversity loss will increasingly impact on food security, agriculture, fresh water and health.

World population growth

World population is growing rapidly, with a projected 2.5 billion extra people over the next five years, 90% of this growth occurring in industrialising¹ countries (UN-Habitat 2015). At the same time, the movement of people is occurring in most countries, from rural areas and smaller regional cities to larger urban centres. Both of these trends are leading to an unprecedented rate of urbanisation. For example, Laos is experiencing 7.3% annual urban expansion, and India is projected to have an increase of 250 million urban dwellers by 2030 (Misra 2015, Rode and Shankar 2014). Greater Melbourne, Australia, is talking about accommodating another 3.4 million by 2051, totalling 8 million people (Department of Environment, Land, Water and Planning 2016). This movement is due to push and pull effects—a search for a better life away from rural isolation and poverty, job opportunities and services, and escape from adverse impacts due to climate change and conflict, or eviction from land due to more powerful agencies annexing land and resources.

Consumption and economic growth

Consumption and economic growth have pushed world resources beyond restorative capacity (Alexander 2016, Turner 2014). ‘People are being deceived, coerced and manipulated in their search for quality of life and meaning’ (Hamilton 2014). Lives have become entangled with the market, where the possession of goods is said to offer a person self-worth, a perception of success, choice and freedom. It is a world where a child typically sees 3000 advertisements every day. Such heavy production of goods uses environmental resources and energy. Between 1997 and 2011, the global value of ecosystem services declined by up to A\$ 20 trillion per year as a result of changing land use, a figure representing 27% of the world’s total Gross Domestic Product (Costanza et al. 2014). A solution to this environmental loss is seen by some as the movement of business and manufacturers to a green agenda, a solution that they believe will deliver strong economic growth and poverty reduction, ‘...and at the same time reduce the growing potential risks of climate change’ (The Global Commission on the Economy and Climate 2015, chapter 5, p.2).

Despite the on-going dominance of the economics of markets and growth, Hamilton writes hopefully about there being evidence of a ‘sea-change’ in the past 12 months within the global investment community, where climate change is increasingly being viewed as a threat to the global financial community. However, climate change and the over-use of resources (over-consumption) is more than a threat to the global financial sector. A green manufacturing agenda will not speak to over-consumption and the accompanying deceit about what creates happiness, the failure to adequately value the natural environment, and the poor legacy being left to future generations.

Close to 30 years ago, a pioneer in environmental economics from University College London offered a simple formula with a guide to measure the value of the environment: Actual Use Value + Option Value + Existence Value (Pearce et al. 1989). Option Value is where the environmental service is not currently being used but it still has a value because it can be used in the future by the existing or following generations. Existence Value is the right to exist of any species in its own right, separate from how humans view or utilize the species. Unfortunately mainstream economists have not adopted this insight. There is an on-going failure by most to price environmental as well as social externalities, with the resultant problems we are faced with today.

The impact and response

These two broad forces of population growth and over-consumption create a wide range of other challenges, particularly around the establishment of sustainable economic structures, the imperative to reverse the build-up of greenhouse gasses and other pollutants and halt biodiversity loss, as well as the aspiration to reduce poverty, social exclusion and inequality. To address these issues we need to understand and produce policy decisions on the fundamental components of cities needed to optimise the wellbeing of people: land use,

transport and infrastructure, and how this is achieved without despoiling the environment for the present and future generations of people and other species.

The last few decades has seen a development of international plans and goals, particularly aimed at reducing poverty and greenhouse gas emissions. These include the UN SDGs that includes a goal on cities and is linked with the Habitat series of conferences. The Intergovernmental Panel on Climate Change aims to reduce greenhouse gas emissions.

The task to overcome such challenges is exceptionally difficult. Not only is there the need to provide opportunities for people whose wellbeing has historically been in urgent need of attention, in areas such as obtaining sufficient nutrition, health, education and gender equality, especially but not exclusively in industrialising countries, but also there is a need to counter the strong trends that are pulling against an equitable and sustainable society. An example can be found in the energy sector, where the Australian federal government has subsidised coal mining by A\$ 17 billion in the six years to 2014 (Peel et al. 2014). Investments in recent and new coal-fired power plants are dominated by expansion in Asia, in particular China and India (Greg 2016).

Transport, social and environmental sustainability, and economic growth

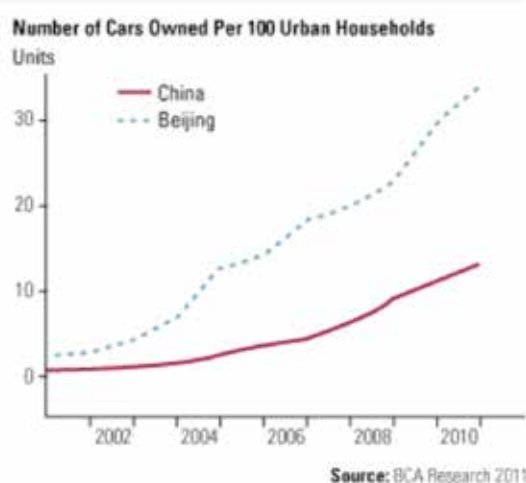
This Issues Paper argues that transport policy can be used as a pivotal force to achieve desired social and environmental outcomes, as well as many other positive spin-offs. The Global Commission on the Economy and Climate (2015) states that the world's 724 largest cities could annually reduce greenhouse gas emissions by up to 1.5 billion tons of carbon dioxide equivalent by 2030, primarily through transformative change in transport systems. However, it should perhaps be noted that the basis for this claim is not given. Transport that facilitates more trip making for disadvantaged people has been shown to be important in reducing social exclusion and promoting wellbeing, as discussed below. Thus, it is the form of transport that is important to facilitate to achieve both social inclusion and a reduction in greenhouse gasses. Now is the critical time to address issues around urban planning, land use and infrastructure in industrialising countries, as the urban environment is rapidly growing. This would reduce undesirable path dependencies, such as is found in coal-generated electricity where large capital infrastructure is built for a 25 year life at least. The next sections look at the current rapid car growth in industrialising countries, often at the expense of other forms of public transport, and how transport is driving economic growth.

Growth in car ownership

Car ownership per capita varies greatly between countries, with about 84 cars per 100 people in the US, 73 in Australia, around 58 in many European countries, and three per 1000 in Bangladesh (World Bank 2011). However, on a world basis, car ownership is growing very rapidly, where business-as-usual may see the number of privately owned vehicles increase from 1 billion in 2015 to 2 billion in 2030 (The Global Commission on the Economy and Climate 2015). Greenhouse gas production from the transport sector, prior to this projected growth, is 27.4% of total end-use energy consumption, with vehicle emissions doubling since 1970, road vehicles making up 80% of the growth (Nicola 2014, Habitat III 2015).

This growth in vehicle ownership is largely happening in industrialising countries. In India, growth in private car ownership (as distinct from use) is three times the population growth. Between 2005 and 2030, China's car market is expected to grow ten-fold, driving up demand for diesel and petrol from 110 million to 500 million tons if cars remain fossil fuel based (China Mike 2016, reporting McKinsey & Co) The rapid growth in car ownership in China, especially in the capital city is illustrated in Figure 1.

Figure 1: Growth in car ownership in China and Beijing between 2001 and 2011



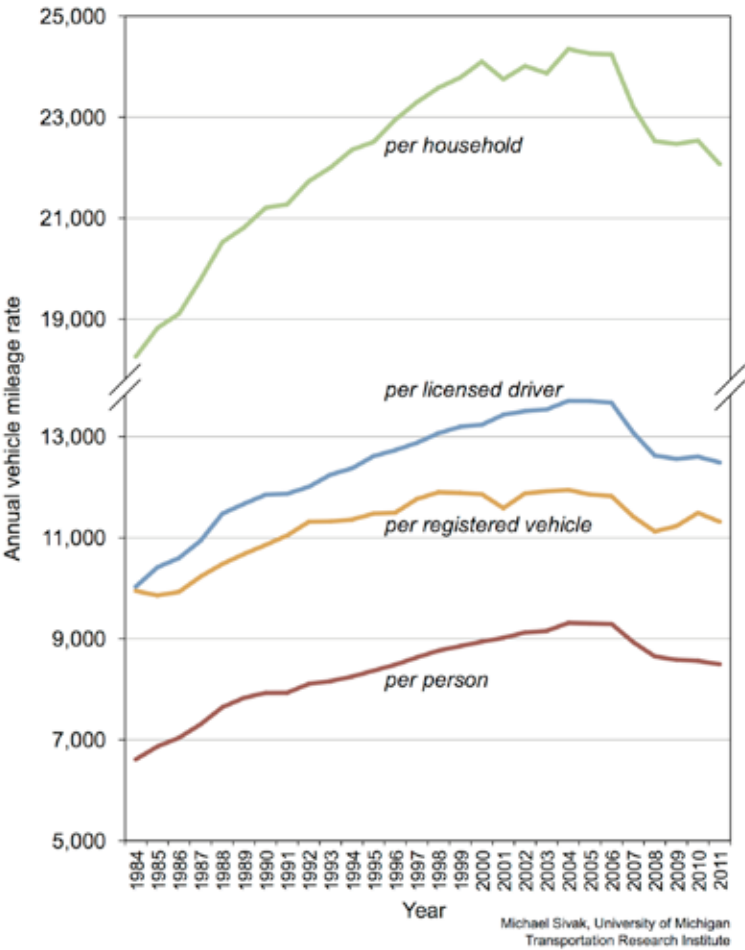
Source: BCA Research (2011)

This car growth is often happening in a context of a lack of urban planning, particularly in relation to local transport, or transport which meets many basic needs in the vicinity of the person's living location. At a recent international urban summit, a transport operator from the northern Indian city of Chandigarh reported that he 'can't even name you one city (in India) that has a coherent, ready, strong transportation infrastructure in place' (Halais 2016). This opinion is echoed elsewhere, such as in the newspaper, India Today, the author noting, 'today, Mumbai is a dumb city. Its traffic, its road planning, its bridges, its open spaces are a joke. There are no roads to take a walk. There are not enough parks to play cricket' (Banarjee 2015).

This poor planning is reflected in a declining public transport mode share in Indian cities. For example, the World Resources Institute reports that the public transport share has declined in Indian cities by 20-70% between 1994 and 2007, from a very low base, due to increasing private vehicle ownership (Mani et al. 2012). In some cities, poor bus performance also accounts for the decreasing demand, such as the presence of unlicensed and under-age drivers (Jakarta Globe 2016). At the same time, walking and cycling have declined in India, from an average of 30% in 1994 to 11% in 2007, mainly due to an increase in the average trip length with urban sprawl. There is a risk that the area of urbanised land could triple globally from 2000 to 2030 (The New Climate Economy 2014). The decline in cycling is also attributed to growth in car ownership, an increase in motorized informal transport and inadequate provisions for cycling.

In contrast to this reported decline in public transport, internationally there has been growth in some transport modes: Bus rapid transit (BRT), railways, motor cycles and car and bike sharing schemes. More than 160 cities have implemented BRT, a scheme where commuter buses have priority road lanes, often complemented with electronic information about bus arrival times (The Global Commission on the Economy and Climate 2015). These developments are of considerable value for commuters and some BRT schemes have shown that they have made a positive contribution to the abatement of carbon emissions (see for example McDonnell et al. 2001). However, their integration with land-use and transport planning is not clear. Indeed, BRT is not currently relevant for many of the urban poor in industrialising countries who have little use for such a service.

Figure 2: Trend of diminishing vehicle use in the US



Source: Sivak (2013)

While car ownership is undergoing this rapid rise in many industrialising countries, a small opposite trend can be seen elsewhere, such as in the USA, shown in Figure 2 (Social Research Associates 2015, The Economist 2012). A similar pattern is found in London and researchers have argued this is occurring in eight industrialised countries (Millard-Ball and Schiper 2011). This trend is particularly strong with younger people who are delaying getting driving licenses and increasing their use of public transport (Delbosc and Currie 2013). Urban planning is facilitating this trend, particularly in Europe, Canada and some locations in the USA. Deterrents to car use are based on an increase in the provision of public transport, pricing mechanisms such as the successful congestion pricing in London, and spatial organisation, such as reducing car parking, blocking roads, putting in place dedicated road lanes, such as for bicycles, and greatly reducing car speed so roads can be multi-functional.

Transport as a driver of economic growth

Transport is viewed as an essential element for the rapid growth and economic development of Asia and the Pacific (UN Economic and Social Commission for Asia and the Pacific [UNESCAP] 2013). The UN, World Bank, other development agencies and the international business sector have played a large role in the growth of roads. Investment in roads is seen as a means of improving access for business and growing the

economy, with priority given to links between capital cities, connections to main industrial and agricultural centres and major container terminals (UNESCAP 2013). Between 2007 and 2012, an average of \$US 4 billion annually was contributed to transport projects from the Asian Development Bank (ADB) and 3 billion by the World Bank. The World Bank noted that transport investments were between 15% and 20% of their lending to all countries, with about three-quarters going to road transport (World Bank 2006).

More recently, the international banks have stated that they intend to account for climate change in their project initiatives. For example, the ADB says it is committed to playing a central role in financing the SDGs and supporting the Conference of Parties 21 (COP21) climate agreement in Paris in December, by doubling their annual climate financing (of all projects) to \$US 6 billion by 2020 (ADB 2015a, 2016). In 2015 the ADB committed \$2.8 billion directly to the transport sector and also to transport components of other sector's projects in 2015, 'with an increasing emphasis on sustainability'. ADB's spending on tackling climate change will rise to around 30% of its overall financing by the end of this decade (ADB 2015b). The bank also talks of the important emphasis that is being given to the issue of gender equity, although having only three females on their Board of 25 doesn't generate confidence. While the World Bank (2014) says that the share of lending in roads, as a percentage of total transport lending, has decreased from 68% in 2007 to 60% in 2013, the majority of their funding is still directed towards major roads (World Bank 2014).

This spending on roads would be facilitating the growth of vehicle ownership in industrialising countries and in cities. It would be benefiting those who can afford cars, rather than the very people who are proclaimed to be the target of assistance, those living in poverty. Not only is this development missing the target, apart from the creation of jobs, but this spending would be at an opportunity cost to assist the poorer people to gain access to services and improving social inclusion and wellbeing. Indeed, it is likely to be compounding the poor wellbeing of some poor urban communities through increases in pollution, noise and safety risks. The growth of the automotive industry in itself fosters the growth of car sales and economic growth. The Jakarta Globe (2016) claims that the automotive and supporting industries account for about 7% of Indonesia's economic growth.

The growth of vehicle ownership that has occurred to date has resulted in some Asian cities that are '... heavily congested, are poor in urban amenity, suffer high levels of air pollution, emit substantial amounts of CO₂, inefficiently use scarce land resources, and present unequal access to opportunities for their residents (UNESCAP 2013, p.86). Cars encourage sprawl as they require space for roads and parking, and low density sprawl encourages car use due to the cost of public transport provision (Litman 2015). While this is often a citywide impact, it is those who live in the poorer locations who experience the worst impacts as polluted land is cheaper and they are less able to shield themselves from the impact. As Klein (2016, p.7) says, there are 'fossil fuel sacrifice zones', where communities are not protected from the adverse impact of change. The next section examines social exclusion and transport a bit more closely.

Social exclusion as a policy tool

The term 'social exclusion' refers to individuals or groups of individuals at risk of not being able to participate in mainstream society. Levitas et al. (2007, p.9) more comprehensively defines social exclusion as:

... the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas. It affects both the quality of life of individuals and the equity and cohesion of society as a whole.

The concept commonly replaced the term 'poverty' in many industrialised countries in the 1990s (but falls out of favour under a conservative government), as it recognises that disadvantage is multi-dimensional and influenced by government policy. While the concept is useful, it suffers from a shifting definition and little

empirical measurement. An Australian study found that 13.6% of Victorians were judged to be at a high risk of exclusion, with a further 18% considered to be at risk. The most important drivers of social exclusion (significant at 1%) were found to be low income, low mobility, few associations with other people and with their community, and having an introverted personality (Stanley et al. 2011).

Mobility was both a direct driver of social inclusion, in that it enables a person to access services and work, as well as being a facilitator of other drivers, enabling people to build social capital and connection to community (Stanley et al. 2012). Poor social inclusion was associated with low wellbeing. Specifically, the ability to be mobile was also found to improve psychological wellbeing, in the form of the facilitation of three characteristics which demonstrate healthy functioning and avoidance of anti-social behaviour: competence, relatedness and autonomy (Deci and Ryan 2000; Vella-Brodrick and Stanley 2013). This model was successfully applied to measure the value of a new transport option in an industrialising country, a sky rail in Medellin, Columbia (Cordoba et al. 2014).

The concept of social exclusion has not been taken up in industrialising countries until a couple of recent appearances in international work. A possible reason for this is that international organisations, including the UN as represented, for example, by the Millennium Development Goals, were more interested in those in abject poverty and securing the adequate provision of food, understandably recognising the need for short term responses, but neglecting long term solutions (Yamamoto 2017). Also, as noted above, agencies such as the World Bank still largely operates on ideological assumptions around economic growth and income poverty. This idea supposes that if the wealthy grow wealthier, then the impact will trickle down to the poor, a theory that has been frequently disproved (for example, see Quiggan 2010).

The World Bank published what would appear to be its first report on social inclusion in 2013, but it does not refer to the association between transport and social inclusion. Social exclusion is mentioned in five of the 17 SDGs (Sustainable Development Solutions Network 2016, UN 2015). Goal 11, urban sustainable development, includes an important sub-section on transport and refers to vulnerability:

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all people and goods, improving road safety and expanding public and non-motorized transport, with attention to the needs of those in vulnerable situations (Simon and Arfvidsson 2015, p.6).

There are two indicators relating to transport, 11.2.1 being the most relevant for urban transport:

11.2.1 Percentage of people within 0.5km of public transit (running at least every 20 minutes) in cities with more than 500 000 inhabitants, and

11.2.2 Km of high capacity (BRT, light rail, metro) public transport per person for cities with more than 500 000 inhabitants.

Testing of these targets on five industrialised and industrialising cities rightly criticised the indicators for favouring formal public transport (Simon and Arfvidsson 2015). However, unfortunately there is a recommendation to replace the 20 minute indicator with a travel time-related indicator. Time, although commonly used as a measure of the effectiveness of transport planning, is not often important locally where people may be happy to take the option of a slow mobility form, such as walking. Importantly, flexibility around these indicators is needed in order to allow for local conditions, such as the population size of the area supporting a 20 minute frequency in public transport and the range of transport options available, including those initiated by local residents.

Most cities have an unequal distribution of opportunity for residents. In Australia, poorer urban facilities are usually found on the fringe of the city and in peri-urban areas outside the edge of the city. There is a trend for diminishing growth in income per capita and declining access to high productivity employment, and in some cases hours of work, as the distance from an Australian CBD increases (Godfrey et al. 2015, Stanley and Brain 2015). This trend of fringe disadvantage is increasing, in both industrialised cities (such

as London) and in industrialising cities (UN-Habitat 2013). About one-third of the urban population in industrialising cities lives in slums with accompanying over-crowding, pollution and traffic congestion, the highest numbers being in Southern Asia (UN-Habitat 2013, 2015). These areas of deprivation are characterised as being largely unplanned and sometimes illegal. While in Western countries (in contrast to industrialising countries) basic infrastructure is usually provided, both industrialised and industrialising countries often have clusters of poor social infrastructure, accessibility infrastructure and quality of life services.

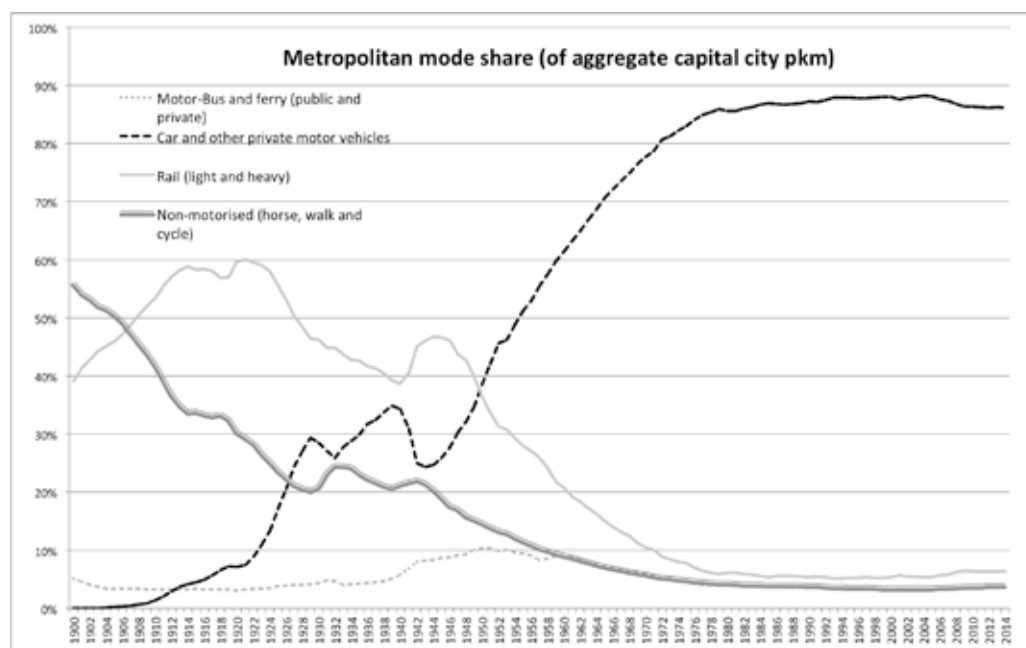
Alternatives to car travel

Alternative mobility options to a private vehicle can be classified as public transport, informal transport, community transport (also known as paratransit), and active transport (walking and cycling). Community transport is variably organised between countries, by welfare agencies, local government and transport operators, usually for people who are aged or with a disability, but is not discussed in any detail in this paper. This paper also does not discuss new and evolving forms of transport, particularly around the development of electric cars and driverless cars.

Figure 3 shows the extensive changes in transport mode shares that took place in Australia from 1900 to 2014. In 1900, non-motorised and active transport was used most commonly. About 1945, the proportion of metropolitan travel by kilometre travelled taken by cars rapidly accelerated, other forms of travel steadily dropping and remaining at a very low level. Since the 1980s, public transport share has sat at, or below, 15% of trips (Cosgrove 2011). This pattern is reflected in many industrialised cities, however there tends to be higher car use in colonised countries, such as USA and Australia, where cities are more likely to be designed for car travel and urban sprawl has not been halted.

Cities in industrialising countries sit at many different points on the timeline shown in Figure 3. Travel modes may reflect the pattern found in industrialised countries before 1945, or they may be at a stage of rapidly increasing growth in car use of the 50s and 60s in industrialised cities. Thus, it may be that some industrialising cities now operate as a 20 minute neighbourhood and can be given the infrastructure and support to build on and improve the infrastructure around this model. Ironically, just as some westernised countries are beginning to move towards discouraging car travel, many industrialising cities are rapidly moving towards car domination and travelling down the track travelled by industrialised countries 50 years ago.

Figure 3: Proportion of metropolitan travel by kilometres travelled, by mode, 1900-2014 (Australia)



Source: Updated from Cosgrove (2011), p.14.

Informal transport

Informal transport is largely associated with industrialising countries, especially Asia, Africa and South America, where the system is unregulated, usually has many independent operators and can provide transport for a large proportion of the population. The form of transport can be minibuses, small two, three and four wheel vehicles, powered by an engine or by a person, or less commonly in an urban area, an animal. In many locations informal transport has adopted engine power, at times to a large extent, such as in Vietnam. In Ho Chi Minh City there are 700 two-wheel engine vehicles per 1,000 people (Cervero 2013a). Authorities have mixed responses to informal transport, ranging through suppression, partial control or toleration (Fin et al. 2011).

In an urban setting, informal transport is a response to the inability of the formal transport sector to provide transport services, particularly for lower income people. In Bangkok, for example, 50% of passenger trips throughout the day are by bus, although buses are very slow in peak periods (Cervero 2013b). Only about 100 of the approximately 5,000 cities in India have formal public transport. Thus there is a heavy reliance on the informal sector in India, as is the case in South Africa (Fin et al. 2011). The dominant form of informal transport in South Africa is a mini-bus taxi. While it is the only form of transport for many, it can be unaffordable, unsafe (including assaults that may occur on the bus) and unreliable (Lucas 2011). Walking is used for about one-third of all trips in African cities and up to 90% of trips in smaller and poorer cities in Asia (Cervero 2013a,b). In some cities, such as Delhi, it is common to observe cyclists, pedestrians, cars, buses, motorcycles and street vendors with pushcarts all compete for the same urban road space, a struggle that has social and poverty dimensions, as well as health and environmental implications (World Health Organisation 2011).

The informal transport sector in many industrialising cities often has considerable value. Many people are dependent on this system for transport and employment. Informal transport can be very efficient, it often being of low speed (safe), space efficient and suited to narrow streets and in conditions of traffic congestion, highly self-organising, some offering a frequent service and able to respond to new transport demands (Emberger et al. 2008). However, the down side is that vehicles may be of poor quality (unsafe) and rarely serviced, perhaps with the risk of some criminal elements involved. A poorly tuned two-stroke engine can emit ten times as many hydrocarbons and particulates as a private car (Cervero 2013a). Drivers may be poorly trained and receive barely subsistence wages, and often there are safety issues from other vehicles on the road, and at times from robbery and turf wars between vehicle operators.

Active transport

As can be seen in Figure 3, in 1900, the proportion of person/kilometres who walked, cycled or rode a horse in Australia, sat at about 55%, a figure that has greatly diminished since. In 2012 only about 4% of people commute by walking and 2% cycled (Australian Bureau of Statistics 2013). However, these figures are likely to be an under-estimation as these modes are used for purposes other than commuting, such as leisure purposes, to access public transport and by children. The use of walking as a trip mode is variable within Australian cities, undertaken more often where the service infrastructure and public transport is better provided. Internationally, many people have walking as their major transport mode, especially in some African countries. While active transport is being strongly encouraged in industrialising cities, the picture is more complex in many other countries. Walking is often a symptom of poverty where long distances have to be travelled to gain essential services, such as firewood and drinking water. Indeed, walking can still be a sign of high disadvantage in countries, such as Australia, today.

20 minute neighbourhoods

The New Climate Economy report (2014) notes that although productivity and efficiency in the use of resources, as well as investments in 'transit' could be improved, '...these benefits will typically be overtaken by economic and population growth within seven years without a broader, structural shift in the model of urban development'. The 20 minute neighbourhood model would offer such a structural shift in urban development.

The 20 minute neighbourhood concept, as it applies within industrialised countries, is commonly defined as where most people are able to undertake most activities needed for a good life within a 20 minute walk, cycle or public transport trip from where they live, for at least 18 hours a day, every day. Thus, such a neighbourhood would need to provide the essential services, social infrastructure and activities and to meet basic needs for social inclusion and wellbeing. Such basic needs include the acquisition of physiological needs (food, clothing, housing), infrastructure such as schools, medical centres, some local job opportunities, public transport and safe active transport options, and life activities, such as common, open space and natural areas.

These needs would be met using values of choice, local decision-making and participation and promotion of a sense of place and belonging. To support the provision of local transport and local services, a 20 minute neighbourhood requires urban planning to promote densification (but not high rise), diverse activity zones and mixed use buildings. Frequent longer distance trunk public transport services need to link neighbourhoods and major activity centres, enabling people to reach some jobs and specialised services, such as higher-education and large hospitals. This is the role of BRT.

There is growing interest in a model of cities that are comprised of 20 minute neighbourhoods. The original idea came from Portland, USA, and is being explored in Australia by the federal Liberal and Labour parties and some state governments, including the Melbourne Plan to 2050. While not under the 20 minute label, the development of a neighbourhood structure, a localism agenda, service availability and frequent and widespread public transport can be found in a number of cities around the world, and is often still found in the centre of historical cities in Europe. Vancouver has been a pioneer in this planning around transport and neighbourhoods (Stanley et al. 2015). The city aims to almost double its city-wide mode share of active and public transport from 27% in 2011 to 50% by 2046 and reduce trip lengths by 30% (Translink 2013).

An important component of the 20 minute neighbourhood is the notion of integration between land use and transport, and all forms of transport, known in the UK as Total Transport, with private car ownership kept to a minimum. A model of integrated transport planning has been operating as a social enterprise in Warrnambool, Victoria, Australia, for four years. Governance is undertaken through a widely representative Regional Accessibility Committee (RAC) that attempts to integrate land use and all modes of transport planning in the town and surrounds (Wines et al. 2014). However, integration with Community transport is proving difficult. The RAC model has representatives from all bodies with an interest in land-use planning and transport, being state and local government, transport operators and organisations, welfare and service agencies and the community. The aim is to achieve horizontal integration, such as across government departments and vertical integration through the levels of decision-making, incorporating a community voice. It is recognised that this is a difficult task, especially in industrialising countries where planning is a new profession, there are likely to be vested interests and the views of communities may be rarely sought.

The future of local transport

Internationally, local transport is a largely overlooked area in transport policy and planning. Yet, getting local transport right is an important part of responding to international goals and targets in relation to social and environmental outcomes, with resultant good economic outcomes. The current urgency and timing is particularly important in industrialising countries due to the scale of the effort in the context of growing need and the opportunities that are presently available to bring about change. These opportunities

relate to the extent of development and change taking place in many cities, and the wider recognition by development and financial institutions of the need to respond to climate change.

The UN believes that many problems of SDG implementation can be best solved at the national level (Graute 2016). While there is a need for policy integration between the levels of government, recent international trends are showing that lower levels of government and the third sector² are becoming more active. Hamilton (2016) reports on the success of the Lima-Paris Action Agenda, launched during COP20 with the aim of mobilising action on climate change from bodies below the national governments, which includes cities, as well as provincial governments and civil society. This paper argues that the major components of the 20 minute neighbourhood model could be used to contribute to the environmental, social and economic needs of all cities. These broad components are, in brief, ensuring short distance travel by local modes of transport, integration of land use and transport planning with densification, and the provision of local service and quality of life infrastructure. While the UN does not wish to interfere within countries, offering a flexible model as a way of meeting the SDGs would seem to be even less directive than the establishment of output targets set by the UN—both processes are needed.

As noted above, Habitat III refers to a transport indicator that aligns with a 20 minute public transport headway. More detail around the application of this concept is needed, such as what density will support transport and services, and these need to be directly addressed by Habitat III. While it is argued here that trade-offs need to be made, there are also many co-benefits. For example, improving the safety and quality of cycling offers benefits around inclusion and health as well as greenhouse gas reductions. Active transport reduces particulate pollution created by fossil fuelled vehicles. There is a need to move from a laundry list approach as found in Habitat's The New Urban Agenda, to an integrated model that should highlight the choices and offer application guidance. The indicators being developed at present should offer flexibility in approach rather than a rigid uniformity, as every city is unique and must develop according to local qualities and necessities (Litman 2015). Finally, it needs to be noted that, while the SDGs bravely talk about the need for social inclusion, the basic work has not been done on measurement of this in industrialising countries, with the corollary that data is not available on which to plan and measure change.

Finances that promote economic growth

The Revised Zero Draft of the New Urban Agenda (18 June 2016) advocates for what it describes as 'inclusive economic growth', a position in conflict with environmental sustainability (Habitat III 2016, p.3). This position on growth is put even more strongly by some financial organisations. For example, The New Climate Economy commissioned a report developed from engagement with business leaders in 30 countries. Chapter 5 starts with its first main point that, '(T)he next fundamental transformation of the global economy can deliver strong economic growth and poverty reduction, and at the same time reduce the growing potential risks of climate change' (The New Climate Economy 2014, chapter 5, p.2). A similar outlook is evidenced in the four major Australian banks who have loaned a total of \$A 70.3 billion to fossil fuels since 2008, 30% of this going outside Australia (Market Forces 2016). Despite their 2°C commitments made at the Paris COP21, \$A 5.6 billion has been invested into fossil fuel projects since December 2015. *Green growth, sustainable growth, as is inclusive growth* are often used to avoid significant change. Meanwhile, there remains little conversation about moving towards financing local transport rather than major roads and long distance rail.

Involving the informal transport system

Jones (2016) writes that in many countries, informal or slum housing is seen as a blight on the landscape to be removed or at least not supported with basic infrastructure such as sanitation. He argues that instead, there needs to be an attitude change which views informal housing as affordable housing, thus respecting people's rights for inclusion. A similar argument can be put forward for informal transport. Given the extent, affordability and flexibility of informal transport in many cities, addressing the shortcomings

associated with this transport mode would maintain and improve the transport options for those at risk of social exclusion while also addressing environmental sustainability. This would involve some regulation, such as in relation to vehicle emissions, and improvements to safety, with financial assistance to support vehicle purchase and maintenance. Initiatives around assisting with transition to renewable energy sources should be undertaken. It is likely that there is a real opportunity for the introduction of electric batteries for informal transport vehicles, if based on renewable energy. The provision of safe road space is needed for informal and active transport. Footpaths may be very poor or absent. Improvements to local street design, to allow connectivity of streets and with street lighting should be undertaken (UN Habitat 2013). Representation of the interests of informal transport operators, where they can have a voice in transport planning, and gain training and advice on maintenance, as needed, would be of value.

A report from the World Resources Institute notes that auto rickshaws ‘play a vital and vibrant role in India’s urban transport systems’ (Mani et al. 2012, p.3). Despite this, they are disorganized and an increasingly inefficient sector, as well as not planned for in the changing transport sector in India. The report argues that auto-rickshaws can reduce the use of private cars by connecting as a feeder to public transport on a contracting basis, as well as offer a door-to-door service in place of a car. The latter could benefit from a digital booking system. Considerable improvements would be needed to the highly polluting two-stroke engines used and improved safety to the in-vehicle passengers and pedestrians.

The informal transport system is important to foster for another reason. The Australian study, reported earlier in this paper, defined the major drivers of social inclusion and wellbeing, being: trips, income, social capital and connection with community. Both the organisation of informal housing, closely linked with the informal transport system, foster a strong social support system. Mumbai is said to survive through a series of networks among the poor (Mehta 2015). People feel a sense of place and belonging, and they can understand what is there and are able to make choices about many aspects of their life, although many of these choices may be around poor alternatives. The informal transport system should be offered safety and environmental improvements, all supported by an efficient and affordable local bus network, the latter being the only possible way of providing mass public transport to all inhabitants of a city in an industrialising country (Peñalosa 2013). Peñalosa has a vision that:

New urban design can accommodate buses in creative ways: hundreds of thousands of hectares of new cities to be built in the developing world over the next few decades could incorporate thousands of kilometres of bus-only roads along greenways, which would constitute formidable, low-cost, high-quality, public transport systems (Peñalosa 2013, p. 21).

However, this is likely to be a longer-term aim, with informal transport being a shorter term lower cost option.

Fin et al. (2011) reminds us that it is not an easy task to make changes to the informal transport sector (as is also the case with community transport), as change is seen as threatening. Change will lead to winners and losers, so what is better for most people may not be so for individual operators. The SDGs should include the informal sector in their solutions, as in the suggested amendments to the transport indicators, noted earlier in this paper. However, with limited knowledge about the informal sector and many local variations, flexibility in indicators needs to be present.

Current opportunities

China and India in particular, are seeing the development of small and middle-sized cities with populations of one to ten million people. Thus, this represents an important opportunity to avoid being locked-in to urban infrastructure which fosters high emissions, and which promotes urban planning around social inclusion. The 20 minute neighbourhood model could be used to great advantage in the development of these new cities. Another opportunity exists in older cities that have not yet undertaken rapid growth in road building and car ownership, with some modification and support of the present modes of transport. The recent climate talks (COP20) resulted in a commitment to \$US 16 trillion for investments in renewables and

cleantech (African Development Bank, OECD, UNDP 2016). This opportunity should be taken to also use these funds to move away from a car-based urban environment to the development of local transport and the 20 minute neighbourhoods. While there is a growing recognition of major funders about the need to transition to renewable energy, as identified by Hamilton, we are yet to see much move beyond rhetoric and there is a need to significantly raise the financial commitment.

There is even less conversation about the relationship between urban policy and planning and the resolution of severe poverty on a longer term basis. The association of this, shown in an industrialised setting, is likely to be transferable to industrialising cities. The association between car use and the need for good accessibility, reduced pollution and traffic congestion, is understood. The relationship between transport and wellbeing is yet to be fully integrated into the mindset of the SDGs and the international banks. Thus, if this is so, the co-benefits arising from the integration of social and environmental outcomes, listed but not structured into an action plan in the New Urban Agenda, should offer an efficient, effective and a timely way forward for the SDGs.

Conclusions

It could be said that cities are at a pivotal point in determining whether we can reach good social, environmental and productivity outcomes. Considerable work has been undertaken, particularly by the UN, to plan for good outcomes in these areas. While valuable targets have been outlined, there is a long way to go to achievement of these. While there is isolated change, incremental change towards universal wellbeing is being overtaken by strong trends that are pulling cities in directions away from this outcome. An increase in population and growing personal consumption is driving on-going economic growth, growth in greenhouse gasses, collapse of ecological systems and growing inequality. The planned SDGs are still sitting in the 'aspirational' box not the 'action' box. As noted by Huizenga (2016) there is a failure to note the urgency of the paradigm shift needed to reform transport, to which should be added the size of the paradigm or ideological shift that is needed.

This paper argues that now is an opportunity to put resources into a new approach to urban land use planning and transport policy as an important means of progressing urgent poverty and environmental outcomes. The 20 minute neighbourhood is a model that could be flexibly applied to many cities around the world struggling with poor accessibility, urban sprawl, poor wellbeing and growing greenhouse gas emissions. The SDGs and Habitat III have the momentum to progress this model, there are undertakings from financial institutions, and there are cities under construction which could build in this model.

Alexander (2015, p.67) talks about the achievement of a *sufficient* economy, where 'everyone's basic needs are modestly but sufficiently met in an ecologically sustainable, highly localized, and socially equitable manner'. Alexander's vision of a sustainable society is possible but it will require the richest countries to downsize their consumption to allow some space for industrialising nations. In fact, this is not a great sacrifice. It is what many people want. A UK survey asked children and adults what comprised a good society. In summary it was found that adults wanted fairness, security, safety, freedom, compassion and tolerance; and children wanted a minimum standard of living, an equal school experience for all, an affordable decent home, access to three healthy meals a day, to feel safe at home and in communities, and affordable transport (Knight 2015).

Indeed, Read (2014), in an empirical study across 180 countries and half a century of data, found that the levels of carbon emissions per capita that maximise life expectancy and wellbeing fall within a tight band averaging only 6.6 tonnes, considerably less than wealthier countries emit per person. Thus, industrialised countries risk being 'over-developed', diminishing wellbeing and increasing rates of stress, depression, obesity, family violence and substance abuse. Thus, downsizing consumption, as proposed by Read and Alexander, would mean that while some countries would lose life expectancy, most would gain if resources were equitably distributed across the globe.

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