How Can Transport Contribute To Other Urban Agendas?

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David Satterthwaite

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David Satterthwaite[i]

INTRODUCTION

The focus of this lecture is on whether and how transport can serve and support other local and global agendas in urban areas. There are important contributions that a well-functioning city transport system can make to a range of goals – including improving housing (and lowering housing costs), reducing poverty (including increasing income-earning opportunities and lowering transport costs), reducing disaster risk, adapting to climate change and climate change mitigation. But to what extent do the transport components of these strategies overlap or conflict? And, perhaps as importantly, is it possible to implement what is needed, especially in regard to land-use management that supports these goals.

I was very flattered to be invited to give this lecture – but a bit puzzled in that I know little about transport. But I work on urban agendas where transport has considerable importance. So it provides me with an opportunity to consider what different agendas want or expect from transport - including provision for the different modes of transport.

HOW DOES TRANSPORT SERVE FOUR URBAN AGENDAS

As someone who works on urban poverty reduction, I want transport systems that cut housing costs and increase the access of low-income groups to income-earning opportunities. Of course I also want transport systems that are safe and keep down time and monetary costs for users. Most of this lecture is devoted to this issue.

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[i] David Satterthwaite is a Senior Fellow at the International Institute for Environment and Development (IIED) in London and a visiting professor at University College London. The IIED is a global leader in policy research in sustainable development. He is also editor of the international journal Environment and Urbanization. In 2004, he was awarded the Volvo Environment Prize. Most of his work has been on poverty reduction in urban areas in Africa, Asia and Latin America, undertaken with local teams. He has a particular interest in how organizations and federations of slum/shack dwellers have demonstrated more effective approaches to urban problems and where their partnerships with local governments have increased the scale and scope of what they can achieve. He has written and edited various books on urban issues, including *Squatter Citizen* (with Jorge E. Hardoy), *Environmental Problems in an Urbanizing World* (with Jorge E. Hardoy and Diana Mitlin) and *Empowering Squatter Citizen* (with Diana Mitlin), all published by Earthscan. He also co-authored two recently published books on urban poverty with Diana Mitlin - *Urban Poverty in the Global South: Scale and Nature* and *Reducing Urban Poverty in the Global South*, both published by Routledge. He also has a particular interest in how climate change can or will add to the stresses and shocks faced by low-income urban dwellers. He is Coordinating Lead Author for the chapter on urban adaptation in the Inter-Governmental Panel on Climate Change's Fifth Assessment (with Aromar Revi of IIHS) and he also contributed to the IPCC's Third and Fourth Assessments.

But as someone who also works on disaster risk reduction, I want transport systems that are resilient to extreme weather or other potential catalysts of disasters and that allow those exposed to high risks in their homes or workplaces to move to safer locations if needed. Also transport systems with the capacity to recover quickly from disruptions; this has particular importance for low-income groups for whom disruption in their incomes of only 2 or 3 days presents them with challenges to their nutritional status. Avoiding, for instance, the disruptions to livelihoods and the very functioning of the city that was evident in Mumbai in the floods in 2005.[ii] And of course, transport systems may have particular importance in getting people away from a site particularly at risk from an approaching storm or flood.

As someone who works on climate change adaptation, transport has importance for reducing disaster risks that are linked to climate change and for building resilience and redundancy within all the infrastructure and service networks that are important for cities. And given how long most transport infrastructure lasts, building into new infrastructure investments new safety margins so they can cope with more intense or frequent extreme weather events and other (likely or possible) impacts from climate change.

There is much common ground between poverty reduction, disaster risk reduction and climate change adaptation. All three have a strong focus on reducing risks, especially for low-income groups and/or those living in informal settlements that lack risk-reducing infrastructure and services. But these three different urban agendas tend to focus on different sets of risks. However, the infrastructure and services that are so important for poverty reduction (good quality, regular water supplies piped to homes, good provision for sanitation, drainage and solid waste collection, health care and emergency services, schools, rule of law/policing and accountable local government) are also key to disaster risk reduction. They (and the institutional and financial systems that underpin them) also provide a valuable base from which to address climate change adaptation.

As someone who works on climate change mitigation, transport has obvious importance. Greenhouse gas emissions per person in any city are much influenced by urban form and by the quality of provision for public transport (and of course provision for public transport also influenced urban form). It is worth recalling the seminal work of Newman and Kenworthy showing how many of the European cities with the highest standards of living had per capita gasoline use that was a quarter that of many US cities.[iii] Barcelona that has a high quality public transport system and a historic city core that is oriented to pedestrians has much lower greenhouse gas emissions per person than (for instance) Atlanta. Curitiba in Brazil with its well-known use of Bus Rapid Transit and its land-use planning and feeder bus system has a less carbon intensive transport system than most other Brazilian cities.

If dangerous climate change is to be avoided, a city's quality of life needs to be delinked from high greenhouse gas emissions per person. There are also many examples of cities in low-income nations

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[ii]Revi, Aromar (2005), "Lessons from the deluge: priorities for multi-hazard risk mitigation", *Economic and Political Weekly*, Vol. 40, No. 36, pages 3911-3916.
[iii]Newman, Peter and Jeffrey Kenworthy (1999), *Sustainability and Cities: Overcoming Automobile Dependence*, Island Press, Washington DC, 442 pages.

with very low emissions per person.[iv] But we also have some examples of cities that have relatively low greenhouse gas emissions despite high per capita incomes – as in Barcelona or Curitiba. Porto Alegre, a Brazilian city with a very high quality of life is reported to have a tenth of the greenhouse gas emissions per person when compared to most cities in the US. Oslo, Copenhagen and other European cities with a very high quality of life also have per capita greenhouse gas emissions far below those of cities in the USA. However, part of this is explained not by transport systems but by the origin of their electricity supplies; countries (and cities) with much of their electricity generated by hydro-power have an obvious advantage over those that rely on thermal power stations in regard to greenhouse gas emissions per person.

Although the climate change literature points to 'win-wins' between different urban agendas, there is not much overlap between adaptation and mitigation – although cities with high levels of ambient air pollution can find that lowering greenhouse gas emissions can contribute to lower levels of air pollution. But in the longer term, unless the world's governments agree to greenhouse gas emission reduction on a massive scale to avoid dangerous climate change, even cities with strong adaptation programmes will be unable to protect themselves.

MAKING SENSE OF CITY GROWTH

One difficulty facing any city government is not really knowing what is happening in their city. Today and everyday, in any city, many individuals or households are thinking of moving. So take Delhi. There are thousands of people who are moving or thinking of moving to Delhi from another city, town or rural area. There are also many Delhi residents moving or thinking of moving to somewhere else within Delhi – perhaps looking for more space or to find somewhere cheaper or better located in regard to income-earning opportunities. Meanwhile hundreds of businesses are considering whether to expand or move within the city or move elsewhere. Then there are many businesses outside Delhi who are considering investing here. All these individual, household and enterprise decisions influence demand for transport – but no city government has a record of these decisions. Every ten years, censuses tell us about how populations have changed for cities and their surrounds and the changes in population within cities. But censuses so often bring surprises – as the city in which I live has a larger or smaller population than expected – but we only learn about this every ten years.

We know that migration flows to a city where there are new investments and economic opportunities. Cities can be seen as labour markets (and as Alain Bertaud notes, without a functioning labour market there is no city[v]). This is a relief because people are moving to where there are more job or livelihood opportunities. But a large part of the migrants and the "already in the city" residents have low incomes. All need to find accommodation that they can afford and that provides them with access to income-earning opportunities. Here, it is worth looking not only at cities as labour markets and how those with labour seek to insert themselves in this market (or to move to a more advantageous position in it) but also at what this means for their housing and their transport.

[iv]Hoornweg, Daniel, Lorraine Sugar and Claudia Lorena Trejos Gomez (2011), "Cities and greenhouse gas emissions: moving forward",*Environment and Urbanization*, Vol. 23, No. 1, pages 207-227.
[v]Bertaud, Alain (2014), *Cities as Labour Markets*, Working Paper No 2, Marron Institute, New York University, New York, 49 pages.

DO ALL LOW-INCOME GROUPS REALLY LIVE IN 'SLUMS'?

There is much discussion in India and elsewhere about 'slums' and about how many people live in them. Bhan discusses how the size of Delhi's slum population (and the proportion living in 'slums') is much influenced by what definition is used and notes that many of Delhi's most vulnerable poor live in makeshift shacks or sleep on the street and remain uncounted in any assessment of who lives in 'slums'.[1]

Of course, how many people live in 'slums' also depends not only on how they are defined but also on how accurately they are measured. The United Nations produces statistics for the proportion of the urban population living in 'slums' in most nations and globally[2] but there are serious doubts as to the accuracy of these 'slum' statistics.   First, there are the criteria used for defining 'slum' households. A household is defined as a slum household if it lacks one or more of the essentials like 'improved' water, 'improved' sanitation, durable housing or sufficient living area. But a large proportion of households with 'improved' water or 'improved' sanitation still lack provision to a standard that meets health needs (or, for water, what is specified in the Millennium Development Goals as sustainable access to safe drinking water).[vi] If there were the data available to apply a definition as to who has provision for water and sanitation to a standard that cuts down health risks and ensures convenient and affordable access, the number of 'slum' dwellers would increase considerably in many nations. If we had statistics as to who had water piped to their premises that was of drinking water quality and regular and classified households without these as 'slum' households, the number of slum dwellers would increase dramatically.[3]

A second reason for concern as to slum statistics' accuracy is that they show very large drops in the proportion of urban dwellers living in 'slums' in some nations for which there is so little supporting evidence. For instance, the United Nations Human Settlements Programme (UN-Habitat|) states that the proportion of the urban population living in 'slums' in India has fallen from 54.9 per cent in 1990 to 29.4 per cent in 2009. If this is true, then India has had one of the world's most successful programmes in reducing slum populations. For Bangladesh, the proportion of the urban population living in 'slums' is said to have fallen from 87.3 to 61.6 per cent in this same period. Where is the supporting evidence for this? It may be that most of the apparent fall in the slum population globally between 2000 and 2010 was simply the result of a change in definitions – as a wider range of (inadequate) sanitation provision was classified as 'improved'. It is also not clear where UN-Habitat gets its annual figures for the proportion of the urban population in 'slums' yet these figures are so widely used and quoted.

 But perhaps the issue is not to improve the definition and measurement of 'slums' and 'slum' households but to better understand the ways in which city residents get accommodation in a range of housing sub-markets through which they buy, build, rent or otherwise get to use housing. Then it becomes possible to consider how transport does or could better serve their inhabitants. Some

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[vi]For water, improved provision includes piped water into dwelling, yard or plot, public tap or standpipe, tubewell or borehole, protected dug well, protected spring or rainwater collection. For sanitation, improved provision includes use of use flush or pour-flush toilets to piped sewer system septic tank or pit latrine, ventilated improved pit latrine, pit latrine with slab or composting toilet.   These cover such a wide range of types of provision and will include many that are very deficient in urban contexts. See UNICEF and WHO, (2012), Progress on Drinking Water and Sanitation; 2012 Update, Joint Monitoring Programme for Water Supply and Sanitation, UNICEF and WHO, New York and Geneva, 60 pages.

housing sub-markets may be assessed as very poor in terms of housing quality but very good in terms of access to income-earning opportunities. Each individual or household has their own particular priorities in terms of location, size, quality (of building, infrastructure and services) and price. For those with limited incomes, a lot of these are in informal settlements or in overcrowded rental accommodation. It is a big mistake to label all these as slums as this gives no sense of their diversity. What we need to understand is how low-income individuals or households seek the accommodation that provides the best compromise for their multiple needs and how these can be supported.

There was a low-income settlement I saw in Montevideo that was called Barrio Nicol. Barrio means neighbourhood. But why Nicol? It was an abbreviation for 'ni-colectivo' – neighbourhood where there is no bus. For the residents to name their settlement in this way shows a strongly felt need.

In cities, low-income groups usually face the greatest difficulties finding housing that is close to income-earning opportunities. Just as all of us do, they have to make choices that reflect trade-offs that balance location in relation to income earning opportunities, size, quality, provision for infrastructure and services and tenure security. Many would like to get a plot of their own on which they can build their own house. But they have less than we do in regard to what they can afford. My many trips to Mumbai and what I have learnt from the National Slum Dwellers Federation, Mahila Milan and SPARC are clear examples of particular trade-offs by low-income groups. For instance, the pavement dwellers who prioritize locations that maximize their access to income earning opportunities (most able to walk to where they work) end up getting very small, poor quality and usually insecure accommodation. As the census of pavement dwellers done by the pavement dwellers showed, these were not unemployed recently arrived rural migrants (which is what the authorities thought) but fully employed city residents. They lived on the pavement because there was no better option that they could afford.[vii]

We can look at Dharavi as a slum.[viii] Or as a source of cheap accommodation within walking distance of many jobs or income-earning opportunities. Or as a highly productive economy with very few traffic accidents that generates some US$400 million worth of goods and services in a year; or as a model low-carbon economy with very low private automobile use and lots of recycling and reusing of materials. Or as a place that may be the nightmare of any environmental health officer or occupational health specialist.

Many of the residents of Dharavi share rooms or even beds in rented accommodations which keep down costs and provide immediate access to income-earning opportunities – but this also means very little space, no security and inadequate or no provision for basic services in the home.

[vii]SPARC (1985), "We the Invisible"; a Census of Pavement Dwellers, Bombay, 41 pages.
[viii]Patel, Sheela and Jockin Arputham (2008), "Plans for Dharavi: negotiating a reconciliation between a state-driven market redevelopment and residents' aspirations", *Environment and Urbanization*, Vol. 20, No. 1, pages 243-254; Lantz, Maria and Jonatan Habib Engqvist (editors) (2008), *Dharavi: Documenting Informalities*, The Royal University College of Fine Arts, Art and Architecture, Stockholm, 303 pages; Patel, Sheela, Jockin Arputham, Sundar Burra and Katia Savchuk (2009), "Getting the information base for Dharavi's re-development", *Environment and Urbanization*, Vol. 21, No. 1, pages 241-252; SPARC and KRVIA (2010), *Reinterpreting, Re-imagining, Redeveloping Dharavi*, SPARC and Kamla Raheja Vidyanidhi Institute for Architecture and Environmental Studies, Mumbai, 81 pages.

Box 1: Housing sub-markets used by low-income groups[i]

- Renting rooms in inner-city tenements or sub-divided housing (where the structures are legal but with high levels of overcrowding and shared facilities; these are usually well located in relation to labour markets)
- Renting rooms in other formal housing structures (including public housing)
- Renting a room or a bed in cheap boarding/rooming houses (these cheap boarding houses are often clustered in locations with income-earning opportunities
- Renting a room or a shack in an illegal settlement (that range from those with relatively secure tenure to those with insecure tenure and from central to very peripheral locations)
- Renting a land plot on which a temporary shack is built (including rooftops)
- Renting space – eg in hot beds, cages, public sites, warehouses, workplace, graveyards….. (mostly with quick access to labour markets)
- Employer-provided room (eg domestic servants)
- Building a home in an informal settlement (that range from those with relatively secure tenure to very insecure tenure),
- Building a home on illegal subdivision
- Invading empty houses/buildings or part constructed buildings ….. (often with central locations)
- Building a home within a site & service scheme
- Building house or shack in a temporary camp or on the pavement

 So instead of labelling all the housing sub-markets used by low-income groups as slums, lets consider the different housing sub-markets through which low-income groups buy, build, rent or occupy accommodation, who lives in them and how these are structured around transport options and costs.

Box 1 lists different ways by which those with low-incomes buy, build, rent or otherwise obtain accommodation. Box 2 lists some different categories of low-income groups that influence the options that each has for getting accommodations – for instance households with low but steady (formal) employment have more possibilities of getting loans for housing than those without. Single persons will often choose poorer quality accommodation than households with children to maximize the amount they can save or send back to their family. Some low-income groups face more constraints than others in seeking accommodation – for instance those who suffer discrimination in getting access to land or housing or loans.

Box 3 lists the factors that influence the choices made by individuals or households in regard to housing. This now allows a consideration of how transport influences or can influence these. Obviously, for almost all low-income individuals or households, access to income-earning opportunities (which means location and the time and monetary cost of getting this access) are important. Improving public transport can (in theory) reduce time and money costs and this contributes to poverty reduction if this benefits low-income groups. If Barrio Nicol got its colectivo, it would likely improve incomes and reduce time spent travelling. But improving public transport (and access) could also serve low-income groups that want to develop their own home if it helps increase the supply and reduce the cost of land for housing (whether this is legal or illegal in terms of land occupation and formal or informal as to its land use regulations).

Box 2: Who are the low-income groups seeking accommodation

- Households with low but steady incomes (including many lower rank public employees...)
- Households with low but fluctuating incomes
- Single people/childless couples with low incomes (and/or seeking to save as much as possible...)
- Most students
- Low-income older people (often with low/falling pensions)
- Temporary residents with low-incomes seeking to minimize what they spend on housing
- Weekly commuters/seasonal or circular migrants
- Those who suffer discrimination in getting access to housing, land or credit to build housing (single mother households? Particular ethnic groups?......)

Many low-income households that manage to get a plot of land on which they can build a home see this home as a savings account as well as a home. This savings account is increased as they incrementally build, improve and extend the house. Its value is increased if infrastructure and services are provided or improved – and if tenure can be secured.

Box 3: What are the priorities of each individual or household in regard to housing

- Location for income/livelihoods
- Cost & how to pay
- Size
- Quality of house
- Quality of site (& space for expansion)
- Quality & accessibility of services
- Tenure/security
- Permanency
- Shelter as savings account
- Extent to which they can help build the shelter

HOUSING OPTIONS

If low-income groups have managed to get accommodations that are well located in relation to income-earning opportunities – however poor the quality of their housing and insecure their tenure – they generally want to stay there. Indeed, this easy access was often the reason why these developed – and the

Box 4: How low-income groups get housing

- renting
- leasing
- invading
- purchasing
- inheriting
- Informally using
- sharing
- getting from employer

A house, apartment, shack, room or open space

inhabitants have to put up with the insecurity, poor quality housing and lack of infrastructure but they have a good location. What they want is basic services and avoiding eviction.   For the *de facto* owner occupiers, they want tenure.   There are many good examples of community-managed

incremental upgradations which turn an informal settlement into a formal settlement. And usually, these are quite high in density and where a high proportion of trips are walking. This incremental upgrading can produce good quality accommodation with infrastructure and services and nice neighbourhoods to live in. These upgraded settlements actually fulfill many of the goals of the New Urbanism. Lots of shops and services within walking distance.High densities that mean high and concentrated demand for public transport. Good provision for walking and bicycling (and often many lanes that are only for pedestrians and bicyclists). And often public spaces that are heavily used and lots of work opportunities.

So it is very common for those living in informal settlements to want to stay there because they have a relatively good access to labour markets and they also want to avoid the disruption to social networks that a move would entail. There is also a literature going back to the 1930s on how moving low-income households to 'better quality' accommodation in peripheral locations actually impoverishes them as this move reduces their access to income-earning opportunities.[4]

So incremental upgrading of informal settlements preserves the locational advantages while also addressing the other needs of the residents. This is perhaps best seen in the work of the Community Organizations Development Institute (CODI) in Thailand that provides loans and support to low-income community residents to develop their own upgrading plan and negotiate secure tenure from the owner of the land on which they live.[5] These have transformed the quality of housing and provision for infrastructure and basic services for tens of thousands of households,

Upgrading is not always the preferred solution; the pavement-dwellers in Byculla (Mumbai) want better quality and more secure accommodation as long as it does not impose too high a monetary cost for the housing and services and too high a time and monetary cost getting to and from work.[6] The 20,000 households that lived along the railway tracks in Mumbai did not want to stay there if there were housing options that better suited their needs and priorities. They agreed to move although what was unusual in this move was the extent to which those who moved were themselves engaged in decisions about where to move to, when to move and how.[7]

As a city grows and expands, so there is a need to upgrade infrastructure. For many cities, there is also a very large deficit in basic infrastructure that needs to be remedied. Many cities also have a high concentration of low-income groups living in areas at risk from extreme weather events – and often also from the increase in risks that climate change is bringing or will bring. So there will be some need for relocations. What stands out from the successful and the unsuccessful relocations is the key role of location and the quality of public transport. And as critically, who chooses the site for the relocation – and who manages the move (as in the example given above of those relocated from beside the railway tracks in Mumbai). Also, with low-income groups in informal settlements allowed to challenge official plans and limit those who have to move to a minimum.

CAN TRANSPORT COSTS BE REDUCED?

For at least two decades, there have been studies showing the high proportion of household expenditure going to transport among urban populations – or the high costs facing particular urban poor communities. These include studies showing public transport costs representing a significant part of total household expenditure. Travel can take 20-25% of daily wages among the low-income

population living in cities such as Delhi, Buenos Aires and Manila and up to 30% in Pretoria and Dar es Salaam.[8] Yet transport costs are often not even considered in the setting of poverty lines.[9]

In Buenos Aires, a 2002 survey found that the poorest quintile spent over 30 per cent of family income on public transport.[10] In Sao Paulo, a 2003 survey showed low-income groups spending 18–30 per cent of their incomes on travel; by comparison, wealthy residents spent 7 percent of their incomes and were able to travel far more frequently.[11] In Salvador (Brazil), a household survey in two peripheral low-income neighborhoods found that transport expenditures averaged 25% of monthly expenditures.[12] In informal settlements in Nairobi, residents spend 8 per cent of their income on transport[13] although given the variety of locations for informal settlements in Nairobi in regard to how close they are to income-earning opportunities, there is likely to be considerable variation in this between different informal settlements. A study of average household expenditures across Zambia's urban population found that 12 percent was spent on transport.[14]

But averages across urban populations hide the great diversity in costs between different settlements and locations – and many low-income groups live in very poor quality and overcrowded accommodation in more central areas to get quicker, cheaper and easier access to income-earning opportunities. So those living in more distant poorly located settlements may be paying two or more times the average. In addition, what such figures do not show are the other consequences of high public transport costs. These include the time and energy burden of having to walk more. Some studies have shown how many low-income groups walk long distances to keep their transport expenditures down.[ix]In a survey of Wuhan, China, the bottom quintile reported walking for almost half of their journeys; so too did the bottom quintile in Buenos Aires.[x]A survey in Nairobi showed the high proportion of trips done by walking for those living in 'slums'; women were more affected – as 67 per cent of low-income women walked, significantly higher than the 53 per cent of their male counterparts.[15]High transport costs may also result in employment opportunities forgone because the time and monetary costs of getting there are too high. A 2003 survey in Wuhan, China, showed how prohibitively high transit costs resulted in low-income groups rejecting jobs far from their homes.[xi] A study of eight informal settlements in Cairo noted that high travel costs were one reason why few children went to secondary school.[16]

WHAT COULD TRANSPORT DO FOR HOUSING COSTS?

In theory, expanding road networks in and around a city should increase the supply and reduce the cost of land for housing. Expanding public transport services to a larger area in and around the city (including rail/light rail, bus-rapid transit and metro) should also do so. This seems to go against the very considerable literature on how improving any location's access to central city locations (or labour markets) increases land prices. But surely this is only for the locations most favoured by the improved access. I want to know what happens to land prices in locations that benefitted from the new road, BRT, rail or metro but that were further away from the stations or bus stops. When

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[ix]see, for instance Huq, A T, M Zahurul and Borhan Uddin (1996), 'Transport and the urban poor' in Nazrul Islam (editor) The Urban Poor in Bangladesh, Dhaka: Centre for Urban Studies for various cities in Bangladesh, and Barter, Paul A (1999), 'Transport and urban poverty in Asia. A brief introduction to the key issues', Regional Development Dialogue 20:1, 143-163 for central Bombay/Mumbai and Jakarta).
[x]Carruthers et al. 2005 op. cit.
[xi]Carruthers et al. 2005, op. cit.

Curitiba developed and then extended its bus-rapid-transit system, land prices must have increased in and around the bus stops – but overall this bus system served to increase the land area in and around the city that was within (say) half an hour and a particular cost of the industrial area or the central city.

However, when I asked friends of mine who are transport specialists, they suggested that I was wrong on this. They pointed to how improving the access of peripheral areas to central city labour markets meant land speculation and real estate interests focusing on commercial developments or developments for wealthy households with very little new land available to low-income groups. They also pointed to how land-use regulations (and how they are applied) constrained any increase in the supply and reduction in the cost of land for housing. But I want to stick with my perhaps naïve hope that expanding the area in and around a city that has access to central city (or other clusters of) income-earning opportunities (and services) can also increase the possibilities of low-income households to get land on which they can build housing. So the key issue here is how improvements in transport can be linked to land-use changes that do increase the supply and reduce the cost of land for housing. Three examples are given here of different ways in which the supply of land for housing was increased and costs lowered.

The first is from the city of Ilo in Peru, an industrial city that was growing very rapidly because of a large copper smelter located closeby. The first Mayor to be elected there (in 1982) saw the difficulties that low-income households had in finding accommodation so the municipal government bought a plot of land in a good location in relation to the city and employment, plotted it, put in basic infrastructure and sold the plots for the equivalent of US$60 per plot. This opened up the possibility of legal housing for low-income groups even if they had to build their own homes. Here the key intervention was not on transport but on increasing the availability of low-cost housing plots well-located in relation to income-earning opportunities.[17]

A similar story in Namibia. Here, a national federation of homeless people had been formed by savings groups. Their members could not afford to buy legal housing plots that local governments developed and sold at cost. But this federation negotiated with local government to allow smaller plots (below the official minimum lot size) and lower-cost infrastructure. This reduced the cost of legal land plots for housing and widened the proportion of households able to afford these.[18]

A different story from Tunisia that was documented in the 1970s but for which I have found no more recent documentation. Here, a government agency purchased land in and around cities, subdivided it into plots, put in the basic infrastructure and sold it – including sales to housing companies. This was done on a rolling programme so the sale of the (now prepared) land generated the revenues to allow the agency to continue buying land. This did not bring direct benefits to low-income groups because this boosted the supply and reduced the cost of formal housing that they could not afford - but it increased options for lower-middle income groups who then were no longer in competition with low-income groups for existing housing.[19] There were also other government initiatives to improve conditions in informal settlements that would have brought more direct benefits to low-income households.

There are also some historic moments when a city government greatly increased the plotted area around it (as in New York and Barcelona) and what did this do for housing prices? How much did the expansion of public transport in London through suburban railways and the metro increase the

supply of land for housing and reduce the cost (or were all the benefits concentrated in middle and upper income groups).

Of course, whether or not an increase in the area in and around a city with good access to income-earning opportunities brings cheaper housing also depends on the price and availability of building materials (and how these are influenced by laws, codes & regulations on building design & materials). It also depends on the cost of getting permission to build, extend, buy or sell and the cost implications of meeting land-use regulations. Like so many other aspects of urban development, it is influenced by the attitudes of politicians and civil servants – in this instance, regarding the best use of government land and attitudes of politicians and civil servants and elites regarding development of unused land for low income groups. It depends on who can get credit for land purchase and housing and who can access it.

So how can we combine the expansion of transport systems with increasing the supply and reducing the cost of land for housing and the infrastructure it needs. But without urban sprawl.And without building into the urban form increasing car dependency.

CONCLUSIONS

There are some strong and important linkages within a good transport policy that can serve the different urban agendas. Public transport systems that are not only used by those with low-incomes that keep down time and monetary costs for users, that widen housing choices for low-income groups, that are pleasant and safe and that help keep down transport-related greenhouse gas emissions. And in doing so, reinforcing the comparative advantage of that city in retaining or attracting new investment?

Can we learn from the way that low-income groups and their own organizations have upgraded their settlements to show how a high quality of life can be achieved with high densities and a high proportion of all trips made by walking, bicycling and public transport?

How can more attention be paid to the five Ds that influence travel demand: Density, Diversity of land uses (jobs and homes, provisions for walking and bicycles as well as cars); Design (street layout that encourages pedestrians and bicycles), Destination accessibility (what can be reached within 30 minutes) and Distance to transit.[20]

Can all discussions of relocation now be done with those 'to be relocated' with particular attention paid to how this affects their access to labour markets and the time and transport costs they would face. Clearly, there are very large variations in upgrading programmes from serving those who live there to those that push them out.[21] Clearly, settlements will be displaced as cities upgrade their infrastructure (and address the often enormous deficits in basic infrastructure). But the cost of doing relocation well (so that all those who are relocated are fully engaged in planning and managing this) is so often a very small fraction of the infrastructure investment budget.

 So much of the above depends on changing the nature of the link between city government and those living in informal settlements. Do city politicians and civil servants understand the key

contributions to the city economy made by those living in informal settlements and also understand their needs and priorities?

Are there forms of redistribution to which transport systems contribute? For instance, where the transport modes that low-income groups use are faster than using private automobiles? Where provision for bicycle use is so good that the middle-class also choose to bicycle (see some cities in Europe with 30-55 percent of trips made by bike)[22]

And perhaps the most difficult in any successful city: How to get control of land use and land-use changes so that these are in the public interest? And here with particular attention to increasing the supply and reducing the cost of land for housing in locations with good access to labour markets. As noted by Angel, et al,[23] few city governments are actively preparing for urban expansion. The planning horizon of a politician is too short. Many governments are still anti-urban and will not plan for fear that it encourages the 'rush to cities' even though there is no credible evidence that shortages of housing, roads, open space, drinking water or public facilities have any effect on rural-urban migration.[24]

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