Mobility practices of the urban poor in Ahmedabad (India)

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Abstract

Urban poverty, a prominent issue in the rapidly urbanising developing world, consists of many interrelated aspects in poor people's lives. One such aspect is accessibility, which determines the crucial links between housing, labour markets and other amenities. Relatively little is known about how poor people negotiate the complexities of their daily lives in relation to their mobility choices with respect to existing transport systems, especially in Indian cities. This thesis argues that the poor should be viewed as 'disadvantaged citizen' rather than 'disadvantaged commuters' or 'vulnerable road users' as often described in the transportation studies in India and elsewhere. It is important to ask *why* the poor make certain mobility-related choices and how these choices shape their own efforts to deal with poverty. This thesis develops a conceptual model linking poverty and mobility debates by employing social practice theory for understanding and structuring mobility related practices of the poor. Further, the conceptual model is pitched in the larger international debates of informality, poverty alleviation and sustainable mobility.

To situate the mobility practices of the poor, Ahmedabad is selected as a case-study which represents the dynamics of poverty, informality and intraurban relocation and displacement coupled with some innovative urban projects which, at least in terms of rhetoric, are engaged in developing more sustainable mobility and with poverty alleviation. This study adopts an inductive research strategy based around 'building theory' where the focus is on understanding the poor's own efforts to deal with their mobility and poverty. A mixed methods approach is followed involving qualitative narratives of individuals and a quantitative household survey, supported by secondary documentary analysis. This thesis extensively uses the qualitative narratives of the poor to build empirical knowledge about the differential sub-groups within the poor and to understand the dynamics of poverty in their mobility related decision-making.

A range of social practices was identified by the research, which have developed around the low affordability of transport. The poor people are largely dependent on the human-powered transport modes like cycling and walking. The poor are found to seek shelter-livelihood-mobility balance variably across their locations, and differing based on their livelihoods and other social categories like gender. The prevailing informality in housing or job markets is often helpful for poor households to not only minimise transport but to also move out of poverty over a period of time, at least, in some cases. However, the current mobility practices of the poor based on walking, cycling and use of shared or public transport, in spite of their low energy consumption, are being marginalised in the official urban and transport planning in Ahmedabad. The poor face an intrinsic paradox in their mobility to access the various facets of the city; on one side, they resist motorised trips due to low-affordability and on the other side, even if some of them want to travel longer distances to access better opportunities, they are constrained in the absence of an affordable and reliable transport service in the city. Finally, this thesis makes a case for more inclusive and integrated policies around shelter-security, livelihood protections and sustainable transport linked infrastructure provision for the poor people in the cities of India. It is crucial that improved articulation and understanding of the social dimensions of transport should attract greater research and policy attention in India in future years.

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List of Acronyms

AMC	Ahmedabad Municipal Corporation
AMTS	Ahmedabad Municipal Transport Services
AUDA	Ahmedabad Urban Development Authority
BPL	Below Poverty Line
BRT	Bus Rapid Transit
CEPT	Centre for Environmental Planning and Technology
CNG	Compressed Natural Gas
DFID	Department for International Development, UK
DPR	Detailed Project Report
EWS	Economically Weaker Section
FSI	Floor Space Index
GoG	Government of Gujarat
Gol	Government of India
INR	Indian National Rupee
JnNURM	Jawaharlal Nehru National Urban Renewal Mission
LIG	Low-Income Group
MoUD	Ministry of Urban Development
NGO	Non-Governmental Organization
NUTP	National Urban Transport Policy
PIL	Public Interest Litigation
SEWA	Self-Employed Women's Association, Ahmedabad
SNP	Slum Networking Program/Project
TOD	Transit Oriented Development

1. The research problem and conceptual premises

This thesis is developed from the confluence of discourses related to three idioms: the city, mobility and poverty. The present chapter lays down the conceptual settings of the city or the urban in India where mobility and poverty interactions take place and the following chapter further deepens the theoretical premises with the help of more specific literature on poverty and mobility. It will be argued that if the urban settings change then the nature of interactions between mobility and poverty change. The urban settings are constantly under transformation, which means that the interactions between mobility and poor people are also constantly evolving in the context of the city and they will further change from one city to another. The 'city' here is incidental yet crucial to establish the nature of interactions.

Hence, the thesis aims to explore through a specific city case study how poor people living in a marginalized socio-economic context and informal employment-housing scenario negotiate their mobility practices. Mobility is often understood as short-term decisions of travel choices (Papacostas & Prevedouros, 2000) such as frequency of travel for various purposes, mode, destination, routes, cost and time of trips. Mobility should also be viewed as being related to long-term decisions such as shelter and job types of locations, vehicle ownership and its usage for accessing the city. Mobility or accessing the city is crucial for everyone in the city. It is more crucial for poor people as it is linked with the possibilities of escaping poverty and deprivation. The current thesis seeks to explain the interaction between mobility and poverty informing theoretical debates and recommending ways of making transport systems more inclusive.

Before embarking on this thesis and narrowing it down to mobility of poor people in an Indian city, it is important to understand the nature of urbanism and the urban context where the poor are located. The very idea of this thesis was generated by observing the struggles of poor people in a city where larger, structural forces were affecting the mobility patterns and policies. Urbanisation has brought a number of changes and challenges for the developing world. The population and productive activities are increasingly concentrated in cities. At the same time, disparities in income continue to rise around the world, especially in emerging economies where wealth is concentrated in ever-smaller groups (Ghosh, 2010). The following discussion begins with the dynamics of the Indian cities and then continues by elaborating the issues of mobility and poverty.

1.1 Urban contestations and the Indian city

"Surely go ahead with development... ask for more and more of it. But in the name of IBP [International Business Park]...in name of development you will throw these residents of Bharatnagar some fifty miles away. Then you will put the same people from Bharatnagar in front of the gates of IBP as guards. What kind of development is this? (Why) can't they stay with you here? [Is it because] they are dark, wear dirty cloths, can't speak English? What kind of development is this where only Mercedes will go but a cycle can't go..."

- A dialogue from a Hindi film Shanghai (Banerjee, 2012)

The above quote encapsulates the contestations that define the kind of urban development challenges Indian cities are facing today: what is development, who defines it and promotes it, who are the beneficiaries and who are the victims of this development? The name of the film *Shanghai* (Banerjee, 2012) is inspired from the Prime Minister of India's 2006 speech where he asserted that Mumbai should aspire to develop on the lines of the Chinese city of *Shanghai*. The newly formed national government in 2014 has promised to build 100 new 'smart' cities. Will these new cities resemble the 'international business park' being talked about in the above quote? *Shanghai* is just a metaphor here for a peculiar kind of urban vision. Time and again, such 'urban visions' are expressed to plan cities, which are 'smart' or high-tech, or

marking them on the world map, which means in other words - attracting global capital. These urban visions focus on building high-tech infrastructure and urban skyline that resembles some global cities. The term 'development' which was used mainly by the academicians and policy-makers so far has become part of the electoral politics, everyday TV debates and popular imagination, riding the waves of a peculiar kind of urban vision.

While 52.8 per cent of the world population lived in cities in 2010, only 31.16 per cent of population in India lived in urban areas (Census of India, 2011). India's cities are placed between its vast population spread across the countryside and the urbancentric global economy. The largest concentrations of poor people live in Indian and South Asian cities. Every third poor person of the world lives in India and every fourth urban poor person lives in Indian cities (Mathur, 2010). Poor people try to make space for themselves in cities by slumming, labouring, vending, transporting goods and sometimes scavenging. In the process of making space for themselves, the poor are often in conflicts with the official developmental plans, policies and government regulations (Benjamin, 2008; Ghertner, 2008; Bhan, 2013). The quote above hints at this contest between competing urban visions and perceptions about an Indian city where the poor do not appear only as people who are marginalised in the process but are also re-instated only to become the low-end workers in the capitalist machinery. But is this the correct way to look at the city and its poor? This contestation for space in a city not only defines the urban political discourse but also the dilemmas in policymaking and academic debates. How to balance the capital investments in real estate and infrastructure sectors with the investments that facilitate the socio-economic activities of people living on low-incomes? How to balance the global aspirations of elites and the structural conditions of disparities and fractured governance of the cities in India and elsewhere?

It is important to understand how Indian cities are viewed around the world as these views impacts the way in which the cities are imagined by local elites. In the past few years, Indian cities have captured much of the popular imagination of the international audience. There are globally circulating images of the Indian and South Asian cities call centres, shopping malls, terror attacks, slum squatters and, of course, the scenes from Slum Dog Millionaire¹. How these cities are viewed popularly around the world is radically different compared to a generation ago. Global business culture, consumerism and violence have merged into and expanded the traditional, organically evolved urban form, which is survived either by accommodation or segregation of competing interests. Anjaria & McFarlane (2011) term the South Asian city as the 'city of action' that is no longer associated with tropes of poverty, despair or traffic chaos. Poverty persists in the 'city of action' but potential for growth and promises of transformation are part of the poverty discourse. The journalistic stories of hope in despair, promises of transformation get translated as the 'development' rhetoric or to put it crudely, as Shanghai dreams. The million plus Indian cities are imagined and consume to be like Shanghai – urban landscape of tall towers, glossy facades, flyovers, elevated roads and beautiful waterfronts. Besides, there is a growing interest in this Indian 'city of action' because it is one of the world's largest markets for consumer goods, gadgets, automobiles and even financial products(Anjaria & McFarlane, 2011). Being like Shanghai and commercial market based interest complement each other to form the new variety of the Indian city of the neo-liberal kind.

The projections of growth and promises of capital investments often override the complex, contradictory and multi-layered qualities of the urban landscape. Thus, the processes of urbanization in contemporary Indian cities need to be looked at through multiple lenses. One of the lenses used in this thesis is the contestation related to

¹ *Slum Dog Millionaire* is a 2008 British drama film directed by Danny Boyle. It is an adaptation of the novel Q & A (2005) by Indian author and diplomat Vikas Swarup. Set and filmed in India, the film tells the story of Jamal Malik, a young man from the Juhu slums of Mumbai who appears on the Indian version of *Who Wants to Be a Millionaire*? *Slum Dog Millionaire* was globally acclaimed and it was nominated for 10 *Academy Awards* in 2009, winning eight, the most for any film of 2008.

urban mobility and how the poor appear in that discourse. The mobility issues in India further confirms the premises on which this thesis was initiated - the contestation over spaces and resources, competing urban visions, neo-liberal promise of development juxtaposed with the structural conditions of poverty and vulnerability. There are only a few works in the urban studies or human geography (like Anand, 2006) which have attempted to view an Indian city through the lenses of mobility. The following section discusses the challenges of urban mobility, transportation related policy-making in Indian cities to place the mobility-poverty linkages in these contexts.

1.2 Mobility, planning and Indian cities

Mobility is an excellent locus for examining modernity claims, because it has been repeatedly identified as a major driver of modernization (Sheller & Urry, 2000) and urbanization. The absence of mobility by implication becomes a key characteristic of 'backwardness' or not being modern enough. An essential part of the condition of modernity (and post-modernity) is the fast, smooth flowing traffic that poses a compression of both spatial and temporal worlds (Harvey, 1989). The imagination of automobile-dependent cities dominated the modernist architectural and planning projects of Le Corbusier, Frank Lloyd Wright, and many others who influenced the generations of planners and architects in both the developed and developing countries. This modern notion of mobility still dominates the discourse of transportation planning in India and elsewhere.

The conventional planning of 'road space' only for the motorised traffic completely marginalizes other existing uses of the street space. Chakrabarty (2007) points out how the imagery of the modern Indian city was not only a product of nineteenth-century European thought; the colonial as well as the post-colonial elites also shared it. Chakrabarty (2002) highlights the distinctions between the road and the bazaar (market place) where the road, as a modernist planning project, requires not only the

making of a corridor for 'free-flowing traffic', but also an erasure of existing uses of urban street space. Edensor (2002) sees the Indian road sides bounded by 'heterotopic space' with sites of numerous activities as against the controlled flow and pace of traffic on Western thoroughfares. Indian traffic is heterogeneous and diverse, moving at different speeds, maneuvering for space, which requires tactile sense of motoring. Sometimes, the street is best described as 'bazaar' (market), which is inherently accommodative. It leaves the possibilities of negotiation and contest for various purposes as well as for various kinds of motorised and non-motorised modes. The 'rational' model of modernist planning assumes that road infrastructure is exclusively for movement rather than activity and specifically for motorized vehicles.

The use of the street by squatters, vendors or slow traffic was not viewed as something modern and assumed that it would be changed with prevailing modernization. The pedestrians, cyclists, cart-pullers or street vendors are not even considered as 'traffic' and thus, there is no question of planning something for them or giving them space. The language of 'eliminating bottlenecks' and 'easing congestion' for motorised traffic is often used in the local transportation plans and media reports: cities are viewed and built around such assumptions. Vendors have had to face repeated raids on their businesses and they are often removed from the roadside for road-widening purposes (Bhowmik, 2005; Brown, 2006). Denied employment guarantees or any form of social security, these evictions also deny them their rights to livelihoods in the city (Brown & Kristiansen, 2009). It was the fundamental inability of modern urban planning to recognise wider uses of streets as a legitimate and intrinsic part of the urban way of life which resulted in converting 'street space' into 'road space' built only for motorized vehicles pushing all the alternative modes and activities into the margins.

Due to the colonial policies of prolonged de-industrialisation in India, the postindependent India witnessed the surge of industrial-commercial activities, which were further aggravated with the economic reforms and structural adjustment program of the

early 1990s. The claims of modernity are re-shaped and re-organised around neoliberalism, which has dominated in the developing world including India since the early 1990s (Chopra, 2003). Since then, the urban policies are influenced by neo-liberalism, where the primary role of transportation planning is perceived to support economic growth by facilitating automobile use and by the 'myth' of saving travel time (as per Metz, 2008). In fact, transport does induce economic growth through investments in infrastructure, the purchase of motorised vehicles and the generation of employment by both of these. Such policies hold the 'growth of mobility' and the 'freedom of modal choice' to be inseparable parts of economic growth and infrastructure building. Being situated in this neo-liberal approach, conventional transport planning assumes that motor-vehicle centric infrastructure building benefits everyone equally in the given transport system. But this growth-centered paradigm of transport does not necessarily address the concerns like equitable human development concerns and environmental sustainability. Vasconcellos (2005) gives further explanation of how the social and political approaches of viewing transportation as economy-generating activity overrides other human development concerns (like poverty) in the Latin American cities.

In countries such as India, which are experiencing high economic growth, there is latent demand for private motorised transport because of newly achieved prosperity. In last two decades, about 100 million vehicles have been added to the roads in India with the share of cars and other four-wheel vehicles nearing 20 million. Many of these vehicles are operated in urban areas including the small and medium towns. However, when compared with the population of the country, this level of motorization is still much lower than the developed world (Gakenheimer, 1999; Chamon, Mauro & Okawa, 2008). The increase, along with rising income levels, of private vehicle use has already resulted in deteriorating air quality and the degrading of the quality of urban living. Ministry of Road Transport and Highways (MoRTH) reports of various years suggest that 8.5 million cars were added between 2001 and 2011 as compared to 7 million cars from 1951 to 2000. The estimate for the year 2025 suggest that the car ownership level

is going to around 35 cars per thousand population adding about 30 millions new cars on the Indian roads (Ghate & Sundar, 2013). In one estimate, the motor vehicles in India will grow to about 200 per thousand persons by the year 2050 (Chamon, Mauro & Okawa, 2008).



Figure 1-1 Global car fleet estimates 2050 (from Chamon, Mauro & Okawa, 2008)

The process of motorisation needs to be considered beyond an increase in private motor vehicle use. Motorisation facilitates the emergence of socio-political constituencies that demand wider roads, cheaper fuels and free parking lots. Further, there is also an economic regime of neo-liberal policies, which provides incentives for the automobile industries and cheap loans for the buyers. In these circumstances, the urban populations of metropolitan cities or small-to-medium-sized towns increasingly assume that private vehicles are inevitable for both practical purposes, such as commuting, as well as for social status. The state, on the other hand, faces a 'viability-affordability dilemma' in running the public buses and is tempted to pull out of the provision of urban services like public transport. For the state, facilitating the proliferation of private vehicles with infrastructure building might be a more rewarding proposition politically compared with running financially complicated and socially challenging public transport services.

Road infrastructure are socially-constructed technical assemblies (Wahdan, 2010) where the power play occurs between competing vehicles. There has been a debate in the popular media in Delhi whether it is a good idea to dedicate the median lanes of multi-lane roads for the exclusive use of the bus rapid transit (BRT) project. The lobbies representing the private car owners petitioned to the high court claiming that as the 'job creators' in the economy, they are more legitimate users of the road space compared to the 'wastage' of space for the bus rapid transit corridors (High court of Delhi, 2012). The high court rejected the petition and supported the government decision of building the BRT project. However, since then the BRT project has not really expanded beyond the pilot corridor of six kilometres, even after claiming 'victory' in the court. Chaplin (2011) points out, through the examples of other basic urban services, the very nature of the post-colonial state which, instead of being an instrument for socio-economic change, have been dominated by coalitions of interests championed in using public funds to provide private goods.

There are pressures on the city administrations to invest in infrastructure to facilitate the movement of private vehicles, which the city governments are complying with after a long lag. Cox (2010) demonstrates how there remains a bias towards prestigious mega-projects and market-based top-down approaches of transport provision in many Asian cities. Badami (2009) shows how this approach further facilitates motorisation rather than promoting the goals of sustainable mobility through the cases of a few Indian cities. Sustainable mobility means to describe all forms of transport which minimize fuel consumption and carbon emissions by minimising the need to travel itself (Knoflacher, 2007; Banister, 2008) that includes modes such as shared or public transport, walking and cycling (Agarwal & Zimmerman, 2008). Knoflacher (2007) argues that the hypothesis of traditional urban transport planning 'growth of mobility' and 'travel time saving by increasing speed' end up creating more transport, environmental, socio- economic problems all over the world. Vasconcellos was one of the early commenters to observe that transportation planners in developing countries

are using transport modelling techniques designed by and developed in foreign contexts which are unsuitable for the everyday needs of people in developing countries (Vasconcellos, 1997b). He urged the planners to reassess their approach, rid themselves of their assumptions, re-think their methods and models and adopt more evidence-based approach to planning by asking a new set of context-sensitive questions.

It was not only about finding appropriate methodology and tools for planning in developing countries. The conventional transportation planning paradigm of facilitating traffic movements in the city was a product of social aspirations and political outlook of the mobility in the cities. It took a long time for many developing countries to adopt sustainable mobility paradigm. The idea of sustainable transport had a belated entrance into Indian urban policies too. It was only in 2006 that the first and current 'national urban transport policy' was formulated. This policy brought a dramatically pronounced shift from 'roads for vehicles' to 'streets for people'. However, the rhetoric of 'sustainable transport' does not find much resonance in transport sector investment priorities, which are highlighted here with three examples of investment at the national and the city level:

- The draft of the national five-year plan (2013-2018) identifies that about 44% of 871 billion US\$ of funds are to be spent on 'urban roads' with only 11% on 'urban (mass) transport' over the next 20 years.
- In 2005, the Government of India created the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) to invest over US\$ 20 billion in urban infrastructure improvements and basic services to the urban poor in 65 mission cities over the course of seven years. After seven years of disbursements, the assigned funds are concentrated in road infrastructure sector, favouring general traffic and not necessarily sustainable transport investments. IIHS reports that 57% of transportrelated funding was allocated to roads and flyovers and 33% to mass rapid transit

and other public transport (IIHS, 2011). All sizes of cities have more JnNURMfunded road and flyover projects than any other types of projects (CSE, 2011).

Further, an analysis of municipal budgets reveals which modes are given priority, beyond JnNURM-funded projects. In Pune, for example, although the city's mobility plan sets out goals of achieving 50% mode share from non-motorized transport and 40% from public transport, they allocated 61% of their 2011-2012 budget to motor vehicle-related projects. Similarly, in the 2013-14 budget of Ahmedabad with the size of US\$ 460 million, about US\$ 152 million will be spent on 'roads and bridges' and the expenditure on public transport is less than half of that amount.

Mobility is a relational concept and that 'one's mobility may well be another's immobility'. The hegemony of private motor vehicles prevails not only in national level programs and city budgets but also in the popular urban culture, media and political demands. This leads to more and more road infrastructure building activities on one hand and marginalization of other modes such public transport, para-transit, cycling and walking. Motorisation is a phenomenon encompassing the consumerist culture, popular imagination and social mobility. It thrives on predominant politics of mobility practiced by the governing class and the motoring class that systematically marginalize the other modes. This process is not unique to the Indian situation but similar trends were seen in the other cities/countries when they were at the peak of the motorization process. However, the unique facet of the motorization process in India is the sizeable portion of its population living in poverty and in informal job-work scenarios. This is an unexplored territory in urban research in India and elsewhere: namely how the process of motorisation affects the poor and how the poor negotiate their travel needs in a city in the context of on-going rapid motorisation.

1.3 Poverty, Informality and Mobility

Urban poverty is a prominent issue in the rapidly urbanising developing world. Poverty consists of many interrelated aspects² and one such aspect is transport, which determines the crucial links between housing and labour markets (Narayan et al., 1999). Evictions in the cities and how the poor are re-located or dislocated resulting in higher transport costs to those households is a familiar narrative in urban planning. Beyond this familiar narrative, the process of motorisation being facilitated by conventional transport planning and the neo-liberal paradigm completely bypasses the poor, given the economic barriers to them purchasing or using motorized vehicles. How do they survive in cities without being motorised like the other economic classes or without being facilitated by the state-sponsored services of the public transport? Relatively little is known about how the urban poor negotiate the complexities of their daily lives in relation to their mobility opportunities with respect to existing transport systems, land use structure and the planning policies (Booth, Hanmer & Lovell, 2000; Barter, 2004; Cox, 2009). The literature - whether in transportation studies or development (or poverty) studies – is inadequate to explain how poor people negotiate transport (along with other urban services) for the betterment of their lives in developing countries in general and in India in particular.

This thesis intends to see people living in poverty with their own agency, their own interest groups and their own ability to change situations and contest for space and resources in cities (as discussed by Gotham, 2003). There is an extensive literature on how the poor struggle and survive in the cities of the developing countries (Davis, 2007; Narayan *et al.*, 1999; Narayan, Pritchett & Kapoor, 2009; Webster & Engberg-Pedersen, 2002): by negotiating housing tenure security through patron-client

² In addition to relative income poverty, interrelated aspects such as food security, shelter security (including access to water and sanitation), access to livelihood, access to health and education services, social networks and participation in local governance etc. play a crucial role in escaping poverty or being in poverty (Narayan et al 1999, 2000 and UNRISD 2010). Some World Bank studies (Narayan et al 1999, 2000) based on the narratives of the poor people highlight dynamic changes in the status of a household in the given time or over a period of time.

relationship (Benjamin, 2008) or by community mobilization for shelter rights, for example, the Slum Networking Programme (SNP) in Ahmedabad (Dutta, Batley & Sidhartha, 2000) and the Slum Redevelopment Scheme in Mumbai (Patel & Arputham, 2008). These are examples of how the poor have survived the hostility of the official master plans, through political support, community mobilization or devising their own strategies. Poor groups build complex alliances to claim public services and to safeguard territorial claims. Solomon Benjamin terms this as 'occupancy urbanism' where poor groups appropriate real estate surpluses via reconstituted land tenure to fuel small businesses whose commodities jeopardize branded chains (Benjamin, 2008). Similar to Gramsci's famous dictum that the 'lower classes achieve self-awareness via a series of negations'³, poor households subvert rules, regulations and legalities in order to survive in the city.

Ananya Roy critiques the perceptions developed based on *Slum dog Millionaire* and other media stories about Indian slums as 'poverty pornography' (Roy, 2011; p.225) and she asserts that it is only one of those fictional imageries that constitutes cities like Mumbai. Mumbai and its squatter settlements are more complex than the extremist clichés like the 'spirit and enterprise' of the poor verses 'the harsh reality of Mumbai slums' games. Such examples show that poverty, poor people or slums have been reduced to a stereotype by the popular media, which either glamorises them or condemns them. These two extremes are also critiqued by Gilbert (2009) that there is trivialisation and exaggeration, both in the right-wing romanticism of Hernando de Soto (Soto, 2003) and in the left-leaning radicalism of Mike Davis (Davis, 2007). Gilbert is critical not just of de Soto's positive stereotyping of urban poverty, but also the simplistic solution of providing the poor with legal titles which according to Gilbert is an idea with some developmental potential has turned into a panacea for reducing urban poverty (Gilbert, 2002, 2009, 2012). Davis generates an apocalyptic, negative stereotype about proliferation of slums in the cities of the developing world (Gilbert,

³ Based on Ranjit Guha's seminal essay 'the prose of counter insurgency' in (Guha, 1983)

2009; Angotti, 2006). Further, Gilbert (2007) observes the explicit 'return of slums' in the UN-World Bank literature (specifically the 2003 Global human settlement report titled 'the challenges of slums') with all its inglorious associations and a long history of the varying use of the term. Gilbert asserts that the newly found use of the term slums have become epistemological shorthand for portraying the problems of urban poverty and creating dangerous stereotypes about the poor and the marginalised, but also glossing over a highly differentiated landscape of urban poverty. Similarly, in the quote at the beginning of the section 1.1, the melodramatic '*only Mercedes will go but a cycle can't go*' is also a clichéd representation of the divide between the rich and poor and is inadequate to explain the conditions by which such binaries are produced or operated.

Developing Gilbert's approach, Arabindoo (2011) insists that researchers should stop treating 'slums' as a 'short-cut icon to desktop-based research' on urban poverty and instead set out in the field to build 'an ontology of slum practices' (Arabindoo, 2011;p.644). Arabindoo argues that rather than a grand narrative about slum as a meta-theory, it is such investigations on the city as a site of everyday practices that provide valuable insights into linkages between the coarser grain of macro-structural processes and the finer texture of human experiences. It is important to trace the new trajectory of their everyday networks and how this reshapes either their resilience or marginality. The urban scholarship on poverty and slums in Indian cities and elsewhere require careful outlining of these concepts charting away from any possible stereotypes, binary opposites or emotive impulses to build narratives that are based on everyday life practices and human experiences.

Here 'urban informality' emerges as a useful concept. It is not merely a labour categorisation or economic category. Informality is defined here as goods, services and practices, which are not entirely formalized, regularized or even legitimized by government. Urban informality has an organising logic (Roy & Alsayyad, 2004) and it can be seen as a system of 'spatialised practices' (Roy, 2009;p.84). Informality exists

and prospers in the gaps created by formal institutions such as markets, governments and societies. This does not necessarily mean that policy interventions that would integrate the informal into legal, formal and planned sectors would 'solve the problem'. Indian urban planning operates through systems of deregulation, un-mapping and exceptionalism, which defy all norms of rational planning and 'future-proofing' (Roy, 2009;p.85). And sometimes, the selective flexibility of the state gives way to the various impasses that indulge in such acts as presented by number of studies (Chatterjee, 2008; Ghertner, 2011; Roy, 2008; Bhan, 2013). These systems are neither anomalous nor irrational; rather they embody a distinctive form of rationality that underwrites a frontier of metropolitan expansion. Importantly, making use of these informalities; the urban poor have created their own lives, their own ways of dealing with their transport means in order to create access.

A study of low-income cyclists in Ahmedabad (Sheikh, 2009) described the existing informal systems of bike renting, selling and re-selling, and financing in the squatter settlements. Another example of 'informal' means of transport is the cycle rickshaws in many Indian cities. While they secure the livelihoods for thousands of poor migrants and personalized mobility for those who cannot afford the automobile, there have been (and continue to be) pressures for their 'regulation' out of congested streets as urban planners and policymakers view them as 'bottlenecks' in smooth flows of traffic (Sood, 2012;p.101). Similarly, there are often efforts by the city governments to regulate various forms of auto-rickshaw services. Licenses, permits and caps on the numbers of auto-rickshaws exist in all cities and yet the number of auto-rickshaws is increasing⁴. These transport markets are highly dynamic: they changes and adapt the routes and operations quickly depending upon where the regulatory authority is more likely strike them. However, in some countries, these unofficial, unregulated and unregistered services are becoming more acceptable to governments and there are attempts to

⁴In absence of municipal bus transport, the city of Surat had more than 55,000 auto rickshaws for a city of two million people.

regularize them. However, bans, bribes, fines and regulations tend to dominate these 'informal' transport services in Indian cities. One recent example is the complete banning of cycles from all major roads (176 of them) in Kolkata (Tandon, 2013). The undemocratic and environmentally unsustainable nature of these regulatory measures has not gone uncontested, yet the technocratic urge for a fast urban modernity remains dominant. In the transport realm, the urban informality discourse has been dominated by informal transport provision (as described by Cervero, 2000) which needs to be expanded to include mobility practices related to walking, cycling and other modes. However, the concept of 'urban informality' in transport realm needs to be employed to understand one, how the systems of deregulation, un-mapping and exceptionalism create hegemony of automobile-centric systems and two, how people deal with mobility related choices given the context of informalised housing and livelihood scenarios.

In the negotiated urban territories, mobility related choices are carried out by 'mobility practices'. 'Mobility practices' is a term used in this thesis for the transport related activities of the poor people. As mobility practices are indicative of specific socioeconomic situations, this thesis intends to place transport-based mobility in the wider context of the lives of the urban poor. The practice oriented approach challenges much transport research in supposing that mobility is not merely about getting from A to B, suggesting that it is instead about integrating everyday life and the activities required of 'normal' social practice (Shove, Pantzar & Watson, 2012). Elisabeth Shove expands the idea of 'social practice' as the action of achieving what people count as normal social practice: signalling membership of society, conforming to convention and reproducing social order. Changes in consumption, including changes in mobility, consequently suggest a rearranging of routine, convention and order. Shove & Walker (2010) suggest that instead of viewing the 'demand' (of mobility or any other forms of 'consumption') narrowly, based on 'human needs' or 'societal function', the understanding needs to be developed about how sustainable practices come into existence and how interventions of different forms can be implicated in these dynamics.

A social practice-based approach may lead to explaining not only the sustainability aspects of mobility but also the socially rooted choices for mobility more comprehensively.

Much of this work on (mobility based) 'social practice theories' is situated in the developed world where the sustainability discourse has different challenges than the developing world (like Lyons, 2013; Williams, Chatterton & Parkhurst, 2013). However, this thesis employs the 'social practice approach' for the developing countries case. In the developing world there are two-fold challenges; one, retaining the existing sustainable, less-resource consuming practices which may not be predominantly perceived as 'modern' or 'formal' and two, dealing with the excessive resource consumption which creates inequitable costs and benefits. For this thesis, the concept of mobility as a social practice will have to be situated within these two-fold challenges while debating the sustainability aspects.

Mobility practices mean 'mobility related social practices'. One of the reasons of the usage of the term 'mobility practices' is also because 'practices' may often be expressions of '*subversive* use'. The concept 'subversive user practices' is intended to capture the tactics deployed by mobility communities to redefine dominant meanings attached to their mobility and resist governmental attempts to regulate their social lives, to develop sub-cultures which not only nurture counter-hegemonic representations of mobility but also promote the creative use of technologies (Certeau, 1984). This is not to say that such subversive practices are equitable or sustainable but they do help in asserting the right to be in the city and this thesis is testing to what extend these rights are being asserted. Finally, should the mobility of the poor be viewed as 'subversive mobility' where the poor subvert the dominant efforts of transport planning by their mobility practices or their mobility practices are subordinated and marginalized by the hegemony of private vehicle centric motorisation? These categories of subversion or marginalization are not mutually exclusive and they possibly infringe on each other. But

it will be crucial to know to what extent the mobility practices of the poor are a resilient response; both in terms of dealing with their poverty and also in terms of sustainable mobility paradigm? These are larger questions, which create the settings for this thesis and the concepts such as 'informality' and theirs of 'social practice' provide recurrent themes for analysing the interactions between mobility and poverty in Indian cities. The nuances of social practices are further debated in Chapter 2, while discussing theoretical mode of mobility-transport interlink ages.

In summary, this chapter presents the larger debates about urban development in Indian cities within which the issues mobility of the poor will be situated. In the wake of 21st century, Indian cities are being characterised by competing urban visions, contestation for space and resources, new-found prosperity and growing disparity. The term Shanghai dreams is used here as a metaphor to caricaturise how the future Indian cities are being imagined by the elite political and governing class. Mobility emerges here as an important yet under-studied lens to view claims of modernity and contested territories of Indian urbanism. In spite the rhetoric of sustainable mobility in the national policy agenda, automobile-centric infrastructure projects dominates the urban transportation planning which marginalise the 'other' uses such as public transport, walking, cycling or street-vending. Urban poor are carriers of these marginalised uses on the road space. Being conscious of possible stereotypes, binaries or emotive impulses, this study departs to see the city as a site of everyday practices which are producing, both marginality and resilience of the poor. In the end, it is signposted that this thesis will employ 'social practice approach' to mobility (termed as mobility practices) which will be elaborated further in the chapter-2 after building the theoretical grounds based on the literature review.

The remainder of the study is organized in the following way: Chapter 2 further reviews specific literature related to the mobility of the urban poor in the inter-national contexts, deliberates further on the theoretical model linking mobility-poverty and develops

research questions for this study. Chapter 3 presents the detailed methodology for the current thesis including the selection of the case study. Chapter 4 outlines the case study of Ahmedabad; discussing the specific context to analyse the mobility of the urban poor in the city. Chapter 5 outlines the answers of the research question(s) based on empirical findings and analysis. Chapter 6 further concludes the debates around mobility of the urban poor informing the international fields of urban poverty alleviation and sustainable mobility. Chapter 7 presents overall conclusion, recommendations and pathways for further research.

2. Towards a theoretical model of poverty-mobility inter-linkages

This chapter reviews more specific literature related to the mobility of the urban poor based on the fields of transport studies and poverty studies and aims to develop a theoretical model linking poverty and mobility. The chapter starts with an account of the urban poverty debate leading to the international literature on mobility of the disadvantaged population (as a broader category) in different national and geographical locations and theoretical approaches. From the broad-base review of international literature, the chapter then focuses on the urban transport studies related to poor people in India. Towards the end of the chapter, the proposed theoretical model is discussed and the research questions for the thesis are developed.

2.1 The (urban) poverty debate

Poverty is one of the most debated concepts in the social sciences, development studies and urban studies. An extensive body of research has emerged over the years about various aspects of poverty and poor people such as definition, measurement and analysis of living with poverty. The phenomenon of poverty has to be understood both as a painful reality experienced by millions of human beings and as a construction of competing conceptualizations, definitions and measures. The following parts primarily argue how poverty will be conceptualised and defined as part of this thesis.

The understanding about poverty begins with lacking material resources and extends to many factors to make it a complex, multidimensional phenomenon (Toit, 2004). Poverty is routinely defined as the lack of what is necessary for material well-being – especially food but also shelter, clothing, clean water, and other assets. It was argued by Peter Townsend in his seminal work on poverty that lack of these needs is defined as 'absolute poverty', as distinct from 'relative poverty', or the condition of having fewer

resources or less income than others within a society or country, or when compared to worldwide averages (Townsend, 1979). However there is no universal consensus over what is necessary for material well-being (Wratten, 1995). Beyond income-based or consumption-based definitions of poverty, the absence of basic infrastructure – particularly roads, transport, water and health facilities – emerge as critical factors affecting the wellbeing of poor people (Amis, 1995; Wratten, 1995). Poor people's own definitions also reveal important psychological aspects of poverty: that they are acutely aware of their lack of voice, power, and independence, which subject them to exploitation (Narayan *et al.*, 1999).

The dominant conventional approach of poverty uses consumption levels to measure poverty, defining a poverty line to classify people as poor or non-poor (head count measure). For example, in India, official poverty lines are based on expenditures for a minimum food basket, differentiated by rural and urban areas. Satterthwaite (2003) argues that the scale and depth of absolute poverty in urban areas of Africa, Asia and Latin America have long been underestimated. Saith (2001) also critiques the poverty line approach for the reason that a poverty line measure may not capture all the assets of households that may increase or decrease their long-term vulnerability. Secondly, the health of family members can be an asset or liability. Third, spatial segregation and exclusion among poor households is not covered. Further, the poverty line estimate typically takes no account of other deprivations such as very poor housing conditions and lack of basic services. The poverty line debate in India is a highly contentious issue and many scholars have criticised the methodology of the official Planning Commission of India approach to estimating the poverty line (Manna, 2012; Subramanian, 2011; Chandrasekhar & Mukhopadhyay, 2007). Alkire & Seth (2009) propose an alternative methodology for the estimation of poverty line and Baud et al. 2009) shows how to map poverty in urban areas based on multi-dimensional aspects, whereas (Krishnaji, 2012) calls for abolishing the poverty line as an approach altogether.

The 'poverty line view' of poverty and its prevalence is problematic when placed within the socio-economic situation or more specifically the income pyramid of a country. Arjun Sengupta works within the framework of calculating consumer expenditure and links this with social, educational and work status dimensions to prove that there is a strong case for building up a multidimensional profile of poverty (Sengupta, Kannan & Raveendran, 2008). This approach demonstrates that more than three-quarters of Indians are poor and vulnerable, with a level of consumption not more than twice the official poverty line despite the high economic growth in last two decades or more. They categorise these people as 'common people' instead of calling them poor. In other words, people who are above the poverty line are not necessarily 'better off' and a sizable population struggles for resources in their daily lives. Based on consumption expenditure, they also show evidence to suggest that inequality is widening between the common people and the better-off sections of society in India. They claim that their numbers point to the often talked about "two Indias", a shining and resurgent one and a suffering yet labouring one. This increasing inequality and income-based segregation being played out in cities is not a unique problem in Indian cities but these issues encompasses the cities in the global south - Latin America, Africa, South Asia and South-East Asia (Satterthwaite, 2003; Alkire & Santos, 2010).

This understanding about poverty raises methodological issues that not all dimensions of poverty and their relationships or processes are quantifiable; people poor by one set of indicators (e.g. income) are not necessarily poor by another (e.g. welfare indicators such as mortality or social capital); while vulnerability and lack of power and autonomy are hard to measure. The conventional poverty line approach is also questioned by the conceptual developments around the world in the last two decades. Over the years, new concepts such as 'vulnerability', 'deprivation' and 'social exclusion' have emerged in various international contexts to cover a wider range of meanings and to expand the factors affecting the lives of the disadvantaged population. Misturelli & Heffernan (2010) trace how the concept of poverty has evolved from the tangible 'basic needs'

approach in the 1970s to the 'softer' human rights-based approaches in the last decade. New participatory approaches of poverty measurements have also, for some time, been developing to include local variations in the meaning of poverty (Spicker, 2007). Even the World Bank Group, which propagated the conventional poverty line approach (like living below one dollar a day with varying purchasing power parity), has initiated trans-national studies with participatory approaches in the last decade (Narayan *et al.*, 1999, 2007; Narayan, Pritchett & Kapoor, 2009).

Amartya Sen moves away from the conventional economic approach to poverty and brings an alternative perspective by asking to focus on the ends not the means (like income or consumption). The end result for any human development paradigm is freedom – freedom to develop the way people like and freedom to choose ways of living. Sen (1999) sees poverty as 'capability deprivation' whereby being poor means not having the capability to realize one's full potential as a human being. Capability inadequacy or deprivation leads to 'an intolerable waste of talent' (Banerjee & Duflo, 2011). Poverty is thus characterised not only by a lack of assets or inability to accumulate a set of assets, but also by lack of choice with respect to alternative coping strategies. This approach constructs human beings as people with agency for whom the freedom to be able to make choices about what they want to be and about how they deploy the resources available to them (Lister, 2004). In other words, poverty is not only about 'not having resources' but it is more about 'not having choices' to access more resources or to deploy them as they like.

The definition of poverty lines and quantification of the proportion of people below them have limited contribution to explaining poverty's continuation, reduction or deepening. Poverty is multidimensional because the notions of human development are multi-dimensional even in its basic sense of the term of life with dignity (Sengupta, Kannan & Raveendran, 2008). This multi-dimensional nature of poverty is experienced through a combination of deprivations that poor households encounter while coping with

changing socio-economic situations. Poor households get out of poverty and prosper or fall back into the traps of poverty. This more sophisticated understanding of poverty and deprivation, as a set of relationships and a process rather than a 'state', implies that the poor are not passive.

2.1.1 Social and political organization of the poor

The poverty situation is shared at the household level which as a basic unit of social organization and economic production. Rakodi (1995) articulates the concept of 'household strategies' to explain poor people's responses to the matters of everyday situation; the family based household has remained for its members the basic resource for coping with the environment. Family-based households are likely to have some common strategies and co-operation within the family networks is the basic pattern of social interaction (Lomnitz, 1977). Individual family members may have conflicting interests, but each is likely to derive some advantage from the enhancement of their collective welfare (Roberts, 2010). Whether a household is temporarily or permanently poor may be related to its resource endowments, its organisational capacity to manage and deploy its resources, its labour force position, the coping mechanisms available to it and external or family contingencies, which affect it.

Analysis of poverty based on household income or consumption expenditure treats the household as a black box and it ignores distribution of food, status, influence in decision-making and access to services within the household. The strategies that households employ to get by in the cities of the developing world are based mainly on the intensive use of household and community relationships. Different members of the household may have a different role to play in each of these, and their influence over household decision-making may vary from household to household, over time and between activities. Households and individuals adjust this mix of resources according to their own circumstances (age, life-cycle stage, educational level, tasks) and the changing contexts in which they live. Coalitions may emerge between members of a

household to secure a greater share of resources for themselves. The poorest households are likely to aim at survival while those who have been able to achieve a basic level of security may be able to engage in more risky, but also potentially more profitable, economic enterprises which, if successful, lead to income growth.

Not only as household strategies, the urban poor are socially organized as a collection of family networks, which assemble and disband through a dynamic process. In the absence of state-provided welfare, individual survival depends upon family provision of care for elderly, the pooling of inadequate incomes and sharing of shelter (Roberts 1995). The family, together with wider kinship and friendship networks, helps individuals to find jobs in the informal sector of the urban economy and provides aid in emergencies (Narayan et al., 2007). Rural migrants mostly make the first move to a city where they can expect to be received by relatives and friends. They will be offered shelter and food for a while, they will be introduced to the urban environment, and efforts will be made to find them an opportunity to earn their living and consuming the informal housing and urban services market. This pattern of initial urban association encourages persons of the same origin to form residential clusters or even ghettos. Luke, Munshi & Rosenzweig (2004) emphasize the importance of networks, formed along caste and community lines, in determining the jobs available to workers in case of Mumbai. These networks are especially important for labourers and unskilled workers to find their entry into cities.

The responses and collective action of the urban poor is important to understanding political dimensions of urban poverty. Although the urban poor often participate into political activities in the developing cities, they are generally marginalised in terms of their integration into urban planning and policies. Beall, Crankshaw & Parnell (2000) argues that the responses of the urban poor themselves and the conditions under which collective action shifts from isolated or self-contained self-help activities to wider engagement in urban politics need to be explored for the pro-poor urban development

policies in developing countries. The urban poor are not politically marginal in the sense of not participating in or affecting urban politics in developing countries, as they are often seen as potential 'vote banks' by the politicians. Although they are skilful participants in local politics, the poor have been unable to sustain protests or political organisations enough to constitute a serious threat to any political establishments.

It would only be appropriate to view the debates around poverty definition or poverty line with the political use of these conceptions in the policy realm. There are many competing theories about why poor people stay poor. Globally, there is one school of thoughts, which would argue that the persistence of poverty is an inherent element of capitalist development. And on the other extreme, the opposing views would argue that that poverty persists because of obstacles to capitalism and distortions in local and global markets. Two other types of discourses are politically subtler in examining the relationship between poverty and its distribution, reflecting individualistic or structural perspectives. The first attributes the main responsibility for poverty or a move out of it to the poor themselves and applaud individual efforts and the second points at how economic, social, political structures or processes create and perpetuate poverty (Lister, 2004). This kind of discourse on poverty reduction – whether coming from the left or the right - mainly emphasizes the respective roles of the state and the market. (Webster & Engberg-Pedersen, 2002) argues for the importance of exploring and understanding the poor's own actions as there is a great diversity in the contested nature of poverty reduction and the significance of political space for challenging conditions of marginalization.

This thesis argues that the relationships between the actions of the poor and the organizations and institutions of the political arena are neither simple nor predictable nor static. The state sees the poor by selectively invoking legality or illegality (Scott, 1998; Ghertner, 2011; Bhan, 2013) and the poor see the state through their decentralized local government where they are queuing up for 'goodies' (Corbridge *et*

al., 2005). In governmental or developmental agencies, poverty is defined and measured to 'do something' about it whether it is in terms of distributing welfare benefits, promoting property rights for the poor, or finding reasons to speed up economic growth. In whichever case, people are often reduced to a 'target population' and top-down approaches of development pre-suppose the 'need' of people and try to meet these needs by the dysfunctional decentralized entity of the state. Thus, the focus is not on systematically facilitating the survival of the poor based on their own practices but there are policy designs based on the economic and social theories that assesses the 'demands' or 'needs'. The economic debate on poverty often loses sight of people living in poverty; especially, how they are strategising to cope up with the situation, falling back or moving out of poverty and how they negotiate their constraints by reusing or reallocating their resources.

Conceptually, this study views poor people are not as victims but as active agents of change in their own situation through the exploitation of economic opportunities. The spirit of this proposition is largely based on Janice Perlman's seminal work 'myth of marginality' (Perlman, 1976, 2007) which contests the ideas of viewing poor people as passive victims or blaming them for their own poverty. Partha Chatterjee's idea of 'political society' takes the argument further and elaborates the politics of the poor based on building alliances and employing tactics for survival (Chatterjee, 2006, 2011). The poor are constantly seeking to maneuver in the given conditions and political spheres to improve their living conditions (Benjamin, 2008). Poverty situations should be understood based on the existing practices of the poor. These actions or practices may seek to change their poverty directly, or the poor may seek to effect change with respect to the implementation of public policy or government programs. But in some cases, the agency of the poor remains only notional given the arising conditions: hence, a 'poverty trap' may lead to the deprivation of the whole household. Yet, the 'trap' itself is not important but the efforts and practices to move out of the 'trap' are more useful for possible theorizing, policy-making or actions.
2.1.2 Postulates related to understanding poverty

It was a fundamental need for this thesis to define poverty for this work. It is clear from the literature that there is no singular, linear definition possible of complex phenomena like poverty. Having reviewed various approaches and standpoints related to urban poverty, the following postulates are developed to conclude the understanding about poverty and people living in poverty for the purpose of this study:

- Poverty is more than a lack of adequate income but a combination of many forms of deprivation that together allow human capabilities to go unrealised. Income is not ultimately defining factor in poverty but it is a useful indicator.
- 2. The 'poverty line' approach has its own conceptual, methodological and operational limitations. Such approaches are generated to identify beneficiaries for government-sponsored schemes or programs, which often fail due to the limitations of the poverty line approach. Bottom-up, participatory approaches to poverty measurements are more useful in understanding relative poverty and its relation to the contexts. Poverty is a contextually defined phenomenon.
- Poverty is dynamic as people can fall back into as well as move out of poverty.
 Poverty has time and space dimensions.
- 4. Living in poverty and efforts to move out of it needs to be understood in terms of 'household strategies' which may or may not be compatible with people's own individual practices.
- 5. Poor people are not passive victims but active agents of change. Poor people attempts to form alliances or seek participation to have voice in the political system. Political empowerment or engagement is an important tool for poor people. Poverty is an institutionally imbedded phenomenon.

 Poverty reduction strategies should facilitate and compliment people's practices and efforts to move out of poverty instead of pre-supposing or estimating what is required.

2.2 Poverty and transport linkages in international literature

The following section reviews the literature exploring the inter-relationship between poverty and transport. Transport and mobility-related research involving the urban populations in India is limited compared to most of the western countries, particularly considering the population size, the number of towns and cities and their diversities. Traditionally, the infrastructure engineering field dominates transport research in India and the research subjects emphasize the needs for the motorised modes barring one or two researchers who consistently produce research on non-motorised mobility (like Geetam Tiwari and Dinesh Mohan). Multi-disciplinary approaches to transport research have been emerging only in the last decade and sustainable mobility concerns are late entrants to the national urban transport policy and programs. As will be evidenced later in the section, transport studies of the urban poor in India are even more limited and there are only a handful reports and research papers. However, this is not the case with Indian urban studies or poverty research in general. It is curious as to why there is so little on the transport issues of poor people in urban studies, development studies or poverty research in the South Asian context in particular. Similarly, there is little ground covered in the conventional transport research about poverty or poor people.

Since there are limited studies on the mobility of the poor, the literature review is expanded to include other approaches and concepts from across the globe, which deals with issues of transport for disadvantaged populations (if not specifically the poor). The approach here is to categorise and discuss the literature based on the national or geographical distribution around thematic areas. This approach is consistent with the earlier discussion that poverty or any such disadvantage is contextspecific and it cannot be generalised beyond certain points. The following section

presents the international literature on transport and disadvantageous population briefly before going into the Indian literature on transport and poverty linkages.

2.2.1 Disadvantaged commuters in the US

The relationship between poverty and transportation being researched in US cities starting from the late 1960s and the early 1970s, prior to many other countries where this discourse is still emerging. Transport was identified as a major contributor to socioeconomic inequality in the US (Wachs & Kumagai, 1973). Many studies focused on whether better public transit accessibility results in more workers finding jobs instead of relying on the state sponsored employment benefits. The major contribution of this body of work was to document the degree to which urban spatial structure creates a disadvantage for poor workers and emphasizes how their personal mobility needs are amplified by the locational characteristics of place. It is difficult for the poor to travel to work locations because of the 'spatial mismatch' between residential locations and employment or the 'mode mismatch' due to their over-dependence on public transit or slower modes of commute (Ihlanfeldt & Sjoquist, 1998). The spatial mismatch is often created by the automobile friendly infrastructure, which connects low-density and sprawling suburbs to the mono-centric central business districts. The cities' centres are difficult to access by the non-car owning households given the longer travel distances and deficient public transport provision further exaggerates their exclusion. Thomas Sanchez has repeatedly argued that disintegrated residential and employment location patterns and deficient public transportation service are critical obstacles to improving the economic and social conditions of low-income persons (Sanchez, 1998; Shen, Qing and Sanchez, 2003; Sanchez, 2008).

Over the years research in this area has moved beyond the spatial issue to include characteristics of low-income workers such as their race and ethnicity, sex, education, and income histories. Giuliano (2003) claims that the dominant understanding of travel behaviour in US cities is largely based on the understanding of the white majority

population, which dominates the analysis when race/ethnicity is not explicitly considered. Based on US national travel data, Pucher & Renne (2003) demonstrate that the poor and racial and ethnic minorities have much lower mobility rates than the general population. The poor, blacks, and Hispanics are far more likely to use public transit than other groups and low-income households and minorities account for 63% of the nation's transit riders. Nonetheless, the private car continues to dominate urban travel among every segment of the American population, including the poor, minorities, and the elderly. By comparison, public transport accounts for less than 2% of all urban travel at the national level. The car-owning households even amongst the poor are in an advantageous position. Shen, Qing and Sanchez (2003) and Cervero (2000) observe that only transportation adjustment in the form of increased car ownership substantially improved job accessibility whereas residential adjustment made by welfare recipients on average did not improve job accessibility. Instead, residential relocation appeared to give welfare recipients a living environment with more desirable socio-economic characteristics. Similarly, Rogalsky (2010) claims that access to cars will not only increase working poor women's daily mobilities, but also their job opportunities, overall earnings, and their successful and permanent transitions from welfare to sufficient and satisfying work. Some studies frame transportation as the remedial measure for the right to travel and freedom of movement and argue for greater funding of urban mass transportation systems (Dombroski, 2005). But it is difficult to run efficient public transport facilities in the automobile-friendly spatial structure of the sprawling US cities that favours car-based mobility. The car is an important personalised cultural object in the US cities and car-based mobility is dominantly believed to be the 'American way' of dealing with transport, which is supported by a popular rhetoric of socio-political constituencies around freedom of movement.

The Indian urban context is very different from the US but for the sake of argument -Would giving a car to every poor household and building a city that favours car-traffic 'solve the problem'? Does more mobility mean less of social disadvantage as an income class or ethnic minority? Does more mobility mean more accessibility in the US cities? There are limits to taking a strict mobility-based approach to solving these problems of the disadvantageous population as the findings reveal how institutional barriers and practices can interact with mobility problems and confound the issues (Clifton, 2003). Recent research in Melbourne, for example, suggests that the proportion of low-income households on the urban fringe who have experienced 'enforced' car ownership where they end up buying cars to be 'part of the city' (Currie *et al.*, 2009). Transportation policies not only have inequitable effects on the ability of low-income individuals and minorities to access places, but also have serious indirect effects such as encouraging and reinforcing residential segregation (on race or class lines); restricting access to employment and other economic opportunities, housing, and education; and causing health disparities (Sanchez, Stolz & Ma, 2003).

Besides, there are also other structural issues with the way in which the transit investments are made and the transport planning is practiced in the US. Sanchez (2008) observes that a relatively miniscule fraction of funds is spent on research examining transportation's effect on poverty and social outcomes compared to the research on physical infrastructure building and its engineering aspects. Martens, Golub & Robinson (2012) review transportation planning practice in the US for distributional goals and find little guidance in conventional transportation planning for justice-oriented measures. Martens (2011) observe that cost-benefit analysis has a built-in distributive mechanism that structurally favours transport improvements for highly mobile groups. He demonstrates how accessibility increments for low-accessible communities could be more explicitly accounted for and more highly valued within both traditional cost-benefit analysis and the four-step travel demand models, as a way of moving forward to closing accessibility gaps (Martens, 2006).

The US examples pose an interesting puzzle as to how to mitigate the transport disadvantage of a population group when the built infrastructure, urban spatial structure, public investments, transport planning practice and socio-political constituencies tend to favour car-based personal mobility over shared public transit modes. This is important because lot of the Western and specifically American solutions are often 'imported' in developing countries where transport infrastructure, urban spatial structure, public investments and socio-political constituencies are different then the US cities.

2.2.2 'Social exclusion and transport' debate in Europe

Another extensive body of work related to the transport issues of the disadvantaged population is the growing interest in the 'transport and social exclusion' debate in the late 1990s and early 2000s in Europe, notably in the UK. The key question here was how transport disadvantage is related to emerging concerns about social exclusion of low-income communities. These studies make explicit links between the policies related to social exclusion (and poverty), transport disadvantage and access to key services in all aspects of life. Preston (2009) finds the genealogy of the term 'social exclusion' emerging from the Marxist notions of social and spatial exclusion as inherent conditions of capitalism based on the works of Lefebvre and Lenoir. And later, he asserts that 'social exclusion' was de-radicalised, mainstreamed and appropriated by the New Labour government and others in the 1990s. In 2003, the UK Social Exclusion Unit in the New Labour government had published a report which subsequently resulted in a set of transport policy guidance for local authorities intended to ensure their Local Transport Plans included a focus on accessibility planning (Social Exclusion Unit, 2003). Since this time, researchers, policy makers and practitioners in several other countries became interested in adopting a social exclusion approach to transport planning, largely because of its utility in identifying the role of transport, land use

planning and service delivery decisions in creating and reinforcing poverty and social disadvantage.

The social exclusion approach (mostly focused on European context) explains transport disadvantage by directly identifying the social consequences of a lack of transport provision. Transport related social exclusion affects individuals and communities to participate in key life-enhancing opportunities, resulting in reduced job search activities, job losses, missed health appointments, school truancies and increased physical isolation in later life. In this way, the social exclusion concept makes a more direct link between transportation planning and social policy. It is concerned with how mobility enables access and thus inclusion in society's institutions, activities, opportunities (Church, Frost & Sullivan, 2000; Lucas, 2006). Kenyon, Rafferty & Lyons (2003) offers this widely cited definition of transport-related social exclusion –

"The process by which people are prevented from participating in the economic, political and social life of the community because of reduced accessibility to opportunities, services and social networks, due in whole or part to insufficient mobility in a society and environment built around the assumption of high mobility".

This definition clearly mentions how 'reduced accessibility' and 'insufficient mobility' placed within a context may lead to exclusion and identifies the relational nature of the problem. Concerns with social exclusion go beyond transportation and extend to labour markets, housing opportunities, income inequality, education, and health care. Church et al (2000) has proposed a more clearly defined framework of exclusion across the following categories: physical exclusion, geographical exclusion, exclusion from facilities, economic exclusion, time-based exclusion, fear-based exclusion and space exclusion.

(Lucas, 2012) and (Preston, 2009) are two works that retrospectively examine the theoretical and policy progress on the issue of 'transport and social exclusion' mainly in the UK context. Lucas considers that the transport research community has been

successful in developing methodologies to identify and measure transport-related exclusion as social phenomenon with all its diversities. Both Lucas and Preston recognise that the concept of social exclusion in the transport realm has been difficult to operationalise from theory to practice in terms of policy prescriptions and practical delivery. However, both have different views about applicability of the concept of 'transport led social exclusion' for developing countries or less-economically developed countries. Lucas is very optimistic about identifying transport-related exclusion as a 'universal and operational' concept with recognition that exclusion is differentially experienced within and between different nations by different social groups. Whereas Preston argues that social exclusion may not have the same relevance in many developing economies as poverty alleviation is the primary policy goal in these countries, which is linked with the primacy of economic development objectives often associated with road-building and pro-motorisation policies.

There are limitations in both arguments. Preston's argues that road-building and promotorisation policies are inevitable because they are linked with economic growth, which is important for poverty alleviation. So it is inevitable that there could be some social price (probably in the form of social exclusion or poverty), which needs to be paid for road-building and pro-motorisation policies because they are important. This implies that concepts like 'social exclusion', which look at social-spatial-temporal dimensions simultaneously and measure multiple deprivations are a 'luxury' which lessdeveloped economies cannot afford, due to being under pressure to achieve economic growth. This further implies that achieving social equity and better human development should only be achieved after reaching a certain level of economic development. Then what is the point of carrying on the path of economic growth if human development is not in-built in the whole process?

Ivan Illich argues in his seminal essay 'Energy and Equity' that social equity and energy use can grow concurrently only till a point. Below a threshold of per capita

energy use, transportation improves the condition for social progress and above this threshold, energy use grows at the expense of social equity (Illich, 1974). This hypothesis sounds logical but it is very difficult to determine this threshold point and there are other unknowns like how to measure social equity and progress. However, it is discussed previously through examples of various countries how excessive energy use with limited distributional goals grow at the expense of social equity. This debate in transport policy making and planning is represented as 'mobility vs. accessibility'. Would more and more mobility ensure accessibility or can high accessibility be achieved despite limited mobility? The UK's experience with the 'transport-related social exclusion' concept and its operationalization suggest that there have been clear attempts at mainstreaming accessibility perspectives while making plans at the local area levels. However, some researchers observe that these have had limited success (Preston, 2009; Halden, 2011; Lucas, 2012). This thesis recognises that this dilemma needs to be debated as part of this work while discussing transport issues of the poor in developing countries.

Lucas's argument on the other hand of claiming 'transport-related social exclusion' as a universal concept has its own limitations. Lucas is particularly optimistic about using the 'social exclusion' framework for developing countries while demonstrating it in the South African case of Tshwane region (Lucas, 2011). Given the African urban context of a legacy of apartheid planning and post-apartheid housing developments, social exclusion might be an appropriate framework to analyse the segregation between ethnicities and income classes. The primary use of the idea of social exclusion relates to poverty, because much of the concern with 'inclusion' relates to the availability of systems or support to meet the needs. Poverty also implies that the poor are not fully integrated with the social or governing system and thus are not fully part of the society. However, it is possible to be excluded but not be poor, but it is less likely to be poor and not excluded from various urban services.

The concept of social exclusion is useful for demonstrating that poverty is multifaceted. Most features of the 'social exclusion' concept (attention to multiple dimensions, social relationships, assessing the poverty of individuals relative to others in society and concern with dynamics of poverty) are shared by concepts implemented in developing countries (Saith, 2001a). (Saith, 2001) argues that attempts to replicate the concept of 'social exclusion' as developed in industrialized countries would not serve the purpose in developing countries because of differences in the arrangement of social security policies. It would result in a repetition of research that has already been conducted within frameworks developed in developing countries (basic needs, capabilities, human development index, sustainable livelihoods, risk and vulnerability, participatory approaches). These frameworks, however, could benefit by taking from social exclusion its emphasis on investigating the processes that lead to poverty. Besides, the poverty-led exclusion in developing countries is different from 'social exclusion' in the developed countries. The people living in poverty in the developing world might have stronger social networks, community mobilization, political patronage and cultural vibrancy. In the case of the poor households in developing countries, it is possible that they are integrated with society with the help of their own networks yet deprived in multiple ways. The concept of exclusion may present stark differentiation between the 'excluded' and 'included' whereas in the case of the poor in the developing countries, there are 'grey areas', which help them survive and be sustained. And thus, it will not be relevant to replicate the 'social exclusion' concept in the developing country context.

However, the 'transport related social exclusion' body of work in the UK and elsewhere in the Global North provides useful insights into the diversity and complexities of the transport issues of the disadvantaged population. This is the largest and most diverse set of works that covers various theoretical trajectories such as the accessibility perspective, social capital and capability perspectives, time geography perspectives – as categorised by (Lucas, 2012). The methodological trajectories run from accessibility analysis, spatial and social network analysis and spatial modelling. And there are

practical ways of dealing with the transport research outputs in the forms of local transport plans, accessibility planning and national policies in the UK showing some interactions between theory and practice. This should inspire and aspire the poverty-transport studies in the developing countries to develop diverse perspectives, methods and policy outcomes, but to replicate the exact concept is not appropriate for the research in developing countries.

2.2.3 Poverty and transport through multi-lateral lenses

In the Indian sub-continent and elsewhere in the Global South, multi-lateral financial institutions like the World Bank, Asian Development Bank and bi-lateral development agencies like DFID (Department for International Development, UK) emerge as the 'knowledge producers' in the absence of country-based research institutions or in spite of the presence of country-based institutions. The World Bank and DFID (or the researchers associated with these agencies) have produced most of the research to date on poverty and transport linkages in the developing countries of Asia and Africa (notwithstanding the fact that the available works on this subject are limited).

Throughout the World Bank studies, transport has been identified as a key factor for the economic growth and social development process because it facilitates the movement of people and goods, and thereby (theoretically at least), promotes trade and better standards of living through improved access to markets, employment, health, education and social services. Gannon & Liu (1997) claims explicitly that improved productivity and output due to better transport help to lower transaction costs, allow economies of scale, widen opportunities, expand trade, integrate markets, strengthen effective competition, and eventually increase real income and welfare of society. They further claim that without efficient transport, economic growth is not possible, and without growth, poverty reduction cannot be sustained. Largely stemming from the belief in this relationship, the World Bank's lending tends to be biased towards investment in transport infrastructure, and in particular road-building, both in urban and

rural areas. With very little research available on this subject, it is difficult to verify the claims as to what extent the road-building activities help the poor or to what extent local, less-expensive solutions would have worked for the poor. Interestingly, most of the World Bank studies have time and again recognised that the literature is far less developed on the nature, extent and most importantly distribution (i.e. how different groups gain and lose) from the impacts of transportation interventions in the developing world (Gannon & Liu, 1997; Booth, Hanmer & Lovell, 2000; Baker *et al.*, 2005).

Another recurring theme in the World Bank reports is that the provision of transport infrastructure and services can facilitate (or constrain) poor people's access to locations where there is greater demand for their services. The urban poor, living in geographically marginalised areas with poorer quality services and infrastructure, pay higher transport cost as a proportion of their income share and commute the longer journeys. They are (often) unable to travel to relatively inaccessible jobs that might pay higher wages and must instead accept those which are easily reached (Booth, Hanmer & Lovell, 2000). Most of the World Bank studies often rely on existing published literature and very few studies – at least on this subject - have developed knowledge about the transport disadvantage of the poor by studying their mobility or by measuring their accessibility. One of the exceptions is the World Bank study by Baker (Baker et al., 2005), who on the basis of primary investigations in case of Mumbai, found more diverse patterns in the residential location, job opportunities and travel behaviour of poor people than the non-poor. And this means that it is difficult to generalise that poor people in developing countries are either geographically isolated or that they are working in easily accessible jobs as a result of transport disadvantage.

In 2002, the World Bank published its urban transport strategy review 'Cities on the Move' (World Bank, 2002). This document intended to develop 'better understanding' of urban transport problems in developing and transitional economies while articulating the World Bank's role in supporting national and city governments. This document is

much more prescriptive yet comprehensive in its outlook on urban transport compared to other World Bank studies and this is probably the first important document to explicitly focus on sustainable mobility, for example, identifying the futility of a 'simplistic solution of increasing road capacity' and how non-motorised transport is systematically under-recognised. This document had a chapter dedicated to 'urban transport and poverty reduction', which outlines 'the rich agenda of urban transport policies that are both pro-growth and pro-poor'. 'Cities on the Move' recognised that whatever is pro-growth may not be pro-poor and there is a need to develop 'povertyfocused (transport) policies'. The transport disadvantages of the poor can be addressed by a two-fold approach: one, by servicing the areas where poor people live and work with public transport, and two, by specifically targeting the disadvantaged sections of the poor and supporting their work journeys through transport subsidy arrangements as a 'safety net approach'.

Ken Gwilliam who was the lead author of 'Cities on the Move' takes stock, after a decade, in a recent article (Gwilliam, 2013) and lists the number of positives and negatives in the urban transport sector in the developing countries. In the areas that concern poor people, there have been positive developments such as renewed interest in bus-based public transport, investments in mass transit systems and policy changes for fuel taxation and cleaner technologies. However, the accentuated motorization with more road traffic accidents and worsened air pollution adversely affects the urban poor disproportionately. Besides, the use of non-motorised transport is decreasing in spite of some sporadic efforts at building better infrastructure. Mitric (2013) argues that the future projects should specifically give more attention to fare policy – poverty – service quality inter-linkages. Although Gwilliam doesn't say this explicitly in his 2013 paper, it appears that the progress in the 'poverty focused transport policies' is still insufficient both in terms of its political acceptance and practical delivery.

Unlike the literature of the US and European contexts, where a number of diverse research works have been conducted to develop more nuanced, context-specific, institutionally-embedded understandings of transport disadvantage, the World Bank studies on 'poverty and transport' are limited and of a prescriptive nature in spite of the fact that most of the World Bank researchers are not from the developing world, and have a high chance of having been exposed to the US or the European discourses. The preoccupation of the World Bank transport research with higher technology fixes and efficiency savings often ignores the travel needs of local 'beneficiary' communities. The less expensive and more context-specific and socially sensitive solutions are often not the focus of the World Bank or the national governments in terms of funding or project development. It is only in the last few years that the World Bank group is promoting ideas such as bus rapid transit (BRT) or land-use and transit integration (as in Suzuki, Cervero & Luchi, 2013) and trying to enter the lending market for such projects in the Indian and African cities.

DFID has commissioned studies on 'poverty and transport' from the early 1980s. In 1981, (Jacobs, Maunder & Fouracre, 1981) the low mobility of the poor in developing countries (based on per capita trip rates compared to the developed countries) is identified as a function of their 'lifestyle' or an indicator of being unable to make important journeys given their low affordability. The authors do not develop this point further but it is possible that that the poor have developed their life style or social practices around low affordability. And over the years, the life style becomes so ingrained that low mobility becomes a way of life and obvious social practice. This aspect needs more deliberation based on a field-based primary study.

Many other (non-World Bank) recent studies have echoed concerns regarding the lack of attention to the poor in transportation policy, practice and research, calling for improved basic data on issues of transportation access for the poor, greater consideration of equity in policy and project design, and further research on the

transport-poverty linkages (Barter, 2004; Badami, 2009; Cox, 2010). At this juncture, there are two important research gaps that emerge out of the international literature: one, understanding about the shelter-livelihood-mobility nexus in the life of the poor and two, the role and impacts of pro-motorisation policies and transport infrastructure development for the poor.

2.2.4 **Poverty and transport in African cities**

Two world bank studies (World Bank, 2004b, 2004a; Markovich & Lucas, 2011) identify that there are four broad issues related to poor people's transport disadvantages in different African cities: (i) low access to public transport services and inadequate transport supply, (ii) affordability issues linked with high levels of reliance on the use of informal transport operating to meet the transport supply deficit; (iii) long distances between peripheral residential areas and central job centres (sometimes aggravated by the legacy of apartheid planning or new post-apartheid housing development patterns in South Africa), and (iv) walking long distances to mitigate transport disadvantage and exposure to risk whilst the urban poor as pedestrians account for two-thirds of roadcrash fatalities.

(Mitric, 2013) finds that the African urban transport context has many features in common to those found in Latin American cities. However, poverty is more widespread, car ownership is lower, and the provision of public transport services is even more informal, and of lower quality. The share of long-distance walking in home-to-work travel is higher in urban Africa than anywhere else in the world and sidewalks are missing on two-thirds of the roads (Kumar & Barrett, 2008). Salon & Gulyani (2010) demonstrate through a large sample in Nairobi that poverty is strongly negatively correlated with the use of motorised transport and identify that affordability is a key issue for not being able to use public transport for the urban slum dwellers, with the situation being particularly worst for slum women and their children. They find that most slum dwellers need to use motorised transport to access education and employment

opportunities that could lift them out of poverty, both because of the distance of their housing locations from these key destinations and because of their inability to move physically closer to them due to the absence of affordable housing within the city. (Diaz Olvera, Plat & Pochet, 2008) show with the three case studies of Dar-es-Salaam, Niamey, and Ouagadougou that transport is a major component of poor household expenditure and daily use of public transport is unaffordable for the poor populations. In these ever-expanding areas, even though low-resource households limit motorized travel to the most essential trips, travelling by public transport imposes additional pressure on their budgets. (Olvera, 2003) depicts in the case of Dar-es-Salam that the 'unplanned settlements' in the periphery are themselves 'poverty traps'. In such situations, it is obvious that the poor feel excluded and isolated as (Lucas, 2011) finds that there has been a very poor post-apartheid government response to the escalating mobility needs of low income travellers, who constitute the vast majority of South Africa's urban population.

Porter (2002) identifies that transport disadvantage is not only associated with a lack of provision of transport infrastructure and motorised services and the monetary cost of travel but can also include the amount of time people spend accessing and waiting for transportation, the time they spend actually travelling and the overall time spent away from the home – all of which significantly reduce the potential for undertaking other life-supporting activities, especially for women. It can also embrace the discomforts and risks experienced whilst travelling, such as exposure to accidents, crime, noise and pollutants. Through a series of studies, both in urban and rural areas (Porter, 2007, 2008, 2011), Porter shows the inter-linkages between prevailing gender constructs, women's mobility and transport development in Africa. Male identity and its connection to 'motor mobility' is a major factor in the current gendered patterns of transport use, where driving is still a mark of masculine power. Porter further states that transport remains a surprisingly neglected area amongst gender specialists, while transport specialists are still reluctant to take on gender issues.

Following the pioneering Latin American examples, BRT systems have emerged as a new type of public transport system in developing countries which promises multiple benefits, ranging from sustainable mobility to poverty reduction and at much lower cost than the rail-based mass transit system. In the African context, the BRT systems are also viewed as correcting the public transit deficit and reducing the reliance on the informal minibus or taxi services in the city. Vaz and Venter (2012) provide an early assessment of the actual poverty impacts of the 'Rea Vaya' bus rapid transit system in Johannesburg. Their data suggest that the main benefits of the first phase BRT lie in its enhancement of access to a variety of activities, rather than its direct expansion of accessibility to work opportunities. Both time and cost savings are substantive, in the region of 10 to 20% compared to previous levels, but these benefits accrue largely to medium-income households rather than to the poorest commuters in the area. While BRT in general offers significant promise for underpinning the formalisation and transformation of informal public transport operators, the jury is still out on the question of whether BRT in South Africa will continue to do so in a sustainable and comprehensive manner (Venter, 2013). Besides the physical access issues, one reason that prevents the poor from using public transport such as a BRT is the affordability issue.

The researchers associated with the World Bank (Mitric, 2013; Serebrisky *et al.*, 2009) insist that current public urban transport subsidy policies do not make the poorest better off. Supply side subsidies - provided to the operator - are, for the most part, neutral or regressive; while demand side subsidies - provided to the user - perform better, although many of them do not improve income distribution. Rather they ask to transfer the subsidies through other welfare instruments (food, education and health) leaving public transport alone. This is mainly because there are no clear links between public transport affordability and the welfare of the poor. As (Venter, 2011) mentions, both expenditure levels and affordability perceptions vary significantly and

systematically across geographic settlement types, and depend to a large extent on the modal and travel characteristics of commuter trips. Residential location has an important role to play in public transport expenditure and getting the shelter-livelihood-transport equilibrium right. It depends on the city governance and formal planning mechanism to provide opportunities for the poor to stay close to the workplace or the poor should have 'informal opportunities' to squat on public or private land near their workplaces to minimize their transport disadvantages. In the case of most African cities, none of the above options work out for the poor. This results in economic vulnerability at the time of crisis in the households, leading to other deprivations, which may not be directly linked with the transport needs.

(Salon & Gulyani, 2010) identify four key themes as the existing research on transport for the urban poor in the African cities (which are again very similar to the issues identified by the World Bank studies and Markovich & Lucas in the beginning of this section): (i) income poverty as the main cause of transport disadvantage; (ii) the spatial mismatches between housing location and labour market opportunities; (iii) road safety for pedestrians and other non-motorised road users; and (iv) gender differences in transport provision and the related disproportionate negative social consequences of this for women and children. Unlike research in the US or Europe, the African literature on transport research time and again mentions the quality of the public sector data, methodological data-processing issues, and many times the research is funded by the external development agencies which have their own research objectives. Most of the research on the African cities is overwhelmed with the transport deficit (private or public) and the over-reliance on long-distance walking. There is little debate about diversities in the way in which poor people balance their shelter-livelihood-transport equilibrium because such strategies and practices seem to be rare: in most cases the poor seem to be stuck with a lack of transport and long distances to commute. A number of research studies do talk about weak institutional capacities, lax enforcement or regulations and fragmented planning efforts and suggest prescriptive measures for

fixing them, but there is limited coverage of the role and impacts of pro-motorisation policies or road-building on the lives of the poor.

2.3 **Poverty and transport in Indian cities**

Transport research concerning the urban population in India is limited and transport studies of the urban poor are further more limited as there are only a handful of reports and research papers for the Indian cities. Notably, this is not the case with urban studies or urban poverty research in general. Most of this handful of transport-poverty studies represent different Indian cities like Delhi (Anand & Tiwari, 2006), Chennai (Srinivasan & Rogers, 2005), Mumbai (Baker et al., 2005) and Pune (Astrop et al., 1996) and some others talk about urban transport and poverty in general for Indian cities (Badami, Tiwari & Mohan, 2004; Pucher *et al.*, 2005; Badami, 2009). All of these studies support the above observation that the data on travel behaviour in developing countries like India is limited and this is especially true for the relatively poor residents of urban India. Obviously, most of studies leave a rich agenda for future research.

Category	Walking	Cycle	Local trains	Public bus	Rickshaw+ Taxi	M2W	Own Cars	Other's car	Others	Total
Total trips (Sample size 5594)	43.8	3.1	22.7	16.1	1.9	8.5	2.7	0.1	1	100
Trips amongst income group (hh income less than 5000 INR) – Sample size 1195	60.8	6.1	16.1	14.5	1.3	0.7	0	0.2	0.4	100

Table 2-1 Mode use in Mumbai (Baker et al., 2005) by income-groups

One of the largest transport studies in the Indian urban context is the World Bank study of Mumbai (presented as Baker *et al.*, 2005) where they surveyed more than 5000 randomly selected households in different urban zones. Unlike the African or the American cities, they find heterogeneity in the spatial distribution of households by income groups and also in the spatial distribution of land use activities. There are no predominantly rich or poor areas and there are no predominantly residential or commercial areas in terms of land use. One of the major findings of their survey is the extent to which all income group households (and especially poor households) rely on walking. In Mumbai, 43.8% of all commuters walk to work and amongst the low-income group the share is 60.8%. Similarly, 22.7% of all commuters use suburban rail and 16.1% use the buses for all trips, whereas amongst the poor, 16.1% commuters use suburban rail and 14.5% use the buses.

Category	Walking	Public bus Auto Rickshaw		M2W	Car	Others	Total
Low income group (Less than 1250 INR per capita per month)	34	24	10	20	1	11	100
Travel distance – low income group	2	7.9	4	6.9	3.5	-	-
Mid income (1251-2500 INR per capita per month)	21	28	9	32	4	6	100
Travel distance – mid income group	1.3	9.5	5.1	8	8	-	-
High income (Above 2501 INR per capita per month)	20	8	15	31	22	4	100
Travel distance – high income group	0.9	10.5	3.3	8.1	11.5	-	-
Note: The mode share data is reproduced fr	om a har d	hart so the nu	mhore are annrovir	natod h	acod c	n a arant	nical

Table 2-2 Mode use and travel distance in Put	e (Astrop et al.	, 1996) b	y income-groups
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Note: The mode share data is reproduced from a bar chart so the numbers are approximated based on a graphical scale.

Even the Pune study (Astrop *et al.*, 1996) finds that distances travelled across the city are short (4-6 km across all modes) and one-third of the trips were by walking amongst the low-income groups who were walking for about 2 km on average. Both Mumbai and Pune case studies show that travel characteristics changes across the income groups. The higher income groups were relying much more on the private motorised vehicles, spending more on transport and travelling longer distances. In fact, the Pune study shows the middle-income group, which depicts the transition between the low and high-income groups. Both middle income group and high income group rely on private modes for their commute but in case of middle income group, there is much more use of the motorised two wheelers whereas the high income groups make more trips by cars. High and middle-income groups i'consume' longer distances in private modes. Whereas the low-income group end up travelling shorter distance by walking and for the longer distance they use public bus or motorised two wheelers in Pune.

The Pune study conducted in 1996 was optimistic about improving public transport and walking-cycling facilities and it only hints towards the rising popularity of motorised two-

wheelers, which in particular facilitates the middle class women's mobility. They also predicted that the bicycle would continue be an important means of personal transport for low-income households for a number of years to come. In another decade from 1996, the cities in India started motorizing with the increasing per capita income and high economic growth after the structural adjustment program in early 1990s. This led to booming of the automobile sector and proliferation of motorised vehicles in the cities. The impacts of the proliferation of traffic in the Indian cities are well captured in the government reports and academic studies.

Pucher et al. (2005) is particularly apocalyptic about the urban transport 'crisis' in Indian cities and this paper lists every possible transport problem in Indian cities like-

'levels of congestion, noise, pollution, traffic fatalities and injuries, and inequity far exceeding those in most European and North American cities' and further 'low incomes, limited and out-dated transport infrastructure, rampant suburban sprawl, sharply rising motor vehicle ownership and use, deteriorating bus services, a wide range transport modes sharing roadways, and inadequate as well as uncoordinated land use and transport planning'.(Pucher et al., 2005;p.185)

Such list of 'problems' with the Indian transport sector often follow policy prescriptions to fix them. Whilst not true of Pucher, many transport experts however pre-suppose both transport problems and solutions without the support of evidence-based research, and seek to convince policy-makers about the 'crisis' leading to solutions, which are often automobile-centric. For example, if a wide range of modes is sharing the roadways then to what extent is it a problem and to what extend is it a 'shared space' solution. Is the slow-moving traffic always a problem when traveling distances are quite low in the Indian cities? As another example, more coordinated land use and transport planning may lead to making the transit corridor more expensive for the poor to occupy and open these corridors for the high-income groups which are not the captive public

transit riders. Many of these issues require careful research and clear policy objectives so that they do not end up pre-empting certain kinds of solutions, which are popular

amongst technocrats or bureaucrats. The over-whelming transport chaos in Indian cities often overshadows what needs to be retained and maintained as sustainable practices, many of which may not have emerged out of the formal, coordinated, organized efforts of urban or transportation planning.

In 2008, the Ministry of Urban Development published a report based on data from 87 major Indian cities, which presents the macro picture of urban transport trends. Amongst many other findings, the report shows that 30% of cycling trips in 1994 have been reduced to 11% by the year 2008. Similarly, the share of walk trips in the city level modal split is also reducing across cities and the proportion of roads with footpaths in most cities were reported as less than 30%. The municipal or urban bus fleets are reducing in most cities and there are instances of inadequate public transport in most Indian cities (Badami & Haider, 2007). The private motor-vehicle ownership and use are increasing exponentially (12% per annum) but absolute car ownership is still significantly low for any of the Indian cities (as per table 2-3 below) compared to developed-country cities (approximately 500+ in Europe and 700+ in the North America). However, this situation is going to change (as discussed in section 1.2) and the proliferation of the private motor vehicles is projected to increase exponentially in next few decades.

Unit	Ahmedabad	Bangalore	Chennai	Delhi	Jaipur	Mumbai	Pune	Surat
Area in Sq. Km.	466	1,279	1,189	1,483	288	4,355	700	312
Population in millions 2011	5.5	8.4	6.8	11.0	3.1	12.5	3.1	4.4
Vehicles/1000 pop								
2w/1000 pop	316	233	181	238	304	30	288	437
4w/1000 pop	55	50	45	117	55	24	48	55
Note: The area and population are from 2011 census. The vehicle ownership is based on Embarq (2008)								

Table 2-3 Vehicles per thousand population in Indian cities

It has been established by the city level studies of Pune, Mumbai, Chennai and Delhi that the trips by the urban poor are mainly by walking, cycling or by using public transport. And all of these modes are facing problems resulting from the growing private motor-vehicle activities. Badami, Tiwari & Mohan (2004) observe how low income groups and the urban poor are affected by various transport impacts disproportionately. They are 'vulnerable road users' as the majority of the victims of the road fatalities being the pedestrians or the cyclists. There are many Delhi based studies by Geetam Tiwari, Dinesh Mohan and others who have provided empirical evidences capturing the vulnerability of the poor as marginalised road users (Tiwari, 2001; Tiwari, Arora & Jain, 2008; Tiwari, 2011; Mohan, 2002, 2003, 2004). In the case of air pollution, the poor often suffer the highest exposure, since many of them (including infants, the old and the infirm) live and work on the road-sides, where air pollution levels are typically higher than farther away. And because the poor are in marginal health, and lack adequate nutrition and medical care, and so are least capable of coping with the impacts of air pollution.

Residential location of the poor emerges as a major factor influencing their mobility. The Chennai study (Srinivasan & Rogers, 2005) also finds that centrally-located settlements were more likely to use non-motorized modes for travel (walk or bicycle) than were the peripherally-located residents for whom long-distance commuting is a burden on household budgets. Baker *et al.*, (2005) grapples with the question of whether the lack of accessibility to public transit is a barrier to the mobility of the poor and whether limited mobility keeps them from obtaining better housing or better jobs. They termed it a 'difficult question to answer' but went on to argue that transport is less of a barrier for the poor living in central Mumbai than for the poor living in the suburbs. Most of the poor living in central Mumbai travel less than three kilometres on an average per trip. 'Short travel distance is less of a barrier for the poor' is an incomplete argument based solely on the quantitative data. This study doesn't capture any of the lived experiences of commuting or how do the poor negotiate their short distances viz their other daily needs. Further, what do they end up giving up to manage shorter distance in a city like Mumbai. Barter (2004) argues that one reason why the poor

locate themselves at sites with insecure tenure is the higher accessibility of slum quarters near the centres of employment in the city. Affordable sites with more secured tenure may not be accessible or involve high costs of commuting. Or because these sites are not easily accessible, they remain more affordable. Limited mobility resulting from limited affordability becomes one of the reasons that would force them to squat in slum quarters near the job centres in the city to minimise their exclusion by trading off between quality of life and security of tenure while retaining high access to the city (World Bank, 2002).

Barter warns against the tendencies in some of the research in the developed world to argue for greater car access for the poor, because it is possible that simply trying to increase mobility in general would result in no net benefits for the poor and could even harm their access levels in the longer run. Increasing mobility may also mean allowing more and more traffic on the road, building more roads, providing more parking and letting cities to spread out more. In fact, the developing world has a history of the higher income groups enjoying policy perks (such as automobile-friendly infrastructure) given out 'in the name of the poor' (Vasconcellos, 2005; Badami, 2009). Markovich & Lucas (2011) present this in other words as a 'paradox of transport' for marginalized groups within society; they are more likely to experience disadvantage as a result of lack of access to transport (both public and private); yet when access increases at an individual level (such as in the case of higher vehicle ownership), or at an aggregate level (such as when low income communities are in close proximity to transport facilities), they still end up experiencing disadvantage due to multiple reasons including affordability. More mobility for general population by investing in vehicle-friend infrastructure may not always result in accessibility for the urban poor or the marginalized groups in the society. Recognition of and engagement with this paradox can help policy makers move towards more equitable transport networks and plans. Yet, it is only through better understanding of the complex and nuanced nature of the social and distributional impacts of transport that these wider equity objectives will be

achieved. But unfortunately, we do not have a basic understanding (at least in India) of how transport problems contribute to their possible deprivation or how deprived people deal with their limited mobility or limited transport options.

In the study of low-income populations, it is often assumed that urban travel is an indicator of well-being. The main question here is how do the urban poor negotiate their 'constrained' or 'limited mobility'? Do they manage to achieve high accessibility in spite of affordability barriers? Or does their constrained mobility mean their deprivation, as has been observed in many other countries. Limited or constrained mobility means fewer out-of-home activities, less ability to search for and maintain employment, and lower capacity to seek higher quality goods at a lower price. But if the urban poor with limited mobility are retaining higher accessibility then does it mean that the poor are more efficient urban commuters? It is possible that they are accomplishing more with less travel. If the poor tend to make fewer kilometers of travel than the non-poor, would this enhance their ability to meet their daily needs? This is the same question, which puzzled the DFID researchers while studying the urban mobility of the poor in Kolkata (Jacobs, Maunder & Fouracre, 1981).

The current section demonstrated that this question is largely un-answered after 33 years of all the urban/transport research in India. This is one of the main debates that this thesis wants to engage in regarding the accessibility issues or constrained mobility issues of the poor. Besides this, there are three other important issues which have emerged about the mobility of the urban poor - namely the issue of differential mobilities within the poor, the role of transport supply or governance and mobility aspects linked with moving out of poverty. These are briefly described below:

[&]quot;... low-income groups in Third World cities make little use of motorised private transport with few trips made for purposes other than to and from work and, to a lesser extent, education... more work needs to be done to determine whether or not this is a function of their 'lifestyle' or whether they are unable, for financial reasons, to make important journeys."

2.3.1 Differentials within the Poor – the gender issues

Based on the literature on the mobility of the poor in the developing countries, 'gender emerges as an apt social category to understand the differentials within the poor. A number of studies in the African context (Porter, 2008b; Salon & Gulyani, 2010; Venter & Vokolkova, 2007) and in the Indian context (Astrop, 1996; Srinivasan & Rogers, 2005; Anand & Tiwari, 2006) have argued that the burden of limited mobility is borne disproportionately by women and children. The studies conducted amongst low-income residents of Pune, Delhi and Chennai illustrate that considerable differences exist between males and females in terms of access to and the use of the various travel modes on offer. In household budgets, the cost of the main breadwinner's trip to work is prioritised which sometimes means that trips made by women, the elderly or the young, (for schooling or health services) may be sacrificed or rationed. The working poor women have to work within specific work times, as their priorities are safety and security. The Pune and Delhi studies also illustrate that women spend more time travelling on slower modes of transport to access work; the faster modes are more expensive or prioritised for the male members of the family. Their time poverty demands they look for work at shorter distances from home. Does it mean that women's ability to contribute to the alleviation of their standard of living and their status in society is severely curtailed by their limited mobility and the constrained accessibility to the transport system of the city?

The social identities of transport users are deeply embedded in social relations and practices, which are played out in public spaces (Levy, 2013). Geographer Robin Law through her works (Law, 1999, 2002) has argued over the years that the concept of gender used in transport research is often one-dimensional, with the focus on gendered variations in behaviour rather than on gendered meaning and identities. The gender and age aspect of 'limited mobility' of the poor requires further exploration given the thin spread of research in this area.

2.3.2 Transport supply and the governance issues

One of the crucial aspects of urban poverty in India and elsewhere in the developing world is the role that the transport system plays in preventing or enabling the poor to access resources for everyday life. Efficient mobility, or the lack of it, profoundly affects individuals and access to minimum infrastructure services is one of the essential components of personal welfare. The urban mobility opportunities of individuals depend on increasingly complex and dynamic sets of economic (i.e. financial accessibility to urban transport services), cultural (with ethnic, gender and 'motility' components) and political (i.e. political regimes underpinned by different policy discourses) factors. Multiple potentials are embedded in urban mobility, which is not only a key to access to work, education and health, and the social mobility of individuals, but also provides 'a channel' to social interaction, the integration of urban society and the political activisation of citizens across urban space (Miciukiewicz & Vigar, 2012).

Improvements in transport, which are mainly the responsibility of city governments, not only provide people with more convenient access to a broad range of socio-economic opportunities, but also have strong income effects by lowering transport costs and hence the prices of consumer goods and services. Providing or not providing transport is a political choice, which gets filtered through institutional capacities, financial situations and public perceptions and demands. The emergence of new streams of inquiry in transport studies in the last decade that innovatively link urban mobility to broader social issues have not been yet translated into practice and public policies (Miciukiewicz & Vigar, 2012). The transport policy-making and its implementation still rely mostly on single-modal, technology-led quick fixes and it is more so in developing countries.

There is a need to expand the debate about the mobility of the urban poor in developing countries from being 'the vulnerable road user' or 'the disadvantaged

commuter' to 'the disadvantaged citizen'. The idea of citizenship brings in the political and governance context including issues like provision of housing and basic services, employment, participation in urban processes and the stakes of the poor in infrastructure investments. Public policies and governing institutions have an important role to play in the alleviation of poverty. Mobility of the poor and their choices operate within a context of the city and its governing institutions as the context constrains mobility choices (Uteng 2009). And thus, it would be useful to see whether the transport policies and projects in an urban context facilitate the urban poor's mobility needs and how the poor cope up with transport constraints. There have been massive investments in the urban infrastructure in Indian cities and it is a timely debate in policy-making whether these investments are used for the betterment of everyone in society. Specifically, this thesis intends to contribute to the discourse of inclusive urban transport in Indian cities where increasing transport-related investments and policy regimes are promising many changes in the existing urban transport systems.

2.3.3 Dynamics of poverty

Unable to access economic activities, poor people remain on the fringes, work for low wages, sell in small quantities at low prices, unable to compete or to accumulate assets. Because they remain so close to the poverty line, a sudden shock — typically a death or illness — can wipe out years of modest progress. 'Moving out of poverty' – a study carried out by the World Bank Group (Narayan *et al*, 2007) - focuses on the dynamics of poverty reduction, as opposed to trying to measure poverty incidence alone. The study argues that net poverty rates are the product of two contrasting phenomena: movement out of poverty and falling into poverty (see figure 2-1). The reasons for 'moving up' and for 'falling down' are different. For moving up, initiatives and opportunities are important, whereas, to prevent falling back, the 'social safety-net approach' is required based on welfare or policy interventions. The World Bank study does not talk about the welfare approach, as it is a mis-fit into the neo-liberal

framework of the bank. As far as the mobility of the poor is concerned, there are two challenges: one, their mobility (or capacity to move) should facilitate their initiatives and opportunities and two, they should be part of (or a beneficiary of) policy interventions, specifically in the transport sector. Mobility (more specifically motility) is important for the poor households to 'move out' of the poverty.



Figure 2-1 Pathways to move out of poverty by Narayan et al, 2007

The constraints of mobility in everyday life limit participation in the way that the lowincome population has traditionally participated in an Indian urban society: their current levels of mobility might be seen as sufficient for fulfilling their expected roles as lowskilled workers, students in poor-quality schools or full-time house-managers. But when a change in these roles is demanded, when workers ask for quality free time or skill building opportunities, or house-managers start looking for a job, these demands are necessarily limited by their incapacity to reach the locations these new activities would demand. Their very limited motility determines their mobility and thus, new opportunities to move out of poverty would be limited. Unable to access economic activities, poor people lurk on the fringes, work for low wages, sell in small quantities at low prices, and are unable to compete or to accumulate assets. Because they hover so closely above the poverty line, a sudden shock — typically a death or illness — can wipe out years of modest progress. Mobility - more specifically 'motility'- the 'capital' available to move or travel (Kaufmann, Bergman & Joye, 2004) is important for those poor households seeking to 'move out' of poverty. There is a need to conceptualise and explore both parts of moving out and falling back into poverty from the transport perspective – how to view the mobility constraints of the poor and how the governance or more specifically the transport supply of a city deal with it.

2.4 Theoretical model of mobility-poverty linkages

There are significant gaps in our knowledge of the travel behaviour of the poor population that take us beyond their mobility disadvantage in Indian cities. There are also conceptual limitations in thinking about poverty and mobility together at large in developing countries. At a very fundamental level, this thesis intends to go beyond the urban travel patterns of the poor, discussing how poverty plays out while negotiating mobility options and how mobility options determine the wellbeing of people – moving out or falling back into poverty. Most of the academic literature related to the mobility of the poor in India details *what* their mobility patterns are, as these studies are concerned with *how* to improve the access levels for the poor. And rightly so, these studies are studies of 'travel behaviour of the poor'. Behaviour change and demand management strategies typically overlook the reasons *why* people use resources, *how* these 'needs' and 'wants' are constituted, and *how* they are changing within the broader context of everyday life (Strengers & Communities, 2010). So the travel behaviour studies of the urban poor do not necessarily link living in poverty, and being in an informal job and/or housing market with their mobility pattern or practices. There

is a growing literature in transport studies that is critical of the proposed transport solutions of hypothetical future conditions, based on forecasting social and economic variables, adopting market and efficiency paradigms and targeting mobility as a prime objective (Vasconcellos, 1997b; Dimitriou, 2006; Cox, 2009; Avineri, 2012; Levy, 2013; Mohan, 2013).

Accessibility studies have emerged in transportation planning as useful alternative to mobility-centric paradigm which has adverse impacts on sustainability and social equity. Access is the goal of transportation planning and not mobility per say (Litman, 2014). Envall (2007) suggests that 'planning for accessibility' is a process that allows for mobility as well as non-mobility improvements to be implemented as a solution to insufficient accessibility. Accessibility is a useful concept that is sympathetic to the transport issues of the disadvantaged population and provides tools for planning for them. However, measuring accessibility may not allow scope for thinking about poverty and mobility together. Achieving a certain level of access may be justified from the transport lenses as it eliminates transport as an immidiate 'problem' from the lives of the poor but it may not eliminate poverty as their living condition. Especially when living in poverty may mean that the 'transport problem' doesn't go away and it reappears in a new way with changing circumstances. So measuring the access levels may not answer the poverty-related question of building long-term resilience.

This thesis wants to carefully chart away from either being solely a travel behaviour study linked with possible remedies or accessibility-measurement study again linked with accessibility plans. It is important to ask 'why' the poor practice their mobility in a certain way and how these practices are influenced by their own efforts to deal with poverty. Their own efforts of dealing with poverty would also mean that they are accessing what they want to access. Besides, there is also a rich agenda in unpacking and deconstructing the 'high level of access' and exploring the dynamic relationship between mobility and poverty. There is a value in asking why and how the poor

practice a certain kind of mobility, as it will give a voice to the efforts of the poor themselves.

The idea of 'mobility practices' is to expand the context and link it with the notions of poverty, which is the main theoretical departure of this thesis. The conceptual framework of social practices is employed here for building theory and for debating how people deal with poverty. Mainly based on the structuration theory by Anthony Giddens(Giddens, 1986), the concept of 'practice' is being articulated in emerging literature in diverse fields. Giddens makes the point that the day to day activity of social actors draws upon and reproduces structural features of wider social systems. Human activities are shaped and enabled by structures of rules and meanings, and these structures are, at the same time, reproduced in the flow of human action. This flow is neither the conscious, voluntary purpose of human actors, nor the determining force of given social structures. The flow of largely routinized social life depends on forms of practical knowledge, guided by structural features – rules and resources – of the social systems which shape daily conduct.

Based on Giddens, 'social practice theory' is being put to new use by (Shove, Pantzar & Watson, 2012) and others (Strengers & Communities, 2010) in the areas of transport, consumption, energy use and other built environment practices. This thesis focused on 'mobility related social practices' (termed as 'mobility practices') instead of all practices in the everyday life of the poor. For practice theory, the nature of social structure consists in routinization. Social practices are routines: routines of moving the body, of understanding and wanting, of using things, adapting to the built environment - all interconnected in a practice. Practices are established ways of doing things, which change or get replaced over a period of time. They are being produced out of the interactions between the given materials, individual know-how (competence) and (social) meaning (Shove, Pantzar & Watson, 2012). Any form of change or continuity of

practices needs to be understood and placed within these connections. Connections between these three elements shift and vary over time.



Figure 2-2 Constituents of mobility related (social) practices

To give a practical illustration, the practice of hand-cart pulling consists of complex amalgam of carts, its making, street spaces where they move and bodily competencies required to pull the cart; norms of where and how it negotiates space on roads with other vehicles; embedded meaning to practitioners based on their social identities – who pulls the cart and who doesn't and what does it mean to them. For a family, a hand cart is a resource, it requires bodily competencies to pull it across the city and there may be masculine or feminine identities formed around the practices. The practice of hand-cart pulling endures through countless recurrent enactments. The resource (cart), competencies (pulling it), social meanings together shape the practice of hand-cart pulling and its continuity. These three constituents are often overlapping

and mutually reflective categories. This example is only to demonstrate the possibilities of open-ended and all-round analysis based on this conceptual approach.

Vincent Kaufmann and others gave an important concept of 'motility' as a capacity for movement or movement-potential (Kaufmann, Bergman & Joye, 2004; Flamm & Kaufmann, 2006). The motility concept relates to notions regarding accessibility. Accessibility is the measure of a place's attractiveness in relation to its potential opportunities. Motility differs from accessibility by focusing on the logic of an actor's actions, in particular the reasons behind the choice of tools and localisations, without being concerned with an action's maximum utility. In this sense, motility concentrates more than accessibility on how an actor builds his/her relationship with space and less on the possibilities offered by a given territory. While operationalising the concept of motility, three groups of factors are given namely access, skills and cognitive appropriation. These factors are not too different from the constituents of social practices in the same order (access to) resources, (skills or) competencies and meaning (or cognitive appropriation). In the same way as 'motility', mobility related social practices promise to explore individual strategies to maximize the utility of transport gains. Given the similarities between the two concepts of motility and social practices, the learnings from the both are combined in this thesis.

The practice-based approach allows a broad base compared to the conventional 'behaviour change' kind of frameworks based on individualistic psychology as it allows the wider framing of activities at a societal level. By focusing on the practice of travel, it may be possible to identify measures that shape current practices and reconfigure them through to adapt to the built environment. The social life of poor people is a constant struggle to construct life out of available resources in the face of economic constraints and this is also reflected in the way they move around in the city. By living in a society or a community structured by such constraints and organised by 'successful' practices, one develops predispositions to act in certain ways. It gets

locked in through social sanctions or aspirations or it helps to develop new capabilities or competencies.

The practice-based approach allows flexibility in understanding changes in time and space and there is also a scope of articulating strategies of survival or prosperity based on their practices. The practice-based approach can be posed in contrast with the system-based approach, where a system is pre-supposed (such as a transport system) and the individual practices are viewed as 'fitting in' to the corresponding parts of the system. Sometimes, if certain practices don't fit into the system at all, then they are excluded from the analysis and developing knowledge about the system⁵. Ideally, ideas around system design or systemic policy matters should be informed based on the existing practices instead of pre-supposing a system by aggregating and molding practices to suit the system based thinking. There is a prospect of developing an explicitly practice-oriented approach to public policy, for which there is firstly, a need to recognise practices even if it is difficult fitting them into any dominant paradigms, values or ideologies.

The researchers employing 'social practices theory' like Elizabeth Shove (Shove, 2005; Shove & Walker, 2010; Shove, Pantzar & Watson, 2012) and others (Warde, 2005; Strengers & Communities, 2010) are mainly concerned about social production of climate change issues and aspire to transit to low-carbon or carbon-neutral communities. The social practices theory helps in conceptualizing either retaining or governing transitions to more sustainable practices. This thesis is using the social practices theory to understand interactions between poverty and mobility where mobility of poor is seen as practices around low-affordability. Here, the possible change in practices means moving out of poverty or falling back into it. It is a useful approach for this study because it is open-ended and flexible to include various practices and its

⁵ An example here is the exclusion of walk trips during the transportation modelling exercise to focus on the analysis of all motorised trips: not being part of analysis would tend to support the idea that there may not be any need to 'do something about them', such as developing pedestrian networks.

mobility implications. This approach also allows various differential mobilities to be part of this discourse. Importantly, this approach is a reliable structuring device to analysis of the empirical data in this thesis.





For this thesis, transport-based mobility is seen as negotiating practices and weighing consequences within the marginalized socio-economic context and informal housing and job markets. The figure 2-3 assimilates and presents all the conceptual model of
mobility and poverty interactions, which speculative and hypothetical as it needs to be tested with empirical data. The mobility issues in transport studies are defined by key characteristics like travel cost, time and distance and the mode usage. Given the circumstance of Individuals, they try to find a balance between available mode, costs involved, travel distance based on these short term decisions. These characteristics are seen in the wider debates in transportation studies such as affordability of the disadvantages population, constrained mobilities and level of accessibility. Finally, the structural issue of societies transiting through the phases of motorization. Regarding urban poverty in India, there are larger debates of informality, right to the city, competing visions of urban development and contestations over space and resources. The issues related to poverty are characterized by housing and its location, livelihood options, available infrastructure, participation and political governance issues. Interactions between these factors govern the poverty situations.

An Individual's mobility practices are reflections of short-term and long-term decisions. Short-term decisions of individual trip details are linked with long-term decisions of location of livelihood and housing viz. available transport infrastructure and its supply. Individuals try to achieve some balance in their long-term and short-term decisions for their own well-being. Mobility related social practices reflect these interactions and negotiations between the long-term and short-term decisions. This thesis maps and documents mobility-related social practices termed as mobility practices. The following conceptual diagram presents the grounds of this thesis and here, mobility based social practices emerge as conceptual tools by which empirical data would be analyses in the contexts of the listed debates.

2.5 Towards the research questions

The main research questions are linked with the conceptual diagram presented in Figure 2-3. This thesis intends to ask 'how do the urban poor negotiate their mobility practices?' This question creates a scope of going in-depth into the issues of 'limited

mobility', 'high accessibility' and strategies to deal with transport related mobility. To answer this question, there will be a need to first establish the mobility pattern of the poor in the city. In the absence of any national level travel datasets or any other transport statistics, the mobility pattern of the poor needs to be studied as part of the larger question of 'negotiating their mobility practices'. Secondly, as discussed earlier the urban poor are not a homogeneous group and there are differentials levels of transport disadvantages may be experienced on the basis of gender, age or any other social categories. The mobility pattern of the poor should specifically represent the differentials within the larger group.

The issues of urban poverty alleviation are discussed earlier in this chapter but 'sustainable mobility' issues require some careful consideration here. There is a strong relationship between the income of a household and their travel behaviour, especially mode choice (Dargay, 2001). Since income is the dominant determinant of individual travel behaviour, more trips per person, longer average trip distance, and faster and more comfortable modes of transport are all associated with rising incomes. The continuing hegemony of private motorisation over the rest of the public or nonmotorised modes in the city makes the poor stretch their budgets to own a motorized vehicles (Gakenheimer, 1999; Pucher et al., 2005; Vasconcellos, 1997a). In other words, the low-income households in developing world are giving up their low-cost, zero-carbon modes and choices to more expensive, more-carbon emitting modes and choices. Should motorisation amongst the low-income groups be credited as crucial asset building or a failure on the part of the state to provide for efficient and sustainable public transport? This represents a critical yet largely unaddressed tension in the sustainable mobility paradigm - how to deal with continuing motorisation of the lowincome groups who with rising income are aspiring to own vehicles replacing their more sustainable but currently disadvantageous practices. The present thesis intends to engage in the debate related to urban poverty alleviation without losing the focus on sustainable mobility and the climate change challenges.

Finally, the questions discussed have potentials to discuss the question of 'poverty and transport' beyond the Indian urban context and this discussion can contribute international discourses on urban poverty alleviation and sustainable mobility. This thesis will also attempt to theorise and summarise the learning from a specific context to be applied to the larger international discourses. There are two important aspects of looking at mobility and poverty in the international literature context.

One, the mobility practices of the urban poor have to be placed in the larger context of urban citizenship by finding out to what extend the urban governance and specifically, transport supply facilitates the practices of the poor. There is a need to expand the debate about the mobility of the urban poor from being 'the vulnerable road user' or 'the disadvantaged commuter' to 'the disadvantaged citizen'. The idea of citizenship brings in the political and governance context including issues like provision of housing and basic services, employment, participation in urban processes and stakes of the poor in the infrastructure investments.

And two, the 'negotiating mobility practices' are being discussed here essentially to see how shelter-livelihood-mobility linkages are being worked out by the households and how these linkages help or do not help in moving out of poverty. All these different trajectories will be useful in unpacking and discussing various parts of the main question of negotiating the mobility practices for the urban poor.

Based on the literature review and the discussion above the research questions are developed and listed in Section 2.5.1.

2.5.1 Research Questions

- 1. How do poor people in a large developing-country city negotiate their mobility practices and transport opportunities?
 - a. What are the mobility patterns of the urban poor?
 - b. How are those patterns negotiated by different sub-groups within the poor based on e.g. gender, livelihood or varying locations in a city?
- 2. How do findings about the mobility and accessibility of this group of urban poor inform policies for poverty alleviation and sustainable mobility?
 - a. To what extent does the city's transport system facilitate or constrain the mobility and accessibility of the poor?
 - b. How do mobility-related negotiations influence aspects of moving in and out of poverty and how can they be supported by policy?

3. Research Strategy and Methodology

This chapter presents the rationale for the methodology design for the collection of empirical data in this thesis. This chapter provides a critique of the methods available to the researcher, identifying the most appropriate to the delivery of the research questions. The research questions addressed in this thesis have been presented at the close of the previous chapter 2. The present chapter explains how the research questions have dictated the form of the research methodology. First, this chapter presents the overarching research strategy, including a discussion of epistemological issues, an explanation of the mixed-methods approach adopted in this thesis, and a strategic summary of the sequence of empirical data collection.

3.1 Research design and key strategic decisions

As discussed in the previous chapter, this research is concerned with exploring the mobility practices of the urban poor in a specific Indian city. Currently, the analysis of mobility pattern and practices of the poor with its subjective values is not well captured for Indian cities as discussed in Chapter-2. There is a strong argument that the interlinked aspects of mobility and poverty are currently under-researched, and further that there is little discussion about these aspects in the realm of public policies. The following sections discuss the theoretical approach adopted in this thesis, and present the research strategy, which has been designed to collect the empirical data necessary to address the research questions.

Transport studies have traditionally been allied to the positivist approaches developed in the physical sciences, conceptualising structures of mobility as systems, which can be measured objectively. However, one important theoretical pathway in this thesis is about understanding the 'systems' on the basis of practices and not the other way around. This is essentially a bottom-up approach. Especially, how do individuals experience their mobility and negotiate its practices and these are inherently subjective

discussion. Besides, as per the discussion in the previous two chapters, the conventional transport studies have been critiqued for ignoring the human aspects while being obsessed with the narrowly economic efficiencies.

Flyvbjerg (2001) has questioned whether the pursuit of objectivity is even desirable in the context of social research – which by its nature explores societies, people, and their differing values and norms. But this is not to say that that the functionality of the measured objectivity is reduced in any way. Without going into the discussion of how 'objective' is the objectivity, the measured objectivity could be a good starting point to place the subjective narratives and to discuss the human negotiation, subjective adaptions and subversions of the (transport) systems. Measured objectivity could lay down the frames, which could be modified and twisted with the subjective interpretations. This thesis argues that the frames are required as much as the twisting of them.

The first research question is about 'negotiations of mobility practices' being understood and reinforced by two important aspects; first, the mobility patterns of the population sub-group (based on their income and assets) and two, the mobility patterns of the sub-groups within based on social or geographical categories. The data require to answer this questions would span out into the quantitative and the qualitative methods. Because the terms such as 'negotiations' are set out to be explored by subjective narratives and interpretations whereas the terms such as 'pattern' are analysed through quantitative data. The motivations to research about 'negotiations' come from the post-colonial urban studies, which is an inter-disciplinary and post-positivist discourse. Whereas 'patterns' are very much part of the mainstream transport research. Including the mobility patterns in a quantitative way as part of the primary data in the context of the Indian cities is also crucial given the absence any public data sets such census or any other academic studies available on the same.

As this thesis spans a number of academic disciplines, it is believed that there are advantages to drawing on a variety of overlapping traditions and thus, a pragmatic and mixed approach should be adopted. This thesis represents a philosophical position between the extremes of a pure positivist approach and a pure constructivist (or interpretivist) position, and in some ways bridges the divide between the two. A critical realist position as articulated by Roy Bhaskar in (Bhaskar & Lawson, 2013) accepts that there is an independent reality that exists outside of subjective interpretation, but also that there is a distinction between objective reality and our knowledge and interpretation of it. This research recognises that there is a need to balance the two and find a pathway, which chart away from the fallacy of either being overtly positivist or being overtly interpretivist. This partly reflects the tradition of transport and urban planning research: this is an applied field, benefitting from public funding, and orientated towards informing policy and practice. And on the other hand, this research wishes to employ the knowledge generated by the post-colonial urban studies and thus, it is viewed to be the part of the these debates which are relevant for the Indian and other developing contexts. Besides, a pragmatic and mixed approach is also crucial for the wider public dissemination and acceptability of the findings of a research initiative such as this.

Both ontologically and epistemologically this research displays multi-faceted realities, resulting from concepts of 'mobility' and 'poverty'. Poverty is historically imagined to be from being a culture, a state of mind to a trap or imposed structural condition. As discussed in Chapter 2, these conceptions would also sway between the right and the left sides of the political ideologies. And the notion of mobility is also expanded from being physical movement to the movements of communication and technology including the text messages. Poverty may be experienced differently to different people and so are the characteristics of one's mobility. And it is the same case with the mobility. However, for this study the definition of mobility is restricted to the physical movement of people through various modes.

In adopting a critical realist position this thesis recognises that the transport infrastructure in a city operate and exist independently of a particular individual's interpretation or experiences of it and it can be studied in an abstract manner divorced from any physical realities. However, there is a lot of value in focusing on the ways in which the users apply subjective meaning to their experiences of this system and the manner in which they turn, twist the system for their own use. In their usage and negotiations with the system, they might bring in attitudes, which may expand the very definition or the outreach of the system. This may help to view the system itself differently.

In order to operationalise the critical realist position, this study has adopted 'inductive research strategy' as described by Blaiki (2000). Inductive research strategies promise to 'build theory' following the data analysis. Since there is a clear academic gap in theorising the mobility of low-income groups and given the data gaps in the Indian context, an inductive strategy is the most appropriate for this study. Obviously, there are no hypotheses to be deduced about the mobility of the urban poor. There are several theories conceptualising poverty but, again, the links with transport or mobility are not clearly established. In the absence of such theories or clear conceptual frameworks, the deductive approach is not possible. This makes the inductive approach more relevant here. This requires stages such as accumulation of data, inductive logic formation and instance confirmation leading towards inductive research strategy (Blaiki 2000). The inductive research strategy is a 'default' research strategy for the research process of the present research, which has been full of exploration and deviations from the pre-assumed paths, both, in terms of the methods and the analysis.

The nature of the knowledge that is generated by the research process have explained that the values held by the researcher (and the value judgments that researchers make) are deeply embedded in the methods chosen, the questions that are asked, and

thus also in the knowledge that is generated (Flyvbjerg, 2002, 2004; May, Burke & Centre, 2010). This thesis recognises the role of the researcher in generating findings through their intellectual engagement with the data, and hence their influence upon the knowledge that is produced. Hence, the knowledge that has been generated represents the researcher's interpretation of the subjective meaning that poor people ascribe to their mobility in a city. The researcher is not simply "gathering" interpretations and understandings which already existed in the participants" minds, ready to be retrieved in response to neutral questioning, but also encouraging them to think about their own and other people's mobility in ways which they had not necessarily done before. The researcher uses this knowledge to gather more interpretation and more insights from the next person. The methods and knowledge base are constantly evolving, as it is getting more and more informed in the process. The later interactions with the respondents become more nuanced with the wider base of knowledge. Given the nature of such study, the inductive research strategy is the most appropriate one.

3.1.1 Mixed-methods

Reflecting on insides discussed previously, it is therefore necessary to consider what types of data are appropriate to exploring the mobility practices of the poor. This thesis incorporates qualitative and quantitative data through the mixed-methods. This purposive contrasting of data through the mixed-methods shows two perspectives on the same subject, almost like parallel dimensions; in some respects the datasets support one another, and yet in others they assert contrasting explanations. The first is that social experience and lived realities are multi-dimensional and that our understandings are impoverished and may be inadequate if they are viewed only along a single dimension. There is a need for methodology and methods that open perspective to the multi-dimensionality of lived experiences. And that's why mixmethods approach is more beneficial for the current research.

The advantages of the mixed-methods approach are that the weaknesses of one method may be compensated for by another, creating complementary strengths and non-overlapping weaknesses (Brewer et al 2006, Blaiki 2000). Quantitative analysis would also be useful in determining some of the basic characteristics of mobility pattern such as trip length, mode usage, time and cost implications etc. Given the complete lack of data on the mobility of the poor at the city level, the primary function of the quantitative analysis is to establish the mobility pattern of the poor. In addition, quantitative surveys will be used to validate and synthesise the claims of qualitative analysis.

The focus of this study is to understand how poor people negotiate with the situations related to their mobility and such negotiations can only be captured through detailed qualitative component. The qualitative data collection based on individual interviews is employed here to understand the nuances of short-term decision regarding mode or route and long-term decisions such as residential location and job changes etc. An important feature of qualitative interviews is their ability to explore information in depth cumulatively building on previous knowledge rather than adhere to a fixed set of questions and answers (Mason 2006). Qualitative interviewing is more relevant to answer question such as 'why do people conduct certain practices or make certain choices' highlighting the strategies to cope up with constraints of mobility. Unlike, oneto-one interviews, focus group discussions or any other gualitative methods are less likely to answer questions related to individual's choices or strategies (Kvale 1996). This also means exploring their efforts to move out of poverty with the help of changing situations in the labour market, housing and transport needs. To understand these efforts and situations, qualitative techniques are more relevant, especially, interviews where these aspects could be talked about in detail. The format of focus group discussion (FGD) does not allow documenting individual choices and practices in detail. Thus, individual interviewing is used as the key method for qualitative data collection.

3.1.2 Case-study approach

Persistence of poverty is dynamic, institutionally imbedded, contextualised phenomena (Narayan et al 1999, UNSIRD 2010) and thus requires specific geographical settings for the analysis of the same. Similarly, the findings related to the mobility practices of the poor will be time-space specific, situation specific. They need to be further contextualised in the setting of a city. These research intentions outline the need of a case study based approach (Yin, 1994; Flyvbjerg, 2006). The case study approach enables a greater tendency to emphasize the detailed workings of the relationships and social processes, rather than to restrict attention to the outcomes from these (Denscombe, 1998). At the same time, it is possible to have thematic discussion based on mobility and poverty related findings placed in a specific case.

Here, as part of the research strategy, a city is seen as an arena where mobility of the poor is observed and analysed within the urban dynamics of infrastructure and policy regime. As it is an inductive research approach, there is a possibility of aggregating all the contextualised understanding and specific observations into the thematic nuances. Studying more than one city has a danger of diluting the context-specific discourse on poverty-transport links. The intention here was not to compare poverty instances in different urban contexts but to explore the poverty-mobility links in the life of the urban poor. Denscombe (1998) argues that the rationale 'behind concentrating efforts on one case rather than many is that there may be insights to be gained from looking at the individual case that can have wider implications and, importantly, that would not have come to light through the use of a research strategy that tried to cover a large number of instances. And thus, it was more appropriate to select a city and detail it out. A case study is appropriate as 'a locus for study' but it must also be recognised that many of the identifiable characteristics of a case study are dependent upon and a reflex of the larger society and can only be explained with reference to their specific connections with it. Although, there are question marks around the generalizability of findings from a

case study, it is possible to generate thematic debates (such as of poverty and mobility) from the findings based in a specific case. So the given the nature of this research, the case-study approach is the most appropriate one.

3.1.3 Selection of Case study

This research is situation in a city in India. At one level, the selected case study should be a representative case of urban development and its constraints amongst the Indian cities. At another level, the case study should also have some interesting requisites that may challenge the stereotypes of a city from India. The selection of the case study was based on straightforward criteria that the case study should be 'interesting and sizable' enough to discuss the dynamics raised in the research questions such as poverty, mobility and policies. It could be any city in any given context in India where the issues of poverty are most relevant. As mentioned earlier, for this study the city is incidental. It could be any city from India where dynamics of mobility and poverty could be studied and the contributions to theoretical debates could be made.

The city of Ahmedabad was an obvious choice of being a case-study, as lots of the preliminary ideas about this research were originated based on this city. Besides, the city of Ahmedabad is also relevant to the discussion previous discussion carried out in Chapter-1 about poverty and informality in an Indian city. As economies in regions like India show rapid growth, there is a good chance that these cities could be a problem of tomorrow. It is believed that middle-sized cities in Asia with population range around 4 million because of their present infrastructure levels and growth potential will be confronted with coping with rapid urban growth and related urban problems like rapid motorization.

An exercise was carried out to rationalize and re-affirm the choice of Ahmedabad based on indicators related to poverty, transport and policy changes at the national level. Ahmedabad urban agglomeration has an estimated urban population of around 4.5 million, and has observed compound annual growth rate of around 2 per cent for

the past two decades. The city agglomeration area has more than doubled during this period but the observed average trip lengths in the city have increased only marginally. The average trip length in Ahmedabad is lower in comparison to other cities with similar population in India like Hyderabad, Bangalore or Kanpur. The following table presents poverty and transport related characteristics in Indian cities. Here the city of Ahmedabad is compared with other cities based on these characteristics:

No.	Urban characteristics	Cities (India)				
	Urban poverty					
1	Rapidly growing cities (above 1.5% compound annual population growth rate projected by ADB (2008) between 2006-20)	Surat (5%), Jaipur (3.6%), Delhi (3.5%), Pune (3.5%), Bangalore (2.8%), Ahmedabad (2.7%), Kanpur (2.5%), Mumbai (2.3%), Hyderabad (2.2), Kolkata & Chennai (1.7%)				
2	Above 20% population living in slums in urban areas based on 2001 census <i>National average</i> ~20%	Patna, Mumbai, Delhi, Kanpur, Lucknow, Kolkata, Chennai, Surat, Pune, Ahmedabad, Hyderabad, Bangalore, Jaipur,				
3	Above 30% decadal growth rates in slum population in urban agglomerations (between 1991-2001) <i>National average</i> 35%	Surat, Jaipur, Delhi, Hyderabad, Pune, Lucknow, Kanpur, Bhopal, Nagpur, Indore, Bangalore, Cochin, Vizag, Mumbai, Ahmedabad,				
4	Innovative housing and poverty alleviation projects (based on ministry of housing & urban poverty alleviation, Govt. of India)	Slum networking program (Ahmedabad), Slum networking (Indore), Slum Resettlement schemes (Mumbai), Public housing (Hyderabad), Patta (land tenure) act, (Jaipur and Bhopal), Citizen report cards (Bangalore)				
	Transport and urban governance					
5	Rapidly growing automobile population in cities – based on growth rate between 2001-06 National average (~10%)	Jaipur(30%) Ahmedabad (18%), Nagpur, Vishakhapatnam, Chennai, Coimbatore, Madurai,				
6	Investments in public transit initiatives– cities which are building the new systems	BRT (bus based) - Delhi, Pune, Jaipur, Indore, Ahmedabad, Vizag, Hyderabad, Vijayawada, Rajkot, Surat Metro (rail based) - Mumbai, Delhi, Bangalore, Chennai, Pune, Hyderabad				
7	Front runner cities in utilizing the national urban mission (JnNURM) funds for projects related to transport, basic services and housing	Surat, Rajkot, Ahmedabad, Coimbatore, Madurai, Hyderabad, Jaipur, Bhopal, Vishakhapatnam, Pune				

Table 3-1 Criteria for case study selection

Besides, Ahmedabad appearing in the various listed indicators above, there was another important criteria in the favour of the city. Ahmedabad was one of the few cities in India where at least some official studies related to transportation were available to understand the city level characteristics. Many academic institutions have contributed to the urban research about the city. Ahmedabad has some typical characteristics of urbanization in south Asia such as rapid population growth followed by industrialization and mercantilism, depleting urban infrastructure and swelling slum squatters. This is coupled with high growth rate of private motor-vehicle activities and building of big transport infrastructure projects to 'ease congestion' along with the national 'best practice' project of Bus Rapid Transit (BRT).

3.2 Detailed Methodology

3.2.1 Desk Research and data sets

Being a case study research, the first step was to understand the city's historical planning trajectories, economic development and poverty issues. It also included reviewing transport studies and town planning documents and analysis of the city's statistical data obtained from the local/state government, relevant census data and national sample surveys, analysis of city's development policies and plans designed over time and compiling their impact studies. Newspaper reports, academic studies, international journals, governments' reports and monographs gave the broad idea about city's development paradigm, issues and urban initiatives. Although qualitative analysis of newspapers, for example, might enable substantial conclusions to be drawn, such research could not be regarded as reliable on its own. As such, this could be supported by other research methods.

3.2.2 Quantitative survey and sampling

Available secondary datasets of city level transport studies were obtained. In Ahmedabad, two major transport surveys have been carried out in last two decades; the feasibility study for IPTS (Integrated Public Transport System) alternatives for Ahmedabad by Louis Berger Group Consortium for Gujarat Infrastructure Development Board in 2001-02 and recently (2005-2006) surveys for Bus Rapid Transport System in Ahmedabad for Ahmedabad Municipal Corporation. Reports containing both the

surveys were obtained and they are drawn upon in the quantitative analysis. However, in both the reports, there was a limited coverage of any of the socio-economic characteristics including the income groups. Further, there was also limited coverage of the non-motorised transport. The focus of these reports was more in the realm of 'predict and provide', where based on the transport demand, the feasibility of mass transit systems were worked out. On the prima facie, it appears to be the case of over-estimating the ridership and under-estimating the costs as described by (Flyvbjerg, 2007).

Given the limited data on the socio-economic characteristics and transport, the quantitative household surveys became important primary data collection activities. Questionnaires can provide a broad range of information from a diverse group of people. And this is especially useful alongside more in-depth, detailed, but narrower research methods. The main quantitative component based on the household-level travel survey in selected slum settlements. Other options of conducting travellers survey such as mid-block (corridor intercept) survey or surveys around transport facilities (typically fuel stations) were considered and discarded. The household based travel survey can cover the cross section of population across the age and gender. In other surveys, there was a danger of getting a male bias or a bias toward motorised vehicles (in case of fuel station). Besides, the objective here was to capture the poor for which the surveys have to be conducted in their own locality and at the time when they are available to answer the questions for the household level survey.

The definition of poverty for this thesis is based on multi-dimensional criteria specific to income, living conditions (housing and basic services), access to livelihood and social inclusion (caste, age, gender). The city of Ahmedabad has about 750 slum settlements with varying population size, land ownership (public or private) and years of existence within the municipal limits (466 sq. km.) as per the municipal data. The poor are located based on two broad conditions: One, official poverty line (known as below poverty line

– BPL population) and second, deprived living conditions defined by the local municipal government as 'slum settlement'. On prima-facie these categories are accepted but there were further attempts made to ensure that the poorer group is captured amongst the people living in the slum settlements. There were three levels of filtering done for the sampling of the household surveys. One, locating concentration of poverty in each municipal zone in Ahmedabad; two, selecting the slum settlements.

The Ahmedabad Municipal Corporation (AMC) has carried out the surveys of the 'Below Poverty Line⁶' (BPL) households in all the slums distributed in different zones and wards (sub-set of zones) in the year 2009-10. This database includes listing of households (as BPL or otherwise) in different slums for each ward of the city. This was the latest database available (year 2010) and it was used for sampling. The list of such slums settlement in Ahmedabad with the BPL population was obtained for the year 2010. Based on these two conditions of concentration of BPL population living in the designated slum settlements and the distribution of such pockets of concentrated poverty in different municipal zones, the slum settlements were identified. Concentrated pockets of poverty were identified based on number of BPL households in each municipal zone and there were six such pockets were there in North, South, West, South East and Central zones. For the quantitative or qualitative sampling, the target population in the selected settlements is stratified and randomized based on employment, age and gender.

⁶There are many debates about identification and estimation of poor people in the Indian public policy and social sciences. A recent one being, the BPL (below poverty line) surveys are based on poverty line as per the year 2009 as 20 rupees/person/day.



Figure 3-1 Slum settlements in Ahmedabad as per the AMC

Source: Center for Urban Equity, CEPT University

Based on a hypothesis that 'slums located in differing distance from the city centre would have different characteristics', the slum settlements were categorised as either being in the core city⁷ or being peripheral settlements. It was also decided to select the settlements based on varying distance from the city centre in different directions to ensure the spatial representation. The core city settlements were in and around the historic walled city of Ahmedabad, which incidentally fall within the 3.5 km radius of the city centre (Bhadra square). The peripheral settlements fall within 3.5 to 7 km radius of the city centre. Two of the resettlement sites were beyond the 7 km radius of the city centre and two of them fall within 7 km radius.

⁷Here the 'core city slums' category would include the central city slums and the intermediate slums. In case of Ahmedabad, the central city means the historical walled city and the intermediate slums would mean the slums developed in the periphery of historical walled city.

Besides, taking settlements from different local administrative boundaries like municipal zones ensures not only spatial distribution of the settlements in different directions (in addition to the core, intermediate, peripheral categories) but also the practicalities of using secondary data. In different municipal zones, slums with higher share of BPL population than the rest were selected. Beyond the spatial distribution and distance from the city centres, slum settlements in Ahmedabad can also be categories as core city slums, peripheral or industrial suburban slums and resettlements sites⁸. While selecting the settlements, it was ensured that these categories are covered. Inclusion of the resettlement sites was important as many poor people were displaced by various development projects; some of which are not rehabilitated fully but many of them were given public housing in last few years. To summarise, the slum settlements in Ahmedabad were selected representing three criteria:

- Distance from the city centre (core or peripheral)
- Spatial distribution of concentrated poverty pockets determined by municipal zones (north, south, east, west etc.)
- Slum typologies (established slums, industrial suburban slums, walled city slums, Resettlement sites)

The purpose of the household surveys was to quantify and analyse urban travel characteristics of the poor people in the city of Ahmedabad. The travel characteristics included are frequency of travel for various purposes, mode use, destination, routes and cost - time taken. The trips captured in the survey are analysed by gender, income, employment and locations of various settlements. A detailed household survey was conducted in Ahmedabad in October 2011 and a sample household survey form is attached in the Appendix A5. From each household, trip details were asked for at least

⁸As part of the national urban renewal mission, Ahmedabad acquired funds to build housing for the poor people in the city; especially the families displaced from various developmental projects in the city were housed here.

4 adult members and 2 children⁹. The questionnaire was designed in such a way that trips per week, multiple-mode trips, trip chaining are captured and quantified.

Figure 3-2 Core city informal settlement and the peripheral re-settlement colony



Photos in figure 3-2 and 3-3: author and Center for Urban Equity, CEPT University

Figure 3-3 Household surveys in progress with the help of the field workers



The data-collection was undertaken using survey forms completed trained bv fieldworkers. The field workers represented gender balance and they administered questionnaires in the language of the interviewee in order to promote clear comprehension. The help from local civil society organisations working with the slum community (SAATH and SEWA) and the local research

center at a university (Centre for Urban Equity, CEPT University) was taken in employing the field workers.

⁹If there were more than four adults or 2 children, the field workers were encouraged to fill up their details in an extra form. Any household members who go out of the slum settlement were asked to give their details. Any trips within the slum settlement were not considered in this survey.

Table 3-2 Selected settlements for household surve	eys
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	Name of Major Settlements surveyed	Slum settlement type/ location	Ward	Zone	No of Hh in settlement	Total number of households surveyed
Cor	Core City Slums (Within 3.5 km radius of the city centre)					
1	Municipal quarters	Central core	Shahpur	Central	310	29
2	Khanpur darwaja	Central core	Khanpur	Central	500	47
3	Baba Lavlavi Nagar, Ramjimandirnichali	Southern Core city	Baherampura	South	750	64
4	Lalluram na chhapara, Damodar ni chali, Rami ni Chali	Eastern Core city	Rakhial	East	1097	98
					Total	238
Per	iphery/intermediate slum	ıs (within 3.5 to 7 km ı	adius of the city cer	ntre)		
5	Hanuman Nagar, CTM	Industrial suburban South-Eastern Periphery	Bagefirdos	South	320	29
6	Santoshinagar na chhapara	Industrial suburban Northern Periphery	Naroda-muthiya	North	1040	52
7	Yogeshwar nagar-1	Western periphery	Vasana	West	450	29
8	Sanjay Nagar Na Chhapara	Western intermediate	Naranpura	West	975	59
					Total	169
Rel	ocation-Resettlement sit	es (9,10 within 3.5-7 k	m radius of the city	centre and 1	1,12 beyond that	at)
9	Ajit Mill Ni Chali , Rakhial	Core city Resettlement	Rakhial	East	704	30
10	Balol Nagar BSUP	Western Resettlement	Near Akhbar Nagar	West	640	35
11	BSUP Housing, Trikampura	Eastern Resettlement	Jasodanagar	South east	672	54
12	Ganesh Nagar, Piplaj	Temporary Resettlement site (south)	Piplaj	South	600	55
					Total	174
					Grand Total	581

Note: The map at the end of the chapter shows all settlements represented by the same number given here. The map also represents the concentration of slum settlements and Chawls in Ahmedabad.

The following variables were recorded in the surveys:

- Basic demography and employment age, gender, level of education, income, days of work in a year, type of work, work profile in the previous year
- Housing and basic urban services: House type, house condition, level of basic services (water supply, sanitation, solid waste etc.) and history of residential mobility, perception of eviction threats

 Transport: primary mode, input costs, frequency of use, level of access, history of mode-choice and aspirations, trips details for the last week (mode use, time taken, cost) for all the members in the family, proximity and affordability of BRT/municipal bus services.

The following table gives details about the number of household surveys conducted in different informal settlements with varying locations.

3.2.3 Qualitative Interviews

There were mainly two qualitative methods were deliberated; one, qualitative interviews and the focus group discussion. Given the familiarity and field experience of the researcher, the focus group discussions were not the right approach for the present thesis because the research question focused on the individual negotiations of poverty situations and mobility options in the wider social context of household strategies. The qualitative interviewing gives an in-depth understanding about the travel and mobility context of the poor. When it comes to deliberating options or explaining situations, the focus group discussions are not adequate methods. The main danger of focus group discussion at the household or at the neighbourhood level were the complete marginalisation of the less powerful social group based on their age, gender or their caste. In this context, individual qualitative interviews seemed appropriate to give 'voices' to the individual views about mobility and poverty. So qualitative interviews are selected as the main qualitative method based on Clifton & Handy (2001) and Kvale (1996).

Semi-structured interviews used in conjunction with other research methods, can help establish the subjective narratives of the poverty situations and the mobility practices. To this end, the interviewer is able to seize upon any opportunity where the interviewee could elaborate on points of interest without being restricted to the rigidity of a more structured interview. Semi-structured detailed interviews were employed where the questions were more open-ended and answers were audio-recorded from individuals in

the setting of a household or any other comfortable space to the interviewees. The interview guide covered the following issues:

- Housing and living conditions: Migration to the city, subsequent residential mobility and available options, employment linkages, community support and social networks, health and education priorities and recreation
- Transport mobility and attitudes: changes in urban travel over time, attitudes to route and mode selection, managing financial burden of urban travel, stated preferences, perception of public transport and other modes like M2W and NMT
- Economic mobility and social attitudes: Nature of employment, other members in the household, their jobs, their daily travel, attempts to move out of poverty and changes over time, aspirations and future plans

The samples were selected on the basis of variations in gender, age, occupation, mode usage and the location of the settlement. The motivation of such distribution is to ensure the representation from the various sub categories of the poor. Number of pilots were conducted in each settlement and depending upon the comfort level of the interviwees and their articulation, they were encouraged to give the full interviews. It was important to balance the interviwees based on gender, age, occupation and locations. To keep A sampling 'grid' was created (portrayed as Table 3-2 below) to reflect groups, which have combination of variables. The interviewees were selected ensuring representations of different combination of cells. Total 34 interviews were carried out.

The decision on number of interviews conducted was based on the first-hand experience of recording differentials within the selected community. There are relatively few guidelines about how many interviews are needed for a valid and reliable result except a constant reference to the theoretical saturation point (Fossey et al 2002). The practicality of time constraints in an academic project would also decide 'when to stop'.

On prima facie, if three types of slum settlements (core city, peripheral and Resettlement sites) are selected then 10-12 interviews in each were considered.

				Male				Female				
No.	Settlement typologies	18-30	30-40	40-50	50-60	60+	18-30	30-40	40- 50	50- 60	60+	Total
1	Core city slums	2	2	1	2	1		4	2	1	1	16
3	Periphery - suburban slums	1	1		1	1	2	1	2	1		10
4	Resettlement sites (public housing)		1	1	1	1	1	1	1		1	8
			Total	Male	•	16		Total Female		•	18	34

Table 3-3 Interviewee characteristics – Gender and Age groups

Qualitative component was originally conceived to set grounds for the specific quantitative inquiry. However, practically this was not possible as the qualitative analysis would take longer time and given the constraints of mobilising the teams and rapport with the community etc, both components were carried out almost parallel to each other. To take advantages of the mobilized team and newly built rapport with the community, all the field work was intensively finished together in 2-3 months followed by data feeding and transcriptions. Another deviation from the original plan was to employ a female interviewer to interview the women. It was observed in the pilots that the women were reserved when talking to a male researcher and with female interviewer; they were more comfortable in sharing their views. So finally a female interviewer was employed who would audio record the conversation and the researcher would work in close collaboration with her to guide her to the right kind of conversation after listening to the recording each day.

3.3 Conclusion

After deliberating various methods and approaches, this thesis developed its own path of inductive research strategy. As part of this research strategy, a mixed method appraoch of combining quantitative and qualitative methods; first to specify what are the mobility practices and secondly exploring 'why these practices' in the given context.

It was decided to conduct household surveys as part of the quantitative component where detailed trip details of all family members were captured. Disaggregated data on education level, livelihood categories, housing conditions and assets was also recorded for each selected household. As part of the study, about 581 households were surveyed in 12 settlements distributed in different locations of the city.

Furthermore, it was decided to conduct semi-structure qualitative interviews of poor peple over the focus group discussions. Finally, about 34 individual interviews were conducted in the differently located settlements mainly constituting the interviewees with varying employment and housing scenario. The qualitative and quantitative data is further analysed in Chapters 5 and 6 answering the research questions. The following map of Ahmedabad represents all different informal settlements where both qualitative and quantitative components were studied.



4. The case of Ahmedabad: poverty and the urban planning context

The present chapter introduces the case-study city of Ahmedabad and its urban planning and transport context. This chapter begins by giving a demographic profile of the city and moves on to discuss the prevalence of slums and informality in the city over the years. Towards the end, it gives highlights of the transport system in the city and discusses mobility issues of the poor based on the city-specific secondary literature.

4.1 Introduction

Ahmedabad is a metropolitan city and commercial capital of the highly industrialised and urbanised state¹⁰ of Gujarat located in Western India. Ahmedabad is the seventhlargest urban agglomeration in India with a population of 6.35 million in the year 2011. Ahmedabad accounts for 7% of the state's total population and around 20% of its urban population. Ahmedabad has been central to political, economic and cultural activities in Gujarat over centuries. The political capital of the Gujarat state called Gandhinagar – a town planned and developed from the 1960s – is located in the close vicinity of Ahmedabad. Ahmedabad houses the only international airport of the state and is a major hub of regional transport network through rail and national highways.

The city of Ahmedabad was founded in the year 1411 as a new capital by Sultan Ahmedshah. By the year 1818, the British East India Company took over Ahmedabad from the Maratha rulers who had by then been ruling the city for more than a hundred years. The British regime established Ahmedabad Municipality in year 1873, which was upgraded as Ahmedabad Municipal Corporation in the post-independence era, in 1950.

¹⁰ The state of Gujarat, with 42.6 per cent of its population being urban, is well over the all-India urbanization average of 31.2 per cent as per the 2011 Census. The average annual growth rate of urban population in Gujarat for the next fifteen years has been forecast at 2.9 per cent (Census of India, 2006), indicating continued high urban population growth in the state for an extended period. It is also important to note that the urban growth rates in Gujarat are slowly stabilising compared to the 1970-80s during the early phase of industrialisation and urbanisation.

Today, Ahmedabad Municipal Corporation (AMC) is responsible for all the municipal services and civic amenities including urban planning, provision of basic services, local transportation, public health and education. In the three-fold structure of governance in India, the city government or the municipal corporation plays a crucial role of being the local, third tier of government. Since 'urban development' is a state government domain, the local government works with the state government in pursuit of day-to-day urban governance. However, the national government also frames broad urban policies, funds urban development programs and provides model urban legislation.

AMC has an area of 466 km² divided by 64 municipal wards. 192 municipal councillors represent these wards and they form the legislature, headed by an elected Mayor. The Municipal Commissioner heads the executive in the Municipal Corporation, which also includes technical staff like the planning officials. The Ahmedabad Urban Development Authority (AUDA) is a state government agency that regulates the metropolitan region of Ahmedabad city and works closely with AMC in preparing the development plan for the city. The latest draft development plan (2021) was released for public consultation in June 2013 and the final plan with the state government sanction is awaited.

Ahmedabad is divided into two geographically distinct parts, East and West Ahmedabad, by the river Sabarmati. The eastern part consists of the medieval walled (fortified) city and its northern, eastern and southern extensions. The walled city today houses people mainly involved in trade and commerce. Most of the wholesale goods markets are located in the old city, such as the grain, vegetable, fruit and cloth markets. The traditional textile industries, which now lie abandoned, and most of the recent industrial estates, warehouses and wholesale markets are located in the East. The eastern part is also dominated by traditional kinds of trade such as hawking, bazaars, workshops and home-based manufacturing activities. In contrast, the western part is relatively newly built with modern architecture, providing attractive locations for service industries and contemporary shopping arcades. The western part also includes most of

the higher education institutes and universities, besides the 'aspirational' housing developments for the middle and higher-income groups. The contrast between the eastern and western sides also gets reflected in the infrastructure provision and development projects, and it will be discussed later in this chapter.

4.2 Demography and employment

The population of Ahmedabad grew at a rapid pace in last few decades, but there are indications of the population growth stabilising. Ahmedabad has grown annually by 3.5 per cent on average during the past decade. Ahmedabad registered the third-highest population growth amongst the Indian cities in the last decade after Surat and Bengaluru urban agglomerations. In the last decade, the population growth rates in all other metropolitan Indian cities like Kolkata, Mumbai, Delhi and Chennai have slowed down. In terms of increase in population growth rates, Ahmedabad along with Bengaluru lead the second-tier group of large cities (with 5 million plus population) in India, followed by Hyderabad and Pune. In the table below, the decadal population growth rate of Ahmedabad between 2001-2011 is reported as 36.9 per cent, which is mainly attributed to the city limits expansion from 192 km² to 450 km² in the year 2006 along with the natural increase of population. Ahmedabad has grown in the official figures, but exact picture complicated by unrecorded growth outside city limits, which were then extended in 2006.

Census+ years	Population	Decadal growth rates %
1951	837,163	41.6
1961	1,149,918	37.4
1971	1,586,544	37.9
1981	2,059,725	29.9
1991	2,876,710	20.8
2001	3,515,361	22.2
2011	5,570,585	36.9

Table 4-1 Decadal population growth rates in Ahmedabad city (Census 2011)

Ahmedabad has seen major improvements in the human development indicators over the last few decades. The literacy rates of Ahmedabad city are improving over the years: from 84 per cent in 2001 to nearly 90 per cent in 2011. The male literacy rate reached 94 per cent in 2011, while the female literacy rate was about 10 percentage points behind. The overall sex ratio has also improved, from 885 in 2001 to 897 in 2011. The earliest available data on the social composition of Ahmedabad's population dates to 2001, where 9.5 per cent were categorized as Scheduled Castes¹¹ while only 0.8 per cent as Scheduled Tribe and 12.4 per cent were Muslims. The majority of the population in Ahmedabad (about 80 per cent) is the non-scheduled castes and the non-Muslims, which means they are mainly the dominant Hindu castes.

The poverty rate¹² in Ahmedabad also declined from about 32 per cent in 1993-94 to 13 per cent in 2004-05; a 19 per cent decline in about a decade. This has been among the fastest declines shown by the large cities of India (Srivastava *et al.*, 2010). At the state level also, the incidence of poverty has declined, from 27.9 per cent in 1993–94 to 20.1 per cent in 2004–05. Given the issues with the poverty line approach (as discussed in Section 2.1), the poverty data need to be looked at critically. The optimism of a declining instance is diminished when the population living in slums is considered. It is proved time and again that the declining poverty line numbers may not directly translate into decline in the population living in the slum quarters in cities. The national Ministry of Housing and urban poverty alleviation report projects that the slum population of Gujarat state will increase from 4.66 million in 2011 to 5.24 million in the year 2017 (NBO-MoHUPA, 2010, p. 22).

4.2.1 Employment and informal work

The tertiary sector informal trade and commercial activities dominate the urban economic activities of Ahmedabad. The urban economy's reliance on the tertiary sector is evident in the distribution of economic enterprises in the urban areas of the

¹¹ The Scheduled Castes (SCs) and Scheduled Tribes (STs) are two population groups of historically disadvantaged people recognised in the constitution of India. The other - more political name for the scheduled castes is the 'Dalits' and to the scheduled tribes is the 'Adivasis'. ¹² The ratio of poor people in total population; the 'poor' are defined by the national poverty line based on

¹² The ratio of poor people in total population; the 'poor' are defined by the national poverty line based on head count.

Ahmedabad district¹³. Of the total economic enterprises in 2005 (DES-GoG, 2005), nearly 80 per cent were in the tertiary sector; of them, nearly 46 per cent were in retail trade. Secondary (manufacturing) sector enterprises represented only 20 per cent of employment in the Ahmedabad district. 85 per cent of the employment of the tertiary sector enterprises was in small-sized enterprises¹⁴. And there is a high probability that the dominance of smaller enterprises means a higher share of informal work¹⁵ or being self-employed. The enterprise data therefore indicate that there is a large informal economy in Ahmedabad, as of 2005. The downtrend in the textile industry has led to the weakening of the industrial base. The industries like chemical, petrochemical, engineering that exist in the government-supported industrial estates and private industrial parks are less labour intensive and hence have lower employment rates. This has led to the redundancy of a major section of the labour force. The surplus labour, which was unable to enter the formal market/ organised sector, was mainly absorbed in the informal sector. A study (Unni & Rani, 2002) on income and employment in the city indicates faster growth of employment in the informal sector than the formal sector. By 2001, the share of employment in the informal sector was 77%, and it generated 47% of the total city income.

The workforce participation rates show some decrease across both genders. The compounded annual growth rate of male workers in 2004–05 to 2009–10 is 6.4 per cent, even though the work participation rate¹⁶ had declined marginally from 56.9 per cent to 54.4. There was a simultaneous reduction in unemployment rates of male

¹³ The latest economic census available is for 2005 (DES-GoG, 2005), although it is available only for Ahmedabad district and not the whole city. However, Ahmedabad city's economic structure is presumed to largely influence the district's urban situation. The population of the Ahmedabad urban agglomeration would be 85% of the population of the district.

¹⁴ According to the Micro, Small and Medium Enterprises (MSME) Development Act of 2006 of India, a small enterprise in the manufacturing sector is where the investment in plant and machinery is more than 2.5 million Indian rupees but does not exceed 50 million. Small enterprise in the service sector is where the investment in equipment is more than one million Indian rupees but does not exceed 20 million.

¹⁵ Here 'informal work' means being employed in the informal sector (unlike other parts of this thesis where 'informality' is used as an urban theory concept). Amongst many definitions by different agencies in India, the National Commission for Enterprises in the Unorganised Sector (India) defines informal workers as – "Informal workers consists of those working in the informal sector or households without any employment and social security benefits provided by the employers" (Naik, 2009).

¹⁶ As per the Indian census, the work force participation rate is the percentage of working-age persons in an economy, who are employed or who are unemployed but looking for a job, to the total population.

workers as well from 2.62 in 2004-05 to 1.30 in 2009-10 and female workers from 2.78 in 2004-05 to 1.24 in 2009-10. However, the female workforce participation rate has declined from 15.6 in 2004-05 to 11.1 in 2009-10. It is possible that some women have dropped out of the labour force as a result of rising household incomes, which is seen everywhere in Indian cities (Chowdhury, 2011). Mahadevia (2012) argues that a large proportion of the available manufacturing employment has shifted to self-employment, most likely subcontracted work involving nearly half of male workers and 90 per cent of female workers (Mahadevia, 2012). Many workers operate out of their homes. The increase in home-based work often goes unreported. In some slum quarters, for example, small workshops and enterprises operate to produce food items and equipment for engineering production.

In Ahmedabad city, about one-third of the work force is in regular employment, where nearly half of the work force is self-employed (Table 4-2). There was a consistent increase in self-employment among men in Ahmedabad city, from 34.7 per cent in 1987–88 to 53.6 per cent in 2009–10. The regular employment among the men declined by 15.3 per cent between 2004-05 and 2009-10. In 2009–10, once again, self-employment among women increased, by 9.7 percentage points, in relation to 2004–05, by nearly 50 per cent. At the same time, the proportion of regular employment amongst women also marginally increased, to 30.9 per cent in 2009–10 from 30 per cent in 2004–05. Casual labour among women drastically decreased in the same period indicating that self-employment might have increased.

	Self-employed	Regular employed	Casual labour	Total			
	Male						
1993–94	35.2	51.2	13.5	100			
2004–05	36.4	53.1	10.5	100			
2009–10	53.6	37.8	8.6	100			
	Female						
1993–94	43.6	27.3	29.1	100			
2004–05	38.9	30.1	31.1	100			
2009–10	49.2	30.9	19.8	100			
Persons							
1993–94	36.8	46.7	16.5	100			
2004–05	36.9	48.5	14.6	100			
2009–10	52.9	36.6	10.5	100			

Table 4-2 Employment categories in Ahmedabad over time (based on NSSO data)

The increase of self-employment amongst the males and female workers in Ahmedabad shows the distinct character of its urban growth. Generally, with higheconomic growth and expansion of the service sector, it would be assumed that regular employment would increase and formalisation of the labour force would take place. Whereas in Ahmedabad, like many other Indian cities, self-employment has increased, indicating that the high economic growth of the state is 'jobless growth'. The workers are either not obtaining regular employment or they find more reliability in selfemployment. In either situation, there are higher chances of income irregularities leading to economic vulnerabilities and deprivation. Mahadevia (2012) argues that the Gujarat state government has not been working on labour welfare effectively, which is resulting in the increase in self-employment. For example, the minimum wage rates set by the state government are the lowest amongst the relatively industrialised states in India like Maharashtra or Tamil Nadu. Social security measures, which are essential in a situation of informal economy and unorganized labour, have been minimal. There has not been any counter political force from the labour unions to demand labour welfare. Finally, the dominance of the service and retail sector in the urban economy of Ahmedabad and the increase in self-employment instead of regular employment creates situations which require the poor and low-income workers to be more flexible

about the timings, payments and locations of work, leading to possible livelihood vulnerabilities. This prevalence of informal work in the urban economy is closely linked with the other 'informalities' in the lives of the poor workers such as residential choices and mobility options. Hence, the current thesis examines the linkages of these livelihood vulnerabilities with mobility represented by a research question (1-b) focusing on the mobility practices of the livelihood based sub-groups within the poor.

4.2.2 Slum population

Over the years, various attempts have been made by government agencies to enumerate the slum households and settlements, with varying degrees of difference in the definitions used for the surveys. As per the census data of the housing stock over the years, the percentage of Ahmedabad housing categorized as slums increased from 17.2 per cent in 1961 to 22.8 per cent in 1971 and 25.6 per cent in 1991. As per the 2001 census, there were 92,307 slum households (13.5% of the total households) in Ahmedabad, with a population of 430,000. The city-wide slum census of 2011 is still not published. The census procedures typically rely on the municipal authorities to notify which were the slum settlements and, in Ahmedabad, chawls (declining-quality row housing considered further in Section 4.3) are never included in the census data on slums.

Year	No. of units	No. of slum settlements	No. of Chawls	Survey done by
1976	82,177	1200		Ahmedabad Municipal Corporation (AMC)
1990	92,121 in Slums, 136,773 in Chawls	1023	1409	Ahmedabad Study Action Group (ASAG)
2001	92,307			Census (Government of India)
2001	350,000 (approx.)	710	958	AMC-SEWA (Self-Employed Women's' Association)
2009	262,551 in slums, 149,022 in Chawls	834	958	Ahmedabad Municipal Corporation (AMC) 2009 as published in (AUDA, 2013)

Table 4-3 Slum population in Ahmedabad over the years by different agencies

Table 4-3 shows the number of attempts by various agencies to capture slum demographics. The slum demography in Ahmedabad (like many other Indian cities) is

bureaucratically-contested territory. Over the years, claims and counter claims have been made about the slum demography in the city. The governing agencies like AMC don't accept the surveys done by non-governmental organisations (NGOs) and the NGOs contest the surveys done by the AMC. Amongst the governing agencies, there are no consistent methods to categorise and enumerate slum settlements. Settlements are often categorised as 'slums' on the basis of their legal or bureaucratic conditions and not their living conditions.

The 2001 survey jointly conducted by AMC-SEWA offers the most recent and the most comprehensive publicly available data on slums in Ahmedabad. As per this survey, Eastern Ahmedabad accounted for 75 per cent of the chawls units and 47 per cent of the slum units in the city. Eastern Ahmedabad housed 54.8 per cent of the total slum/chawls dwelling units in the municipal area (before the expansion in the year 2006). This shows the difference between the Eastern and the Western parts of Ahmedabad in terms of the concentration of slum dwellings. The draft development plan (AUDA, 2013) gives details of the number of households living in slums as 262,551 and in chawls as 149,022. There are 411,573 households in Ahmedabad living in sub-standard housing and struggling with basic services like water and sanitation.

A World Bank working paper examining Ahmedabad's housing scenario (Annez *et al.*, 2012) estimates that the population living in slums has increased by 18 per cent between 2001 to 2011, with the slum population estimated to be about 2 million people. The same paper also reports the very striking upward trend in household incomes in the last decade as per their own calculations. According to the paper, the median income has increased 2.7 times from 7,250 INR in 2001 to 19,500 INR¹⁷ in 2011. Even the national sample survey (NSS) data show that median household expenditure in Ahmedabad has grown at over 5 per cent a year in real terms in the 5 years between

¹⁷ The average exchange rate in the year 2011 was 1 US dollar = 48 Indian Rupees (INR).

2004-05 and 2009-10. The increase in the slum population indicates that the rising incomes in Ahmedabad are extremely skewed, and related to the increasing inequality in the city. However, Annez *et al.*, (2012) see the increase in the slum population as more of a problem of supply of formal sector housing and affordability instead of growing poverty amongst low-income groups in Ahmedabad city.

Table 4-4 Total population and Slum	population in Ahmedabad as per the AMC
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Year	AMC population in million	Slum population in million	Percentage share of slum population
2001	3.5	0.88	28
2010	5.5	0.73	13

Source: (AMC-CEPT, 2010) shows the source of 2001 data as their own survey and the 2010 data as the 2010 biometric socio-economic survey.

Hence, the AMC contradicts the World Bank view (Annez et al., 2012). The AMC conducted a biometric socio-economic household survey in the year 2010 to make a 'slum-free city' plan under the national housing scheme 'Rajiv Awas Yojana'. These survey data have not been shared publicly by the AMC. However, the information shown in the online presentation by AMC (AMC-CEPT, 2010, slide 9) for a national level workshop revealed the slum population to be only 0.73 million: thereby claiming a reduction in slum population of the city. The reported reduction is not observed by any other city-level study in the last decade. As per the data published in the draft development plan document (as shown in Table 4-3), the most conservative estimate¹⁸ of the slum population in Ahmedabad would be at least 1.05 million people without adding population living in chawls. This suggests two possible conclusions: one, the city government has failed to create a systematic database for the slum settlements in the city, leading to confusion in the basic numbers related to the slum population, and two, the state and the city governments are perhaps failing to confront the reality of the increase in the slum population, which is a source of embarrassment given the high economic growth and increase in income levels. The following section puts this context

¹⁸ As per the draft development plan document (AUDA, 2013), there are 262,551 families living in slums in Ahmedabad as per the date of AMC in 2009. Even if the household size were 4, the population living in slums in Ahmedabad would be at least 1,050,204. Importantly, the household size in the primary household surveys of this thesis is 5.2.

of demography and politics of enumeration in the historic perspective of political economy and the urban housing policies.

4.3 Evolution of informal housing and the state response

Slum settlements first appeared in Ahmedabad from the end of the 19th Century, with the establishment of the textile industry and the cotton mills. The dominant mercantile class as the 'indigenous elites' (term used by Raychaudhuri, 2001) transformed into the industrial capitalists in the 19th century, establishing patron-client relationship with the labouring poor. This patron-client relationship was visualised and legitimized as 'the principle of trusteeship' by Mahatma Gandhi who established an *ashram* (commune) on the banks of the Sabarmati in the 1910s. Gandhi's influence on the city (and vice versa) depicts the ingrained local culture of negotiations and conflict resolution through mediation. Many urban history researchers (Spodek, 1969; Raychaudhuri, 2001) see the negotiations, mutual adjustments and entrepreneurial traits through the history of Ahmedabad as an important characteristic of the city. Relatively early industrialisation compared with the rest of India and global trade and cultural linkages allowed the city to have its own process of modernisation through institution-building, grand architectural projects and industrial-economic growth in the 20th century (Gillion, 1968; Khilnani, 1999).

The early industrial activities produced two predominant kinds of low-quality housing in Ahmedabad – typologies as Slums and Chawls. Most of the organised textile mills were typical welfare units with the labour force housed in the employee housing provided by the mill owners. This housing for industrial workers was called Chawls or Chali¹⁹, which is typically a settlement with one-two room row houses and non-concrete roofs near the industrial sites. Sometimes these chawls got municipal services and

¹⁹ There are two other references to the term Chawls or Chali in Ahmedabad. Chali is also more dignified name used for a slum settlement in the local language in Ahmedabad. The slum dwellers widely referred to their settlement as 'Chali'. Second use of the term is more popular because of the chawls in Mumbai. Here (and in a few places in Ahmedabad), chawls/ Chali means a walk-up apartment building of independent rooms in a row on each floor with common toilets and other shared facilities, which were initially constructed to house the industrial workers.
sometimes they didn't - depending up on whether or not they were legally sanctioned by the municipal corporation. Chawls started degrading when the 'parent' textile mills closed down and the residents of these chawls no longer remained the employees of the mills and the management was no longer interested in providing these housing benefits. However, the national level rent control laws prevented the mill owners from either increasing the rent or evicting the renters. Over time, these housing units suffered from depleting infrastructure and services (Bhatt, 2001). In some cases, the owners stopped collecting the rents as they were too low and the occupiers became de facto owners. The occupants of the chawls, now without jobs, were not in an economic condition to improve the building conditions on their own; neither could they sell the properties nor move on. Some chawls owners offered the occupants the opportunity of purchasing their dwelling units so that they could offload the liabilities and such transactions indeed took place in some chawls. During the fieldwork for this thesis, the researcher came across several instances where the occupants had not purchased the units and there were complex housing tenure arrangements.

The second kind of low-quality housing was slum settlements. The labour force in the small-scale and ancillary industrial units were, unlike the major mill workers, not getting any housing benefits provided by the owners. These workers started to live in informal slum settlements. In Ahmedabad slums or informal settlements are organically evolved, over-crowded areas with insecurity of tenure and lack of basic services. Many of these settlements lack access to basic amenities such as water, sewerage, waste collection or paved roads. These informal settlements were developed either on public land belonging to the various government agencies or on private land. Sometimes, the open land in the former chawls has been encroached upon and the entire settlement has become an informal slum settlement. Along with the informal settlements, the depletion of the chawls led to the present day situation of distressed housing stock for poor people in the city. The following sections explain the process of slumming in Ahmedabad and the issues with planning and governance of the city.

4.3.1 'Command and control' planning and public housing

The post-independence era (post-1947) witnessed the peak of industrialisation and informalisation of the economy and the labour market in urban India in general and in Ahmedabad in particular. The following examples illustrates how the informal settlements were 'created' as a result of ill-informed urban land policies and urban land-use planning failing to provide decent housing for migrants coming to the city in search of jobs.

The first development plan of the city in 1965 proposed a green belt with a width of 150 to 250 metres around the boundary of the municipal limits. The plan sought to limit growth of the city with this green belt surrounding the city, thus placing reservations on large tracts of private land at the periphery of the city. This was the peak of 'command and control' land use planning, which did not respect the property rights of landowners. The government machineries were to acquire these land pockets based on the archaic, colonial law named 'the Land Acquisition Act 1896'²⁰. However, these plans were never fully realized, due to lack of funds, among other reasons. The political and social disruption (some of which leading to litigation) made the ambitious plans of acquiring such large tracts of land impracticable (Annez *et al.*, 2012).

In these circumstances, the landowners resorted to 'grey market' transactions often with poor and ill-informed households. This created even more competing and unresolved ownership claims to many plots of land in the city. As seen in the figure 4-1, Eastern Ahmedabad had a number of Industrial areas (represented by shades of purple colour) and there was a high demand for low-income housing for industrial workers in their close vicinities. Most of the stretch of land under green belt 'protection' in Eastern Ahmedabad is today occupied by informal settlements. In Western Ahmedabad, where large tracts of 'green belt' land are still vacant, was under litigation in the Supreme Court of India for a long time.

²⁰ To replace the 1896 Land Acquisition Act, the Government of India has recently passed a new landacquisition law in the year 2013 in the parliament.

Figure 4-1 The 1965 development plan of Ahmedabad



The Urban Land Ceiling and Regulation Act (ULCRA) passed in the further year 1976 aggravated this situation. According to this act, a certain ceiling was applied to all land bigger than parcels certain limits and they were to be acquired by the urban authorities to build housing for the poor. The idea was to 'redistribute' the urban

Source: Sacntioned Development Plan 1965, Ahmedabad Municipal Corporation

resources like land equitably in the urban areas. But again, such land parcels was often sold to low-income households who in some cases purchased the land using legal procedures such as power of attorney, but which conferred no formal property rights or change of title. Some owners, who could not manage the sale, gave Power of Attorney (POA) to an intermediary or an informal market developer – to illegally subdivide the land and sell it in small plots to the buyers. This created multiple stakeholders claiming the rightful title of the land of the informal settlements including the people who were living on the land. Due to their extra-legal status, these settlements were not provided with the basic infrastructure services — roads, water, sanitation, drainage and waste collection. In Eastern Ahmedabad, the state government established five new industrial estates along with a number of textile mills from the pre-independence era. New warehousing and wholesale trading facilities were

expanding. The informal and squatter settlements emerged on a large scale in the 1970s and 1980s in Eastern Ahmedabad (Kundu & Mahadevia, 2002) with the formal planning tools like the 'green belt' and the planning mechanisms like the land ceiling providing opportunities for the poor workers to occupy various land parcels.

Breman (2004) estimates that more than fifty corporate textile mills closed their gates during the last quarter of the 20th century, pushing nearly one hundred thousand workers into the informal sector of the economy. Most of these workers were living in chawls or informal settlements. The chawls were degrading and the populations in the informal settlements were increasing. Another highlight of centralised planning in this era was the promise to build grand projects of public housing, often in the name of the poor. The AMC and other state agencies constructed a number of low-income housing developments but, given the politics involved in identifying the right 'beneficiaries', the public housing built in the name of the poor was subsequently occupied by the middle or lower-middle classes. The various schemes and programs of the government have proved largely ineffective in addressing the systemic causes of slum formation and in meeting the basic services needs of the urban poor. The failures of urban governance in dealing with housing issues of the poor are well documented by a number of researchers for the case of Ahmedabad (Kundu & Mahadevia, 2002; Anand, 2008; Annez *et al.*, 2010, 2012).

The informal housing market operates exactly like a formal housing market: with actors like proprietors, renters, agents and financial mechanisms like deposits, loans and rents outside the purview of legal-regulatory mechanisms. The key aspect of affordability is generated out of the fact that the land is disputed and the risk of investing here is higher, compared to the formal housing market, so the land value is reduced. The availability of informal settlements provided much needed shelter security for poor people in Ahmedabad through the decades of industrialisation. Due to the systemic failure of the city-state and its planning regime of land reservations and

ceilings, the disputes over land were systematically created. In some cases, the poor people informally transacted and occupied the disputed land, and in other cases, the local politicians supported and later protected them to occupy the government land. The evolution of informal settlements in Ahmedabad illustrates how the planning regime has nurtured the informal devleopment, *albeit*, unintentionally. It failed at multiple level; the planning ideas overlooked the property rights, the plans were never implemented and the land was mis-mananaged. In many ways, these case illustrates what Annaya Roy calls the 'informality from above' (Roy, 2009, pg.84).

The insecure tenure of the land for the poor cannot be reduced to the sweeping generalization of the 'illegal encroachment of land' by the slum dwellers. The process of slumming occurred due to mismanagement of land, weak enforcement and lack of affordable housing for the poor. The low-income housing needs were expanding and there was a short supply in this segement, both from the public and private sector. This gave rise to the slumming, enchroaching and occupying of public and private land and in the words of Solomon Bejamin 'occupancy urbanism' in Ahmedabad (Benjamin, 2008).Similarly, in Western Ahmedabad and elsewhere in Eastern Ahmedabad, poor people occupied the low-lying areas of the riverfront and around a number of lakes. They occupied national government land, which was not effectively guarded against illegal occupation locally. Informal housing became a way of affording housing in an industrializing city.

4.3.2 Bottom-up approach of Slum networking projects

With the national economic liberalisation policies of the 1990s, the already industrialised centres like Ahmedabad got further impetus in industrial growth. Since the 1990s, the state has moved on to a higher-growth trajectory, inviting investments into mega industries and a burgeoning middle-class raising the demands for real estate development and service-sector expansion. In the last two decades, Ahmedabad has shifted towards an industrial base of pharmaceutical, automobile and engineering, agro

and food processing, textile and apparel, chemicals and dyes and information technology industries, and in the past decade, as a centre for education and health tourism. Along with the industrial growth and the service sector expansion, there were needs for the low-income workers to house themselves in the city.

The Ahmedabad municipal corporation collaborated with some prominent NGOs to conceive 'slum networking program' in Ahmedabad in the late 1990s. Starting from 1999, 'slum networking' was the only multi-faceted, comprehensive program (a set of projects relating to housing, services and micro finance) in the slums. The program was based on the idea of integrating the slums with the city level infrastructure in terms of service networks and allowing poor people to build their own housing in an incremental way. This was a major shift from the conventional 'slum clearance' approach in earlier decades by the state and the city government to one of environmental upgrading of slums based on community participation and by developing the network between the municipal corporation, NGOs and possibly private sector funders. As per this program, the community would be mobilised to pay the one-third cost of the capital investments in the water, sanitation, streetlights and paving and they will continue to pay the regular service charges. The Municipal Corporation pays two-thirds if there are no private sector funders to pay for the remaining one-third share. In some cases, the municipal corporation paid up to 90 per cent of the cost, taking only a token contribution from the slum communities. The municipal corporation also gives a ten-year no-eviction guarantee to the slum dwellers to encourage them to pay the infrastructure costs.

This program was carried out in 98 slum settlements involving more than 14,000 families. Figure 4-2, based on an unpublished study (Panchal, 2005), shows the conditions of living, i.e. housing type, access to water and toilets, have improved for the slum dwellers taking part in the program. The slum networking projects had presented an effective mechanism for integrating the informal settlements with the rest of the city. Many researchers have argued for its scalability and possible improvements in the

operationalization showing multiple benefits to the slum communities (Tripathi, 1999; Dutta, Batley & Sidhartha, 2000; Bhatt, 2001; Samad, 2006; Das & Takahashi, 2009; Joshi & Khan, 2010; Mahadevia, 2011; Russ & Takahashi, 2012).



Figure 4-2 Impacts of slum networking project in Ahmedabad

municipal

The

in 2002 had already reduced the momentum of the program. But the introduction of the highly subsidized public (social) housing programs under the 'basic services for the urban poor' component of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in 2005-06 took away the attention of the government from the slumnetworking program. It was convenient for the city government to simply build thousands of housing units instead of being involved in the slow and complicated community-centric incremental housing activities where the slum dwellers were being given rights to live where they were, controversially, living. Ironically, the JNNRUM component was named 'basic services for the urban poor' under which the slum networking projects could have been scaled up and expanded in the remaining 600 or more slum pockets (as per the 2001 survey). Instead, the state and the city government chose to build about 19,000 public housing units on the peripheries of the city. Behind this shift in the informal housing policy – from the bottom-up approach to

corporation the received 'international best practice award' for these innovative 2006 practices in AMC after which shelved the whole program. The communal violence

Source: Based on Panchal (2005)

the conventional top-down approach – was the new, emerging urban politics, which is discussed in the following section in detail.

4.3.4 Emergence of 'development-rhetoric' and displacements

The last decade has seen another shift in the political economy of the state and its manifestations in urban development, especially in Ahmedabad. The political base created by the Hindu nationalist political organisation called Bharatiya Janata Party (BJP) over the last two decades has turned to development-centric rhetoric. BJP has won all three state assembly elections since 2001 on growth-based promises. This development-centric rhetoric is constituted by a combination of the neo-liberal tendency of the state, for example, showcasing investments in various sectors through 'Vibrant Gujarat Global Summits', and by arousing the aspirations of the middle-class within the subtler context of Hindu nationalism. The development-centric rhetoric is translated into actions like the city beautification projects e.g. Sabarmati Riverfront Development Project, Kankaria Lakefront Development Project and transportation projects e.g. Bus Rapid Transit (BRT). This development-centric rhetoric prevalent in the Gujarat politics is another manifestation of Shanghai dreams (as discussed in Chapter-1), where cities such as Ahmedabad are imagined as Shanghai - urban landscape of tall towers, glossy facades, flyovers, elevated roads and beautiful waterfronts - the cities which are clinically sanitised of poverty and disparity.

To point out one of the adverse consequences of these projects on the lives of the poor people; the projects have resulted in the forced evictions of an estimated 15,000 families²¹ living in the slums in last seven years without effective resettlement plans. Any dissent or resistance to these projects has been subdued politically and a phrase - *'vikas ma vivad nahi'* (no disputes in developmental works)²² - depicts the populist sentiment by which the dissent is diluted. Having lost any political or civil society

²¹ Author's own estimate based on Desai (2012) and SEWA Union (2010)

²² Quoting the resolution number 1677 of the AMC standing committee published as a forward in the municipal budget of the year 2013-14 (AMC, 2013; pg.2).

opposition, a number of public interest litigations have been pursued by NGOs in the Gujarat high court against these major urban development projects in Ahmedabad. With the shrinking space between civil society and the city government to interact on any contested developmental ideas, the traditional ways of dealing with urban issues by negotiation and consensus-building are being subverted. Consensus building over critical urban issues is being replaced by new form of top-down governance, in which urban planning is an inseparable component. Navdeep Mathur (2012) demonstrates the limitations of this emerging form of governance by citing the case of the Sabarmati Riverfront Development Project.

Low-incor

Figure 4-3 Forced evictions from the newly built riverfront in Ahmedabad



Low-income and poor people's housing is not merely an issue of capacities to produce bulk public housing, of but shelter ensuring security for everyone in the city, in the most inclusive way.

Credits: Dr. Renu Desai, Center for Urban Equity, CEPT University Given the lack of cheap land pockets in the central parts of the city, all the public housing projects are located in the far off peripheries of Ahmedabad. Researchers Navdeep Mathur and Renu Desai in separate studies (Mathur, 2012; Desai, 2012) have documented the experience with this new public housing built since 2005 and the underlying politics that guided such decisions. The 19,000 dwelling units built with the national grants were being used not to increase the housing stock for the poor in the city but to house the forcefully evicted families from informal settlements to get the land for the various projects like the Sabarmati Riverfront Development Project, Bus Rapid Transit (BRT) project and the Kankaria Lakefront Development Project.

In a response to public interest litigation (PIL) filed in the year 2004, The High Court directed the city government in the year 2006, not to evict any families unless they are given alternative housing. The city government obliged by using the funds of 'basic services of the urban poor' to build public housing to resettle the evicted population. The city level informal housing policies in the last decade affected poor people adversely in multiple ways; one, by abruptly ending the progressive and community-centric slum networking projects, two, by forcefully evicting thousands of families and pushing them into the peripheries and three, by using the funds meant to increase the standard of the low-income housing stock in the city for the resettlement. And meanwhile, the population in the informal settlements continues to grow, the slum density continues to increase and the newer areas continue to be occupied. This thesis examines whether the evicted poor families have been socio-economically marginalised as well as spatially peripheralised. A detailed discussion is carried out in Section 5.3.1.

Political theorist Partha Chatterjee (Chatterjee, 2004) argues that these visible contests over urban resources (like land) are the terrain of the 'political society' as against the classical notions of civil society. The demands of electoral mobilisation overlapped with the logic of welfare distribution and political constituencies emerged and prospered from the informal settlements of the city. Given the unavailability of resources and weak enforcement capacities, it was not practical for the city government to insist that the poor first mend their ways and turn into 'proper citizens' before they become eligible for government benefits. Urban researcher Mihir Bhatt (Bhatt, 2001) notes that, with almost one-third of its population living in slums, the AMC functioned, until the early 1990s, as a small welfare state. It deliberately made life easier for the poor by applying a regime that did not enforce anti-poor regulations, while tolerating squatter

settlements on public and private land and allowing public space to be used for income-generating activities, with forced evictions being rare. The urban poor in turn provided labour and services to middle and upper class urban dwellers. Over time, the AMC began to send property tax bills to the informally living slum dwellers, and the poor complied by paying them, which was also a way of imagining their rights and raising claims over the land. Thus, the informal and the formal had active interactions with each other and their interests often intertwined to maintain the mostly peaceful co-existence. This relationship gave the poor the space they were looking for in a city, if not their rights or citizenship. The slum-networking program in Ahmedabad was situated in this context of complex relationship between the poor and the city government. Unfortunately, this relationship and space for negotiations between the poor and the city has been completely subverted in the last decade.

4.4 The land use planning and transport characteristics

Apart from the 'green belt' and the land ceilings imbroglio, land use planning efforts in Ahmedabad have been fairly successful in developing the ring-radial spatial structure and planned mixed land use areas in the city. Last two development plans starting from the 1990s have seen better compliance and implementation compared to the earlier ones. The population density of the pre-2006 AMC area was about 190 persons per hectare (pph) and the density new extended AMC area (post-2006) is about 120 pph. In an international comparison of urban densities, Alan Bertaud (2004) demonstrates that Asian cities and especially Indian cities are much denser than to North American or European cities. Desai (2005) demonstrates, based on land use – transport indicators and satellite images, how Ahmedabad continues to be relatively compact compared to other Indian cities of a similar population size like Pune, Hyderabad or Bangalore. However in recent times, commercial-industrial activities have increased on the periphery after the building of subsequent ring roads.

The city's planning authority, the AUDA (Ahmedabad Urban Development Authority), has laid out road infrastructure over a 10 km radius outside the municipal limits. There are also low-density residential zones called R3 and R4 zones with a width of 2.5 to 3 km on the Western periphery proposed by the development plan of 2001, that survived intact in the revised draft development plan released in 2013. There has been significant urban sprawl with the development of low-density, high-income housing in gated communities in the R3 and R4 zones. The new middle class housing (in Bopal-Ambali area) has developed beyond the low-density R3 and R4 zones increasing the travel distances on the western periphery. In a systematic study of change in spatial structure of Ahmedabad, Adhvaryu (2011) finds decline in density gradients and suggests that Ahmedabad's population is gradually dispersing. As a result, housing for the low-income groups are available only at a distance of about 15 km from the centre on the Western periphery. Traffic congestion and unaffordable housing have forced the low-income groups to either move further or to further crowd the existing informal settlements in the core areas. Besides, there is also an official attempt to push the poor and low-income groups to the periphery. Under the draft development plan of 2013, a new affordable housing zone is being proposed adjoining the outer most ring of the city. The outer most ring (Sardar Patel ring road) is located on an average radial distance of about ten km from the city center and it is poorly served by public transport.

Regardless of the attempts to push the poor and the low-income groups to the periphery, there is a high demand amongst the middle and high income groups to prefer to stay on the periphery of the city. Urban researcher Bhargav Adhvaryu finds a strong correlation between density gradient and increasing vehicle ownership in Ahmedabad (Adhvaryu, 2010). The middle and high income groups are moving out from the centre to the periphery with the increasing motorisation in Ahmedabad.

Figure 4-4 Proposed affordable housing zone in the draft development plan 2013



The total number of vehicles in Ahmedabad has increased by a factor of 170 in 40 (AMC-CEPT, years 2008. 32). p. Ahmedabad has also experienced а great increase in the number of fourtwo and wheelers. The privately owned motorised two

Source: Volume 1, Draft Development Plan, AUDA.

and four wheelers are increasing with sustained annual growth rates of 12-13 per cent and 7-8 per cent respectively. There are more than 100,000 vehicles being added in the city every year. By 2012, a total of 2.85 million vehicles were registered in Ahmedabad district²³, including 0.42 million four-wheelers and 2.02 million twowheelers as per the Table 4-5. Increasing vehicle numbers in the city and growing reliance on them for daily commuting has led to traffic congestion, specifically in the old (walled) city areas where road widths are already narrow, causing high carbon emissions as well as pollution.

Table 4-5 Registered vehicle popu	ulation in Ahmedabad I	District ²⁴
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Type of motorised vehicles / years	2009- 2010	Annual growth rate 09-11 (%)	2010- 2011	Annual growth rate 11-12 (%)	2011- 2012
Private 4Ws	339055	13.13	383588	12.02	429688
Private 2Ws	1728522	8.51	1875658	7.82	2022424
Auto Rickshaw	115699	10.84	128240	8.85	139587

²³ The vehicle registration data is not available at the city level. However, Ahmedabad city and its outgrowths are consisting of 90 per cent of the population in the district, as per the census 2011.
²⁴ Since there is no system of de-registration of old, defunct vehicles, there is a systematic over-estimate

of registered vehicle on Indian roads (Mohan, 2013). That is why it is better to observe additional number of vehicles and not the absolute number of registered vehicles.

Total vehicles	2412890	9.13	2633184	8.52	2857608
Other govt. vehicles	10089	9.19	11016	7.14	11802
Commercial 4Ws	12169	9.17	13285	11.10	14760
Goods vehicles	183212	7.42	196815	8.76	214058
Buses/school buses	24144	1.81	24582	2.88	25289

Source: Based on the data from Regional Transport Office (RTO) of Ahmedabad

Munshi, Brussel & Zuidgeest (2008) observe that the total per day trips in Ahmedabad increased from 5.55 million in 1988 to 6.54 million in 2006, but the average trip rate/person decreased from 1.57 in 1988 to 1.1 in the 2000 and 2006 surveys. The decrease in the trip rate is possibly indicative of fewer discretionary trips like shopping and recreation being made in the city or greater trip-chaining practices. Besides, some transport studies in the past have not taken in account the walking trips. It is observed that the average trip lengths have increased from 4.6 to 5.6 km in 2001 and to 6.2 km in 2006. But most of the trips are short distance trips: for work very few trips are longer than 10 km and for shopping very few trips are longer than 2.5 km.

Mode share	Walking	Cycle	Public	Shared	M2W	Auto	Cars	Others	Total							
in different	_	-	bus	auto		rickshaw										
studies				rickshaw												
LB-GIDB	37.6	17.6	8.4	5.7	25.3	2.5	2.5	0.3		100						
study 2000 ¹																
AMC-CEPT	13.2	18.8	15.0	-	35.0	8.8*	3.1	5.8		100						
2006 ²																
	22	14	16	-	25	6*	17	-		100						
Notes: * Shared auto-rickshaws trips are assumed to be part of this as it is not mentioned separately.																
1 As guoted by (AMC, AUDA & CEPT University, 2007)(Detailed Project report for BRTS Phase -1)																
2 As guoted by	(AMC-CEP	T. 2008)	(Detailed	Project repo	2 As guoted by (AMC-CEPT 2008)(Detailed Project report for BRTS Phase -2)											

 Table 4-6 City level modal share, Ahmedabad

Over the last few decades, Ahmedabad has transformed into a polycentric city from a traditional mono-centric city. Munshi, Zuidgeest & Brussel (2011) observed that development of employment sub-centres and poly-centrality has played a major role in reducing the average trip lengths in the city. There are as many as 34 employment sub-centres, 12 of which have substantial employment. These sub-centres are a combination of traditional bazaars, modern markets, warehousing facilities and industrial estates and service industries, which are not exactly planned but developed through market pressures, which reflect the benefits of agglomeration. In his PhD

thesis, Talat Munshi (2013) asserts that the formal public transport has had no role in the development of the sub-centres. Conversely, the development of employment subcentres has also not led to the rationalizing of public transit routes either. The provision of public transit is concentrated towards the central core and does not coincide well with the locations of sub-centre formation.

Three different reports ²⁵ published in the last fifteen years have produced very different, unmatching mode share values for the city of Ahmedabad. All three reports are not comparable and since their methodologies are not described in detail, it will be wrong to assume any trends over the years. However, it is possible that there has been some reduction in walking because of the perceived danger, sprawl of the city and other modes being affordable with rising incomes but it cannot be clearly concluded on the basis of these reports. Focusing on the broad similarities of these values, the share of motorised two-wheelers has clearly grown to dominate the city traffic, and now comprise about 70 per cent of the total motor vehicles in Ahmedabad.

Munshi, Brussel & Zuidgeest (2008) observe that the share of two wheelers for work trips has almost doubled in two decades; the shift has been from public transport and non-motorized modes. As per their study, the shift from public transport can be attributed to the poor access these modes provide to employment locations, and the overall central orientation of the public bus routes. The bus-based public transport has not had significant increase over the years. The shared auto-rickshaws have been a popular option in place of public buses amongst the low-income and middle-income groups in the city.

Ahmedabad roads are unsafe and there is an increasing instance of road crashes. In 2007, 2,605 collisions occurred on Ahmedabad's roads, of which 248 (9.5 per cent)

²⁵ There have been three major transport studies in the city in the last decade or so. The first was the 'Integrated Public Transport System' by Louis Berger Group and GIDB (Gujarat Infrastructure Development Board) in 2000 (Louis Berger-GIDB, 2000), and the second and third were the detailed project reports for the metro rail and BRT in 2005 (DMRC-AMC, 2005) and 2006-08 (AMC-CEPT, 2007) respectively.

were fatal. A further enquiry into these crashes also indicated that in 42 per cent of cases victims were bicyclists and 19 per cent pedestrians (AMC-CEPT, 2008, p. 33). This means that 61 per cent of those affected by accidents were NMT mode users. The city roads have only few, dis-continued stretches of dedicated space to walk or to bicycle. The GVK-Emergency Medical Research Institute, which runs the main ambulance services, indicated that of the 96,669 vehicle accident emergencies reported in the state between January-November 2010, Ahmedabad topped with 16 per cent (15,776), making it the city with the most unsafe roads in Gujarat (Shastri, 2010).

4.4.1 Public transport

The bus-based public transport (known as Ahmedabad Municipal Bus Service – AMTS) has seen many ups and down since 1947. It is one of the oldest urban transport organizations in the country. In the last decade AMTS has seen a sharp decline and then a recovery in its performance. Between the years 2000 to 2005, the AMTS-owned bus fleet changed from 752 to 371 buses and an average of 0.35 million passengers were carried per day. The modal share of AMTS was just 7 per cent in 2005. After a continuous decline in commuters and the bus fleet to 2005-06, the AMTS decided to hire private CNG buses and use them as public transport. At the end of 2009, there were a total of 728 buses run by AMTS on 157 routes (AMC, 2010, p.2), which consisted of its own fleet and a fleet of other private operators. The bus fleet in 2011 was 600-650 (Parikh, 2011). Minimum and maximum fares in AMTS used to be INR1 and 14, which were also increased to INR 2 and 21 in January 2012 resulting in a further dent in ridership.

The other important (intermediate) public modes of transport are auto-rickshaws. For many years now shared auto-rickshaws have become substitutes for the public bus on account of lower fares and more demand-oriented routing. In 2005, 43,865 autorickshaws were registered with the Road Transport Office of Ahmedabad (WSAPL-

MoUD & WSA-MoUD, 2008) which have become 139,587 in the Ahmedabad district over the years. Discounting the peri-urban rickshaw services operating in the absence of public transport, the number of auto-rickshaws has increased two-fold in the city itself. This indicates a strong and rising demand for mobility that the official public transport service is not able to fulfil. From July of 2004, all the auto rickshaws in the city were converted to Compressed Natural Gas (CNG) based engines. Ahmedabad was one of the pioneering cities in implementing transport initiatives like CNG conversion of both bus-based public transport and of the auto-rickshaws. The auto-rickshaw drivers were helped to procure loans to buy CNG engines (Rana, 2011). The change in fuel did reduce the air pollution levels in the city temporarily between 2008-2011, before it began to rise again with the growing number of motor vehicles.



Figure 4-5 AMTS performance over the years as presented by Parikh (2011)

4.4.2 The BRT and its promises

As a landmark decision for public transport in the city, the Ahmedabad Municipal Corporation (AMC) decided to construct a BRT (Bus Rapid Transit) system in 2006. This coincided with the launching of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and the National Urban Transport Policy (NUTP) in 2005 and 2006 respectively. The willingness of the central government to fund a large portion of the

project cost of BRTs in all million-plus cities encouraged the Ahmedabad municipal corporation to go ahead with its planning. Ahmedabad was among the first to seize this opportunity and submitted a DPR (detailed project report) to the JNNURM. The project was approved in the year 2006 and the work started in 2007. The sanctioned length of the project is 88.8 km and it is divided into two phases. The first phase is of 58.3 km and the second phase is of 30.5 km. There were expectations, and optimism, of getting well-laid roads, creation of road space for pedestrians, bicyclists and vendors, management of on-street parking and mainly, the provision of an efficient and reliable bus system promised in the DPRs of 2006 and 2008. This project was ambitiously named 'Janmarg' (people's way) and the first phase was opened in October 2009.

The Ahmedabad BRT system stands out amongst the Indian cities in having about 82 km of rapid transit network, which continues to expand. *Janmarg* was the first BRT Project in India, which aimed at creating a city-wide network in the first proposal itself, rather than delineating a few isolated corridors like in cities such as Delhi, Pune and Jaipur²⁶ (Mahadevia, Joshi & Datey, 2012). It was decided to create a project on the lines of Bogotá's famous BRT *Transmilenio*, with bus stops in the middle of the median bus lanes and using physically-segregated bus ways with BRT buses running exclusively on them (Suzuki, Cervero & Luchi, 2013). The first BRT corridor was designed by following the idea of connecting 'busy places but avoiding busy roads' so as to minimize resistance from private vehicle users, as had occurred in Delhi and Pune. The first corridor in Ahmedabad did not create any visible problems of congestion for private vehicle users when it started operations because it returned back a similar amount of road-space. This gave a wide recognistion to the BRT system in the city. Most of the operational BRT corridors have been placed on roads of 30 m or more in width, and maximum road space has been left for the mixed traffic, sometimes

²⁶ This researcher along with others has studied this system in detail and evaluated it as part of a larger study supported under the project called 'Low Carbon Mobility in India' by United National Environment Program (UNEP).

at the cost of cycle tracks and footpaths. On the road widths of less than 30 meter, the BRT runs on single, mono-directional, one-way segregated bus lanes.

The Janmarg team has remained conscious of the importance of branding and social marketing of the project, especially amongst the vocal middle-classes. This also fits into the larger politics of the state government of showcasing 'development' in the city and giving credit to the political leadership. Janmarg could be said to be one of the highly publicised government projects in Gujarat, through advertisements in the newspaper, special articles extolling its successful use during cultural festivals and above all, free use of the system for the first 3 months following its launch, between October to December 2009. Local media frequently reported about the system, for example on future plans, facilities introduced on the corridors, opinions of well-known people, etc. All these have added favourably to the system's image locally, nationally and internationally. The public bus systems in India are generally associated with poor services and *Janmarg* worked hard to remove this image. Most stations are kept clean, the frequency of buses is well maintained, and customer support staff is available. Meanwhile, the BRT of Ahmedabad has attracted global as well as national awards as a prime example of best practice in the field of public transport (Suzuki, Cervero & Luchi, 2013). By December 2011, The Janmarg was carrying about 0.15 million commuters per day with daily revenues of about INR 0.9 million and the network length was about 45 km (NIUA, 2011). But since then there has not been any increase in the number of commuters although the network has expanded to about 82 km (Times of India, 2014; Tewari, 2014).

Figure 4-7 Ahmedabad BRT corridor



Source: http://en.wikipedia.org/wiki/Ahmedabad_BRTS , Creative Commons Attribution 3.0 Unported



Figure 4-6 Ahmedabad BRT network and phases

Source: From Suzuki, Cervero & Luchi (2013) pg. 98 attributed to COE-UT-CEPT (2012)

The main reason being given for the Ahmedabad BRT's stag nating ridership is the lack of feeder system (Cervero & Dai, 2014). In fact, the exclusive branding of the

'Janmarg' also created a schism between the two bus services, the AMTS and the new BRT, owned and operated by the same entity, the AMC. The BRT was getting associated with the new, swanky services whereas the AMTS services began to be more irregular, financially depleted and facing slowed speeds due to increasing mixed traffic. In a detailed study of organisational behaviour, Parikh (2011) depicts how the BRT is operated by a public sector 'special purpose vehicle' (SPV) with corporatised bureaucrats as its office bearers whereas the AMTS is still operated as a conventional government agency with political representatives and employee trade unions. On the corridors where the BRT is operated, the AMTS services have been stopped and on some of the new corridors, both AMTS and BRT compete with each other. The growth of BRT did not improve the condition of public transport in general given the weak institutional and physical integration with the AMTS bus service. There are no plans, at least in the public domain so far, to integrate the two in terms of road-space sharing, bus stops or other resource sharing, fares and ticketing or even creating a common marketing strategy for public transport in the city. The BRT of Ahmedabad has remained an exclusivist public transport project which successfully expaneded its network over a period of time but the larger goal of public transport improvements were not achieved in the city.

Further to this, there are also plans of implementing a metro rail based mass transit in Ahmedabad. The proposed route of the metro rail project has changed three times in past eight years and they have been lot of speculations about the feasibility of the project (John, 2014; DNA, 2014). But in February 2014, the detailed project reported was sanctioned by the Government of India and INR 1 billion are allocated for the project in the annual budget of the current year (Business Standard, 2014). The first phase of the project costing INR 106,750 millions is expected to be completed in the year 2018 and it aims to carry about half a million commuters daily (Indian Express, 2014). The total length of the proposed metro project is 36 km. As per the draft development plan of 2013, there are proposals of giving upto 4 FSI (floor space index)

instead of the current 1.8 on all the mass transit corridors with the metro rail or the BRT to facilitate 'transit oriented development' (TOD) in Ahmedabad (AUDA, 2013). This proposals of TOD are expected to significantly change the cityscapes and the mobility pattern of the city. Given the experiences of the lack of integration between the BRT and the municipal buses and the affordability issues in Ahmedabad, similar issues could be enticipated after the implementation of the metro rail project in next few years. The question, however, remains whether the future public transit in Ahmedabad would facilitated the mobility of the poor or not.

4.5 Mobility of the poor in Ahmedabad in recent literature

In last five years, a Dutch academic institute²⁷ has produced number of academic and professional research projects related to travel behaviour and built form characteristics in Ahmedabad along with the accessibility issues of the poor. Two of these research reports (Wati, 2009; Zuidgeest *et al.*, 2012) employ the prism of 'social exclusion' to measure and understand the mobility of the poor in Ahmedabad and these two reports are discussed and critiqued in detail in the following section. Whereas Zhen (2013) measures the job accessibility for the urban poor in Ahmedabad through geo-spatial modelling by building footprints on the base created by Zuidgeest *et al.* (2012), the latter being a technical report funded by the World Bank. In terms of contents or arguments, Zhen (2013) does not offer any additional insights over Zuidgeest *et al.*, only methodological innovation.

Kala Wati (2009) in her masters' thesis presents a case of transport-related social exclusion for the urban poor in Ahmedabad and claims that it is 'highly prevalent' in the city (Wati, 2009: 102). The thesis measures social, physical, financial, human, political and transport capital based on various indicators in different wards in Ahmedabad. The transport capital is represented by transport infrastructure indicators such as amount of unpaved roads, road lengths in the ward (based on the 2001 SEWA-AMC data) and by

²⁷ ITC, the Netherlands: <u>www.itc.nl</u>

transport usage indicators such as non-motorised vehicle ownerships and number of walking and cycling trips reported in the primary household surveys. The thesis goes on to describe how social exclusion increases while moving away from the city centre and the Eastern parts being more excluded then the Western parts. This study concludes that overall exclusion per ward is strongly correlated with the transport, human and financial capitals. The 'socially excluded' households had a substantially smaller activity space than the 'well-off' clusters. The activity spaces gradually increase away from the city centre but they don't increase consistently while the other transport deprivations increase.

One major limitation of this study, which is also highlighted by the author, is that it does not capture the actual experiences of exclusion of poor households. Otherwise, this important study definitely lays the groundwork for further debate on the issues of the mobility of the urban poor in Ahmedabad. Secondly, this study defines the 'transport capital' based on the amount of walking and cycling trips, along with non-motorised vehicle ownership. In other words, the extensive amount of walking and cycling trips amongst the surveyed population leads to possible transport-related social exclusion, especially in situations where public or private motorised transport is not affordable. Here, poor cyclists and pedestrians are viewed typically as 'captive users'. This is a problematic position. Higher reliance on walking and cycling cannot be reduced to the possible exclusion of the trip-makers unless the trip distance, time taken and quality of experiences are taken into account, which is not done by Kala Wati's study. It is possible that the walking and cycling trips indicate the issue of affordability for the urban poor but again, lack of affordability doesn't necessarily mean any form of exclusion unless it is proven through different types of indicators encompassing the experience of the usage. Not being able to access motorised transport due to affordability, location or any other constraints does not necessarily lead to exclusion. As discussed earlier (Section 2.4), it is possible that the poor retain a sufficient or even high level of accessibility in spite of exhibiting lower levels of mobility.

1:

Similarly, the stronger correlation of transport capital with physical, social or financial capital indicates that this correlation needs to be probed further. It is possible that the poor people who rely more on walking and cycling have a lack of physical and financial resources and other deprivations in their daily life. But it would be inappropriate to assume that walking and cycling every day for a short distance amounts to any form of deprivation. On the contrary, it would be a preferable form of transport from the low-carbon development perspective. Besides, the concept of poverty also encompasses the issues of physical, social and financial capital like the 'social exclusion' framework, which may not be the appropriate framework to be used in the Indian urban situations. This is discussed in detailed in Chapter - 2.

Zuidgeest *et al.* (2012) is another important study where an accessibility analysis of the poor is carried out based on geo-spatial modelling. This report takes accessibility as a measure of social exclusion and they develop metrics based on GIS tools to map the accessibility of the urban poor to the employment locations by using public transport (AMTS, BRT and proposed metro rail) in combination with non-motorised modes (as access-egress modes) from their residential locations. This study uses the 2001 slum locations data for the residential locations and the 2011 property tax data to determine employment locations. The study further models the AMTS, BRT and the proposed metro networks as one multi-modal public transport system of the city. Zuidgeest *et al.*, (2012) in their summary conclude that the low-income dwellers in cities such as Ahmedabad experience 'the highest levels of social exclusion' as they spend 'long daily commutes to and from low-paying jobs', on 'overcrowded public transport vehicles' for which fares continue to rise.

In terms of action points, Zuidgeest et al. suggest more investment in AMTS bus services as that network clearly 'provides a high level of job accessibility to the urban poor'. This is a particularly important conclusion as it was discussed earlier (in Section 4.4.1) that AMTS is already a subsidiary mode in the city, which is struggling to

maintain a good level of service. The report concludes that compared to walking, public transport does improve job accessibility, particularly through the extensive AMTS network that can be accessed relatively easily from all locations in the city. The current and planned investments in BRTS and MRT improve this accessibility to jobs considerably further, but mostly in the catchment areas of these systems. And the report subtly suggests providing more careful attention to the routing of the BRT: that it should ideally connect the residential and job locations of the poor and other income groups.

However, there are some limitations in the work of Zuidgeest et al (2012). This report models the public transit networks in the city based on the spread of formal jobs and residential locations of the poor and presents a hypothetical possibility of whether the poor can access the job locations or not. But it is not known whether the poor actually use these networks to access those jobs or whether the poor do these jobs. The assumptions that the poor access jobs in that way are not backed by any primary survey of the poor. The approach to modelling is top-down and imagined on the basis of transport supply. For example, other studies (Mahadevia, Joshi & Datey, 2012; Khanna, 2009) have shown that the poor are not active users of the BRT given the cost and the other access barriers, in spite of close proximity. So it is possible that in spite of being close to the formal transit networks, the access issues still persist due to affordability or other issues. Secondly, this report takes travel time and distance as important parameters and measures the accessibility to jobs through the exponential decay function. But it doesn't take into account the fare costs of travel, which is an important factor for the poor in choosing their modes of travel.

In spite of being an important accessibility modelling exercise involving the poor in the urban Indian context, Zuidgeest et al.'s study raises some pertinent questions about the way in which the transportation planning discourse based on quantitative analysis is being carried out. The discourse in that report and the other BRT project reports

presents a great confidence in technical tools, models and graphical exercises to prepare the proposals about how transport should be planned in the city. In spite of the rhetoric about the accessibility of the poor and their inclusion in planning efforts, this discourse still remains top-down, of imagined systems and their possible benefits for the poor. These imagined systems work differently in reality given their socio-political usages and motivations. The discourse is not built on bottom-up perspectives of how people negotiate their travel in the city and, given better transport facilities, how likely they are to improve their lives.

4.6 Conclusion

This chapter presents the case of Ahmedabad and reminds the larger debates of urban planning, informality and poverty discussed in Chapter-1. In Ahmedabad, the contests for space and resources are intensified in the transport realm by on-going motorisation. Over the years, Ahmedabad has seen a shift from a manufacturing industrial base to a service sector focus. There is a rise of retail (often informal) trade in the city along with self-employment. However, with increasing propulation growth and rising income, the slum population continue to grow in the city and the transition into formal housing is not widely seen.

Ahmedabad has developed a polycentric, ring-radial urban form based on mixed use and dense urban districts. Much of the present urban form is oblivious to, or in spite of, the directions in the official development plans and planning activities. Having failed to provide adequate housing through any governmental mechanism, the official urban planning policies on the contrary unintentionally created 'illegalities' and opportunities for slum formations. Some of the grand plans were never implemented or were systematically subverted. The poor in turn found their way of survival in the city by squatting for shelter through informal transactions. They often had the necessary political patronage for survival in the city; this patronage based on the democratic

rhetoric of citizenship and rights, different then from the traditional patronage of the industrial capitalists.

There is again a shift in this relationship with the rise of the Hindu-nationalistic politics combined with the neo-liberal policies from the 1990s. The new rising political class rooted and supported by the burgeoning middle class lost their empathy towards the poor, who were increasingly seen as hindrances to the grand infrastructure and the 'city beautiful' projects. The recent evictions of thousands of families, building of public housing for resettlement on the urban peripheries and the complete closure of the innovative slum networking projects prove that the state and the city government have actively sustained the conditions marginalising poor people.

The transportation situation in Ahmedabad favours private motor vehicles as the public modes like the municipal bus services are depleting. The city roads are congested with traffic and the air quality is depleting. BRT was one potential positive intervention with a promise of a comprehensive system seen in the last decade. It continues to expand beyond the present network length of 82 km of corridors but the future plans are devoid of any improvements in walking, cycling infrastructure, integration with the other bus service, effective parking regulations or stringent traffic enforcement. In last three years, the BRT has not seen any increase in its commuter base in spite of the doubling of the network. With the prime focus on the BRT, the parallel running municipal bus service is faltering and shrinking over the years. In the absence of the formal transport services, the shared auto-rickshaws are the other, more widely networked options for the commute.

These are the historical and socio-economic trajectories within which the mobility practices of the urban poor in Ahmedabad operate. With the shrinking patronage from the political class and lack of support from the state, the urban poor are left to their own devices to deal with the difficulties in their lives. These contextual inferences are vital to place and understand the mobility practices of the poor. In the following chapter, the

research will both quantify the mobility characteristics of the poor and unpack the narratives behind their practices based on the qualitative data and attempt to answer the research questions posed earlier, such as 'how do the poor people negotiate their mobility practices'.

5. Mobility practices and urban poor in Ahmedabad

This chapter discusses the first research question, 'how do the urban poor negotiate their mobility practices and transport opportunities in Ahmedabad'. The agendas raised in the research question are explored by raising the following two sub-questions:

- a. What are the mobility patterns of the urban poor?
- b. How are those patterns negotiated by different sub-groups within the poor based on e.g. gender, livelihood or varying locations in a city?

The main research question and its sub-questions are answered based on the primary qualitative and quantitative data for Ahmedabad. For the quantitative component, the household surveys were conducted and the previous day's trips of all working adults and upto two children were recorded. The trip details were recorded based on the name of the localities. The survey team also carried the maps and quickly calculated the distance between origin and destination of each trip recorded and verified them with the respondents. For the qualitative component, personal interviews were carried out. The respondents for this component were selected based on their age, gender, location and means of livelihood.

Section 5.1 analyses the mobility characteristics such as mode use, trip length, purpose, cost and time of the trip of the urban poor households in the city of Ahmedabad collected during the primary survey. Along with this quantitative data, the qualitative narrative, in section 5.2, unpacks how the urban poor negotiate their mobility constraints. In section 5.3 the quantitative data outputs are further disaggregated according to key social-demographic variables such as gender, age, income distributed across various slum locations in the city. Both the quantitative data and the qualitative narratives are presented together in this section. The chapter is concluded in section 5.4 by outlining the social practices related to mobility of the poor.



Figure 5-1 Outline of the current chapter

5.1 Mobility pattern of the urban poor in Ahmedabad

Section 5.1 outlines the mobility pattern of the poor (also known as travel behaviour) based on the primary household survey. A detailed household survey was conducted in Ahmedabad in October 2011 and the methods and sampling process for the same have been presented in Chapter 3. A sample household survey form is attached in the Annexure A-1. From each household at least 4 adult members and 2 children²⁸ were interviewed to note their trip details. The questionnaire was designed in such a way that information regarding trips per week, multiple modes trips, trip chaining etc. is

²⁸ If there were more than four adults or 2 children, the field workers were encouraged to fill up their details in an extra form but such instances were very rare that more than 6 members of the family have to 'go out' in the city. In essence, any household members who go out of the slum settlement were asked to give their details. Any trips within the slum settlement were not considered in this survey.

recorded and quantified. The purpose of the household surveys was to quantify and analyse urban travel characteristics of the poor people in the city of Ahmedabad. The travel characteristics included are frequency of travel for various purposes, mode use, destination, routes, cost/time taken for each trip. The trips recorded in the survey are analysed by gender, income, employment and locations of various settlements. The survey covered 12 slum settlements, located in the central city, at the periphery, and at resettlement sites of east and west Ahmedabad. The following is a sample description and basic demographic characteristics:

- The survey covered 581 households, 3002 people, with an average household size of 5.2 and sex ratio²⁹ of 859.
- The survey covered 3,428 trips; 1253 trips by women and 2166 trips by men. The trip rate³⁰/day for women is 0.9 and for men is 1.34. The sex ratio of trip makers is 578 women per thousand men.
- The surveyed population's literacy rate is 73.2 per cent, 65.6 per cent among females and 79.6 per cent among males. Only 18.9 per cent people had education beyond primary level³¹.
- The workforce participation rate (WPR) of the population is 41.7 per cent, 23.1 per cent among females and 57.6 per cent among the males.



Figure 5-2 Mean Monthly Household income - household size (Primary survey)

²⁹ Sex ratio is females per thousand males. National average of sex ratio is 932 for 2011

³⁰ Trip Rate – Ratio of total number of people and total number of trips per day

³¹ It was observed that those with education beyond primary level might only be able to perform some minimum functions such do their own signature and read minimum such as signs, instructions, etc.

Figure 5-1 shows monthly household income plotted across the size of the household. The mean monthly household income is INR 6,049 for the sample population³². If top 3 per cent of the sample is removed than 97 per cent sample had income of less than INR 5,684 per month. It is estimated that about 85 per cent of sample would fall under the 2012 official urban poverty line as per the Government of India (INR 32/capita/day).

Education level	Female	Male	Total	% of total population
Illiterate	475	331	806	26.8
Literate (read and write)	272	339	611	20.4
Primary education or up to 4th grade	516	676	1192	39.7
Old Matriculation or up to 12 th grade	107	247	354	11.8
Graduation and above	14	25	39	1.3
Total	1384	1618	3002	100

 Table 5-1 Sample Description by Age, Gender and Education Level

Table 5-1 shows the distribution of the sample population by age, gender and education level. Only 13.1 per cent population has education beyond primary level, whereas majority of the population has either only basic literacy or no literay at all. These numbers are more drastic amongst women, with only less than 10 per cent of women having studied beyond primary level. This means that most respondents have low education level and hence, possibly low-wage, low-skill based employment which involves hard labour or manual work. In terms of literacy, women are proportionately lagging behind as compared to men. For every two illiterate men, there are three illiterate women.

Looking at the education and employment level of the sample population in table 5-2, 49.3 per cent of population is dependent, non-working population. The workers are almost equally divided between the regular salaried, self-employed and the casual or daily wage earners. The working women are only 23.1 per cent of the total women's population. There are 972 children in the sample population below 14 years of age, out

³² The monthly average income of Ahmedabad city was INR 8,928 in the year 2010.

of which 15 children have reported to be working indicating the cases of child labour. At the same time, 23.3 per cent of children (below 14 years) are not attending any educational activities and can be considered as possible child-labour cases. About 20.6 per cent of the sample population consists of women engaged as house managers (housewives or in gender-sensitive terms - 'domestic unpaid workers') in their own households.

Livelihood categories (aggregated)	Livelihood categories (disaggregated)	Female	Male	Total - people	% of total working people	% of total population	
Popular salaried	Salaried employment (regular waged)	76	302	378	12.6	13.8	
	Domestic Worker- fixed rate (domestic help)	26	10	36	1.2	13.0	
Casual - daily wage	daily wages employment (casual labour)	53	326	379	12.6	12.6	
	Self-employed work (work in h/h enterprise)	83	187	270	9.0		
	Transport Service Provider	4	69	73	2.4		
Self-employed	Mobile Vendor (street vending)	3	28	31	1.0	15.3	
	Home-based paid worker (manufacturing etc.)	76	8	84	2.8		
	Total Working population	321 (23.1%)	930 (57.6%)	1251	41.7%		
	Home based unpaid work (house manager)	603	21	624	20.8		
	Attending education	319	424	743	24.8		
Non-working population (no wage earners)	Pensioners/ remittance recipient	1	18	19	0.6	49.3	
	Unemployed: due to disability	8	32	40	1.3		
	Unemployed: still seeking work	6	49	55	1.8	1	
	other non-working population	114	136	270	9.0		
	Total	1384	1618	3002	100.0	100	

Table 5-2 Sample Description by Age, Gender and Livelihood categories

The following section details out variables like mode usage, travel distance, trip purpose, cost and time of one trip, for each gender and household income group.

5.1.1 Transport mode use amongst the poor

One important indicator of defining the mobility practices of the poor is the transport mode choice and use. Clearly, with 55.4 per cent of the poor population being dependent upon walking and cycling, majority of their trips are using non-motorised modes. Shared auto-rickshaw usage amongst the poor far outnumbers the municipal bus service and forms the second most important mode of travel after the non-motorised mode.³³ The municipal bus service has mode share of 10.7 per cent while the newly built Bus Rapid Transit (BRT) is only marginally used. Similarly, only 3.5 per cent use private modes such as motorized two wheelers. This means that the poor are not 'motorised' yet and they rely much more on non-motorised or the public or shared modes for their daily commutes.

	Model split of the poor-income groups based on primary survey 2011-12										
Category	Walking	Cycle	Hand cart/ pedal rickshaw	Public bus	Shared auto rickshaw	Auto rickshaw	Others (multiple modes)	M2W	Cars	Grand total	
Poor people	40.4	13.0	2.0	11.1	15.8	3.2	11.0	3.5	0	100	
	Non-mot 55.4	orised	modes =	Public/ s	shared mo	des = 41.1		Private m 3.5	Private modes = 3.5		
			City level m	odel spi	It based o	n AMC-CE	EPT 2006				
	Walking	Cycle		Public bus	Auto ricks	shaw	Others	M2W	Cars	Grand total	
Overall city	13.2		18.8	15		8.8	5.8	35	3.1	100	
	Non-motorised modes = 32		es = 32 Public mode = 23.8			-	Private n	nodes = 38.1	100		

Table 5-3 Mode use by urban poor and other income groups

Indian cities have a high number of non-motorised trips (WSAPL-MoUD, 2008) and this may be attributed to the large number of the poor population relying on non-motorised transport. The last available data of Ahmedabad City (2006) indicates that the share of

³³ The auto-rickshaw trips may not always be comparable to the private or individual modes amongst the poor groups. Most of the time the auto-rickshaw rides is shared in a group of two-three people (or sometimes more). So these are 'shared trips' (like car-sharing) but not again same as the 'shared auto rickshaw' trips where the rickshaws are plying on shared basis on fixed (demand driven) routes across the city.

non-motorised trips is 32 per cent of total trips amongst all the income groups. At the city level, private motor vehicle trips dominate. 38.1 per cent of trips were made by the private motor vehicles and only 15 per cent by public modes. Since 2006, the city boundaries have expanded and numbers of vehicles have increased manifold (about 100,000 vehicles are added every year in the city). The public transport supply has not changed as dramatically in the city despite the recent introduction of BRT corridors. So it can be deduced that the share of motorised trips have increased and the share of non-motorised trips have decreased further since 2006.

Figure 5-3 Mode share amongst the poor and in the overall city (percentage of trips to total trips)



It becomes much clearer in Table 5-4 which shows the distribution of multiple modes with the dominant mode defined by the longest leg of the journey. 62 per cent of the trips of the poor people are made by non-motorised transport (NMT) mode and the remaining ones by shared auto rickshaws (18 per cent) and municipal buses (12 per cent). The private mode share is merely four per cent and the BRT trips are negligible. Table 5-4 also shows that there are significant differences in the mobility of men and women. Women (65 per cent trips) tend to walk much more than the men (34 per cent trips). In case of men, cycling has the next highest mode share (22 per cent trips). However, the total NMT mode share including walking, cycling and hand-cart/pedal rickshaw pulling amongst women is 68 per cent and amongst men is 59 per cent, which

is comparable. Cycling is not seen much in case of the women, but this aside the shared and public transport usage is comparable between both genders. However, higher use of motorised two wheelers and cycles amongst men is observed whenever a household owns a private vehicle (cycle or motorised two-wheeler); men tend to use them more, whereas women either walk or use shared or public modes. This aspect of gender differences in mobility practices is further analysed in section 5.3.3.

Table 5-4 Mode share by gender amongst the poor (percentage of trips to total trips)

	Mode Share (after distributing multi-modal trips) (%)									
Gender	Walking	Cycle	Hand cart/ pedal rickshaw	Public bus	BRT	Shared auto rickshaw	Auto Rickshaw	M2W	Grand Total	
Female	65	2	1	10	0	18	3	1	100	
Male	34	22	3	13	1	18	4	6	100	
Over	45	15	2	12	0	18	4	4	100	
all	Non-motorized modes = 62			Public	or sha	ared modes	Private modes = 4	100		

Table 5-4 shows the distribution of public transport trips. The share of trips by public bus is 12 per cent whereas the trips by shared auto rickshaw are 18 per cent. The trips by BRT are negligible (0.4 per cent) amongst the poor. Instances of someone from the surveyed slum settlements having used BRT³⁴ were rare. The BRT and the municipal bus services are not well-integrated with each other in terms of ticketing, fares, station-sharing or even marketing.

Table 5-5 Waiting time and time taken for public transport trips

Public Transport Modes	Trip counts	Mean - Trip time taken	Std. Deviation	Mean - Waiting time	Std. Deviation
Public bus	411	33.8	21.6	25.2	14.6
Shared Rickshaw	617	24.9	16.7	7.0	6.7
BRTS	14	21.1	11.8	1.6	2.0

³⁴ Three settlements part of the primary surveys are situated on the BRT network and three more settlements fall within the 500 meters radius of the network out of the total twelve settlements. The length of the BRT network was about 47 km by the time this study was conducted in October 2011, which is quite substantial and it is being expanded further to about 60 km now.
Table 5-5 shows that the mean waiting time for shared auto rickshaws is 7 minutes (Standard Deviation - 6.7 minutes) compared to 25.2 minutes (SD=14.6 minutes) for the public (municipal) bus. This is an important reason why shared auto rickshaw is more popular compared to the public bus amongst the poor. Long commute and waiting time for public buses would affect the captive riders adversely. It is evident that an average public bus commuter would end up spending about two hours every day in waiting and travelling. It is further observed that the higher frequency, reliability, demand-driven or flexible routes and competitive fares are giving shared auto rickshaw service an edge over the municipal bus service.

5.1.2 Mode use, trip lengths and trip purpose - interrelations

All trips	Walking	Cycle	Hand cart/ pedal rickshaw	Public bus	Shared auto rickshaw	BRT	Multiple modes	M2W	Auto rickshaw	Mean trip length	
	Trips occurring more than 4 days/week										
Female	1.36	2.90	3.33	5.24	4.77	1.50	7.98	6.88	3.39	2.88	
Male	1.35	4.86	5.08	9.34	6.12	4.75	9.39	7.07	5.96	5.19	
All trips	1.36	4.77	4.84	8.14	5.70	4.39	8.99	7.06	5.24	4.35	
Lower band*	1.297	4.266	3.948	7.221	4.911	4.306	8.825	6.025	5.136	4.311	
Upper band*	1.504	5.056	5.742	8.426	5.556	9.337	10.390	8.109	6.671	4.659	
Std. Deviation	1.957	4.241	3.677	5.531	3.749	4.357	7.909	5.739	4.044	5.194	
Std. error	0.052	0.201	0.449	0.306	0.164	1.164	0.397	0.526	0.387	0.088	
			Mode wise	e trip len	gths in city	level s	tudies				
LB-IPTS study 2000	0.9	3.6	-	12	5.3	-	-	6.8	5.1	4.6	
AMC-CEPT '06 ¹	2.2	3.3	-	6.2	-	-	-	5.4	4	5.4	
¹ – Only trips	exceeding	1 Km are	e considered a	s a 'trip' f	for this repor	t.					

Table 5-6 Mode-wise Mean Trip Lengths³⁵ (km)

* - 95% confidence interval for mean

Table 5-6 shows how the mean trip lengths vary with the use of different modes. The pedestrians travel about 1.4 km on average without much difference between men and women. Men travel about 4.8 km on average on cycle per trip, which is a three-fold increase in distance compared to the pedestrians. Another significant rise is observed amongst the male public bus users' travel on an average of 9.3 km each. Beyond the

³⁵ Trips length is calculated as distance between origin and destination on a particular mode.

walking trips, the difference between men and women's trips becomes more visible with the men using cycles, public buses, shared auto rickshaws and other modes for significantly higher distances. The city level average trip lengths (in LB-IPTS 2000) for shared auto rickshaw, auto rickshaw and motorized two wheelers are comparable with the sample of the urban poor. The city level public bus trip length is 12 km whereas the city level non-motorised trip lengths are lower compared to the poor population.

In the descriptive analysis, the mean trip lengths appear to have differences based on the mode usage. A one-way Analysis of Variance (ANOVA) test was conducted to compare mean trip lengths for different modes with the null hypothesis that all the mean trip lengths for different modes are equal and comparable. The test result suggests that the null hypothesis cannot be accepted. There was a statistically significant difference in the mean trip lengths at the p<.05 level for conditions [F(10, 3406) = 159.995, p = 0.000]. In other words, there are statistically significant differences in the mean trips lengths across modes.

Test of Homogeneity of Variances								
	Statistic ^a	df1	df2	Sig.				
Levene Statistic	75.937	10	3406	0.000				
	Robust Tests of Equality of Means							
Welch	164.914	10	163.001	0.000				
Brown-Forsythe	125.832	10	472.12	0.000				
a Asymptotically E distri	huted							

Table 5-7 Mode and Distance – Equality of means tests

a. Asymptotically r distributed.

Table 5-8 Mode and Distance – One-way ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29454.846	10	2945.485	159.995	0.000
Within Groups	62704.099	3406	18.41		
Total	92158.946	3416			

The mode-trip lengths descriptive analysis also suggests that there are significant differences in the trips made by men and women. An independent t-test was carried out to determine whether there is a statistical significance in the compared mean trip lengths of both the groups. The test results show that there is a significant difference in the mean trip length for men (M=5.1, SD=5.6) and women (M=2.8, SD=3.8) based on [t 146

(3415)=11.37, p = 0.000]. The men travel longer distances than the women across all modes except walking and across any other variables like residential location, livelihood or education background

	Group statistics for t-test – Mean trip lengths in male and female trip makers											
	Gender		Ν		Mean	Std	Deviation	Std. Error Me	an			
Trip	Male		2165		2165		5.139		5.6899	0.122		
length	Female		1252		2.811	1 3.8702		0.109				
	Levene's Test for Equality of T-te Variances					-test for Equ	uality of Mea	ns				
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the				

Table 5-9 Mode and Distance across gender (independent T-test results)

	Levene's Equalit Varian	ty of ces	T-test for Equality of Means							
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
Equal variances assumed	105.712	0.000	11.37	3415	0.000	2.058	0.181	1.7036	2.4136	
Equal variances not assumed			12.548	3327.491	0.000	2.058	0.1641	1.7369	2.3803	

Table 5-10 shows the mean trip lengths across the motorised and non-motorised trips for both genders. Amongst the poor, the NMT mode users (the majority of the population) show a different pattern to the motorised mode users. Mean trip length for male non-motorised trip makers is 2.6 km only compared to 7.48 of motorised trips. Similarly, the mean trip lengths for women non-motorised trip makers is 1.38 km compared to 5.77 for the motorised trips. Women travel much shorter distances than men on both non-motorised and motorised modes.

Mean trip length	All trips	Motorised trips	Non-motorised trips
Female	2.8	5.77	1.38
Male	5.1	7.48	2.60
Total trips	4.4	6.93	2.13

Further, the trip lengths are distributed in distance ranges to understand the concentration of trips (figure 5-4). About 31 per cent of the poor travel less than one km and about 59 per cent of them travel less than three km for their daily activities and the

share of trips reduces further as the distance increases. Poor women have 72 per cent of trips with travel distance of less than three km and poor men have 51 per cent of trips below three km.



Figure 5-4 Trip distribution by distance amongst the poor

In case of the urban poor, the average trip length is 4.5 km with 59 per cent of trips being less than three km. A study conducted in 2000, showed that about 56 per cent of trips at the city level are below three km (Louis Berger-GIDB, 2000). But in the last decade, not only the municipal limits have increased manifold from 192 sq. km to 466 sq. km but the urbanised built area has also expanded and the trip distances have increased in Ahmedabad (Adhvaryu, 2011). Besides, it is possible that removing the urban poor's trips from the total trips in the LB-IPTS study would further increase the mean trip lengths of the other income classes. In any case, the average trip length in Ahmedabad was about 4.6 km (as per LB-IPTS study 2000), which has increased 5.5

km (as per AMC-CEPT 2006). But the urban poor continue to travel short distances compared to the city level averages.

Trip purpose/ Mode use	Walking	Cycle	Hand Cart/ Pedal Rickshaw	AMTS	BRTS	Multiple Modes	Shared Auto Rickshaw	Auto Rickshaw	M2W	Grand Total
Work	12.3	10.6	2.0	6.4	0.2	9.1	9.5	1.9	3.3	55.2
Education	19.8	1.7	0.0	2.6	0.1	0.9	3.6	0.7	0.1	29.4
Shopping	7.3	0.8	0.0	0.8	0.0	0.2	1.5	0.2	0.2	11.0
Social- recreational	0.3	0.0	0.0	0.5	0.1	0.5	0.6	0.1	0.1	2.1
Health	0.2	0.0	0.0	0.1	0.0	0.3	0.2	0.1	0.0	0.9
Other household work	0.5	0.1	0.0	0.2	0.1	0.1	0.3	0.1	0.0	1.4
Grand Total	40.5	13.2	2.0	10.5	0.3	11.1	15.8	3.0	3.6	100

Table 5-11 Trip Purpose by Modal Share (percentage trips)

Table 5-11 shows that the majority of the trips by the poor are either for work (55.2 per cent) or education purpose (29.4 per cent). The shopping trips are 11 per cent but any other social or recreational trips are negligible. This table shows that the poor are making only the most essential trips. Interestingly, they rely much more on motorised modes for the social and recreational trips, whereas two-thirds of education trips are carried out by walking, supported by intermediate or public transport. Similarly, most shopping trips are made by walking. So there is a selective use of motorised mode, which is for work or social-recreational trips. For all other trip purposes such as education, shopping, health, and household work, walking emerges as the most popular mode. This analysis is further disaggregated by gender in Table 5-12.

The data of modal split by trip purpose gives important findings. According to Table 5-12, only 20 per cent of trips made by men are walk trips to work (mean trip length 1.4 km) whereas 55 per cent trips made by women are walk to trips to work (mean trip length 1.4 km). 30 per cent of work trips (mean trip length 4.9 km) made by men are on cycles, 13 per cent of work trips are by public bus (mean trip length 9.3 km), and 19 per cent by shared auto rickshaw (mean trip length 6.1 km). Women travel less by other modes for all purposes compared to men and mostly by cheaper modes. 15 per cent of women's work trips are made by public bus (mean trip length 5.5 km) and 20 per cent of women's work trips are made by shared auto rickshaw (mean trip length 4.8 km). Education and shopping trips amongst women (mean trip length two and one respectively) are dominated by walking. Social and recreational trips amongst women are made by public and shared transport (mean trip length five and six km).

Trips (more than 4days/ week)	Walking	Cycle	Hand Cart/ Pedal Rickshaw	Public bus	Shared Auto Rickshaw	BRT	M2W	Auto Rickshaw	Grand Total
Female	70	2	1	9	15	0	1	2	100
Work	55	4	3	15	20	0	2	1	100
Education	76	2	0	7	12	0	0	3	100
Health	33	0	0	0	33	0	0	33	100
Shopping	89	1	0	1	9	0	0	0	100
Social- recreational	0	0	0	0	100	0	0	0	100
Male	35	23	3	12	17	0	6	3	100
Work	20	30	5	13	19	1	8	4	100
Education	65	9	0	10	13	0	1	2	100
Shopping	46	21	0	7	11	0	11	4	100
Social- recreational	0	0	0	100	0	0	0	0	100
Health	0	0	0	0	0	0	0	0	0
Overall	47	16	3	11	16	0	4	3	100

 Table 5-12 Trip Purpose by Modal Share disaggregated by gender (percentage trips)

The trip purpose, mode use and trip distance table shows that the mobility of the poor is mostly dominated by work and education related trips. Although there was a determined attempt made during data collection to identify all kinds of trips, it emerges that all other purpose trips have a small share in overall trips of the poor. It can be deduced that for work trips, the mode use changes as the distance increases. In absence of any private motorised modes, there is a strong dependence on public transport or intermediate public transport. For longer trips (more than six km) the municipal bus becomes the suitable option, even if there are issues related to high waiting time and erratic services. If motorised two wheelers are available then they are used to commute longer distances for work trips.

5.1.3 Household Income and mobility

Table 5-14 shows that 58 per cent of trips incurred zero cost for the trip-makers. 16 per cent of trips were managed with equal to or less than 5 INR. 80 per cent of women and 69 per cent of men spends less than INR five per trip. Further, 93 per cent of women and 86 per cent of men spends less than INR 10 per trip. The minimum BRT fare is INR five, minimum AMTS (public bus)³⁶ fare is two rupees for the same distance between two bus stops. By spending INR five about two to three km can be travelled by AMTS and shared auto rickshaws, and lesser distance by the BRT. Spending about INR 10 travel distance can be expanded to four to five km by AMTS.

Gender	Expense per trip (in INR)									
	Nil	01-05	06-10	11-15	16-20	20+	Grand Total			
Female	63	17	13	3	1	2	100			
Male	54	15	17	5	2	6	100			
Over all	58	16	15	5	2	4	100			

Table 5-13 Distribution of Per Trip Expenses, by Gender (percentage trips)

For majority of the urban poor, BRT is an expensive option and AMTS becomes attractive for long distance commutes within the city. However, for distances in the range of three to five km the shared auto rickshaws becomes more feasible as they offer competitive fares compared to the AMTS. The shared auto rickshaw operators always keep their fares less than the AMTS fares. AMC-CEPT (2008) mentions, "in Ahmedabad on an average households spend about INR 200 to 500 per month on transport" across all income groups. As per the present study, about 30-35 per cent poor households end up spending monthy more than INR 500 for their transport needs. It is evident that most of the poor households try to minimise the cost of the transport by using NMT modes or using motorised modes selectively.

The table 5-14 shows transport mode-wise mean household incomes in INR. It is evident that the mean household income of the motorised two wheeler trip makers is

³⁶ Both AMTS and BRT use telescopic fare calculations. There is also a minimum starting fare based on a distance cap. Beyond that, fares would increase incrementally in increasing proportions as travelling distance increase.

the highest within this group of poor people followed by the autorickhaw users. The pedestrians and the hand cart/pedal rickshaw pullers are the poorest amongst the group. A one-way ANOVA test was conducted to compare mean household incomes for different modes. There is a statistically significant difference in the household incomes at the p<.05 level for the three conditions [F (10, 3414) = 11.497, p = 0.000]. However, the income levels of the cyclists and the shared auto rickshaw users are comparable. But the income levels of the motorised two-wheeler users are significantly higher than the income of the non-motorised mode users.

Mode	Mean Monthly Household Income in INR	Std. Deviation	Mean Trip length (km)	Estimated monthly transport per trip maker (in INR)*	% of income
walking	5789	3659	1.36	0	0
Cycle	6586	3882	4.77	0	0
Hand Cart/ Pedal Rickshaw	5462	4427	4.84	0	0
AMTS (Public Bus)	6175	2970	8.14	1172	19.0
BRTS	5814	3307	4.39	1054	18.1
Shared Rickshaw	6479	3675	5.70	684	10.6
Auto Rickshaw	6918	3909	5.24	1887	27.3
M2W	8593	3846	7.06	720	8.4
Overall – Monthly household income (counts – 561)	6045	3632			
Mean Trip length (counts 3428)	4.48	5.2			
Mean Trip cost	4.87	10.98			

Table 5-14 Mode wise mean household income (monthly in INR)

*Assuming that two such trips are made per day for 24 working days per month. The public transport trips per Km. are estimated based on the current fares as the following – INR 3 /Km.km for AMTS, INR 5/Km for BRT and INR 2.5/Km. for the shared auto rickshaw. For the direct fare, auto rickshaw INR 7.5/Km. charges is assumed based on the current fares. For motorised two wheelers, the petrol cost is assumed as INR 75/litre and the mileage of an average motorbike is assumed as 36 km/litre. For M2W, this is only the running cost and it does not include any owning cost/ debt servicing cost or maintenance cost.

When the modes were aggregated as non-motorised modes and motorised modes, the monthly household income respectively were INR 6,035 and INR 6,818 suggesting that the non-motorised mode users are poorer in this group of poor people. However, the poor public transport users are incurring more cost per month on transport. That leaves them poorer as compared to the non-motorised transport users in terms of absolute

income. There is an estimate given in table 5-13 which shows that, depending upon the mode of public transport service, the household would incur transport cost in the range of INR 684 to 1,172. The motorised two-wheeler works out to be one of the cheapest motorised modes in terms of operating cost. However, with the capital cost of purchase (as debt servicing), maintenance and insurance cost would make the aggregate cost of owning and operating a motorised two wheeler as expensive as the expenditure on other public transport modes. With the difficulties in accessing the formal credit for purchasing vehicles, the motorised two-wheelers do not have a widespread use amongst the poor.

		Trip length	Trip cost	Household income, Monthly				
Trip length	Pearson Correlation	1	0.436**	0.053				
	Sig. (2-tailed)	-	0.000	0.082				
	Ν	3417	3408	3416				
Trip cost	Pearson Correlation	0.436**	1	0.019				
	Sig. (2-tailed)	0.000	-	0.269				
	Ν	3408	3417	3416				
Household	Pearson Correlation	0.053	0.019	1				
income, Monthly	Sig. (2-tailed)	0.082	0.269	-				
	Ν	3416	3416	3427				
** Correlation is significant at the 0.01 level /2 tailed)								

Table 5-15 Correlations results – trip length, trip cost and hh income

porrelation is significant at the 0.01 level (2-tailed)

Statistical correlations were carried out between household income and trip expenditure and household income and trip length. It was found that there are no significant correlations between them (r=0.037, p=0.44>0.01 and r=0.009, p=0.85>0.01). In other words, it is not necessary that people who are earning more are spending more on their trips or they are travelling longer distances. At least within the group of the urban poor, the household income did not have much impact on the trip cost or length. However, there was a significant correlation between trip length and trip cost (r=0.436, p=0.000<0.01). This also means that there is a complex relationship between household income and trip cost which cannot be explained through linear

bivariate correlations. Depending upon its specific situation, a household earning more amongst the urban poor might end up spending more on its daily trips.

Since the majority of trips are limited to non-motorised modes, further investigation is needed to assess whether the choice of these modes impose any distance related constraints. Further investigation is also needed to establish those situations, and in which long-distance motorised trips become feasible and desirable. It is expected that the experience of traveling less using non-motorised modes or travelling more using motorised modes would vary with gender, education level, livelihood and residential location in the city.

5.2 Mobility of the poor through the qualitative narratives

The primary quantitative data discussed in the previous section demonstrates that the mobility of the poor relies much more on non-motorised transport or intermediate or public transport. The poor travel shorter distances compared to the others in the city and they spend very little on transport. The trip purpose analysis further shows that the essential trips like work and education dominate their urban travel, while other purpose trips have a small share. The quantitative data indicates that mobility of the poor are limited by various constraints such as their affordability and the choice of modes available to them. However, mobility of the poor has complexities, which are best understood through their own perceptions. The activities in which they engage for their livelihood necessitate them to engage in complex patterns of social interaction within the new urban environment. These emerging mobility characteristics need to be understood through qualitative narratives of the poor to further unpack and verify the reasons behind their mobility choices and practices.

At the outset, two observations are important to note. Many people conversed in Gujarati or Hindi and they did not use words similar to the English words 'transport' or 'mobility'. Their daily mobility was referred as 'coming and going' in everyday

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conversations. Any transport mode (except for walking) was referred to as 'conveyance' and in Gujarati/ Hindi the original words used literally mean 'instrument' or 'tools' depicting more utilitarian associations with different modes of transport. The transport mode being talked about was never a 'ride', thus not associating pleasure or recreational aspects with their mobility. In addition, there were probably not enough words, expressions or idioms developed to describe their mobility, journey experiences or trade off related to transport.

Secondly, while conducting the initial interviews in the core city settlements, it emerged that sometimes the interviewees were not at all concerned about transport. They had nothing to say about their transport. For some respondents, their mobility choice was inevitable given their circumstances, saying – "*What else would you do*?" Their priorities were their job responsibilities, housing needs, basic services like water and sanitation, or daily earnings. Transport issues were not even mentioned while talking about their main concerns of their everyday lives. Those who talked about transport, they considered transport something they 'managed' either by walking or through other modes. That is the reason why the interviewees who were walking shorter distances for work and other household activities had nothing much to say about the transport issues. As the participants increased, more complexities of their mobility patterns emerged making it clear that their mobility choices were dependant on their affordability, work-home distance, and the available modes.

5.2.1 Mode choice dynamics

Analysis of the interviews with the poor commuters, especially women, revealed walking as their most popular choice of mobility. Respondents who mostly travel shorter distances (less than two km) never considered giving their mobility issues any special attention. Some of them did not consider their transportation needs to be serious enough to even attempt verbalising their thoughts or reasoning behind their choice of walking. It seems that walking occurred to them as the obvious or natural

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choice. Participants mentioned walking with a distinct casualness as if implying that they never considered any other options.

"When I come walking (to work), there is no problem. I come walking and go back walking, no problem at all... I don't have to go a long distance for which I have to worry about..." (Female, 55)

"We go walking all the time, we are used to it. Everything is nearby, so why should we think of something else..." (Male, 19)

Similar to the pedestrian respondents the cyclists displayed an equivalent sense of advantage in cycling practices. Mostly, they travelled less than four to five km per trip. They considered cycle as the obvious choice and an advantage. But the advantage is restricted to the male members and it rare to find a female cyclist. Attitudes to cycling were gendered. For example, one of the male participants described the cycle as a 'family vehicle,' which he used to drops his wife to her work wherever he can and to carry grocery shopping bags.

Figure 5-5 Cyclists navigating through traffic in Ahmedabad



Photos: Center for Urban Equity, CEPT University

"We cannot do without cycle, the shops are so far. We cannot go anywhere otherwise. The fares are so high. When you want to go somewhere, cycle is good". (Male, 45)

"Sometimes in the morning when I go for work, I drop my wife to her work place. So cycle is like a family conveyance... in the evening (while returning) sometime I get ration and put on the back of the cycle. It works well..." (Male, 35)

"Earlier when I came here (to the city), there were lot of problems. It was so expensive to go in the bus. The red bus³⁷ would not come in time. You can't rely on that. We have to reach in time, you know? Or the day's salary is cut... so I started renting a cycle whenever I could. It (renting) was not that expensive those days. We all had cycles. You just pedal and you reach. There was not so much traffic... then later, I bought my own cycle. It was a second-hand one. It was not so expensive those days. So I have a cycle since then..." (Male, 60)

In the above cited response, there are undertones of nostalgic of the 70s when everyone had a cycle and that cycling was convenient. Despite 'so *much traffic*' and constant objections from his family members, the respondent has continued cycling till today. Interestingly, the English word 'traffic' was widely used to describe events, people, actions, and everything that is taking place on the road. Mostly, the word 'traffic' mentioned in the interviews implies 'motorised traffic' only and the pedestrians or the cyclists didn't consider themselves being part of that 'traffic'. Amongst the cyclists, there was a careful vocalisation of their separation from the 'other' that is the motorised traffic. This 'traffic' was often blamed for making the roads congested and riskier. The respondent is an ex-textile mill worker and he recounts that when the mills were running, cycling was a way of life. Cycling was convenient as '*you just pedal and you reach*'. Another ex-textile mill worker who is now working in a small factory recounts his cycling days from 70s and 80s.

Figure 5-6 Shared cycle ride amidst motorised traffic



"In those days, there were only two important sounds in the city. One, the cycle bells ringing and the other were the sirens of the mill. Our days were spent between these two sounds... but it is all gone now..." (Male, 52)

³⁷Colloquial use for the municipal bus service because the buses are red in colour.

Cycling in everyday life evokes nostalgia amongst the poor men. Cycling is strongly associated with the past and sometimes referred to as a 'pre-modern' mode of transport. This is however not consonant with the revival of the urban cycling in the developed parts of the world such as Europe and America. The revival may however be attributed to the fact that those countries have gone through the full phase of embracing various modes of transport and then discarding many. That opportunity has yet not come to this section of the community. There were many cyclist participants who continue to cycle today because of the convenience and low-cost but they are willing to change their mode at the first available opportunity. This is especially true for the younger generation which neither considers cycling as a way of life nor the most convenient travel option. They aspire to a travel experience using motorised two wheelers. There were often complaints about how cycling becoming increasingly difficult with time and with increasing traffic. One of the respondents - a male, 32 year old is a supplier of sweets and food items to shopkeepers and vendors around schools. For quite a long time, he kept transporting the sweets in wholesale amounts on cycle. It took him a substantial amount of time to build money, by investing in informal 'chit funds', to buy an 80cc motorised scooter. He describes that,

"I used to take lesser goods earlier on cycle but after I got the scooter, I take more goods with me... Yes, it (getting a scooter) has helped adjust things a bit. Actually, when I used cycle, I used to have swelling in my abdomen and it pained. I got it checked in the hospital and the doctor advised me not to cycle anymore. Still I continued 2-4 months until I got my chance (in the chit fund)." (Male, 32)

At the beginning of this research, it was assumed that many poor households would widely own motorised two-wheelers given the trends of vehicle ownership in the rest of the city. However, it emerged that motorisation has not yet reached the poor households. The response cited above is a one-off instance of a poor household having made the transition from a cycle to a motorised two-wheeler. The major barrier against buying a motorised two wheeler is not the running cost but the owning cost. Poor people don't get any formal vehicle loans so they do not have the capital cost to invest in a motorised two wheeler. It is important to note that this respondent could only create finance to invest in a motorised two-wheeler through the informal mechanism of credit access. Generally, the cyclists continue to cycle and pedestrians continue to walk for many years with only the hope of changing their mode. Along with the limited transport mobility transition, there was also slower or no transition in their residential mobility or job mobility. The poor households seem to be stuck in a similar kind of situation for a long time and also with their transport mode choice.

This is not to say that there were no aspirations to buy motorised two-wheelers. Buying a motorised two-wheeler was the ultimate dream for a cyclist or a pedestrian, given the fact that there is a privileged social status attached to a motorised vehicle. The attitudes towards owning individual vehicles, whether cycles or motorised two wheelers, were often gendered and affirmed to the patriarchal social structure. Typically, the older men expected their sons to buy a motorised two-wheeler and the older women expected her husband or son to buy a motorised two-wheeler. To cite an instance, an elderly man described that he would be happy to be driven around by his son when required. Similarly, an older women expressed her dream that someday when her son would have a 'motor-bike' she would be happy to sit behind him and visit her friends' place. The respondents are aware of the difficulty of owning a motorised vehicle given their financial situations but they are also unanimous in their hope of acquiring it someday.

Another notable issue relevant for transport energy consumption and emissions was walking to work on a regular basis not being an enjoyable or healthy option for everyone. Their complaints ranged from there being '*no space to walk*' to it being '*scary*' as they described their everyday travel experiences. There were also accounts

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of being tired and fatigued, especially amongst the working women³⁸. The women said that they were always in a hurry to reach home, as they have to take care of the household. They manage the household work, grocery shopping and child care along with their job so they end up making many short trips across their job location, shops, children's school and home. Some of them end up walking about eight to ten km making multiple trips between these locations. In order to manage their everyday life, they need flexible work-time and short distance between locations for all the activities.

'I get very tired, I have to walk fast...my legs pain but how do one do this otherwise? If one waits for the vehicles or (even if) thinks to spend some money on it (public transport)... it wastes lot of time waiting (for the vehicles). And I need to reach home in time...' (Female, 32)

The pedestrian participants often claimed that they were walking by choice even when they had other public transport options available. Some of them would prefer some shared or public transport at some parts of their daily trips. Some pedestrians were potential public (or shared) transport users had there been any affordable and reliable options available. Some of the regular users of public transport or the shared transport mentioned that there are no fixed ways of travelling. Most of them said that whenever they get ready to go to work, they come to the main road and wait for the 'conveyance'. The first preference is always the public bus (AMTS) because of the cheapest fares amongst all modes. The second preference is shared auto rickshaw, which is faster and more efficient but it makes passengers wait until it is fully occupied and so can become time-intensive occasionally. The following account describes the complex travel pattern: the participant travels for about four km. She prefers to go by bus and her preference was because of her age.

³⁸ The National Family Health Survey (NFHS) of 2005-06 round-3 points out that more than 36% of women in Gujarat have a body mass index below 18.5 – the official cut-off point for acute undernutrition and thinness. Most of these 36% of women are likely to be poor women. Possible under-nutrition could be an explaination for these repeated complaints about not been able to walk long distances.

'It is far off...coming here. I have to change two buses. See, from Jamalpur I take 36 (number bus) and get down at Raipur. Then from Raipur I take 145 (number bus) and get down at Patel Mill. If I don't get a bus to Patel Mill then in 42 (number bus), I get down at Kamdar and from there I walk here. Sometimes, there is no bus. I have to either wait or sometime I dare myself to walk. Sometimes, the bus comes early and goes away. (So) I have to come in 'Shuttle³⁹. It is expensive, you know?' (Female, 54)

Mobility is linked with making everyday decisions based on what is conveniently available. The affordability aspects of everyday decision making will be discussed in the following section. But it is important to note that it is difficult to categorise someone based on their mode choices for a long term. In a situation where there is no access to the individualised mode of transport, mobility of the poor becomes complex and often fluid across various choices. A pedestrian is a potential public transport user and a public transport user is a potential pedestrian. Any person becomes a particular mode user depending upon availability situation that day or 'what they feel like that day'. If they don't feel like walking, they spend money and travel by the shared auto rickshaws (if not bus). The municipal buses were perceived as unreliable but the shared auto rickshaws were 'always there'. Sometimes, choice of travel mode is merely a matter of deciding whether or not they want to spend money on it. The wage earners in a family (both women and men) either decide to spend a small amount on transport or save that money by walking to convince themselves that they 'have saved some money today'.

Analysing mode of travel choices with respect to the trip purpose indicated that people travelled only when it was essential, for example for work or for education or shopping. Children always walked to school, sometimes in a group with older kids taking care of younger ones. There were other social practices related to everyday child care activities. Sometimes parents took turns to pick up their children from school. Not only that, children of working parents often stayed at the neighbour's house until their

³⁹Shuttle is a word used for the shared auto rickshaw (with 3 or 6 seats) service in Ahmedabad. The word 'Shuttle' represents that there is an 'up' and 'down' services on certain routes known to the participants. Whereas the term used for hiring an exclusive auto rickshaw service are the English terms - 'direct' or 'special' service, which sounds like 'dyrekt' or 'pesiyal'.

parents returned from work. The practices of give and take or doing things for each other were widely seen amongst the poor. Taking care of each other's children when needed was one of the most common practices.

In terms of the leisure and recreational trips, there was a clear deficit. This was because many people were quite concerned about their finances. However, there were many festivities (religious or otherwise) organized within the settlement on a regular or seasonal basis. Otherwise, their participation in any recreational or community activity outside their neighbourhood was either not present or a rare occurrence. Leisure outings were restricted, although they participated in a number of religious and/or cultural activities taking place within their settlements. When asked about their recreational activities or family outings, the following were the responses:

"We are left within our own limits. We do not think beyond it. If a person has that kind of money (income), only then can he think about those things (recreation). We think within the limits of our condition (stature). Just nearby India-colony, that mall and other things (multiplex, shopping etc.) are developed. But it's beyond our capacity so we don't think about going there, asking around or living there, and so we don't think about it." (Male, 32)

"No, it's not about (getting) the rickshaw; we don't require going out much. We keep to our work only. What is the point of 'going out' for no reason? If we go out, it'd be once in a month. What can we do when we don't have that capacity (to spend money for leisure)?" (Female, 44)

"There is really no need to go out like that. We have everything here in our Chali. We celebrate all festivals here... something or the other keeps happening in our Chali. Then what is the need to go out?" (Male, 38)

The individuals and families studied; given the characteristics of their everyday mobility (costs, time, etc) limit their travels beyond the walking sphere as much as possible. When walking is the only mode possible for the family of the bread-winner, the perception about distance and 'what can be reached or not' becomes important. In practical terms, they heavily concentrate on travels related to work, education and the maintenance of the house (shopping, doing errands, etc). Any movement not directly related to some obligation or urgent need is commonly postponed or simply discarded. These families rarely move beyond the settlement purely for pleasure, either on working days or during weekends. Even trips to go on holidays are rare. During most of their free time they stay within the settlement, not unusually inside their homes, especially women, children and adolescents. But at the same time, most settlements are culturally vibrant places where many religious festivals are celebrated. Out of the home activites but within the settlements are important part of the social life of the poor in Ahmedabad.

"Earlier I used to take the kids from the neighbourhoods to Kankaria (lake)...some fifteen-twenty kids...and we will all have fun. But now there are tickets to go inside [after the lake front development project]... its ten rupees per person, you know? Now if you go out to the lake and eat and come back in a rickshaw, it would cost at least 200-300 rupees... who can afford that?" (Male, 45)

The above response indicates an interesting social practice of recreational activities within the community – a middle-aged person gathers a group of children from the neighbourhood and takes them to the lake-front or the zoo. He would typically arrange for couple of shared rickshaws for their outings or would walk to the nearby location. With the new lake-front development project, the lake and adjoining amenities like the zoo are now gated and ticketed. This adds additional cost for the outing. The lakefront has become an exclusive place to go to instead of being an incidental part of the everyday life in the city. Earlier, the participant could afford an ice-cream for everyone or the fare for the rickshaws but this additional burden has deterred him from continuing this practice.

The manner in which modes used by the majority of the poor people, walking and cycling (for males), are 'pre-industrial' or 'pre-modern' in nature. This is not to denigrate these modes but to pose them against the resurgence of walking and cycling ideas and

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practices in the western societies. The terms 'pre-industrial/modern' would rather mean 'non-modern' or at least this is how they were and are being viewed largely by the governments. These modes operate literally on the margins of the roads, which are not maintained well because the roads are prioritised for the motorised traffic. The people who are walking or cycling do not consider other motorised modes for their mobility and they think that walking is 'obvious' or 'natural' choice'. The use of these modes by poor people is primarily utilitarian in nature. Women don't cycle and travel shorter distances than men by all modes. Even the men who are cycling do not see it as mode for recreation or leisure.

5.2.2 Affordability and mobility

With many interviewees, a lot of discussions revolved around the cost of transport and it was regularly mentioned in the conversations. Saving money or minimise cost of anything including transport was considered a good virtue or practice. People were conscious about 'living within the means'.

"We have to live within our means... every day we can't spend as we like. We can only stretch our legs as much as the sheet we have [popular proverb]. If we save today then only we will be able to have good time tomorrow." (Male, 42)

"There is no need to pay for 'coming and going', there is no need to spend money on that...why should it cost?" (Female, 37)

'Why should it cost' is a resounding sentiment while talking about their mobility. There is an underlying social logic that transport shouldn't cost as there are more pressing needs. Transport is viewed as something they could save on – sometimes by exerting oneself more. Saving one trip's cost (about INR five to ten) was seen as an achievement for the day. This attitude directly influenced their mobility choices. Even when someone got some 'conveyance to travel', she/he preferred walking to the destination. A number of people (mainly women) talked about the availability of 'shuttles' or the buses, but they chose to walk. In one case, a woman would walk more than four km and cites reasons that she does not like to wait for the other modes and she prefers to walk. She also describes her time as precious and that it is divided between work, child care and household work.

"I come walking and go walking, my house is far off but I just walk. I get the shuttle and I get the red bus too... but one has to wait for it. The red bus is not worth waiting for. Sometimes it comes and sometimes it doesn't. And coming-going in the shuttle means... one has to wait till all seats are full and on top of it, it is expensive. And my salary is low so I cannot afford a special rickshaw (direct fare)... And then I have lots of chores at home and about kids. So I don't have much time (to spare). I have to reach my job in time...so I just walk. Walking is better, you are on your own... you don't have to wait for any one." (Female, 32)

"It will take me ten rupees to go to work, but why would I spend? (If I spend money like this then) what is the point of making ends meet by working? It's better to walk then to spend on coming and going..." (Female, 37)

The above cited response shows that the issue of affordability is played out in the context of unreliability of the municipal bus service and the shared auto-rickshaw service. But the participants prefer to walk because they don't want to spend the money on transport and the transport services are not convenient for their needs. In many cases, they try and wait for the next bus or the shared auto rickshaw, if it suit their timings and routes. When these modes are not conveniently available, they end up preferring to walk. Sometimes, the issues of affordability make the availability of transport (conveyance) irrelevant in the poor's life, and sometimes the issues related to reliability (of time, routes) impedes the use of available transport.

There were similar traits in many participants of minimizing the cost of transport as much as possible. But there were differences in these views based on their location within the city and based on the distances they are travelling. Many people living in the core city settlements had their workplace and amenities closer to their homes. Their commute distances were shorter and they had many options available for travelling. They saw several merits in the area where they stayed.



Figure 5-7 Auto rickshaws and municipal bus stand in Ahmedabad

Photos: Center for Urban Equity, CEPT University

'Everything is nearby, once I go out of here (work place) – there is grain mill, there are shops, there is milk shop, there are vegetables (vendors). Everything is just there. Once I come down (my house), I get everything. As I get out of my job, I buy everything quickly and I go up (to my house). If you are short of something you can always pop out to buy something and go back...' (Female, 36)

Ahmedabad's core city is comprised of a mixture of: historic walled city, diverse commercial and residential areas along with some important institutions. One set of settlements studied as part of the 'core city' were near the river front close to the central commercial activities. The other set of settlements were just outside the historical walled city on the eastern side closer to the industrial and commercial activities. The participants living in the core city settlement could 'manage' their mobility by walking because their work places were close by. There were many instances that such arrangement of work places being closer to their residential area existed for many years. Some of the core city settlement because of the availability of work nearby. Some found the work first and then chose to rent a place in these settlements.

"I have been here since long... those were different days. We have been staying here since there was nothing here... no 'development'... And I will always prefer to stay here. My children tell me that now they want to move out somewhere outside but I tell them that I am going to stay here till the end. Why should I go out? This place has given me everything. Everything is nearby. Everyone knows us here...If we go out then even the crematorium will be far off... [Laughs]" (Male, 60)

The advantage of living in the core city settlements was not only of being close to the amenities or to the work place but also that it encouraged participants to develop strong community network, and in some cases beneficial business ties. For example, a bag-maker or an incense sticks-maker was employed by small commercial shops in the core city. The incense sticks-maker woman would walk and the bag-maker man would cycle to their employer to get raw-materials and to supply the prepared items. This employer gives them small loans when required for social functions. Going to live somewhere else means breaking this relationship and adding the transport burden to their earnings. In the beginning of the research, it was assumed that with increase in the income levels of a household, they will be willing to move out of squatting to formal, low-end housing. Instead, it was observed that households continue to squat, but invest in the house and services (like building a toilet or a new roof) and often negotiating, with the help of some civil society organisations, for more services to the Municipal Corporation. Residential location and its accessibility emerge as a major advantage for the poor households, as it minimises their mobility needs.

It is also important to note that many participants were not comfortable talking about issues related to income or affordability. The poverty situations were often underplayed in the conversations. Sometimes, '*walking is better*', '*cycling is easy*' or '*we just walk*' responses were generated in contexts, where there were no other obvious options due to their affordability constraints. 'Not affordable' was often projected as 'not convenient'. Only when probed further, they would say that besides the public transport being unreliable, it is also unaffordable. There were ways of saying 'unaffordable' – '*who wants to spend money like that*' or '*it's too much for a small ride*' or '*there is high inflation everywhere in prices*'. Besides, statements such as '*walking is better*' project

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that one is exercising a choice, and not giving in to the possible captivity to a certain mode. This attitude of 'being on one's own devices' was an important part of being a working woman and man.

5.3 Negotiated mobility amongst the sub-groups of the poor

The previous section (5.2) discussed some general attitudes and perceptions related to transport mode choices and affordability issues amongst the poor. Besides these general attitudes, all other issues narrated in other interviews were situation specific. These situations were based on where participants were living, where they were working and the kind of work they did. The variations in the mobility pattern and practices of the participants were based on different locations, livelihood and gender. The following section discusses these variations. There could be many categories in to which a population group could be subdivided and analysed. There were possibilities of exploring other categories such as religious minorities, different age groups and the socalled lower castes or the Dalit communities. Even the housing-deficient minorities such as the pavement dwellers or the houseless destitute who don't even live in the informal settlements could have been part of the study. But the focus of this thesis and this particular research question is to showcase how differentials within the poor are played out within the broad context of poverty-dominated lives. The location, livelihood and gender offer more fundamental categories and shows strong links with the mobility patterns and practices. This was found while conducting both, the qualitative interviews and the quantitative analysis.

5.3.1 Location variations and mobility practices

As explained in Chapter 3, all the surveyed slum settlements are sampled on the basis of distribution of settlements in the core city, the peripheral areas and resettlement sites⁴⁰. The resettlement sites are walk-up apartments of 26.8 sq. metres built by the

⁴⁰ The informal settlements were selected based on varying distance from the city centre in different directions to ensure the spatial representation. The core city settlements were in and around the historic

Ahmedabad Municipal Corporation between the years 2007 and 2013 in the city. This was the largest public housing project undertaken in the city after almost one and half decades by the city government. About 18,976 housing units were constructed in 15 different resettlement sites at the periphery of the city. The resettlement colonies were built with the aid of a major subsidy offered by the Basic Services for the Urban Poor (BSUP) component under the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) of the central government. This development-induced displacement was paid for by the funds meant to be utilised to improve 'the basic services for the urban poor', instead they were used to build new housing stock or resettlement colonies for the families evicted as part of other infrastructure projects. Many families from various squatter settlements were forcefully evicted as part of the developmental projects going on in the city. Some examples are the Sabarmati Riverfront Development project which evicted 12,000 families, road widening for the Bus Rapid Transit which evicted 2,600 families, and the Kankaria Lakefront Development project which evicted 110 families (Desai, 2012). These evicted households were referred to as the 'beneficiaries' who were to be provided a flat in the resettlement colonies. The poor households had to pay about one-third of the cost of the flat through monthly instalments.

As part of the study, four resettlement sites were studied. Three of these were formal public housing built by the municipal corporation and fourth was a 'transit camp' where 'project affected people' was housed temporarily before they were given a flat in the resettlement site. In many cases the 'transit' lasted for two to three years. Out of the four resettlement sites surveyed, two settlements - Trikampura BSUP (11) and Ganeshnagar (12) – have a distance of more than eight km from the original informal settlement from which the resettled citizens mainly came. The other two resettlement colonies (Mahadevnagar and Ajit Mill compound) have a distance of more than four km between the old settlement and the new one. The out-of-the-city resettlement colonies

walled city of Ahmedabad, which incidentally fall within the 3.5 km radius of the city centre (Bhadra square). The peripheral settlements fall within 3.5 to 7 km radius of the city centre. Two of the resettlement sites were beyond the 7 km radius of the city centre and two of them fall within 7 km radius.

like Trikampura and Ganeshnagar particularly are not connected with the rest of the city. Whereas in Mahadeve Nagar and in Ajit Mill compound were relatively better connected.

Looking at the modal share by different residential locations of settlements in Table 5-16, it is evident that there is a marginal difference between the mode share in the core city and the peripheral settlements. The non-motorised modal shares are comparable in the core city and the peripheral settlements – 50 and 48 per cent walking and 17 and 14 per cent cycling respectively, whereas the use of motorised modes has marginally increased – 14 and 16 per cent for shared auto rickshaw and nine and 12 per cent for the municipal bus.

	Walking	Cycle	Hand Cart/ Pedal Rickshaw	AMTS	Shared Auto Rickshaw	BRT	M2W	Auto Rickshaw	Total
	Core City Settlements								
Female	66	3	1	10	16	0	1	3	100
Male	40	26	6	8	12	0	6	2	100
Over all	50	17	4	9	14	0	4	2	100
			Periphe	eral Set	tlements				
Female	77	1	0	6	12	1	1	2	100
Male	33	21	1	15	17	2	4	7	100
Over all	48	14	0	12	16	1	3	5	100
	Resettlement Sites								
Female	52	2	1	13	27	0	1	4	100
Male	22	17	1	20	27	0	8	4	100
Over all	34	11	1	17	27	0	5	4	100

Table 5-16 Mode use by different residential locations (percentage trips)

This is contrary to the assumption that the poor in the peripheral settlements rely on motorised modes much more as they need to commute longer distances, like in the case of Chennai (Srinivasan & Ferreira, 2002). The poor in the periphery also continue to have a similar kind of mode use as the poor living in the core city areas. However, this scenario drastically changes in case of the resettlement sites. The combined share of non-motorised modes drops from 71 per cent in the core settlements and 62 per cent in the peripheral settlements to 46 per cent in the resettlement colonies. The combined share of shared auto rickshaw and public bus increases to 44 per cent from

25 per cent in the core city settlements and 28 per cent in the peripheral settlements. Especially the trips of shared auto rickshaw rise to as high as 27 per cent in resettlement colonies as compared to 14 and 16 in the core and peripheral settlements. This corroborates the fact that the effective provision of public transport attractive to the resettled citizens has not really been part of the resettlement process, so the trips by the poor are either being managed by shared auto rickshaws or the other modes.

On account of the resettlement, the mean trip lengths per trip have increased for each mode as given in Table 5-17. The average distance covered by the male cyclists living in resettlement sites is 7.6 km compared to 4.1 km in other settlements. This is physically straining, but in order to save money, cyclists continue to carry on with such commutes which seems 'long and tiresome' given the quality of roads and cycle, vehicular congestion and sometimes with the weight of the luggage being carried. The mean trip length for the public bus has increased to 9.5 km and for the shared auto rickshaw 7.2 km (compared with 7.1 and 4.6 km respectively in all other settlements). The trips by motorised two-wheelers are more than ten km. compared to 5.6 in the other settlements. The walking trips have remained the same, and in case of women they have further reduced marginally. It is possible that the women are making only short walking trips for grocery shopping and other household work as they might have lost their livelihood. Some women have taken up cycling, travelling about 2.8 km on average.

Trips <4 days/ week	Walking	Cycle	Hand Cart/ Pedal Rickshaw	AMTS	Shared Auto Rickshaw	BRT	Auto Rickshaw	M2W	Overall
Core and per	iphery sett	lements							
Female	1.4	3.2	3.7	5.0	4.0	4.3	3.8	3.4	2.2
Male	1.4	4.1	3.4	7.7	5.0	7.0	5.8	5.8	4.0
Overall	1.4	4.1	3.3	7.1	4.6	4.3	5.5	5.6	3.4
Resettlement Sites									
Female	1.1	2.8	2.0	6.6	6.5	0.0	4.3	10.0	3.7

Table 5-17 Mean trip lengths (km) by modes, gender and geographic locations

Male	1.5	8.0	5.5	10.8	7.5	0.0	4.9	10.3	7.2
Overall	1.3	7.6	4.3	9.5	7.2	0.0	4.7	10.3	5.7

In the case of the core city slum settlements, about 70 per cent of trips are within the radius of three km from their locations for both genders (5-18). In the case of the peripheral settlements, about 60 per cent of trips are within the radius of 3 km from their location. However, there is a striking dissimilarity with the resettlement sites. Only about 42 per cent of the trips are more than three km of distance and 36 per cent of them are more than seven km of distance. The main difference is in the mobility of men in the resettlement sites: from those only 31 per cent of trips are less than three km. The distance of their trips starts increasing between one and nine km as a normal distribution curve but majority of their trips (33 per cent) are above nine km. This pattern is not seen in the case of the women in the resettlement sites. About 60 per cent of their trips are less than three km, mirroring the pattern in the core and peripheral settlements; only about 14 per cent of women travelling more than nine km.

	N	Distribution of trips by distance ranges								
	All trips	Motorised	Non-	<1 km	1.1-3	3.1-5	5.1-7	7.1-9	9.1 and	Total
		trips	motorised		km	km	km	km	more	
			trips							
			Core	City Settle	ments					
Female	2.8	4.9	1.2	41	39	10	4	1	5	100
Male	3.8	5.8	2.4	30	33	14	8	4	11	100
Overall	3.3	5.4	1.8	34	35	13	6	3	9	100
			Perip	hery Settle	ements					
Female	2.8	5.5	1.7	54	22	11	7	2	4	100
Male	5.0	7.4	2.4	24	27	20	7	8	14	100
Overall	3.9	6.5	2.1	34	25	17	7	6	11	100
Resettlement Sites										
Female	4.6	6.9	1.4	35	24	8	12	7	14	100
Male	7.2	9.0	3.4	13	18	11	15	9	33	100
Overall	5.9	8.0	2.4	22	20	10	14	9	26	100

 Table 5-18 Distribution of Trips by Distances, Gender and Geographic Location

The mean trip lengths have generally increased in the resettlement sites but there were significant differences between the motorised trips and the non-motorised trips. The non-motorised trips in the resettlement sites for men and women were 3.4 km and 1.4 km respectively, whereas the motorised trips were nine km and 6.9 km respectively. The mean trip lengths for non-motorised trips in the core city and peripheral

settlements were 2.4 km for men in both cases and 1.2 and 1.7 for women respectively. It is important to note that the non-motorised trips in the core and peripheral settlements are comparable and there are marginal differences in the motorised trips only. This is contrary to the classical land use models (Fujita, 1989; Rodrigue, Comtois & Slack, 2013) where the commuters from the peripheral locations travel to the city centre for jobs and thus travel longer distances as compared to the commuters living in the city centre. The Table 5-19 substantiate this point further with the mean trip lengths for the work purpose trips with varying residential locations.

Residential Location	Trip Purpose	Mean trip length	Std. Deviation
Core city	Work	4.4	3.9
	Education	1.6	2.3
	Other	3.2	3.6
	Overall	3.3	3.6
Periphery	Work	5.5	5.4
	Education	2.7	3.9
	Other	3.9	4.5
	Overall	4.1	4.8
Resettlement	Work	9.3	7.9
	Education	3.1	2.9
	Other	6.3	6.6
	Overall	6.6	6.9
Overall	Work	6.0	6.0
	Education	2.4	3.1
	Other	4.3	5.0
	Overall	4.4	5.2

 Table 5-19 Mean trip lengths by trip purpose across residential locations

The mean trip lengths appear to have differences based on the residential locations and the trip purpose. As per Table 5-19, the mean trip length of the work purpose trips is 4.4 km in core city settlments, 5.5 km in the peripheral settlements but it jumps to 9.3 km in the resettlment sites. All mean trip lengths in resettlement sites increase across all purposes and their standard deviations increase as well. A one-way Analysis of Variance (ANOVA) test was conducted to compare mean trip lengths for different trip purpose with the null hypothesis that all the mean trip lengths for different trip purpose are equal and comparable. The test result suggests that there was a statistically significant difference in the mean trip lengths at the p<.05 level for conditions [F (2, 3418) = 121.545, p = 0.000]. In other words, there are statistically significant differences in the mean trips lengths across residential locations based on trip purpose. Increase in trip lengths for work means rise in transport expenditure as well.

As per the Table 5-20, 59.3 per cent of trips in the core city and peripheral settlements were zero cost trips, which were reduced to 36.7 per cent trips in the resettlement sites. In the resettlement sites, about 40 per cent of trips cost more than rupees six per trip and in city and peripheral settlements only about 22 per cent of trips cost the same. There is a new burden of long distance motorised trips from the resettlement sites. The household expenditure on transport has increased above INR 300 to INR 600 in many households in the resettlement sites, many of whom were not spending much on transport earlier. This is likely to have adverse impacts on other household budgets, sometimes replacing other expenditure on items like food, education and health. Provision of transport services has clearly not been part of the resettlement process and the displaced poor households had to rely on their own means to access their jobs and other services in the city.

	Expenditure per trip (in INR)								
	Nil	01-05	06-10	11-15	16 and above	Total			
Core city and periphery settlements (% of trips)									
Female	62.5%	20.2%	12.2%	2.3%	2.8%	100			
Male	57.5%	17.7%	14.9%	4.6%	5.3%	100			
Overall	59.3%	18.6%	13.9%	3.8%	4.4%	100			
	Resettlement Sites (% of trips)								
Female	44.3%	24.7%	20.2%	6.7%	4.2%	100.0%			
Male	32.5%	21.1%	28.8%	8.1%	9.5%	100.0%			
Overall	36.7%	22.4%	25.7%	7.6%	7.6%	100.0%			

Table 5-20 Distribution of per trip expenditure by gender and locations

Table 5-21: Mean per capita monthly income, mode use and residential location

Mean Per Capita Income (INR)	All	Motorised trip makers	NMT trip makers		
Core city settlements	1345	1612	1289		
Periphery settlements	1315	1391	1341		
Resettlement sites	1184	1280	1139		
Over all	1290	1429	1272		

The dependence on motorised modes and travelling longer distances had impacted the household budgets adversely. Mean per capita monthly income of the trip makers from the resettlement sites were only INR 1,184 compared to INR 1,345 and INR 1,315 in the periphery and core city settlements respectively. INR 150-200 makes a big difference in a poor household's life. In the process of relocation, some jobs may have been lost or some people are not earning enough to cover the higher costs of relocation including the transport cost. The motorised trip makers from the core city earned a per capita mean income of INR 1,612 compared to INR 1,280 of the motorised trip makers from the resettlement sites. Amongst the poor households studied, the income levels of the core city dwellers were the highest. Some of these issues are further re-visited while discussing the qualitative interviews but on the basis of the comparative income across residential location, it can be safely concluded that income-poverty is more in the resettlement sites compared to the city or peripheral settlements. The following section discusses the qualitative narrative in detail.

The narratives from the resettlement colonies

The quantitative findings above indicates the travel distances as having increased in the resettlement sites, with the motorized mode usage and the transport expenditure has also increased. The similar characteristics are also verified through qualitative narratives of the displaced population.

Male, aged 39 living on one of the resettlement sites narrated the changes related to his travel after having moved to the new housing colony. He is a toy-maker/seller and his family also helps him make the toys. He also buys some flashy, cheap toys from the market to sell. He goes to different recreational areas around Kankaria Lake to sell his toys on cycle. Before the relocation, his zone of work was fixed and he had to go within two to three km to sell the toys, which he did either by walking or cycling. He lived closed to the Kankaria Lake from where his family was displaced. Now he needs to travel beyond six-eight km to sell the toys. After coming to stay in the resettlement

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estate, he expresses his dissatisfaction that he cannot go to work every day because of having to cycle long distances.

"Of course, it is tough (to cycle). My legs pain a lot. If one goes for continuously 2-3 days to work, then one needs a break of one or two days. You can't go out every day. We also have to make toys every day after travelling so much. One can only go to work for 12-15 days (in a month) not more...not the full month. Even going for 20 days is very difficult" (Male, 39)

"What do I say? Mostly there is a difference in everyone's life. Some people's situation is very bad. Because earlier we never paid any fares for coming and going, we just lived there...right there. Now there is an additional expense of 1,000 rupees⁴¹ for everyone (every family). One-third part of the income goes 'waste' like this. Just calculate 10 rupees one way and 10 rupees the other way...mostly in shuttles only... 15/1 (number bus) may come or may not come...who know. Then tell me how much does it cost, even if two people per family have to travel" (Male, 48)

The above cited response clearly shows that after moving to the resettlement colonies, their mobility situations have worsened, as they have to travel long distances now. With the unreliable public bus services, they rely much more on the shared auto-rickshaw. The transport expenditure starts denting the household budgets. The male members would be given priority to travel longer distances using the modes other than walking. This would mean that the women and children couldn't afford to spend anything on transport. They have to walk and access amenities, which are only accessible through walking. Besides, the transport disadvantage and long commute by cycle is negotiated by reducing the number of working days in a month. This practice was widespread amongst the self-employed persons in the resettlement sites.

The livelihood issues become pressing in the absence of a good transport service. Male, 36 living in the resettlement colony, describes, in the following paragraph, that earlier people would get jobs easily, when their residential location was more accessible, and now they have to make extra efforts to search for work. These extra

⁴¹ This interview was conducted in the year 2012. The exchange rate on an average was 1US\$=53 INR.

efforts mean extra cost on the household budget and it involves more hardships related to the long commute.

"Earlier, people could go out and buy goods and make things at home... you could go to Kadiya naka⁴² and you get work... or you could take out your lari (cart) and sell things. Everything was near-by. There was lot of work... no one could sit idle, even if they wanted to. Now, it is not that easy. We have to go searching for work now... sometimes to the same place. And if you reach late then the work is gone... what to do". (Male, 36)

Longer commutes were not the only issue in the resettlement colonies. Many people lost their livelihood after coming to the resettlement sites. The male members of the families have started making longer trips as their work place is either located next to their older residences or now they have found a new job in a new location which demands longer trips. Most women who could find work easily near their previous settlements have stopped working, as they don't have work easily available in the new location, neither do they have the necessary community or social networks to help them obtain work. There was no school within the distance of three km near two out of four resettlements sites studied and many children in these colonies have stopped attending school, especially girls. Every member of the poor household was adversely affected by the relocation. The women especially reacted sharply about adjustments they had been forced to make in the new way of life in the resettlement colonies.

"I always wanted to have a flat of my own but not like this. We left everything behind and we have come to a new place. Everything has changed. Earlier, everything was so near-by... even kids could run out and buys something easily. Now, we have to think before we go out anywhere. I prefer not to go out...I don't know how long this will go on. How long will we keep ourselves like this?" (Female, 26)

⁴²Kadiya naka (literally means masons' junction) is an informal labour market near the major junctions around the tea-stalls in the city. Such markets emerges on early mornings (7.00 to 8.30 am) at particular junctions where labourers, masons, plumbers and other construction related workers gather and labour contractors, small-time builders or sometimes the clients come to avail their services for small and big repair works.

"There are lots of problem here... earlier, the kids could just walk down to school in a group. We (adults) didn't have to accompany them at any time. They could go on their own. Now, the schools are so far. There is an anganwadi (child-care centre for the children below five years) here but what about the elder ones... and the teacher don't come regularly. The quality of food (in the mid-day meal scheme for children) is not good... my kids who study in 5th and 7th standards, they go in a bus... and I am always worried... everyone here cannot afford to send their kids to school now. There are no municipality's schools and private schools are so expensive." (Female, 40)

Most of the resettlement colonies are located in the outer periphery of the city, which are not well served by public transport or even shared auto rickshaw. The resettlement scheme was primarily based on providing vertical housing for squatters with water-sanitation to replace the squatter settlements in which these households were living earlier. However, the services such as transport, schooling or livelihood access were not really considered. In each colony, there is a child-care and health centre but the residents complained that those do not function regularly. Besides, there were no attempts made to provide transport or livelihood options or schooling options for the children for the displaced communities. It was reported by the participants that when these issues had been taken up with municipal officials, there had been arrogant reactions like, "We have given you flats, what more do you want?"

This clearly shows that households have started putting extra efforts into keeping themselves mobile and they have started using other options. The process of resettlement and the longer commute means the acceleration of the process of motorisation amongst the poor. Given the affordability issues, personalised mobility is not possible for everyone, even if they have a greater preference for it. This male, aged 60, has invested in buying a motorised two-wheeler for his son who is employed in a factory. He says that he could afford to borrow money from the informal market but it is not possible for everyone.

"See, I have borrowed money from the (informal) market to buy a (motor) bike for my son. Now, we will have to pay the higher interest rate (than banks) for a long time to come. Debt is always a bad thing... but that is me. I can afford the loan. The other people out here... who will give them a loan? How will they repay it? Everyone's job is gone." (Male, 60)

Another man, aged 35, also describes that he may not be able to buy a motor bike soon as they are also paying the instalments for the flat that they have got. The expenditure on various things has increased after moving to the resettlement colony and the household income has dwindled. His wife had to stop working given the longer commute and increased household responsibility after the relocation. Many people described that they have gone 'backwards' in their lives by a decade or so. This meant that the resettlement did provide them with housing and allied services but it also increased their poverty and now many households will take longer to come out of their poverty situation.

"Earlier, I used to go on a cycle to the factory. It was only 3-4 km. Now, it is 7 km. I tried cycling for a few days but it was very difficult. And there is so much traffic out there too... so now I go by the red bus. The bus is good but it takes so much of time. Firstly, I walk for ten minutes and then the bus is always late... It takes me at least 45 minutes to one hour every day. It is also expensive... it is a 15 rupees ticket, you know? I told my wife that we better buy a two-wheeler..." (Male, 35)

There were mixed reactions towards the new-found house ownership amongst the households in the resettlement colonies. On one hand some people shared their excitement about it; on the other dominant were the many complaints against the government and a dominant dissatisfaction due to lack of entitlement. The people here expected the government to do much more for them. They were more dependent on the government efforts, which they hoped for to take place soon. Both the feeling of being a victim of displacement and the feeling of the lack-of-entitlement were absent in people living in the core settlement. This attitude also impacted their ways of dealing with their mobility. Earlier, they were more in control of their lives as they could access their jobs and other amenities easily, whereas after the resettlement, they had become

more dependent on the city level transport services and they expected the government to do much more for them.

"Of course, I dreamt all my life to have a house of our own. So we are very happy about this house... it's just that there are some problems here. But you always have some problems everywhere. My brother gifted me a TV set... he was telling me to take his (old) TV for a long time but where we would keep it. So when we came to stay here, he told me that you have now become a 'flatwallah', so it will suit you now (to have a TV set)". (Female, 42)

"The government has given us a flat... but we also gave them the land in return. They are going to build a five-star hotel there... what did we get in return? What do we do with this flat? It is so far... if we don't have a job then what are we going to do with this flat? Who is going to run it (maintain it)? You can't eat it (the flat), can you?" (Male, 58)

The allocation of houses was operationalised via computer randomisation to appear to be 'unbiased' in the allocation. This has led to the complete disruption of the welldeveloped social networks and community fabric in the resettlement colonies. Life in the resettlement sites was made more difficult because many families had never lived in multi-storey apartments or paid for common maintenance bills. There were complaints about the regularity of water supply, cleaning and solid waste collection. They expected the government agencies to keep providing the maintenance on their buildings whereas the government agencies started pulling out slowly from the resettlement sites. The instances of crime like petty thefts, illicit liquor brewing-selling and gambling is increasing in the resettlement colonies. Women often blame the men who have lost their jobs or who are not regularly going for work.

To summarise the findings thus far, the resettlement colonies in Ahmedabad support the well-known urban planning discourse of transport disadvantages caused by (forced) resettlement programmes. There are great differences in the way in which poor people move or travel in the city based on their location. The core city settlements are the most accessible locations and they are most advantageous in terms of mobility.

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Living in the core city settlement helps the poor to minimise their travel distances and costs and in turn they live in more congested housing conditions which lack some basic services. Surprisingly, the situation of the peripheral squatter settlements is not much different from the core city settlements. It was assumed at the beginning of this research based on the international literature that the poor in the peripheral squatter settlements would be commuting long distances and using more motorised modes compared to the core city settlements. But the mobility patterns of the core and the peripheral settlements were similar and comparable. Most people found work nearby in the peripheral locations or they had chosen to locate there because there were livelihood options nearby.

The remarkable difference in the mobility patterns of the poor is observed when they are relocated to the far-off resettlement colonies. This is when they have to start commuting longer distances and relying on the motorised modes more. The mobility of women, children and the aged gets restricted further and the poverty situation is worsened. The attitude of minimising distances and costs in the poor gets subverted in the resettlement colonies. Of course, there are larger questions of whether there is any need for resettlement projects in the first place, and the exclusionary modalities of those projects which make the lives of the poor more difficult. But as far as the mobility issues are concerned, there are many differentials in their mobility practices based on their locations. The location advantage or disadvantage is central in framing their choices for their mobility. This aspect will be discussed further (in section 6.2) when the shelter-livelihood-transport nexus will be elaborated. The following section discusses the mobility practices of the poor based on the variations in their livelihood pattern.

5.3.2 Livelihood variations and mobility practices

The livelihood categories amongst the poor in Ahmedabad were quite diverse, as noted in Table 5-2 at the beginning of this chapter. This diverse set of activities were aggregated in aggregated into three main categories for the sake of simplification as 'regular waged', 'casual or daily wage' and 'self-employed'. The regular waged people were getting a regular salary from per month. For example, – as a cleaner in a hospital, an office assistant, a salesman in a shop, or as domestic help, etc. The casual or daily wage earners would generally be doing manual labour particularly in the construction industry, and they hunt for work almost every day. The third and the most diverse category were the self-employed people, which includes petty shop-keepers, street vendors, transport service providers, and home-based workers making various products or working in any other household-based enterprise.

Livelihood categories	Mean Mo	onthly Household I	ncome (INR)	Mean Trip lengths (km)			
	Overall	Motorised trip makers	NMT trip makers	Overall	Motorised trip makers	NMT trip makers	
Regular salaried	7372	7877	6833	5.4	7.4	3.3	
Casual - daily wage	6051	6508	5429	6.6	9.1	3.3	
Self-employed	6385	6458	6310	5.0	7.4	2.6	
Overall (working population)	6285	6626	6037	4.5	7.2	2.1	

Table 5-22 Mean household incomes for NMT-MT and livelihood

Note: This table represents the data of the working population only. The trips of transport service providers and mobile vendors are eliminated from the regular work purpose trips.

Table 5-22 shows that the mean household monthly incomes are comparatively more (INR 7,372) for the regular salaried wage earners. The casual, daily wage earners earn the least (INR 6,051). There is a significant difference in the mean monthly income of the motorised trip makers and non-motorised trip makers. The motorised trip makers have higher incomes across all livelihood categories. The same is reflected in the mean trip lengths across all livelihood categories for motorised and non-motorised trip makers. Amongst the working population, the difference in the mean trip lengths between the motorised and non-motorised trip is four-six km per trip across all livelihood categories. The daily wage earners using motorised modes travel more than nine km on average, whereas the regular salaried and the self-employed workers travel 7.4 km each. The mean trip lengths of the self-employed and the regular salaried are similar, both in motorised and non-motorised trip makers.

The education level also has a strong co-relation with the household income. Table 5-22 shows mean household monthly income across different education levels for both non-motorised and motorised trip makers. As the education level increases, the mean monthly income of the household increases. The graduates earn significantly more than the people with lower education levels. The non-motorised trip makers earn less than the motorised trip makers irrespective of the education levels (except for the university graduates). Within the group of poor households studied, both education and the livelihood options impact the income of a household. If the children in a poor household continue to study and complete graduation or similar education level than there is a higher chance for them to get a regular salaried job and probability for them to move out of poverty. Transport provision plays a crucial role in making sure that the young children continue to study without dropping out and that the regular salaried persons continues with the job without slipping back into self-employment or casual labour. Thus, transport provision fulfils a 'protective' function as well as a 'transformative' function.

Education levels	Average of Per Capita Income	Motorised trip makers	NMT trip makers
Illiterate	1198	1218	1178
Literate	1174	1209	1153
Primary education	1241	1378	1140
Matriculation/ up to 12th (high school)	1369	1384	1356
Graduate	1871	1829	2065
Over All – mean monthly h/h income	1350	1429	1272

Table 5-23 Mean per capita income for NMT-MT and education

Given this situation of employment categories and education levels, it becomes crucial to look at the mobility patterns of some of these categories to understand them in detail. Based on the various qualitative interviews of the interviewees with different employment categories, five main groups are identified to discuss in detail. These groups are casual labourers, street vendors, transport service providers, domestic help and salaried employees (refer to table 5-2 for the subdivisions based on occupations).

Casual labourers

The casual labourers were generally the poorer amongst the poor and they were both women and men. They did not have any fixed job on regular basis neither they were enterprising enough or had access to finance to their own business. Sometimes they had patrons such as petty shopkeepers or the warehouse-owners, who would employ them to load or unload goods in their shops or warehouses. The second group of the casual labourers were the workers who carried the goods in the handcarts or the threewheeler goods cycles.⁴³ The largest group was the third kind who worked in the construction industries as construction labourers. They typically assisted the masons by mixing the cement and gravel or carried bricks and other construction materials on construction sites. Every day in the morning, the construction labourers would gather at tea-stalls near a fixed location called Kadiya Naka (literally means masons' junction). There are a number of such informal 'employment exchanges' in the city of Ahmedabad located around the main cross-roads. The Kadiya Nakas typically operate between 7.00 am to 8.30 am. A set of labour contractors or individual clients come here to hire labourers for a day or for a longer period. Once they are employed for the day or for a few days then, depending upon the location of the construction site, they either walk or cycle or use the shared auto rickshaw. To get a cycle, they go to a nearby cycle rental shop after getting the work and hire a cycle to go to the work location. If the distance is closer, then they would walk. If the distance is far-off then they might be paid the fares of auto-rickshaw or bus to reach the site.By 9.00 am, depending upon the work location, most workers would have reached their construction sites. The peak hours of the motorised traffic in Ahmedabad are between 9.00 am and 11.00 am but the peak hours for these workers is between 8.00 to 9.00 am.

⁴³The issues related to this group of casual labourers will be discussed under the section titled 'transport service providers' separately.

"... Generally, work is nearby. If it is far like 10-15 km and the contractor feels that coming on cycle would delay the work, he would ask to leave the cycle, come in a rickshaw, and also pay the expenses. Otherwise, cycle is always there". (Male, 21)

"Sometimes we get work, sometimes we don't. Sometimes we get work for the continuous six months and sometimes we don't even get it for a day. If we get work then we go or we just have to sit around...so nothing is fixed about how we go around the city..." (Male, 55)

In the above quote, a 55-year old man talks about the variability and unreliability of construction work, and therefore the changing patterns of travel. There was much uncertainty in the everyday life of the casual labourers, which begins with getting work and hence their mobility changes depending upon the work location. The Kadiya Nakas are completely dominated by the men. Women contruction workers usually work with their husbands and travel with them on foot, on cycle or in shared auto rickshaw, if required. Given their uncertain travel pattern every day, the construction workers would prefer living in the most accessible and often central locations in the city so that they could reach any side of the city easily.





"... We have to live in the middle of the city. If we live one side then how do we reach the other side? So we don't want to shift from here. We have the main (labour) market here only... we go there and get the work. If everyone comes here then why do we want to move out" (Male, 55)

"... I have to cover a long distance to go to work. I have to go from

Saraspur (residence) to Odhav GIDC (work place). If I go by the red bus then it will take me 15 rupees one way, so 30 rupees every day. If I rent a cycle then it is 20

rupees for the whole day and I don't have to wait for the bus. I can go wherever I like and also finish other things on the way...I save 10 rupees" (Male, 28)

Man aged 28 talks about why cycle renting makes sense for him and he offers logic of affordability and flexibility provided by a personalized mode. Even if he has to cycle more than ten km on every working day, he ends up saving rupees ten on public transport by renting a cycle. Cycle is an important 'conveyance' for the construction workers. Many of them couldn't afford to buy a cycle, so they rent it on regular basis.

The cycle renting practices emerged as the vital service for poor male labourers. The number of cycle renting shops in the city has reduced over the years due to the declining use of cycles in everyday life, but still some shops can be found near the informal settlements or the *Kadiya Naka* from where the majority of clients are attracted. The renting rates⁴⁴ for the full day were INR 20 and for half a day were rupees 10 and these rates changed in different areas. There were no security deposits taken from the renters, as the shopkeepers would know their regular customers through the informal social networks. During this research, the interviewees also highlighted the details about the informal, used cycle market. Many poor construction workers prefered used cycle compared to a new one given the cost difference of about 2000 to 3000 rupees.

"Most people will be using 'second-hand' cycles. My cycle is ten years old. The new cycles are so expensive [about 4,000 to 5,000 rupees]. It is better to buy a second-hand cycle and get it repaired as you like..." (Male, 21)

"I would like to buy my own cycle one day... then I don't have to rely on others to give (rent) me the cycle. By Diwali, I would buy it hopefully. I am not in a condition to buy it now. I will have to save money for it." (Male, 28)

⁴⁴The labourers used typically the roadster kind of cycles, which cost about 3000-3500 INR.

There seems to be a wide practice of buying previously owned cycles which are typically called 'second-hand' (in English) cycles. Most cyclist labourers said that they have been cycling for a long time and they are going to continue doing so.

Many construction workers are 'seasonal' migrants from the villages and they come temporarily to the city when they do not have enough work in the agricultural fields. For the seasonal or temporary migrant families, it is convenient to stay on the construction sites to minimise the costs on housing, transport and other services. But there are many construction labourers who reside permanently in the city. Here, it was observed that temporary, intra-city migrations overcome distance and minimise mobility needs. If some workers cannot commute everyday then they will lock up their squatter housing and build a temporary shelter on the construction site itself. Labouring work is viewed as a family enterprise and everyone in the family contributes to it depending upon their capacity. In the absence of any effective regulations, they will be given certain basic services on the construction site depending upon the site developer. Nonetheless, this temporary shifting within the city is an extreme social practice to minimise travelling distance and cost.

Street Vendors and hand-cart pullers

The street vendors are by no means a homogeneous group: a wide variety of vending activities takes place in the streets of Ahmedabad. There are natural markets formed along the major streets specializing in cooked food items, vegetable, fruit and household items and even furniture is sold on the streets. Through the lens of mobility, the street vendors could be categorised in three groups: one, the mobile vendors who pull carts and go long distances to sell their goods from neighbourhood to neighbourhood; two, the semi-mobile vendors who are partly stationary and partly they travel to sell their goods; three, the stationary street vendors. All three categories have different economic motivations and situations for their mobility.

One female, aged 34, who lives in the core city area, pulls a handcart to collect empty bottles and cans, which she recycles. Many members from her community are involved in the recycling of waste materials. Other people collect old newspapers, magazines, cartons and boxes from the middle class-households. She walks as much as 10-15 km every alternate day along with her husband pushing a separate cart. They walk to far-off, wealthier suburban neighbourhoods to collect those materials. When asked why they have to go so far, she replies:

"Earlier we used to go to all these nearby areas but now the Marwari's (name of a community) has taken over them. To settle the quarrels, it was decided that they will take Naranpura-Navarangpura (nearby area) and we will take Satellite-Bopal (far-off areas). But these areas work for us. Lot of rich people live there and they don't negotiate the prices much and we always get a good deal..." (Female, 34)

She leaves her elder children at school and on returning from school the children stay at their neighbours' place. This participant also said that she takes care of her neighbour's children when they are far away for work reasons. The younger child accompanies her and her husband. Because she has to travel such a long distance, they do not go there every day. There was a wide practice amongst vendors travelling longer distances to minimise their working days in a week or in a month. The transport disadvantage is minimised by working fewer days per month, which results in lower earnings. Additionally, they prefer to work on the weekends as they their clients are more likely to be home resulting in good business opportunities. When asked the reasons for not finding alternative work or a job instead of continuing such physically strenuous work, she replied –

"See, we are business people. We have been doing this business for many generations. Our ancestors also did the same... from the times when Ahmedabad was not even built. We like to do business. When we do business, we decide when to go to work and how much to work. It is not like you (this researcher) that we have to go for a job every day for 9.00 to 5.00 and we get salary. We have to find our own money.

Today we find money in this then we do this, tomorrow I might sell vegetables. If we find money in something else then we will change." (Female, 34)

There was a certain pride evident in the way which she described herself as the 'business people'. Household enterprises such as this one are complex phenomenon involving family and kinship labour arrangements and their daily mobility is traded off within these arrangements. This participant stresses the kind of flexibility and sense of ownership which comes with her household enterprise. This attitude is often seen amongst the poor: that they want to be in charge of their own lives, their own livelihoods, as much as possible. This attitude is also extended in the transport realm where they prefer the use of individualised modes like walking and cycling. Such attitudes are further strengthened with the unreliable and expensive public or shared transport options. In the absence of any efficient public transport, such personalised mobility is preferred. These participants, who aspire to control their own lives, do complain and expect the government to do more for them.

There were also variations in travel patterns based on certain occupations, as in the case of the vegetable or fruit vendors. As a routine, many vendors would get up early in the morning (by 5.00 am) to reach the wholesale markets in an auto rickshaw shared collectively⁴⁵. A group has an informal arrangement with the auto rickshaw drivers to share the rickshaw on the regular basis. The handcarts are kept somewhere else: either in the wholesale market or in the nearby locations. And to keep the handcarts safe, they sometime pay rent informally to the watchmen at the market or to the property owners. After buying the vegetables from the wholesale market, they disperse in their own areas. One vendor describes:

"I get up at 5.00 am and go to the [Jamalpur] wholesale market with others. We have a rickshaw-walah who takes us there every day. He charges us reasonably. Sometimes

⁴⁵This is more like auto-rickshaw sharing (like the car sharing concept) where individuals are sharing a ride from the same destination. The service referred as 'shared auto rickshaw' service in this thesis is where the auto-rickshaws are playing on pre-fixed routes and the commuters share the ride. Both are shared transport services.

we give him some vegetables free. We have to maintain good relations, you know? From there, we put everything on our cart and come to our area by 8.00 am... Yes, pulling the cart all the way... then we do rounds in our (residential) area (to sell stuff). By noon, we go and stand at a junction. By afternoon, we hope to sell everything if it is a good day. If not then we have to stretch it till the evening..." (Female, 58)

"We go walking. We walk through the streets and get customers on the way. If the goods are sold early, we return back early and if they don't, we return late. But the goods must be sold for us to earn something." (Male, 35)

This is the case of the partly mobile and partly stationary vendors. There is a wide practice of sharing auto rickshaws to go to the wholesale markets in the morning. This is one major cost that they like to recover through their sales of the day. There is an informal arrangement of defining territories and earmarking places at the market where each individual member would be allowed to sell their goods. Informal arrangements do not mean irregularities or adhoc events: the vending activities happen in a regular manner for almost all the days in a week. There are fixed patrons-cum-money-lenders at the wholesale markets; there are fixed routes to travel in informally-assigned neighbourhoods; there are known customers and fixed places for them to station their handcarts.

The street vendors in general are one of the most mobile and diverse groups amongst the poor. Their mobility is crucial for their survival. There are wide varieties of street vending practices but most cases involve pulling handcarts to distances more than three to five km. Compared to the casual labourers, the vendors are economically better off and they are more in control of their lives.

The street vendors are also vulnerable to the police or municipal raids for evictions. The street vendors are routinely evicted to widen the roads and they are called 'illegal encroachers' in the popular media. Although there are some local NGOs, like the SEWA (Self-Employed Women's Association), which are trying to organise them and bring policy change at the national level⁴⁶, the street vendors are viewed as a 'nuisance'. Recently, about a hundred street vendors protested in front of the municipal corporation against the re-development of the historical central area where a pedestrianised plaza is being created, resulting in their eviction (Times News Network, 2013). Both the residential and vending activity locations are crucial for the street vendors as it is not feasible to travel long distances with the handcarts. The central location of the various kinds of wholesale market further makes it an imperative for them to live in the central areas. Any sort of eviction from either location creates imbalance in their access to amenities and increases in their costs, which leads to the creation of poverty in the street-vending households.

Transport service providers

Transport service providers are of two kinds: the first are the auto rickshaw drivers who drive auto rickshaws on shared and direct-fare basis for the commuters; the second are the handcart or the pedal rickshaw pullers who transport goods as casual labourers. Ahmedabad doesn't have pedal rickshaw based commuter services like some other North Indian cities such as Delhi, Jaipur and Lucknow. The table below shows the per capita income in the household and the average travelling distance in a day.

Although the sample size is small as the sampling criteria didn't seek to capture a minimum quota of transport service providers specifically, the above table is still useful in giving details about how much on average the transport service provider travels providers travel during a day. In the case of auto rickshaw drivers, there is a relation between the travel distance and the per capita income of their households. With longer travel distance, the auto rickshaw drivers seem to be earning proportionately more. However, this is only an indication of the income gained and by no means should be interpreted as their economic well-being unless the complete picture of their household.

⁴⁶*The Indian parliament* on 6 September 2013 passed the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Bill, 2012. The Bill provides for protection of livelihoods rights, social security of street vendors, regulation of urban street vending in the country.

is understood. It is notable though that this relation between distances travelled and per capita income is not visible in the case of the handcart and the pedal rickshaw pullers.

Per capita monthly Income (INR)	Auto Rickshaw	Hand Cart/ Pedal Rickshaw
2000+	71	-
<2000	60	19
<1600	62	20
<1200	51	25
<800	47	22
<400	42	20
Mean distance (km) covered in a day	56	21

 Table 5-24 Distances covered and per capita income for the transport providers

Figure 5-9 Pedal rickshaw and handcarts in Ahmedabad



photos by Vineet Diwadkar, URL: <u>http://www.gujaribazaar.org/?page_id=26</u>

Most auto rickshaw drivers who live in the informal settlements do not own their vehicles. Someone who owns a few rickshaws hires them and they are paid a salary on the basis of the fare box collection. This is not the same with the handcart or pedal rickshaw pullers who mostly own these vehicles. Shopkeepers or warehouse-owners hire them out. Handcart or pedal rickshaw pulling is a low-skill based labour, whereas auto rickshaw driving requires more skills, basic literacy and a driving license. Auto rickshaw driving is a better paying job then the non-motorised goods carriers. One auto rickshaw driver narrates:

"I was working in the Patel mill. When the mill shut down, I did not know what to do. I kept looking for work...I also thought of going back to my village. But there was no work there. One day my friend approached me that he knows someone who has an

auto rickshaw and he is looking for someone who can drive it. That time, I did not even have license. So first, I had to spend money in getting a license then only I could start driving the rickshaw. And I have been driving (rickshaw) for more than 20 years now. I have my own rickshaw now..." (Male, 56)

Talking to an auto-rickshaw driver gives an insight into how the shared auto rickshaw service works in Ahmedabad. Especially in Eastern Ahmedabad, the auto rickshaw drivers run informal, shared auto services on the major city roads. On the prima facie, this service appears to be a self-organising system which operates based on the daily demand on certain routes drawing on the driver's own experiences. If there is low demand then the routes are changed accordingly. There are a number of auto drivers who play a dual role of providing a shared auto service as well as exclusive, direct fare services in a weekly cycle. The days when they get more direct fare passengers, they run the exclusive services. The days when they don't get many passengers, they try running the shared auto service in some other known routes.

Handcart or pedal rickshaw pulling is considered better work compared to physical labour on a construction site. It is also a better paid job then work on a construction site, but it has its own uncertainties. The cart or cycle pulling job could fluctuate based on the market-demand of goods and their seasons. Besides, the goods auto rickshaws and small commercial vehicles are rapidly replacing the handcarts and pedal rickshaws. Such non-motorised carriers are more restricted to some of the older areas of the city, where manuovering is difficult for the motorised modes. A pedal rickshaw puller narrates his experience of cycling:

"Earlier, there was not so much traffic. It was easier to go... If you shout or whistle (to give a way), people would listen. Now a days, who would listen? There is no respect left... and all these big bridges [fly overs]... they are all good 'development', I agree with that... but it is very difficult for us to cross on a (pedal) rickshaw. I tell the customers that if I have to cross them (on my route) then you must pay me more..." (Male, 48)

The above cited interview excerpt provides an unusual critique to the motor-vehicle centric road building and total negligence towards the non-motorised modes in the city. Interestingly, the risks and efforts to cross a flyover are mitigated by a regular practice of negotiating the fare of the pedal rickshaw trip. Such negotiations are crucial to understand the mobility practices of the poor pedal rickshaw puller. The auto rickshaw drivers are a more organised, politically vocal group. In the last decade, they have been successfully converted to their engines to Compressed Natural Gas (CNG) from diesel with the support of government subsidies. In contrast, the handcart and pedal rickshaw pullers are not organised, are more vulnerable as they are a relatively smaller group in the city. They are also more exposed to the risks caused by motor traffic.

It is important to note here that a diverse set of livelihoods is linked with the regular use of (two-wheeler) cycles amongst the self-employed workers. These are not typical transport service providers but they use their cycles innovatively to earn their livelihoods. A bicycle is not only a transport mode but also a goods carrier and a tool to provide their services. To give some diverse set of examples – bicycles are used by milk and newspaper sellers, the knife sharpers, cobblers, key-lock repairer or duplicate key makers, flower-garland sellers, juice-sellers, home-made food sellers, plumbers, electricians, masons, postmen and many more kinds of livelihoods are associated with the regular use of bicycles. In some cases, the wheels of cycles are innovatively used to generate motion to sharpen knives or to make fruit juice. Many such practices go unnoticed and the diverse use of cycling is rarely documented in the conventional transport studies. Such practices are constantly being marginalised by the growing use of motorised vehicles.

Domestic help

"I never thought I would work in people's houses. I never did much of housework in my father's house. When I came here after my marriage, it all went on well for couple of years. Then our situation started getting worse. I thought I should work to help him [the husband]. My mother-in-law said no (to me working) but we had problems even eating

two proper meals. I had to start the work. Our relative who was already working got me some work and I have been working for seven to eight years now. Our situation is much better now." (Female, 38)

There are gendered notions of livelihood appropriation and how a working woman sees herself as 'helping the husband' and not the equal wage earner. The work of a typical domestic help is to clean (sweep and mop) their employer's house, wash cloths and clean utensils once or twice in a day. Both women and men work as domestic helps⁴⁷. If one person works in at least three houses then that person would earn enough (INR 6,000) to push the household just outside the margins of the official poverty line⁴⁸. So it is considered a well-paid job where there is pre-fixed but part-time working involved. This was a popular job amongst women in the informal settlements are not literate enough to do other jobs. This female, aged 41, describes her typical working day:

"I get up at 5 in the morning and start doing the household work. I cook and get everything ready... then I go to work in different houses by 7 am. I work in two houses then and I return at about 8.30 am and finish cooking. Then again, I go to one more houses at 11 am and finish that work. Then I come back home to give lunch to my mother-in-law. She helps with the kids and sends them off to the school in the morning... again in the afternoon; I make one more round of work to clean the utensils after the lunch. And I come back and start cooking for the evening meal at 5 pm. that's my day..." (Female, 41)

The above description of a daily routine gives insights into the amount of hard work, tight scheduling and multiple trips taking place between her own house and the other houses where she works. Her service and presence is crucial not only for her family but also for other working people in the other houses to reach their jobs on time. To maintain the balance between her household responsibilities and the demands of the

⁴⁷There is a distinct pattern about the men who work as domestic help. The male migrants from the Dungarpur district of the adjoining Rajasthan state work as the domestic help in various houses. It is rare to find a male domestic help in Ahmedabad who is not from Dungarpur or South Rajasthan. Women from various communities and castes work as the domestic help in different areas. Such diversity of socio-religious background is not seen in case of the men who work as domestic help.

⁴⁸ Each of this is counted as 'one work' and they are paid per work about INR 500 to 700 (Year 2012) depending upon the demand. In addition, they are also paid occasional bonus in the festive days.

jobs, she has to move quickly between her job locations and her house. She walks to all the places and she cannot manage if the job shifts out of her 'comfort zone' walking distance. This is when the location of her house and other houses become very crucial for her to function. She still ends up walking about six to eight km daily. But how often does she find work within her 'comfort zone'? When this question was put to someone working in the core city area, the following answer was given:

"We always find work. We are living in a good locality. There is everything here. There are so many societies (housing colonies) here...that there is always work. Many times, I have to refuse work if it doesn't suit me (financially or in terms of time)..." (Female, 32)

People living in the core city areas never complained about not finding enough work. As the above respondent says, there are middle-class housing colonies around where one to could find work. This is largely due to the nature of mixed land use and mixed housing scenarios in many Indian cities such as Ahmedabad. There are always some jobs available in the core city areas for poor people. This situation changed in the case of the resettlement sites and other out of centre locations where the 'easily available work' became difficult to access. And in such cases, the women were first to drop out of the job market and the children would drop out of the schools.

Many male migrants from South Rajasthan who are working as domestic help try to find shared housing near their job locations in the middle or upper-middle class colonies. They try to locate any shared rooms in a nearby informal settlement for rent or they even find more expensive spare rooms in the middle-class colonies in vacant houses. And unlike the women who work as domestic help, the men cycle to reach a greater number of destinations and jobs. This is another example of how poor workers seek to avoid transport or traveling distances become a problem for them by mitigating such situations by locating themselves in more accessible places.

Regular (salaried) employment

Out of the total population of 3,002 people surveyed, about 304 men had regular, salaried jobs whereas only 76 women had regular, salaried jobs. And about a similar number of women and men were employed in the casual, daily wage jobs. Table 5-25 shows that there is still about 50 per cent dependence on the non-motorised modes for the regular employment trips. About 44 per cent of trips take place in the shared and public transport modes. So the majority of the poor households continue to use non-motorised transport even after getting the regular employment. The long distance trips (seven km and above), in case of the municipal bus and the motorised-two wheelers, are only total 17 per cent amongst the regular employees.

Earlier it was observed in Table 5-24 that people employed in the regular jobs are economically better off than the rest of the population. During the qualitative interviews, it was found that the regular salaried jobs may not always be in the close vicinity of the informal settlements, unlike many other informal jobs. The informal (casual or selfemployed) jobs were relatively easy to get given the social practices related to such jobs. For example, if a family member wants a household enterprise of vending, the person has to volunteer and start working. In contrast, finding a regular salaried job means doing something different or extra compared to other jobs. The workers will have to get out of their 'comfort zone' of walking and start exploring livelihood possibilities beyond that. This also means such workers make longer trips to access their job locations. With regular and salaried jobs, the financial capacity of the worker increases to afford public or shared transport options.

	Walking	Cycle	AMTS	Shared Auto Rickshaw	Multiple Modes (NMT + public transport combination)	BRTS	Auto Rickshaw	M2W	Total
Female	33.9	3.4	11.9	18.6	27.1	0.0	1.7	3.4	100
Male	17.0	34.7	11.7	9.8	18.9	0.4	1.1	6.4	100
Total	20.1	29.0	11.7	11.4	20.4	0.3	1.2	5.9	100
Mean trip	1.3	4.9	10.2	5.6	5.8	6	6.6	8.5	5.1

Table 5-25 Mode use distribution in the regular employment trips (percentage trips)

However, the tendency to minimise the transport cost doesn't go away completely. The use of cycling amongst men increased in the case of regular salaried job compared to other kind of jobs. Except for the pedestrians, the remaining trip makers travel within five to ten km for regular employment. However, some of the qualitative narratives suggested that there is nothing 'regular' about trips made for the regular employment.

"Nothing is fixed about my coming and going (to work). I work in LG [hospital]... and it is about 4 km from here. Sometimes my husband drops me [on cycle]; otherwise, I walk until the junction and take a shuttle. On some good day, I get the red bus... it's cheaper than the rickshaw. And the shuttle drops me right at the gate (of the hospital). In the red bus, I have to walk a bit. On some days when I have time or if I have a company while coming back, I just walk all the way... in which case, I can buy some vegetables (or ration) on the way back (for the evening meal)" (Female, 41)

The above narrative offers a case of everyday changing travel pattern but it also suggests that the changing pattern is primarily because of the deficiency of public transport available. The unreliability of the bus service affects the commuters who instead of fully relying on the bus service make other arrangements. Ideally, they would not mind going by bus on a regular basis if it was reliable and affordable. Instead they make other choices and keep looking for alternative ways to reach their destination. Getting into regular employment activities from any other categories requires efforts or learning new skills among the poor. Regular employment is also a more dignified job if not always the best paid compared to the previous employment.

"I used to work in people's houses (as domestic help)... about 4 years back. When this (garment) factory was built here, I got a call from my friend that they are some jobs here. It was not a lot of money but this was a 'proper job' and I will get a uniform. I did not want to be a domestic help all my life. So I joined here as a cleaner. Then I told the boss that I want to be in packaging. I know how to read-write; they gave training for that (packaging). Now I want to learn stitching and move up, then it will be all good." (Female, 36)

It is also noteworthy that for this woman her mobility was not a very big concern as she lived within two km of her workplace. She walks to work. Earlier as a domestic help too, she would easily find work in her zone of walking distance. Such advantage of finding jobs in residential and industrial areas in the close vicinity of her house comes from the fact that she lives in an area which has mixed land-use with a wide range of mixing of urban activities. Given this advantage, she could transit easily from an informal job to a formal job. But such advantages of location are not available to everyone.

"I live here in Rakhiyal and I have to go to Drive-in Road. I work as a (security) guard in a mall. I used to cycle earlier but I get very tired doing that. So I started using the bus. I have to start really early from home and then I catch a bus to LalDarwaja (central hub for the municipal buses) and change a bus there for Thaltej. It takes me one – one and half-hour every day. Lot of time goes in waiting and I have to reach in time or I lose my half day's salary" (Male, 51)

The above quote is from a person who is a 'captive user' of the municipal bus service and travels about 11-12 km every day. For him, a salaried job means travelling long distances in the municipal bus. He also said further that he doesn't take a duty in certain hours, which are better paid because he is not sure of getting the bus. He also said that he doesn't want to go back to his job in a factory and he likes his job, which is now less labour-intensive. But for him, making a better employment choice comes with the captivity of longer commutes. Although the salaried jobs are better options of employment, they may not be an option for everyone due to the mobility options available to the poor, it. This dilemma was observed amongst many others as well. The regular salaried job means long working hours, longer commutes and less time to take care of the household duties or the time with the family.

5.3.3 Gender and mobility practices

Like livelihood options and residential location, gender provides an important social frame to look at the mobility of the poor. Gender roles and their social positioning are important factors within a household to influence choices individuals make including

that of their mobility. The gender disaggregated quantitative data presented in section 5.1 supports the claim that mobility is skewed between the genders. It was observed in section 5.1 that the trips by poor women were dominated by walking and that they travelled shorter distances compared to men. Amongst the poor in the city women experience more mobility constraints compared to men. Amongst the poor in Ahmedabad, women study less, work less and travel less compared to men in the same population group. Mobility is gendered, so is work and education, amongst other things in their lives: women's mobility constraints need to be seen in a larger scheme.

The mode choices by women and their social dynamics provide an apt explanation to understand gender and mobility linkages. One major difference observed in the quantitative dataset between men and women in is the use of cycle. Men use cycles, whereas women do not. In the overall group of poor people, walking and cycling trips dominate their total trips in a range of 55-70% based on various other attributes. In case of women, these trips are mainly walking trips whereas for men the non-motorised trips are divided between walking and cycling. So the question here is why poor women do not cycle in Ahmedabad whereas men cycle to work and to other destinations? It is possible that in a society dominated by patriarchal social norms, having a personalised mode of transport is linked with giving a certain kind of 'freedom' and such 'freedom' is not encouraged for women in general. However, this is not the case at least with the *motorised* two-wheelers in Ahmedabad, which are extensively used by women who are not poor, albeit that they are from a different socio-economic background. Does this mean that the poor are more conservative about women's mobility options than the other income groups in Ahmedabad? Patriarchal values or the imagined subsidiary position of women in a household do not completely explain the non-use of the cycle amongst the women. Many times it is observed that such attitudes of restraint are re-structured and negotiated if they are against the logic of economic benefits or better resource use. The use of cycles might help the poor women go longer distances and have more options for their jobs than what they can access by

walking. This is also observed in the case of the cycling men, that they cover longer distances as trips compared to men who are walking. So despite having access to cycles relatively easily, why do poor women refrain from using them? This question was asked to various women and there was no one clear answer to this mystery.

There were many reasons deliberated by this researcher based on the responses of women participants for the non-use of cycles amongst the women. Firstly, there is a high level of malnourishment amongst poor women in the state of Gujarat (which is otherwise industrialised and urbanized compared to other states). It is possible that poor women do not have the physical stamina to go longer distances on a cycle and they find walking more convenient. Secondly, there were issues of road and social safety, and subsequent vulnerability against other vehicles and other people on the streets. There are both, perceived and real dangers related to cycling. Women somehow feel that cycling is more prone to vulnerabilities compared to walking or other modes and they have expressed so in different interviews. Thirdly, the kind of clothing (such as typically a *saree*) worn by the women in most settlements wouldn't make it convenient to cycle. However, the patriarchal values and the social position of women do form an important background within which these different reasons operate. Some women also said that they would be looked down upon or commented upon if they are seen to be either as mobile as men or if they are the 'outgoing' types.

In the qualitative interviews, women did mention that cycling is not 'convenient' and they all laughed at the idea of women cycling the city, but couldn't give clear answers about why they do not prefer cycling. So it will be assumed that the combination of the reasons given above in the larger context of dominant patriarchal values could give an explanation about the non-use of cycles amongst the poor women. Some women did say that given a choice, they will be fascinated to use a motorised two wheeler instead of a cycle. The non-use of cycling amongst women is also linked with the other observation that the idea of personalised transport mode for women (whether cycles or

otherwise) is not encouraged, especially when the personalised transport modes are difficult to afford. There is a strong affordability link to the non-used of any personalised mode operating within the social context of patriarchy. Whenever a poor household could afford a personalised mode such a cycle or a motorised two-wheeler, the first claim on its ownership and use is reserved for the men in the house. It was also observed that the women typically aspired for their husband, son, brother or father to have a motorised two-wheeler and to have better mobility. When asked about themselves, they would answer that they don't need to go too far, so they simply walk to their destinations. The patriarchal values were observed to be deep-rooted in the women as well, as they saw themselves – at least in this case their own mobility – as subservient to the men and their mobility options. Some men also displayed their protective' attitudes by saying that they like to drop or pick-up the women of their household so that they do not need to walk. Whichever household amongst the poor could afford a motorised two-wheeler; it would become a symbol of higher social status, power and wealth for the household. The men in such households would be considered 'successful' and the women would be the proud back-seat rider.

This patriarchal and gendered attitude to mobility extends to other modes as well. The men were considered to be the main breadwinners, so their mobility was important within a household. So even if they could not afford the personalised mode of transport, the men had a 'right' to spend on the motorised mobility such as public bus or shared rickshaw. This was despite the fact that in many households the women earned well and sometimes more than the men. Working within the constraints of walking shorter travelling distances and even after managing the household responsibilities such as cooking, child-care and shopping, the women provided an important share of the household income. There are social expectations from the women to balance household responsibilities with work responsibilities. Many women have to work in near-by locations and keep their schedules flexible enough to take care of household or childcare responsibilities. This not only restricts the mobility choices of

a woman but also her livelihood choices. There were instances where the women narrated that they often were not 'allowed' by their husbands to work. As in the case of the 38 year old woman, who was saying that she was only 'allowed' to work until ten years of her marriage. Only when the household income had stopped due to the illness of husband, she could start working as a domestic help.

Many interesting social practices related to childcare were observed in the poor neighbourhoods. In households where both the husband and the wife worked, childcare was an issue. It was sometimes resolved with support of neighbours or kin. For a working mother employed in a regular job, the children would stay at a neighbour's place during the afternoon along with the other kids. If the mother had flexible job hours and if she worked in a nearby area, then she could come back to look after the children when needed. All these various kinds of calculation and logic had to be negotiated by the women while deciding upon their job locations and mobility options. As a drastic measure, sometimes the children were sent off to the grandparents' house in the village so that the husband and wife could continue to work and survive in a city.

Many women mentioned (Section 5.2) that they sometimes prefer to walk instead of waiting for the bus or a rickshaw. Beyond the question of financial affordability, this preference is also borne out of the fact that they cannot afford to spend time waiting for the motorised modes. It is a better deal to walk for 30 minutes and cover about three km rather than waiting for an uncertain period for the bus or rickshaw and then spending money on transport. Poor working women are also 'time-poor' where they have to quickly manage their transition from the social to professional roles and notably, the most reliable mode for them is walking. With walking, they were sure to manage their travel time, as they don't have to rely on any external agency for their mobility. Given the fact that they were not traveling long distances, unlike in many other large cities around the world, they could manage their daily travel distances by walking.

5.4 Conclusion – negotiated mobility practices

The chapter has presented the mobility patterns and practices of the poor and explained how the mobility of the poor is best understood through their negotiated practices. In the beginning of the chapter, the quantitative analysis presented the following:

- Out of the total 3428 trips recorded of the poor residents, 62 per cent were the nonmotorised trips, 34 per cent were public or shared transport trips and only 4 per cent were trips by private modes, mainly motorised two wheeler.
- 2. 65 per cent of trips by women were by walking whereas 34 per cent of trips amongst men were by walking and 22 per cent were cycling trips. The walking trips were typically short trips with mean trip length of less than 1.5 km. The majority of the poor did not spend any money on transport.
- The mean trip lengths changed significantly with the changes in the mode. All motorised trips in public and shared transport had mean trip lengths of five to nine km.
- 4. The municipal or public bus has a long waiting time of 25 minutes whereas the shared auto rickshaws were more reliable and cheaper compared to the public bus.
- 5. Work and education trips dominated the trip purpose with 55.2 and 29.4 per cent respectively. The social or recreational trips were meagre 2.1 per cent and the shopping and other household errands were 11 per cent.
- 6. Trip length and trip expenditure had a strong co-relation whereas household income did not have strong co-relation either with the trip expenditure or trip lengths. Within the group of poor people, the differences in the income level did not alter their mobility pattern significantly.
- 7. The mean monthly income of the motorised trip makers was more than that of the non-motorised trip makers across all the settlements. However, the poor public

transport users are incurring more cost per month on transport. That leaves them poorer as compared to the non-motorised transport users in terms of absolute income.

- 8. Compared to the settlements located in the core city and the periphery, there was an additional burden of motorised trips in the resettlement sites. The mean trip lengths for work had increased to 9.4 km compared to 4.4 km and 5.5 km in core city and the peripheral settlements.
- 9. The regular salaried employed people earned more compared to the other groups such as the self-employed or the casual workers. But this did not mean that they travelled more compared to the trip-makers in other livelihood categories. In fact, within all livelihood groups, there was a great difference in the motorised trip makers and the non-motorised trip makers.

The qualitative narratives not only corroborated many quantitative findings but they also presented the nuances related to mobility of the poor in Ahmedabad. Figure 5-8 maps a range of social practices recorded as part of the qualitative interviews. These social practices are structured as resources (and their constraints), competencies (and their barriers) and deeper social meanings. There was tacit knowledge, collective know-how, underlying assumptions and reference patterns of others when it came to making important decisions around one's mobility in the city. The resources and their constraints related to mobility were the most important in poor people's lives. There is a great sensitivity to the transport costs. There were tendencies to minimise transport costs as much as possible or to eliminate them completely. A lot of negotiations and adjustments were made to make transport costs minimal. Walking and cycling is functional but these modes are used also to continue to resist any form of motorisation as it incurs transport costs. However, walking and cycling was not always pleasureable experience for everyone and some problems were also described related to commuting long distances.

Figure 5-10 Mapping social practices around mobility of the poor



A second set of resources were access to transport modes, whether public of private. The choice dynamics around transport modes were complex. Private motorised modes were unaffordable, public and shared modes had their own issues of reliability and affordability and thus, walking and cycling were the most common way of moving around the city. These mode choices also bring to light the limitations of distance and time spent. The purchase cost of cycle was not affordable to some people and they were relying on buying used cycles or using the cycles on rent. Any vehicle was seen as a household asset and a sense of pride was associated with it.

There were larger structural issues, which influenced the competencies or capabilities of the poor in everyday life. Poor people were struggling to overcome economic and social barriers related to livelihood options like education level, skills development, social positioning, which impacted the kind of jobs individuals could take up or not. There were spatial barriers being exaggerated by the lack of efficient transport options. There were information barriers not only in the transport realm but also in dealing with urban governance in general regarding any issue of housing, infrastructure, transport or legalities. All these barriers were finally part of the political barriers of not being able to deal with the government and the elected representatives effectively and feeling completely disenfranchised. Lastly, there were a number of interesting meanings and associations developed around one's mobility – mode-linked identity formation, self-projection and posturing around righteous practices.

Mobility is a negotiated social practice rooted often as household strategy or individual choice. Mobility options are an important consideration while navigating through livelihood options or job locations, especially for women. Convenience of mobility often determines where to live, where to work or what kind of jobs to look for. In this sense, the mobility practices are linked with poverty. Trade-offs were made around minimising travel in the city in most cases. Besides, poor people in the accessible locations didn't want to take risks and experiment with their job options. They often followed the

livelihood pattern and thus established social practices to access the city. A construction worker would follow the example of other construction workers in seeking work and moving around the city. The mobility related social practices were developed and repeated as collective actions.

The issue of mobility becomes relevant or irrelevant in a poor person's life based on her/his *locus*. This chapter finally analysed how this 'locus' could be geographic (residential location based), social (gender based) or economic (livelihood based). Based on this locus, trade-offs were made and their mobility was negotiated. The location, livelihood or gender-based discussion of mobility practices provides diversities and complexities of these practices within the group of poor people. To what extent these negotiations help the poor get out of poverty is analysed further in the next chapter.

6. Moving out of poverty and the role of sustainable mobility

Mobility of the poor can be facilitated by adquate infrastructure provision and transport supply. This infrastructure provision is important not only to generally increase the mobility of the poor in the city but it should help them move out of poverty in a sustainable manner. This the central theme of the current chapter which analyses the second research question about 'How do findings about the mobility and accessibility of this group of urban poor inform policies for poverty alleviation and sustainable mobility?'. This second research question is supported by two sub-questions as the following:

- a. To what extent does the city's transport system facilitate or constrain the mobility and accessibility of the poor?
- b. How do mobility-related negotiations influence aspects of moving in and out of poverty and how can they be supported by policy?

This chapter analyses these two specific questions and related issues based on the analysis of the primary qualitative and quantitative data for Ahmedabad, earlier used in Chapter 5. Two different subsections of this chapter (6.1 and 6.2) respond to the two sub-questions whereas Section 6.3 combines the outputs to further answer the main research question about the implication of the data analysis on the debates related to poverty alleviation and sustainable mobility.

6.1 The role of transport provision and urban governance

The Municipal Corporation of Ahmedabad is responsible for planning, mananging and operating the (public) transport system in the city as per the constitutional and legal

mandate⁴⁹. Looking at the most prominent mode use of the poor in Ahmedabad in Chapter-5, the issues with the official transport provision or supply are divided into two sections for further analysis; one, public transport including the BRT and two, the non-motorised transport infrastructure.

6.1.1 Bus rapid transit and public transport in Ahmedabad

The Bus Rapid Transit project of Ahmedabad is one of the largest networks of bus rapid transit in the country. In fact, the share of Ahmedabad's BRT route network in the total BRT network operating in the country is more than 80 per cent. All other cities in India have not been able to expand the BRT as a network like Ahmedabad; they have isolated BRT corridors in operation with no expansion taking place. Ahmedabad has developed 82 km of network in the last seven years with the total cost of INR 10 billions and there are 0.15 millon commuters using the system per day (Times of India, 2014). This national government-funded BRT project was seen as a strategic intervention that seeks to improve the public transit in the city. The BRT proposal was tabled with the intention of introducing a network of 155 km, with Phase 1 developed in the Ahmedabad Municipal Corporation area of 58 km, attempting to induce modal shift and to improve road infrastructure.

As discussed in Section 5.1.1, use of the BRT by the poor is negligible. In order to investigate this further, three settlements surveyed as part of this thesis which are located in close vicinity to BRT corridors were studied in detail. Santoshinagar na Chhapara (North, near Naroda), Hanuman Nagar (East, near CTM) and Sanjay Nagar (West, near Sola housing) are located within the 200 meters of walking distance from the BRT bus stop. In total, 117 households were surveyed in these three settlements. Even within these households, the use of BRT was found to be negligible.

⁴⁹ As per the Bombay Provincial Municipal Corporations Act of 1949 further amended in the year 1999 and the 74th Constitutional Amendment Act of 1992, which allocates the urban (transport) planning function to the city government.

Settlements close to BRT (within 200m)	Walking	Cycle	Hand Cart/ Paddle Rickshaw	AMTS	Shared Auto Rickshaw	BRT	M2W	Auto Rickshaw	Overall
Female	70	1	0	13	12	0	1	2	100
Male	28	21	1	19	16	1	7	6	100
Overall	44	14	1	17	14	1	5	4	100

Table 6-1 Mode share in settlements located along BRT corridors (percentage trips)

Table 6-1 presents negligible use of BRT amongst the poor households residing in the settlements next to the BRT corridor. The table shows that in the settlements closer to the BRT corridors, the mode share pattern resembles the overall mode share pattern discussed in Section 5.1.1 and Table 5-4. Non-motorised trips dominate the mode share in these three settlements followed by the shared auto rickshaw and the municipal bus. When the data for this study were collected in 2011-12 the BRT network was 45 km in total. By September 2014 it has been extended to 82 km but the ridership of the system had not increased in the previous three years (Times of India, 2014).

One master's thesis (Khanna, 2009) dramatically asks - 'who are the (real) gainers and losers of the BRT in Ahmedabad?' This work discusses the economic analysis of the project and the distribution of its benefits (time-cost savings, safety, pollution reduction). It considers consequences across income groups and spatially by calculating Gini and Theil's index for the 196 traffic analysis zones (demarcated by the year 2000 survey data). This study concludes that the higher income groups located mainly in Western Ahmedabad accrue the largest proportion of the BRT project benefits compared to that group's proportion of households in the city and on the same basis the poor households gain the lowest level of benefit from this project. Based on the economic analysis of the project and implementation process, Khanna goes on to claim that the BRT is a 'regressive project' and it will increase inequity in the city (Khanna, 2009: 71, 73). However, Khanna's work suffers from the non-availability of the baseline data, both on the spatial distribution of the income groups and heterogeneity within the traffic analysis zones. The study only takes in account direct

project benefits such as the actual use of BRT system and not so much the indirect benefits of developing the non-motorised infrastructure. Apart from the methodological and data issues, the typical cost-benefit analysis may be useful in deciding the effectiveness of the investments in the public transit projects, but it is not the best approach to understanding the distribution of benefits amongst the different socioeconomic groups. Giving verdicts such as 'regressive' even before the BRT was operationalised in October 2009 is far-fetched and to view the BRT project from the prism of mutually exclusive categories of 'gainers vs. losers' is also limiting the nuances of the social issues in the transit-related debates.

BRTS is intended to be not only exclusive bus services run in the carriageway median but also a comprehensive system benefitting various users of public transport, cyclists and pedestrians (Deng & Nelson, 2011; Suzuki, Cervero & Luchi, 2013). The present researcher was involved in a study (Mahadevia, Joshi & Datey, 2012) which looked at two aspects of the BRT project: one, the socio-economic profile of the BRT users to understand the social outreach of the project and two, the use of corresponding infrastructure for walking and cycling along the BRT corridors to view the benefits of the project in totality. The discussion on the second component is given in Section 6.1.2 and the socio-economic profile of the users (sample size 1080 respondents) of the BRT is highlighted here in Table 6-2.

Household Monthly Income (INR)	Perce	Sex ratio of		
	Male	Female	Persons	users
Upto 2,500	1.7	1.7	1.7	285
2,501-5,000	12.7	9.8	11.9	292
5,001-7,500	12.1	8.0	11.0	253
7,501-10,000	13.9	11.2	13.2	305
10,001-20,000	28.2	27.6	28.1	371
20,001- 30,000	12.5	16.4	13.6	500
30,001- above	18.9	33.2	20.6	400
Total	100.0	100.0	100.0	379

Table 6-2 Income and gender profile of BRT users

Source: Primary survey, CUE as presented by Mahadevia, Joshi & Datey (2012)

Mahadevia, Joshi & Datey (2012) surveyed the BRT users to examines that although the BRT system is promoted as low-cost public transport in Indian cities, it is not yet accessible to the urban poor and in particular women among them. This is especially the case where there are large numbers of slum squatters and low-income housing in close vicinity to the BRT corridors. Of the total users, only 13.6 per cent belong to household incomes of up to INR 5,000⁵⁰. Just one-fourth users had monthly incomes of up to INR 7,500 and 62.2 per cent were with monthly incomes of more than INR 10,000. Largely middle-income groups are using Ahmedabad BRT with monthly incomes between INR 10,000-40,000, wherein half the users fall. The cost of the BRT is higher than the cost of the alternative public transport system, which is the municipal bus (AMTS) or the shared auto rickshaws. The study by Mahadevia, Joshi and Datey (2012) corrobarates the findings of the quantitative component of the current thesis that the BRT system in Ahmedabad does not improve the accessibility of poor households. However, Mahadevia, Joshi and Datey (2012) did not seek responses from the poor regarding why they do not use the BRT with either quantitative or qualitative methods. The present thesis does analyse those narratives; from participants living in the areas nearby the BRT about why they do not see BRT as a relevant proposition for them -

"Yes, it (BRT) is a good... its goes very fast but I can't use it. Too expensive tickets... once in a while it is good to go out but it's not every day..." (Male, 21)

"Why don't I use BRT? Because I have my cycle. It takes me where I want to go and it doesn't cost... the BRT doesn't go, where I want to go..." (Male, 42)

"This new project is good, there is lot of development all round... but we don't need to go in BRT everyday. See, the trains are good too. But do you go in the trains everyday? No, you only go in there when you want to go far away..." (Male, 62)

⁵⁰ As per the National Sample Survey's (NSS's) Consumption Expenditure data of 2009-10, about 50 per cent of the urban households fall in the monthly household income category of up to INR 5,000 (NSSO, 2011). Hence, it can be safely assumed that about 35 per cent the households will fall below incomes of INR 5,000 per month or less in Ahmedabad. This is also be close the official poverty line of the Gujarat state of INR 4800 for a household size of 5 (INR 32/capita/day).

The last quote especially represents the 'wisdom' of using BRT sparingly as if it is a regional transport facility, so it can be used only when one wants to travel to a far off destination. BRT has expensive fares for the poor. So, the poor are using the biggest sustainable transport initiative in Ahmedabad very lightly, and in many cases not at all. The reasons given in the above narratives are expensive tickets, unsuitable routing or the exclusivity of the system. But a section of poor households do use the public bus (AMTS) and the shared auto rickshaw for their daily mobility as discussed in the earlier chapter 5. The planning of the BRT network could have facilitated the mobility of the poor, if the system had been planned comprehensively and included improving the regular bus service and the informal transport in the city simultaneously, as attempted in the case of Johanesberg (Venter, 2013). Unfortunately, the public transport systems (AMTS and BRT) are not yet integrated with each other in terms of physical access, fares, ticketing and routing. The public bus (AMTS) does not use the segregated corridors made for the BRT project instead on certain corridors both kind of buses run parallel to each other being counter productive for the ridership of both the systems. As noted in Section 4.4.1, The AMTS services are depleting since the BRT has taken a lot of the attention and human resource of the authorities. The shared auto rickshaw is another reliable transport options for the poor, but the traffic police and the municipal authorities view it as a 'menace'.

It can also be argued that even if a mass transit system like BRT is not directly serving all income groups in the city, if it results in modal shift from private vehicles to public transport then it will result in overall indirect benefits to the city, including for the poor. However, the stagnation of ridership growth in the past three years, in spite of the doubling of the network length, is an important indicator that the BRT has not yet been able to realise its full potential in capturing transport demand even amongst the middle-income groups. Cervero gives reasons for such short-comings in the case of Ahmeabad BRT through two of his recent works (Suzuki, Cervero & Luchi, 2013; Cervero & Dai, 2014). The first one (Suzuki, Cervero & Luchi, 2013) is a World Bank

publication, which balances critical commentary with praise for the planning efforts in the city. But the second publication (Cervero & Dai, 2014) is more candid about the short-comings of Ahmedabad's BRT when compared with Bogota's BRT. Cervero highlights that near-term mobility gains in Ahmedabad BRT took precedence over shaping the long-term urban growth and thus the sustained ridership of the system (Cervero & Dai, 2014, p.133). The policies of land use integration with the BRT system are not clear and little attention has been paid to the perpendicular (feeder) connectors to the BRT (ibid, p134). Moreover –

"No secondary feeder systems were designed at the time Janmarg was built to ensure efficient and safe pedestrian, bikeway, and transit connections to mainline services... what few pedestrian ways exist near Janmarg stops are often occupied by motorcycles and fast-moving three-wheel vehicles." (Cervero & Dai, 2014; Pg.135).

There has been larger debate in the country about the benefits of closed and exclusive BRT systems, such as that of Ahmedabad, (Pai & Hidalgo, 2009) against open and shared corridor systems such as that in Delhi (Gandhi, Tiwari & Fazio, 2013). The key argument being the closed system helps in faster operations of buses and avoids bunching up of buses at the junctions were as the open system was supposed to have more flexibility to go in and out of the segregated corridors. Beyond this bi-partisan debate in India, Alan Gilbert, taking an example of Bogota, argues that BRT system planning is a continuous process where the settlement of the poor needs to be integrated physically and the poor households need to be included by making the fares affordable, by equitably distributing the transport subsidies across the income-classes (Gilbert, 2008, 2013). Both the qualitative narratives and the quantitative findings from the poor in Ahmedabad suggested that planning comprehensively for an efficient and affordable bus-based public transport system would benefit the poor.

The planning of Ahmedabad's BRT was potentially an opportunity also for reviving the AMTS by creating an integrated bus-based public transport system for the city. AMTS

carries about 0.8 million commuters already and the existing public transport users would have benefitted from the further improvement of the overall bus system. The BRT and AMTS are planned, implemented and operated by the same government agency – the AMC. So the AMC does not need to rely on co-ordinating with other agencies or to seeking a legal mandate from the state government to undertake integrated planning. The combined planning for AMTS-BRT integration could have been managed within the purview of the AMC itself. This integration would have helped the mobility of the poor the most, as it was also claimed in the detailed project (proposal) reports for the BRT.

Besides not being the favoured mode of the poor, the BRT project has directly impacted the lives of the poor by forcefully evicting about 2,600 families to enable construction of a number of corridors of the BRT network - mostly in the Wadaj, Chandola Lake, Dani Limda, Khodiyar Nagar, Shah Alam, Jamalpur, and Soni ni Chali areas (Figure 6-1). At the time of the evictions it was claimed that this was for routine road-widening based on what was proposed in the development plan of the city. But this road-widening never took place for over a decade until the BRT project was proposed. The BRT project may not be the sole reason for the evictions but it was surely a trigger. All the displaced families were relocated in the resettlement sites on the periphery of the city – some of which were studied in detailed as part of this PhD project (Section 5.3.1). In addition, a local NGO working with street-vendors - SEWA Union (2010) - has documented how the BRT network development has displaced more than 2,000 vendors across the city. Many of them have relocated themselves to side streets along the BRT corridors.

Ahmedabad BRT raises a very pertinent concern, of treating public transport as a narrowly-focused technological fix rather than a project to achieve wider urban or social objectives. The examples from Bogota and Johanesberg (Gilbert, 2008; Venter, 2013) show that to achieve the wider social objectives of facilitating the mobility of the poor
requires continuous efforts by the formal public transport systems to be affordable and reliable. Some of these efforts fall short in the case of Ahmedabad's BRT and of the overall public transport system in the city.



Figure 6-1 Forced evictions for the road widening on the BRT corridor - Wadaj

Note: Satellite images of Nava wadaj area in Ahmedabad in Feb and May 2010

6.1.2 Infrastructure for non-motorised transport

"Earlier, I could send the children to school [walking] on their own. One elder kid [from the neighbourhood] could take care of everyone... but now, I do not trust this traffic. It is scary for me to cross the roads...How can I let the children go? I have told them (the children) not to go near the [main] road. I am always worried about them running off [to the road] and meeting with an accident..." (Female, 38)

"There are no footpaths anywhere, so I like to walk on the road... if you make your own space and move quickly then there is no problem..." (Male, 28)

Concerns about road safety were reflected in the narratives of some paticipants who walked for their daily needs. A home-based working woman aged 38 talks about the mobility of her children (seven, ten and thirteen years old) to the nearby municipal

school. She describes that the traffic situation around her settlement has worsened in the last few years. She accompanies her children walking to school everyday instead of sending them on their own. The previously established social practice of a group of children from a neighbourhood walking to school guided by a few older children is changing fast. The lack of safe walking infrastructure (both footpaths and crossings) for children results in growing concerns of road safety, which restricts the independent mobility of the children. The narrow lanes of the settlements are the only outside play areas for children. They are restricted by their parents not to go near the main road which is full of traffic. There were some instances of children getting hurt in the road crashes in this settlement, which further explains the road safety outlook of the participant.



Figure 6-2 Roads without good quality footpaths in western Ahmedabad

One of the participants, a male construction worker aged 28, describes that he prefers to walk on the mixed traffic lanes, right next to the mainstream traffic as there are no footpaths. He asserts that he manages to negotiate space and move quicky. However, this assertion may not be shared by the people of other age groups. In the absence of walking-friendly infrastructure, many pedestrians end up walking on the margin of the mixed traffic lane, in order to evade parked vehicles, unpaved areas, vending or other activities on the street. This causes a conflict situation between the fast-moving vehicles and slow-moving pedestrians.⁵¹ It was difficult to discuss with the participants what high quality pedestrian infrastructure might mean, as they had no recollection of walking on proper footpaths in Ahmedabad.

While accepting the view that there is a unique street culture in India (Edensor, 1998; Anjaria, 2012), facilitated by open-ended designs and adaptive uses, it is equally important to recognise that road spaces without footpaths or crossings pose great dangers to pedestrians. Some studies have attempted to measure walkability in Ahmedabad through primary road-audit surveys (Krambeck, 2006; Osborne, 2012). These studies show that the footpaths are either non-existent or not usable on the roads they surveyed. Apart from a few major commercial streets like the Ashram Road or the CG Road, where the right of way has been designed for various users, the majority of the streets in Ahmedabad are not designed for all users and they do not have any usable footpaths. What are sometimes assigned as 'footpaths' are in practice discontinuous side curbs built around trees, light poles, utility boxes or benches (Datey et al., 2012). It is a conventional practice amongst the municipal engineers to assign the entire right of way for mixed traffic, ignoring the space for footpaths, on-street parking, vending or other street amenities. This lack of design particularly marginalises the poor, the aged or the physically challenged population, as has been covered also in local media reports (Shastri, 2012; TNN, 2014).

With the entry of the JnNURM (Jawaharlal Nehru National Urban Renewal Mission) funds backed by the NUTP (National Urban Transport Policy) proclaiming to make 'streets for people', and not roads for vehicles, there were promises to bring change in the way in which streets are designed in Ahmedabad, beginning with the BRT project. The BRT project should also be seen as the largest street design project in the city; never before had there been the opportunity to consider hundreds of kilometres of road space for edge-to-edge development, incorporating the needs of all users. The official

⁵¹ Accordingly to an official document (AMC-CEPT, 2008;p3-13), 61 per cent of affected modes in the road fatalities in Ahmedabad are the non-motorised modes.

documents like the detailed project reports (DPR) of the BRT (AMC-CEPT, 2007, 2008) are full of graphics detailing the proposed provision of footpaths and cycle tracks on every corridor of the network. This initiative was particularly important given the large share of walk trips in Ahmedabad traffic in general and in the case of poor commuters in particular as described by the quote below -

"A large proportion of the population either walks or use bicycle. Hence needs for improvements in related facilities are a necessity." (AMC, AUDA & CEPT University, 2007;p.5-19)



Figure 6-3 Non-use of cycle tracks on the BRT corridor in the West Ahmedabad

Photos: Center for Urban Equity, CEPT University

However, in practice, the non-motorised transport (NMT) infrastructure has been not delivered as promised across the BRT network in the detailed project reports. The non-motorized transport network planned in conjunction with the bus rapid transit system, complete with segregated cycle tracks and footpaths, does not exist on most stretches. Mahadevia, Joshi & Datey, (2012) reported that only 26 per cent of the 45 route-km had bicycle tracks as part of the design in the year 2012, and wherever this infrastructure was provided, one-third was affected by obstructions. On the stretches where the cycle tracks exists, cyclists are unable to use them owing to a variety of issues such as high curbs, uneven finishing, lack of continuity or visibility, lack of consideration at signals. In addition, they become impromptu parking spaces blocking the passage of cycles (Shastri, 2010). The designers' response to these outcomes was

to discontinue the policy of providing segregated cycle tracks in future BRT corridor design (Bansal, 2013). Hence, Ahmedabad's BRT system has chosen to ignore cycling by first designing faulty cycle tracks then after the lack of use asserting that it is not necessary to have segregated cycle tracks as 'no one uses them' (TNN, 2012; DNA, 2012).

In the case of footpaths, 84 per cent of the BRT route-km had footpaths in 2012, but only 53 per cent of these were unobstructed or in good enough condition to be used (Mahadevia, Joshi & Datey, 2012). To access the central median bus stops of the BRT from the sides of the roads by walking is difficult and unsafe for pedestrians (Cervero & Dai, 2014; pg.135). The lost opportunity of building walking and cycling facilities as part of the BRT corridors would have been another way of facilitating the travel of the urban poor. Comprehensive walking and cycling plans would have connected poor households to a large range of services and livelihoods. Without a good network of walking and cycling, the BRT corridors in Ahmedabad are reduced to only as a bus system running on the central median lanes and not a comprehensive transport solution for the city as promised. Delhi's partially-implemented BRT corridors have included successful roadway design for pedestrians and cyclists (Tiwari & Jain, 2012; Roy, 2013), demonstrating that it is possible to provide for walking or cycling in an Indian city. However, the growing mass of cyclists and pedestrians in Ahmedabad are mainly the poor who continue to walk or cycle, without any support from the planning and infrastructure-building activities of the AMC.

6.1.3 The transport system and the poor in Ahmedabad

It is not too drastic to say that there are various ways in which the poor in Ahmedabad could have benefitted from the otherwise enabling policy and project initiatives. There was a national transport policy with sustainable mobility objectives (NUTP) backed by financial resources (JnNURM). There was a major transport project (BRT) in the city which promised the infrastructure and public transport provision that could have

benefitted the poor. A quick assessment of the AMC budget shows that about one-third is spent on transport sector projects (AMC, 2010, 2013). All modes favorable to the poor (walking, cycling and public bus) are either not being planned for or are not being implemented properly in Ahmedabad city. However, it is not so much the issue of availability of finance or having a right policy at the national level, the mobility of the poor is not being addressed because of the way in which the local – city level - policies and budget priorities function. Instead the official plans of augmenting transport system has actively displaced the poor.

None of the official (transport) planning reports in Ahmedabad consult people or seek their participation in planning efforts. This is true for all income groups but the poor in particular have suffered because of these plans. This raises fundamental issues of citizenship and the participation of the poor in urban governance. There are also the second level of issues related to empirical research and methodological issues within planning practices. The transport policies in cities like Ahmedabad operate in the context of limited data availablity, lack of methodological innovations and lack of empirical evidences to take crucial decisions about the policy directions. The public transport planning reports in Ahmedabad have not been collecting disaggregated data representing various socio-economic classes in the city nor do they analyse or report the collected data based on demographic categories such as gender or age. Sometimes, the walks trips are excluded from the analysis or the short-trips are not considered. The mobility of the poor is rarely studied with a view to it being provided for. Given such flaws of planning methoodlogies, tools and conceptual short comings, it should not be surprising that transport planning in Ahmedabad results in marginialising the mobility needs of the poor further. Poor people operate as the invisible population of the city which find their own ways to manage their mobility, either by walking or cycling or by using the informal shared auto rickshaw services. It is however, important to know to what extent these practices help, or restrict, the poor in moving out of poverty, which is discussed in the following section.

6.2 Mobility practices and moving out of poverty

This section discusses the sub research question – 'How do mobility-related negotiations influence aspects of moving in and out of poverty and how can they be supported by policy?'. To answer this sub-question, mainly the qualitative narratives of various participants are analysed. This section is also substantiated by re-visiting and elaborating on some of the issues disscussed in the previous chapter (5). There are three aspects of poverty and mobility inter-linkages outlined here based on the quantitative datasets and the qualitative narratives. The first aspect is when and how the poor become the direct 'victim' of the mobility of the others. The second aspect deals with when and how mobility works in favour of the poor households. And the third aspect is about whether more mobility always means greater well-being and whether less mobility always means greater poverty and deprivation.

6.2.1 Mobility related vulnerabilities

The mobility of the others and especially motorisation in general makes the poor directly vulnerable on a few counts. In terms of health vulnerabilities, the noise and air pollution affect the poor adversely as they reside or work alongside the major junctions or major roads (Badami, Tiwari & Mohan, 2004). It was not the focus of this thesis to measure the health impacts of air or noise pollution in poor households as that would have required an entirely different disciplinary context and methodological tools. But in terms of road safety, there were a few accounts of how automobile-friendly infrastructure impacts the poor adversely both as non-motorised transport users and as residents around such infrastructure projects in Ahmedabad. A number of studies by Mohan (Mohan & Tiwari, 1999; Mohan, 2001, 2003) have attempted to pitch road safety as an equity issue which affects the poor sections of the city more directly. The following narratives present the case describing what leads to perception of road danger and how such incidences impact the poor households.

Baba Lavlavinagar is one of the informal settlements and is located next to the river front in the core city area. A new flyover had recently been built next to this informal settlement. The building of the flyover was justified by claiming that it was required to let the traffic coming from the river bridge to quickly move across the junction which is otherwise chaotic, given the existing vegetable market at Jamalpur. The entry to the informal settlement is right next to the approach of the flyover and since the road geometry is not clearly resolved, this zone has become a dangerous area for pedestrians –

"The vehicles come down the slope very fast and it is very scary to cross the road... We have to cross four roads (lanes). It is very difficult. The kids will have to go all the way round it to go across... We are completely blocked... I don't think it is for us... it has cornered us on one side." (Female, 36)

"My son got hit by a fast moving bus coming down the slope (of the flyover)... and he is sitting at home for more than 7-8 months now. There were many fractures in his legs and it is not healing very well. No body has come to ask us anything after that. We registered a complaint in the police but nothing has happened. A lawyer asked us to file a case in the court and he promised that he would get us some compensation from the government. We will have to give him 15% of the compensation as his fees. But we do not have any money yet. We have spend so much on my son already and we don't have anything left now...it seems like we have gone back 10 years in life"(Female, 55)

The above quote is from a self-employed working woman aged 55, whose 21-year-old son was a victim of a road crash injury. The injury occurred while crossing the road in front of the settlement. The son used to work as an electrician and he has not been able to work anymore for the past 10 months. This is a family of self-employed vendors who sell cloths and clothing material. The son who is a road crash victim had contributed the highest income in the household and now he is unemployed. There are larger issues of inefficiencies in delivering justice and the compensation to road crash victims, along with unaffordable health-care. This situation makes it very difficult for the poor household to function. She had to borrow money from an informal moneylender at

a high interest rate to pay for her son's treatment. As she claims, the household is pushed back by ten years in terms of its savings and resources. In a full account, she also describes the kind of social problems created in her household because of an injured family member being at home all the time. This account clearly describe how one road crash incident can push back poor households into the spiral of poverty. Further to a road crash injury, a road fatality would have a lasting impact on a poor household and if it involves the earning member of the family, it can have compounding, socio-economic, long-term effects. As seen in this particular case, even the non-fatal accidents in the poor households result in debt traps and the loss of livelihood.

"We see so many accidents here. Something or the other keeps happening every few days. Last year only, x person's daughter died. The children are always running around... how much can you take care! The mother had to go to fetch water on the other side [of the road]. And this girl followed the mother without her knowledge... we have a big problem of this big road here...First, they were making this road, then they made the flyover and then this [BRT]... something keeps happening on this road and there is so much traffic..." (Male, 55)

Apart from the direct account of one road crash victim at Baba Lavavinagar, other settlements next to a highway or the ring roads had incidences of road crashes mentioned in some of the accounts. The above quote described by a factory worker aged 55 shows the vulnerablility of children living next to a 60 m wide road on the eastern periphery. The peripheral areas on the eastern side have industrial estates, warehouses and bulk trading activities providing jobs to the poor. These peripheral areas also consist of the state and the national highways where the urban traffic is mixed with the longer-distance highway traffic. The peripheries also have higher concentrations of poor using the non-motorised modes and para-transit and road traffic injuries are closely linked with the non-motorised modes (Section 5.3.1). This account also points out that there are frequent road crashes on this road (not necessarily involing someone from the settlement), especially when different projects were under-

construction. It was difficult for him to estimate the frequency of the road crashes but there was a strong association of this wide road with frequent road crashes.

Both narratives above have shown the vulnerability of the poor households to road injuries. It is important to point out that India has the highest number of fatalities due to road traffic-related crashes globally - nearly 140,000 fatalities in 2012. Despite being a major public health issue that affects the most vulnerable and also the most productive sections of society, road safety has not received the attention it deserves (Sundar & Ghate, 2013), both at the national and the city levels.

6.2.2 Shelter-livelihood-mobility balance to move out of poverty

During the qualitative interviews many people could not talk about their future aspirations and expressed that they had been stuck in a similar situation in their lives for a long time. While talking about their lives, transport or other issues, the circumstances of being poor were always present, even when such circumstances were not described clearly.

"I have many wishes...lots of them... but I couldn't manage to fulfil any one of them (laughingly)... what all to tell you... I still have to arrange the marriage of my son...after that there will be some respite in life..." (Female, 58)

"What to do, there is no money for anything... I felt really bad when I had to borrow (old) shoes from my brother to give it to my son to go to school... So I am always careful about spending money... You can not waste money like that (on shared auto ride)". (Female, 33)

Poverty takes many forms and impacts the lives of the poor in multiple ways. Moving out of poverty is a challenge for poor households. Indeed there was often apparently no one way of moving out of poverty. In the situations of lack of resources, being consistent with efforts was seen as as a virtue. Poor people planned their lives in small steps – individually or at the household levels, sometimes following social practices and norms or by trying something new. However, there were limited options of trying

something new. There were obvious choices of livelihood emerging out of 'how everyone is doing things' - out of social practices of dealing with their livelihood. The same logic was applied in dealing with their transport needs, based on 'how things are done' or 'what make sense'. Spending on transport fares was considered being extravagant.

"Finding work is the main thing. If I get work on daily basis then, there is nothing to worry about...I must get work, that is it... If it all goes well, then I will buy a cycle by Diwali". (Male, 28)

"When I came here (after marriage), the situation was not good in our house. My husband's salary was little and the expenditure was large. There is so much of price rise (inflation) these days... I am not so literate, so who will give me work? Finally, this person (neighbour) told me that there is work to make incense-sticks. They give you the raw materials and you get paid by the bundles. That's how I started working and now it is been six years..." (Female, 28)

The poor households aspire to achieve a certain level of balance between shelter, livelihood and transport needs. Getitng a well-paid but less-demanding (in terms of physical efforts and time) livelihood was seen as improving one's conditions. Here, minimising travelling distance becomes a major motivation of the poor households in making choices related to their livelihoods. Minimising traveling distances or minimising transport in general means doing a home-based work, or finding jobs close to the residence. This would give them freedom and flexibility to manage their mobility by walking and in some cases, walking back and forth a number of times. The locational advantage is central to poor people's mobility practices because it helps them manage the uncertainties in their lives. To an extent that people who have managed to minimise their transport distances, time and cost for a long time, do not give much thoughts to it or clearly claim that it is not a problem (as discussed in 5.1.5).

But to what extent can the poor exercise their choices to be in a location where there are relevant jobs nearby? The way to find accessible residential and employment

locations without spending much on housing is to dwell in the informal settlements. Most people have located in the informal settlements through their community and social networks. Such informal settlements have always emerged in the accessible locations because there was always demand in the informal housing market to be located on such sites. The very fact that these housing sites are informal – and in the governmental terminology illegal – explains why they become affordable to the poor, who are otherwise priced out of the central land or housing market in a city like Ahmedabad. But in the strictly regulated planning and governance regimes, there may not be enough 'opportunities for slumming' or to carry out informal activities and such examples are seen across the world (Shen, Qing and Sanchez, 2003; Næss, 2005; Venter & Vokolkova, 2007; Lucas, 2011). In such a context the paradigm of social exclusion to explain the mobility constraints of the poor or the advantaged groups makes sense where the poor or the disadvantaged groups have no 'opportunities' to slum in the desirable locations and they feel excluded from the city life altogether. The paradigm of social exclusion often views the issues of mobility and access from the lenses of motorisation and making non-motorised trips were seen as exclusion (Wati, 2009; Zuidgeest et al., 2012). This may indeed be the case, especially in the North American or Australian contexts, where the lack of motorisation leads to possible social exclusion in cities (Currie et al., 2009; Mattioli, 2012), but in Indian cities, or at least in Ahmedabad, giving the 'opportunities for slumming' in accessible locations provides locational advantages to minimise transport. It is explained in Chapter 4 how years of land mis-management coupled with informalised planning from the above (Roy, 2009) creates 'planned illegalities' such as systematic slum formations. This is is seen in the case of Delhi (Bhan, 2013) and in case of Solapur (Kamath & Deekshit, 2014) in the recent literature. The escape route for the poor from the motorisation-based paradigm of social exclusion is to make use of such 'planned illegalities' and adopt them for their own benefits of minimising transport. This thesis argues that an inefficient planning regime coupled with political patronage has worked as a safety net for the poor.

However, this is not a policy recommendation, it will be further discussed in Section 6.3 and Section 7.4.

Interestingly, for Ahmedabad this motivation of minimising transport and relying majorly on the non-motorised modes is seen even in the informal settlements in the periphery of the city as well. This is contrary to the conventional assumption that the poor living in the peripheries might be travelling longer distances and will be dependent on public or shared transport, like in the case of Chennai (Srinivasan & Rogers, 2005) or in many Sub-Saharan African cities (Olvera, 2003; Venter & Vokolkova, 2007; Kumar & Barrett, 2008; Diaz Olvera, Plat & Pochet, 2013) where peripherisation of the poor increases their transport burden. At least in Ahmedabad, this was not observed. The ex-textile mill workers in the peripheral areas described how the informal settlements evolved in the eastern part of the city (Section 5.2). The proliferation of the informal settlements across the city in all directions provided housing to the poor in the desired locations. Given the polycentric nature of Ahmedabad's spatial structure, mixed-land use and mixing of residential, commercial and to an extent industrial activities (also discussed by Munshi 2013) creates grounds for the poor households to live and work in different decentralised residential-job complexes. Such poly-centric urban form with mixed land use and possibilities of finding informal jobs benefits the poor located anywhere in the city.

The process of slumming takes places through multiple self-organising activities. The family, together with wider kinship and friendship networks, helps individuals to find jobs in the informal sector of the urban economy and provides aid in emergencies. Rural migrants mostly make the first move to a city where they expect to be received by relatives and friends. They will be offered shelter and food for a while, they will be introduced to the urban environment. Some of the migrants have a very limited perspective of the city, and when asked about 'home' they always refer to their residences in their home villages. This limited outlook on the city also translates into

minimising movements within the city. This pattern of initial urban association encourages persons of the same geographical or social origin to form residential clusters or even ghettos (Dubey & Palmer-jones, 2006; Roberts, 2010). People from the same geographical or social origin also end up working in similar livelihood options. Once the pattern of migration, finding residential location and certain livelihood is established then the newcomers continue to follow the patterns established by their predecessors or co-workers in the city, and this includes following the established mobility practices of the associated social groups.

A young man aged 20 living in a peripheral settlement gave a brief account of how his family came to the city after a few years of his father getting a job in a factory in the Odhav area. His mother, who used to work as a domestic help, doesn't work any more. His elder brother has taken a room for rent in a Chali nearby after his marriage but both brothers work together providing a plumbing service. Their household has comparatively prospered over the years with more members of the family getting a fairly stable income. The poor living in the peripheral slums in Ahmedabad either located themselves there because the jobs were nearby or they found jobs first or then started residing in the next available informal settlement, which must have been the respondent's father's dilemma when he arrived in the city. However, either situation doesn't give the complete picture of the job and work relationship for the household. Because it is not the job of one person that matters in the poor household but, along with the main earner (in most cases men), other family members also worked or were expected to work. After gaining a certain locational advantage, the other members in the household were either to find nearby jobs or make an effort to 'mould' themselves according to fitting the available jobs, although not everyone might be successful in developing the skills required for the available work.

The discussion in Section 5.3.1 suggests that there was not much difference between the mobility patterns of the poor residing in the core city or peripheral settlements and

the same was reflected in the qualitative narratives too. The trouble for the poor begins in the case of forced relocation. Although they are given flats and basic services, the increased distances to workplaces and other amenities ends up creating more poverty in the relocated households. The increased distances and longer commutes was clearly one factor in the creation and persistence of poverty. At one level, it was a practical problem of reaching somewhere in the city in order to earn. At another level, the longer commutes led to a feeling of being dispossessed and powerless in the city. Many in the resettlement colonies had never experienced longer commutes and the feeling of being cut-off from their jobs, social networks and other amenities. When distances increased people would mitigate them by reducing the number of working days (vendors in resettlement colony), or in some cases by changing residential location back to the informal settlements in the central area if there were still such opportunities. Many households speculated about renting their new formal housing allocation and returning themselves to informal housing in the central area. Housing and services were not their immediate priorities so much as reaching their jobs and therefore surviving in the city.

To understand the mobility of the poor, there is a need to recategorise the core city and peripheral settlement as one category of self-determined or self-selected housing, albeit often informally obtained. Self-determined housing needs to be positioned against forced relocation. This is explained in the conceptual diagram given in Figure 6-3. Whenever given an opportunity, poor people benefitted from deciding their own location in the city and thus increasing their access to jobs and other services. This self-selection of residential location through the informal housing market was found to be an important characteristic of achieving shelter-livelihood-mobility balance. Another important component of achieving this balance in a favourable way was having self-determined or self-selected mobility by walking or cycling, which is flexible and affordable. In the absense of any state or private sector support for affordable housing

or transport, the informally acquired self-determined housing and self-determined mobility functions for the poor in Ahmedabad.



Figure 6-4 Conceptual diagram of access, mobility and location in Ahmedabad

It becomes crucial for poor households to not only achieve a certain balance between their shelter-livelihood-mobility options but also to continue stably in this balanced situation for a long period in order to incrementally move towards well-being. There are certain negotiated choices or even compromises which are made to create and maintain this balance. This balance means different things to different people and their choices are practiced differently. But once they get into these patterns or routinised practices, they do not lightly want to change them unless they see clear social or economic benefits for so doing. Unless something drastic happens, like health issues in the family or forced relocation, they would continue with what they perceive as the balanced situation and routinised practices of dealing with their poverty and, to this end, their mobility.

6.2.3 Mobility paradox of moving out of poverty

"I stopped working the [at a factory in Narol] because it was too far, so it was not suiting me. I did not enjoy the work anyways... So, I started my own shop. What to do? I will earn two paisa [pennies] less but I am standing on my own feet... At first, I started my shop near the [Kalupur] Railways station. But there were daily quarrels with the policewalah or the municipality (officials). I was not making any money. It was hard... then I shifted here and slowly, it is picking up...its good here" (Male, 45)

A tea vendor aged 45 in eastern Ahmedabad narrated how he changed his job from working in a factory because of the long commute on the buses and he has now stationed himself near a junction close to his house. For people like him, travelling shorter distances worked better; they made their own choices about livelihood options, probably at the cost of their income level. However, everyone may not have such options available to them, like this tea vendor did. The very fact that many people continue to walk (or cycle in the case of men) for many years means that either these mobility options worked for their shelter–livelihood-mobility balance or they are trapped in these options and cannot get out easily. Given their fixed residential locations, if there are better job options for which the travel distance would ben an increase, then they start thinking of using shared or public transport on a long-term basis.

"I get many jobs... to work in a hospital or in a mall [as a cleaner]. They say, I will also get a good salary of ten-twelve thousand [rupees]. But there is no points taking these jobs... See, now I work in three-four houses and earn about seven-eight [thousand rupees]. If I take that job, I will have to be away from home whole day and I will also have to spend on coming and going... What is the advantage then? [If I want to earn more], then it is better to work in one more house rather than doing these [jobs]". (Female, 48) The example of this woman, aged 48, explains what poverty means to her, in her situation. Poverty is not being able to choose a higher income job and not moving up in the income hierarchy. Poverty is not being able to use one's own skills for earning more. It is often said that the poor are the 'captive' non-motorised transport users. This captivity is often negotiated and contested like in the case of this woman. With prospects of a better-paying job, she had considered the use of motorised transport but in the final analysis fell back to her old job which she can manage by walking.

There are aspirations amongst the poor to motorise – and here the verb 'motorise' is used in the broadest sense - of using any motorised mode including public or shared transport and private transport. Since there is no affordability to make capital investment in the privately-owned motorised modes, except in a few cases, the motorisation of the poor usually starts with the public and shared modes, in order to travel longer distances. When the households are placed into the new situation of the paradox of using motorised transport. This paradox essentially is about greater mobility (travelling longer distances), possibly meaning accessing more destinations, but also resulting in a higher level of constraints imposed by the motorised modes, such as affordability and time consumed in waiting and travelling.

When a poor person who is walking or cycling shifts to motorised modes (public or private), it doesn't mean that they progress to better life situations or well-being. The 'motorised poor' (who may not be as poor as the others in the same settlement) have their own constraints emerging out of their shelter-livelihood-mobility situations, and this new negotiation does not necessarily take them out of poverty. The poor households are likely get stuck in the same situations of travelling longer commutes by using public or shared modes for many years. In such situations, they may get more access to the city but they loose their ability to negotiate their mode use, their timings

based on the other demands in life. Loosing their ability to negotiate makes them more vulnerable to adversities, in spite of a possible increase in income.

To be pushed out of the zone of poverty required a prolonged balance between the shelter, livelihood and mobility options along with incremental incomes, social safety nets and not being victim to health or other vulnerabilities. This thesis argues that moving out of poverty will not be possible only by increasing the supply of transport for the poor or by making them more mobile. The poor should have an agency of their own to manage their own demand of transport, which actually gets generated, based on how they view their shelter–livelihood-mobility balance. This is what is called self-determined mobility in the previous section. Many of their practices such as the use of non-motorised modes are the low-carbon or zero-carbon activities. Any policy outlook to simply motorise the poor might be counter productive both from the perspectives of poverty alleviation and sustainable mobility, which is discussed further in the next section.

6.3 Discussion – achieving poverty alleviation and sustainable mobility together

As analysed in the previous sections of this chapter, mobility and poverty are complexly interwoven. Neither mobility nor poverty are set or static categories, but both are infused with meaning, contested understanding, linked with specific practices and social and spatial arrangements, thus continuously reiterated and reproduced. Many of the central problems associated with a precarious integration into urban society are reflected in the way people move through the city and the meaning that they attach to these movements. Therefore, 'to move or not to move' is a powerful indicator of the way societies are ordered and the positions individuals occupy within them. Particularly in Ahmedabad, mobility is becoming a dominant factor not only in relation to practical access to goods and opportunities but also in terms of a general sensation of well being and satisfaction with personal life. Mobility is a structuring element in the lives of

the poor. It is part of the larger scheme of ('stretching legs as much as the length of your sheet' as mentioned by a participant or) adjustments, negotiations with the given situations – essentially, balancing out the situations of shelter and livelihood.

The convergence points for sustainable mobility and poverty alleviation are the following – many of the practices of the poor do not involve any energy consumption, such as the non-motorised transport use, which should ideally be encouraged from the sustainable mobility perspective. But these practices are rooted and operated within the informality that dominates the urban poor's life. Whether it is housing choice or livelihood choice, which makes the non-motorised modes feasible and desirable for the poor, any attempt to insensitively formalise housing by pushing them out to the periphery or formalising their livelihood aspects would only work adversely for the poor by pushing them into higher energy use via motorisation.

This thesis has argued for a practice-based approach of understanding the mobility of the poor and gathering empirical knowledge to plan based on facilitating the existing practices of the poor. It is argued in the previous sections how self-determined housing or self-determined mobility practices have worked for the poor. Both of these need to be futher facilitated and incrementally integrated with the formal systems in the city. Government should facilitate the practices of the poor instead of trying to fit them into some pre-supposed systems which have a low acceptability amongst the poor. The formal has to reach out to the informal by incrementally including various aspects of the urban poor's lives into the formal systems. Finally, poverty is a situation. It is not a permanent characteristic of households. Poverty can be alleviated by intervening strategically, through learning from the practices of the poor.

Beginning with self-determination of the mobility of the poor, such a large proportion of walking and cycling trips means that the formal or public transport system does not work for them. Hitherto, the poor in Ahmedabad have resisted becoming the dedicated customers of the formal bus-based transport. This is not to say that they would not

benefit from improvement in the public transport in general, which is more relevant to their needs. Most people would prefer better public transport for better connectivity, but in the absence of it, they simply walk. However, since there have never been any previous experiences of 'better public transport', this idea didn't exist for them. Not only formal public transport but also the majority of the poor do not use any motorised form of transport. Limited affordability means resisting motorisation by making other choices for their mobility unless motorised transport becomes reliable and affordable. The current practices of walking and cycling needs to be facilitated by planning for them at the city level and by providing better infrastructure. There is a need to formalise and augment the shared auto-rickshaw by legitimising them and professionalising the services. At the same time, there is a need to overhaul the bus-based public transport system in the city by integrating the BRT with the conventional buses.

Further with facilitating the self-determination of housing choices by the poor, it must be clarified at this point that the arguments about the advantages of slumming or informal occupation of land are not to be glorified or imagined to be the future policy direction. The current practices of slumming have resulted from land mis-management, conflicts in land ownership and political patronage of such activities. However, as a starting point for policy, there is no urgent need for the city government to displace all the slum-dwellers in the city and it will not be fair to deprive such settlements of basic municipal services. At the same time, the forced relocation of the poor in formalized housing colonies has not served them well. A better solution would be to provide tenure security to the poor incrementally through in-situ upgrading implemented along the lines of the slum-networking program in Ahmedabad.

Figure 6-4 Mobility pathways to move out of poverty for non-motorised poor



To reinforce these points, two conceptual diagrams are prepared as Figure 6-4 and 6-5 to summarise the pathways of moving out of poverty for the non-motorised poor and the motorised poor. The non-motorised poor are in a vicious circle of living, in unhygienic conditions, in order to access jobs and service. They continue to remain poor as they are either vulnerable road users or they end up affecting their own health and productivity by using cycles or walking longer distances. In order to create a virtuous cycle for them, safer and better walking and cycling infrastructure needs to be created (as discussed by Pucher *et al.*, 2008; TERI-UN-HABITAT, 2013) and their housing can be improved through slum-upgrading as implemented in the Slum Networking Program in Ahmedabad (Das & Takahashi, 2009; Annez *et al.*, 2012).





In case of the motorised poor, as shown in Figure 6-5, their vicious circle of mobility is characterised by long-distance commutes, long waiting and travelling time and adverse impacts on the household budget due to higher expenditure on their mobility. This situation can be mitigated through affordable and reliable transport (Carruthers, Dick & Saurkar, 2005; Serebrisky *et al.*, 2009; Cervero, 2011) and by providing affordable housing in more accessible locations or by investing in the in-situ slum upgrading programs. The approach to poverty alleviation should be based on the social practices of the poor and these practices are already low-energy consuming and thus, in line with achieving the wider objectives of sustainable mobility. If the poor are walking or cycling then the challenge is how it can be improved and provided for so that they continue these practices without being deprived or exhausted. If the poor are living in informal housing then the challenge is how their living standards can be improved. If the poor are 'slumming' the cities then the slums should be regularised and upgraded

on an incremental basis so that the poor can reduce the gap of their housing and transport accessibilities.

Finally, this chapter has analysed how the transport system supply in Ahmedabad has its own limitations in providing for the mobility of the poor. The poor face mobility-linked vulnerabilities and motorisation appears as a paradoxical situation for them to move out of poverty. The poor seek shelter-livelihood-mobility balance which needs to be supported by integrated urban policies, including housing and transport components. Indian cities like Ahmedabad need integrated urban policies and plans that simultaneously look at the housing, transport and livelihood issues of the poor and sustain their current practices of minimising transport instead of pushing them towards any pre-supposed systems of transport and land use planning

7. Conclusion – Mobility, poverty and the Indian city

The final chapter attempts to close the conceptual and empirical loops presented earlier in this thesis. In summarising and concluding the arguments presented earlier it specifically outlines the implications of this work for public policy debates, reflects on the research process and considers future research directions. Towards the end of the chapter, specific policy recommendations are also given.

7.1 Main arguments based on the primary data collected

The mobility of the poor is an important lense through which to view their well-being in the city. This thesis finds that poor people are largely dependent on the humanpowered transport modes like cycling and walking. The mobility of people living in poverty is often extremely limited, primarily because many cannot afford any mode of transport faster than walking or cycling. Very few can afford any form of motorised private transport and the leading motorised mode is shared auto rickshaws followed by public bus service. Some people cannot afford the purchase cost of even a bicycle. However, whether or not this low *mobility* translates into low levels of *accessibility* is strongly influenced by a housheold's location. There are great variations in the mobility practices of the poor in Ahmedabad based on their location in the city and their livelihood options. It is also found that the majority of the poor living in the informal settlements travel shorter distances and try to minimise their transport costs. Working women in particular have constrained mobility, as they tend to find work close to their residence as much as possible, irrespective of the location of the household.

The poor households relocated to the resettlement colonies are pushed into the spiral of longer commutes, dependence on public or shared modes and high-cost of transport expenditure. Comparatively, poor people living in self-determined housing - the informal settlements – have advantages in negotiating and minimising their mobility,

and this is the case whether or not those informal settlements are in the core or the periphery of the city. Most of these choices are related to walking and cycling and it should be recognised that this self-determined mobility based on non-motorised modes helps the poor access the city. Whenever the poor are acting based on their own choices, they are in better situations to deal with their lives and thus with their poverty.

This research also argues that the 'limited' mobility and 'constrained' accessibility should be viewed in the context of the shelter-livelihood-mobility balance for poor households. This is a key point in building a deeper understanding of the intimate links between the low mobility of the poor, their levels of access to urban locations and opportunities, and their range of housing and employment options. The poor seek shelter-livelihood-mobility balance in a different way across their locations at the core city, and differing depending on their livelihoods. They create this balance by either following social practices or some make conscious trade-off between various options. If they continue for an extended period of time in a balanced situation across shelter-livelihood-mobility options then there are more chances for them to move out of poverty. The prevailing informality in housing or job markets is often helpful for poor households, not only in aiding them to minimise transport needs but as a result, in the longer term, to move out of poverty. Where they are not able to move out of poverty though, limited or constrained mobility doesn't necessarily translate into deprivation or poverty.

A range of social practices has been documented as part of this thesis, which are developed around the low affordability of transport and mobility constraints. These practices are consolidated again in Table 7-1. The poor household tends to minimise transport by efficiently locating job or residence, by walking and cycling, by finding home-based work or by making informal arrangements of child-care or any other social responsibilities.

Table 7-1 Mobility related social practices

Resources	Cost	Minimising the transport cost by walking or cycling
		Increasing the share of walking in multi-modal trips
	Modes	M2W - cheaper operational cost, unaffordable owning cost
		 Cycles – unaffordable owning cost for some, used bicycle market, rental markets for daily cycling.
		 Public/shared mode access - unreliable, expensive public buses vs more reliable, cheaper shared auto rickshaws
	Infrastructure	Lack of safe infrastructure for walking and cycling
		No reference point of 'good infrastructure' present
		Walking/cycling space is subverted in official plans
Competencies – overcoming barriers	 Economic barriers - work from home, find work near home, reduce working days, walking or cycling long distances, seeking flexible work hours, preferring self-employment Social barriers (gender) - shared responsibilities for child-care with neighbours, visit home multiple time, find work in walking distance from home, dependent on others for mobility in case of private vehicles, wants vehicles for the male members. Spatial barriers (location) - reducing working days, by looking for work nearby or starting any self-employing livelihood, shifting back to the core city in another informal settlement, Information Barriers (timings, routes, fares) - Tacit knowledge and hearsay, based on the past experiences 	
	Political barr leaders and m	iers - feel politically voiceless but negotiating with local nunicipal official when needed
Meaning	Saving money is a virtue	
	Hope and feel-good: Everything is fine and we will get by.	
	Having a choice is empowering: in case of walking or cycling	

• Nostalgia and dwelling in the past

• Daily struggle and hardships are subsided.

This thesis finally argues that there is a mobility paradox intrinsic to moving out of poverty. On one side, they resist motorised trips due to low-affordability and on the other side, even if some of them wants to travel longer distances to access better opportunities, they do not have affordable and reliable transport service in the city. The current mobility practices of the poor - walking, cycling and use of shared or public transport - have low energy consumption and are sustainable compared to the proliferation of private motorised vehicles in the city. At the same time, it is important to underscore that the poor are not motorising themselves because of affordability issues. For example, buying a motorised two-wheeler is the dream of every poor household, but they cannot afford the credit for investing in the vehicle. With rising incomes, they are more likely to follow the vicious circle of motorisation unless systematic investments are made in the shared or public transport, walking and cycling infrastructure, and thus, removing the current disadavantages attached to them. Trying to increase the private motorised mobility in the city and imagining it to facilitate the poor without addressing the issues of affordability will not result in any benefits to the poor. In fact, the poor are more vulnerable to the external cost of road crashes and pollution. Besides, it is also a question of the local budget funding the inequitable infrastructure. If attempts to achieve greater mobility in cities are to help the poor then they must not focus on private vehicles but on an affordable public transport system and infrastructure for walking and cycling.

Finally, this thesis contributes to the scarce body of transport studies in India which use qualitative inquiry alongside quantitative methods. Mixing of methods not only help to estalish the patterns of mobility of a population group but also brings out nuanced characteristics of these patterns. With the extensive use of the qualitative data analysis, this thesis also provides empirical evidences for the mobility of the poor and

various sub-groups within them. Specificlaly, a unique contribution here is developing links between livelihood patterns and mobility of the poor in the Indian context through both qualitative and quantitative components. The quantitative component as part of this thesis also creates a disaggregated database based on age, gender, education levels, livelihood and residential locations. The qualitative inquiries venture into the social dimensions of mobility needs of the poor, which again is an original contribution of this thesis

7.2 Conceptual arguments linking mobility and poverty

Poverty imposes multi-dimentional conditions of deprivation on poor households. While 'measuring poverty' has its own reasons to know its intensity and spread, such approaches are not beneficial in dealing with poverty in policy-making. Approaches to poverty alleviation should be oriented around the practices of the poor. Poverty may not be alleviated only by giving welfare hand-outs, nor by depending completely on markets or economic growth. A bottom-up, practice-oriented approach must develop to see better results in poverty alleviation. Poor people should have a say in issues affecting their own life. There are participatory approaches being developed in measuring poverty and in dealing with poverty. This thesis pushes such agendas and conceptual positions further by bringing in the discourse related to the mobility of the poor. To this end the thesis provides a theoretical framework for thinking about mobility and poverty together in the Indian context.

Mobility and poverty are linked together in multiple ways. Poor households might have to devote most of their resources to necessary trips and therefore commonly discard any other movement as too expensive or unnecessary. This unnecessary movement in many cases constitutes the main way in which individuals can participate in an urban society. When travelling is devoted mostly to compulsory trips and places, the whole experience of urban space becomes ruled by the sign of necessity, a space of survival rather than a space of belonging (Urry, 2002). It affects the way in which poor people

view the city space and participate in it. It was observed that the geographical knowledge and outreach of the city was very limited in most of the cases. Besides, the sense of belonging was limited to the settlement or the neighborhood, beyond which there was a limited or purpose-specific engagement with the city. All the slum settlements presented strong community ties and social networks; most such settlements were constantly under the threat of evictions. These threats extended the sense of uncertainty from informal jobs to mobility to housing and such a state of uncertainty regarding 'everything' in an urban life could also be affecting their human capabilities to carry out their daily activities.

It can be argued that the non-poor in the city also have limited access to the city and 'marked' zones in which they move or operate. Commuting struggles and hardships may be prevalent in the other classes as well and not only amongst the poor. However, the non-poor may have more resources to remain mobile (more motility) than the poor. As far as the poor people are concerned; the mobility constraints, limited access and spread in the city, and uncertainties in daily lives are all linked with their vulnerability. The constraints of mobility in everyday life limit participation in the way that the lowincome population has traditionally participated in an Indian society. When needed to fulfill their roles as low-skilled workers, students in poor-quality schools or full-time house-managers, their current levels of mobility seem quite right, or at least enough. But when a change in these roles is demanded, when workers ask for quality free time or skill building opportunities, or house-managers look for a different or better job, these demands are necessarily limited by their incapacity to reach that these activities demand. New opportunities to move out of poverty would be given up because of the limited mobility. Their mobility practices are part of the 'spiral of poverty' and thus are important instruments for moving out of poverty.

Mobility constraints do not necessarily mean complete immobility or 'social exclusion'. So at the conceptual level this thesis argues that in spite of its useful contribution in

certain contexts (Europe and North America) the transport-led 'social exclusion' framework (Preston, 2009; Currie et al., 2009; Lucas, 2012) cannot be applied universally. The mobility of the poor in Ahmedabad and possibly elsewhere is characterised by the informal settings of residence and job. The framework of 'social exclusion' is not useful to understand poverty, informality and mobility characteristics of the poor. The partial exclusion from economic generating activities or recreational activities in the case of poor households in Ahmedabad is not social in nature. There are strong ties in the residential communities living in the informal housing and they have strong informal networks of information sharing and communication. There is also economic and social exchange with the other income groups. Besides, the selfdetermined informal settlements are by no means spatially or socially insulated from the rest of the city. Whether it is travelling distances or accessibility to different modes, the poor are not socially or spatially excluded unless they are forcefully evicted from the city. In many cities, poor people reside close to their workplaces by squatting on public or private land. They may not be physically secluded by the transport system or socially excluded by the governing system given the 'opportunities' available in the form of informal transport or housing available in informal settlements. The examination of social exclusion and mobility in an international setting will not be easy since the definition of poverty, the urban context, and the transportation systems and what it means to be socially excluded will vary across contexts. And poverty itself is an allencompassing phenomenon, which explains the situation of people more than what 'social exclusion' could explain.

Finally, the claims of modernity in Indian cities are re-shaped and re-organised around neo-liberalism, which has dominated in the developing world including India since the early 1990s. The neo-liberal social and political approaches of viewing transportation as economy-generating activity overrides other human development concerns, which is hampering the needs of the poor in the city like Ahmedabad. Riding on the neo-liberal wave of economic growth, motorisation and its socio-political constituencies pushes the

agenda of promoting the mobility of private motorised vehicles. An unique facet of the motorization process in India is the sizeable portion of its population living in poverty and in informal job-work scenarios who will not benefit from the proliferation of private motorised vehicles. For the state, facilitating the proliferation of private vehicles with infrastructure building might be a more rewarding proposition politically compared with running financially complicated and socially challenging public transport services. There is an urgent need to overhaul urban and transport planing at the city level; broader policy directions are given in the following section and the specific recommendations given as part of Section 7.4.

7.3 Implications on the transport planning and policies

The main challenge to the transport policy-makers is to understand the nature of Indian modernity with its multiple nuances and for them to place the transport needs of a city in that context. Uni-linear ideas of modernity view the mobility of the poor as if it doesn't belong to the city. It is assumed that modernisation means inevitable motorisation (domination of motorised modes over cityscapes) while viewing the NMT modes as pre-modern and thus not futuristic. Modernity could also mean constantly seeking new ideas to bring greater social justice and fairness in the city without the burden of the past. Comprehensive planning for non-motorised transport in a city can go a long way in achieving pathways to sustainability while addressing the issues of transport inequities. This thesis supports a paradigm shift concerning urban transport planning, which should be more inclusive of the needs of the poor people in Indian cities.

As far as the mobility of the poor is concerned, there are two challenges for public policy: one, their mobility (or capacity to move) should support their own initiatives and economic and other opportunities in a city, and two, they should be part of and beneficiaries of policy interventions and infrastructure investments in the urban transport sector. It is evident from the data analysis in Chapters 5 and 6 that, in the case of Ahmedabad, the mobility constraints of the poor make the first challenge more

complex than conceived hitherto for public policy intervention, whereas there is a clear absence of concessionary fares or transit subsidies in respect of the second challenge in the transport sector.

The road infrastructure design in Indian cities in general and in Ahmedabad in particular does not ensure the safety of non-motorised mode users. Road traffic injury needs to be seen as a public health issue (Badami, Tiwari & Mohan, 2004) and it should be acted upon accordingly. On one side, the road safety should be ensured through better road infrastructure design and planning, traffic and speed management in the Indian cities and on the other side; there should be social safety nets, to help poor households survive the aftermath of household crises caused by members, perhaps the key income earner, being incapacitated or killed. There should be efficient systems to deal with the healthcare and post-trauma issues for the victims of road crashes. Many road crash cases are not reported at all or they are not correctly reported. This makes it difficult for the victims to pursue justice and therefore to follow-up on compensation or health-care. Vulnerabilities of being a disadvantaged road user are further aggravated by the inefficient health-care, law-enforcement and judiciary systems, which lead poor households to fall back into poverty.

The transport paradigm itself determines the level of accessibility. A transport paradigm that only looks at mobility and speed would invest in infrastructure that is motorised, thereby discouraging investments in infrastructure for non-motorised modes that are predominantly used by the poor. There is a need for more context-sensitive transport paradigm which is well-intergrated with the land use of the cities in India. There are strong transport-related reasons to make greater efforts to promote more accessible locations for urban poor housing. Changes in urban land use patterns can have important effects upon the viability and attractiveness of the modes of transport that are most important to the urban poor, non-motorised transport and public transport. These modes are vital to allowing low-cost mobility and hence access to a range of urban

opportunities for the poor including a wider choice of housing than otherwise. Certain common trends in land use planning as cities motorise have a tendency to undermine these low-cost modes to the detriment of the mobility of poor.

Transport infrastructure building have many effects on housing for the urban poor. A key example is eviction and resettlement resulting directly from urban transport infrastructure projects, which are taking place on a significant scale in Ahmedabad. There is a need for reforms in order to minimise such evictions. Avoiding displacement must be made a higher priority in transport planning practice. Transport policies that reduce the amount of space consumed by transport infrastructure should also help, as would various reforms to assessment procedures for transport projects. Great harm can be done to housing affordability by excessive and automobile-oriented standards and guidelines for transport-related infrastructure and urban design. If displacement is unavoidable, there is a need for better resettlement procedures, which should also be more sensitive to access issues. A negotiated outcome to resettlement cases are always preferable, however excessive secrecy and lack of public participation in transport planning hinders the chances of fair negotiations.

A central issue connecting mobility and residential choices is that there is a tension between mobility options and the security of tenure for the low-income residents. In accessible parts of the city, the poor can afford only sites with insecure tenure, whereas the affordable sites with more secure tenure tend to be inaccessible and may involve high costs for commuting. The location patterns of the urban poor were found to be diverse. The lack of secure tenure means that communities are unable to capture the benefits of transport improvements and indeed may be threatened with eviction as a result. Mobility related inequity is fundamentally linked with inequity in housing access. Poverty and mobility inter-linkages may need much greater attention from a housing rights perspective. This will help in improving both access levels and affordable housing for the poor in many cities.

Finally, the approach to poverty alleviation should be based on the social practices of the poor, which may be related or not related to mobility: if the poor are walking then how can pedestrian facilities be improved; if they are living in informal housing then how can their living conditions be improved; if the poor are 'slumming' the cities then the slums should be regularised and upgraded on an incremental basis so that the poor can reduce the gap of their housing and transport accessibilities. Land use plans should work toward improving the access of poor people by planning for proximity. Housing rights advocates can and should support transport policies, which restrain (and remove subsidies to) excessive mobility by high-income groups (mainly in cars) while promoting low-cost access. Indian cities need integrated urban policies and plans that simultaneously look at the housing, transport and livelihood issues of the poor and sustain their current practices of minimising transport instead of pushing them towards any pre-supposed and ill-informed systems of transport and land use planning.

7.4. Policies for poverty alleviation and sustainable mobility

There are a few specific policy interventions, which needs to be adopted in the governing system and by civil society organisation as advocacy agenda:

- 1. For every transport infrastructure related investments, evidences needs to be collected to justify the investments. Transport surveys involving users needs to be regularly conducted by various agencies of the Municipal Corporation road and traffic department, Ahmedabad Janmarg Limited (AJL) and Ahmedabad Municipal Transport Services (AMTS). These should be integral to analysis of BRT proposals and should be allocated funds as a part of the budgeting exercise in the municipal corporation. There should be a separate budget head for 'sustainable mobility'.
- The Municipal Corporation should actively plan and implement comprehensive network for cycling and walking in Ahmedabad. There should be a non-motorised planning cell as part of the planning department in the Municipal Corporation.

- The AMTS and the BRT needs to be better integrated with stations sharing, fares and ticketing as well as marketing. A comprehensive plan should be made to expand the bus based public transport in Ahmedabad.
- 4. The shared auto rickshaw services should be recognised as an integral part of the urban transport system, so that they are not displaced in any privatisation of mass transit modes (eg: bus or BRT) or PPP (public-private-partnership) initiatives.
- 5. The Town Planning Scheme (TPS) mechanisms, which is mainly being used for land re-adjustments, needs to be re-adopted for local area planning exercise focusing on local accessibility issues along with the municipal services provision.
- 6. The police department should properly report the road traffic injuries and create annual database. The post-crash medical treatments should be prioritised. The traffic police should be given targets of reducing road crashes and needs to be supported in terms of human resources and technical equipments.
- The relocation of the poor households should be minimised and if it is inevitable then the poor households should be housed within three kilometres of their existing housing.
- There should be a comprehensive, up gradation and legitimisation of the informal settlements combining components like land tenure, municipal services, public health, micro-finance and livelihood promotion.
- Participatory approaches in urban and transport planning should be promoted in the official plan making exercises.
- 10. Civil society organisations, housing and civil rights activists should adopt the 'mobility' cause of the poor as well. There is a need of mobilise the poor community to demand better walking, cycling and public or shared transport.
7.5 Reflections on the research process

When this PhD project started, there were number of assumptions about the mobility of the poor in Ahmedabad city. It was assumed that the motorised two-wheelers would have penetrated to an extent into the poor households like they have in the middleincome groups. The narrative about the poor being the 'disadvantaged commuter' is also prominent in the transport literature from the developed world as well. And thus, there was an option to conduct this study as a traditional accessibility analysis in which where the physical and social accessibility issues are measured. With the continuing data collection and preliminary analysis, it was discovered that the situation is quite different. Finding that the poor can be living in what are, for them, high-accessibility locations threw open a very different kind of dynamic about their mobility. The responses from the participants were quite contrary to them being 'disadvantaged commuters'. In fact, this reseacher was encouraged to further explore the concepts in Indian urban studies like informality and concepts in sociology like social practices. There were more complexities and variations in the mobility of the poor which needed to be mapped and understood. The same is recommendated in the future research agenda as well.

This thesis does not claim that all the complexties and variations amongst the poor are captured and mapped. Some variations prominantly emerging in the text, like location, livelihood and gender were given more importance because of their frequent appearance in the interviews. Besides, like any transport research project focusing on the travel behaviour of a social group, this study has given a lot of importance to the work trips of the poor and trying to capture the working poor more compared to the non-working population. Obtaining and continuing employment is a key factor in surviving from poverty and it is justified by the focus of the thesis being on poverty that prominance is given to the working poor. The mobility issues of the non-working poor are also mentioned as part of the thesis but an exclusive study on the non-working

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poor and their mobility issues is an important lacuna to be addressed by future research.

Lastly, the overlaps between various social practices grouped as resources, competencies and meaning needs to be studied through more detailed qualitative inquiry such as ethnographic studies. Social practices are embedded in daily routines and to unravel them beyond what is being narrated by the participants require a different methodology and a different kind of data collection. This thesis was also limited to mobility related social practices and not all social practices in the poor households, which is also the reason why the overlaps between various social practices are not fully captured and analysis as part of this work.

7.6 Future research directions

There is a continuous need to study various aspects of lives in poverty and including through the mobility lense. First of all, the class dynamics and the mobility pattern are not very well studied in the Indian urban context. The aspects related to gender, age, social hierarchies like caste or religious minorities are not fully explored in the Indian urban context. Besides -

- There is a need to take the conceptual themes developed as part of this study to other cities for further evaluation. Mobility-linked social practices of the poor and other income groups needs to be studied across many cities in India. Besides, the non-working poor and their mobility issues also needs be addressed by future research.
- Understanding attitudes and perceptions of other income groups regarding their mode choices, especially in the context of climate change should be part of the future research agenda.
- The emerging automobile culture in the Indian cities and how it impacts the urban transport governance and decision-making is an important area to explore through innovative methodologies.
- It was not possible within the time and resource constraints of this thesis to study supply-side politics of mobility in Ahmedabad with more rigourous methodologies

and in-depth inteviews, whereas this thesis focused on extensive data collection relating directly to poor people's mobility experiences through their own narratives. However, rigorous analysis of the wider political process should surely be part of the future research agenda.

- Urban policy reserch and documentation is also required in the areas of the benefits of affrodable transport, slum upgrading programs, mass transit systems for the poor.
- Shared, informal transport like the 'shuttle' rickshaw service in Ahmedabad needs to be studied as a business model and about the benefits it brings in for various income groups.
- Land use planning research in India should document and find empirical evidence to support the claim that mixed used developments help to minimise travel distances and have larger social benefits in Indian cities.

Finally, improved articulation of the social dimensions of transport should attract greater research and policy attention in India in future years. Not only transport research circles but also other relevant disciplines in the areas of livelihood, education and skills development, public health and wellbeing, housing and sustainable communities should take the social dimensions of transport issues more seriously in their research.

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Appendices

A1. Qualitative data – semi-structured interviewing guide

(Note: All bulleted points are prompts, which will be used, if the need be, to elaborate the answer and to cover all important issues)

- 1. Remind participant of the following from the participant information sheet:
- Researcher's introduction and affiliation, purpose of the research and how it is conducted, time taken etc.
- What happens to the material collected, provide contact details and take permission for audio recording
- 2. Please tell me about you and your family.

(Occupation and education levels of the interviewee and his family members etc)

Residential choices

- 3. How long have you been staying at your current residence?
- Under what circumstances/conditions you came here? What options did you have?
- What is the history of changing residences before? And if any impacts of moving on the household (asset base, income, jobs, education etc)
- 4. How do you feel about your current location? Any advantages (or disadvantages) accessibility to employment, education etc in the household?

Employment choices

- 5. What kind of work do you do (or used to do)?
- Getting work through the year? Any irregularities involved in income, shifts, locations, security of the job or seasonal migration/ shifting of jobs etc?
- 6. What kind of changes have come in your employment over the period?
- Required any new skill sets/ credit/ Equipments/ Assets etc?
- Impacts on the household (asset base, income, jobs, education etc)

Transport-mobility choices

- 7. Can you describe your travel in the city yesterday? How do you travel every day in a week?
- How do you feel about your travel in the city? Something that bothers you?
- Under what circumstance do you (or will you) change your travel pattern/mode?
- 8. Why this option? What were the other options to move around the city?
- Can you describe the good and bad things about your way of getting around the city?
- What about other family members? (Try and cover activities, gender, age)
- 9. There are new transport facilities being created in the city, how do you feel about them?
 - What about Municipal bus or Janmarg (BRT) or shared auto rickshaws? Pedestrian or cycling facilities?

• Any other concerns about daily travel in the city?

Poverty and Transport

- 11. How do you feel about your economic situation over the years?
- 12. What do you think are the most important factor(s) that has helped you 'survive' in the city?
- 13. If you have a choice to change something about where you stay, where you work and how do you get around what would you prefer to change?
- Will that improve your economic situation? Why?
- 15. What are your plans for future?
- What do you see as future transport, especially for your children?
- What kind of facility do you want to see improved in the city?

Discuss any other issues they may want to talk about.

Thank participants for their time, help and ideas.

A2. Socio-demographic profile of the interviewees

		Male				Female						
No.	Settlement	40.00	00.40	40.50	50.00	00	10.00	00.40	40-	50-		-
	typologies	18-30	30-40	40-50	50-60	60+	18-30	30-40	50	60	60+	lotal
1	Core city slums	2	2	1	2	1		4	2	1	1	16
3	Periphery - suburban slums	1	1		1	1	2	1	2	1		10
4	Resettlement sites (public housing)		1	1	1	1	1	1	1		1	8
		Total Male 1			16	Total Female			18	34		

Distribution of interviewee as pare the mode usage, gender and location

List of interviewees – Occupation, Sex, Age and Mode use.No.AreaOccupationSexAge Mode

No.	Area	Occupation	Sex	Age	Mode
Core	-city Slums				
1	Baba lavalavinagar	Housemaid and part time kite maker	F	37	Walk
2	Jaalampuri matani chali, Saraspur	Unemployed but runs a family store	М	45	Walk
3	Jaalampuri matani chali, Saraspur	Goods carrier / peddler	М	32	M2W (earlier Cycle)
4	Hanumannagar	Industrial worker	М	54	Cycle
5	Devipujakni Chali, Nr Gandhi Bridge	Street vendors (recycling industry of used bottles, cartons etc.)	F	30	Walk
6	Sankalchand mukhini Chali, Baherampura	Daily-wage construction worker	М	21	Walk, Cycle, Rickshaw
7	Sankalchand mukhini Chali, Baherampura	Daily-wage construction worker	М	58	Walk, Cycle, Rickshaw
8	Sankalchand mukhini Chali, Baherampura	Daily-wage construction worker	М	28	Walk, Cycle, Rickshaw
9	Sankalchand mukhini Chali, Baherampura	Daily-wage construction worker	М	55	Walk, Cycle, Rickshaw
10	Near Khanpur - Devi pujakni chali	Old cloths seller, Street vendor	М	29	Walk
11	Ramini Chali, Rakhiyal	Crockery seller, Street vendor	F	62	walk
12	Ramjini Chali, Rakhiyal	Bag maker, Household based self- employed	М	60	Cycle
13	Laluramna chhapara, Jamalpur	Vegetable vendor	М	40	Walk
14	Kalupur	Salaried employment, Sweeper in the hospital	F	23	Walk, AMTS
15	Saudagarni pol, Jamalpur (SEWA)	Salaried employment, Sweeper with municipal corporation	F	56	Walk
16	navi fulchandni chali, Saraspur (SEWA)	Salaried employment, industrial textile worker	F	33	Walk
Perip	heral Slums	•	•		
17	chali near girivrund soc	Salaried employment, Sweeper in hospital	F	41	Walk, Shuttle
18	Eastern Ahmedabad	Salaried employment, industrial stitching and embroidery	F	40	Walk, Shuttle,

19	Satyamnagar, Amraiwadi road	Goods puller (casual labour)	F	55	Walk, Shuttle	
20	Viratnagar, Periphery	Street Vendor (Spices)		45	Walk, Shuttle	
21	Meghani Nagar	Salaried employment, Office clearer and help	Μ	37	Walk, Shuttle	
22	Odhav	Salaried employment, garment factory	F	24	Walk, AMTS	
23	Amraiwadi	Salaried employment, peon	F	38	Shuttle, BUS	
24	Sanjaynagar, Near Parasnagar	Casual Labour – daily wage	F	34	Auto rickshaw	
25	Yogeshwarnagar, Near New APMC	Porter (retired)	M 62		Walk	
Rese	ettlement sites					
26	Trikampura BSUP	Toy maker and seller (vendor)	М	39	Cycle	
27	Ganeshnagar	Salaried employment, works as a peon in hospital	F	42 Shuttle,Walk		
28	Mahadev Nagar, Ranip	Salaried employment, NGO	F	27	Bus, Shuttle	
29	Trikampura BSUP	Casual Labour – daily wage	М	21	Walk, Shuttle	
30	Ajit Mill ni Chali	Casual Labour – daily wage	М	45	Walk, Shuttle	
31	Trikampura BSUP	Goods carrier / peddler		53	Shuttle	
32	Ganesh Nagar	Industrial worker in Narol	М	35	Cycle	
33	Ganesh Nagar	Domestic Help, Near Chandola	F	36	Walk, Shuttle	
34	Ajit Mill ni Chali	Domestic Help,	F	52	Walk, Shuttle	

A3. Detailed profile of the first interviewee

Interviewee1 – Female, 37

Location: Baba Lavalavinagar, near Jamalpur gate (on the periphery of the historic walled city). The slum settlement is located behind a crematorium which is located on the Sabarmati riverfront. The slum is located next to the river bridge. A vegetable market and its spill-over dominate the area outside the slum. Recently, a flyover is built to jump the junction around the vegetable market.



Family members: Husband, 3 children (18 yr, 16 yr and 14 yr) and mother-in-law (paralyzed)

Livelihood: She works as a domestic help. Husband works in a metal fabrication unit.

The household also involved in kite-making as a seasonal occupation.

Education: She can read and write; same with the husband. The children are studying in the school – two boys are in Jalgaon (Maharashtra) with her parents and one daughter (youngest one) stays with her.

She is staying in the same location for 20 years. She moved to Ahmedabad after her marriage to the house where she is living now. The family has bought the house informally long time back (she doesn't know when). The slum settlement at present doesn't have any threats of eviction from the municipal corporation and it is believed to be older than 30 years. About ten years back, the slum was provided with the basic services like water supply, sanitation (including toilets), stone-paving of streets, street lights etc. She had paid 2100/- INR as the 'beneficiaries' contribution'. This was done as part of the slum networking program (SNP) called '*Parivartan*' (literally transformation) with the help of the local NGO (SEWA) and the municipal corporation. Before this program, she describes that there was a problem in fetching water and she had to stand in a queue for almost an hour to get the water. There was no toilet in the household and no street-lights or street paving. Now she has a two-room house (including kitchen) and a toilet. There is piped water-supply and sewerage connection with street lights and paved roads.

She has started working as a domestic help for last 6 years. She works for one hour in a house and gets about 1000/- INR as a salary. She works in only one house as a domestic help. She doesn't want to work in more houses and she is satisfied with her salary. She also makes kites as a part time job. She gets this work for 4 months before the kite flying festival, which falls in mid-January. She works for 4 to 6 hours during this time in the evening and in the night. Her husband and daughter also help her with this work. Her husband works for a metal fabrication unit. His work stops for at least 3 months in the monsoon and he doesn't get any salary during those months. He met with an accident six years back. His employee didn't pay him any reimbursement or damages, which created an economic crisis in their household. She started working

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from that point onwards as a domestic help. It was slowly discovered in the interview that her husband resisted her to go out and work before this crisis situation was created. During this time, she also sent her sons to her parents' house as they could not afford their education. Her parents insisted to pay for their education and they took them in.

She walks to work and it takes half an hour. She says that she is happy to walk. While going, she drops her daughter to school. Sometimes she takes shuttle (shared) auto rickshaw. The cost of which is about 10 INR for each trip for two people. Her daughter walks to school along with her but returns on her own. Her husband also walks to work for half-an-hour to reach the factory. Right now, they don't face any problem with the transport as for them everything is easily accessible.

She doesn't want to invest in transport (mode). When asked about buying a cycle for her daughter she says that the roads are not very safe for a cyclist. Again when asked she insists that it is not because it is her daughter, she wouldn't buy the cycle for her. She would have done the same for her son too. Her husband doesn't want to buy a cycle either. Buying a motor-bike for him is possible only after they manage all their expenses well. Her families occasionally use the shared rickshaw for social outings. They don't use AMTS (municipal bus service) as it is not as convenient to get as the shared rickshaw.

She points out the difficulties faced by the residents after the construction of the flyover. The junction below it is more chaotic. To make space for the flyover (and the side-lanes) some hawkers lost their usual spots. She takes name of a person from the settlement who lost his hawking space. There are some local NGOs working in the settlement but which are not directly helpful. She had an account in the micro-finance group but when she took a loan some years back she was charge very high compound interest rate after that she doesn't trust them. All she wants from the government is to 'regularise' their house. Otherwise, she doesn't think that government has done

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'anything' for them. She acknowledges that because of their own efforts, they have

managed to survive through difficult times.

- She did not work for first 14 years of her married life. The family has gone through some crisis in the past which was mitigated by her decision to start working. Only at the time of crisis she got the consent of her husband.
- Two children staying with the grand-parents also indicate their low affordability to pay for their children's education.
- Residential location is crucial to this household as everyone is dependent on walking to work or to the school.
- Their personal mobility is not really perceived as a problem as they are managing to access work and education by walking but the roads in general are perceived as hostile.
- Cycling is not considered as an option for anyone in the family because of the perceived threat of traffic on the roads.
- They neither have a say or stakes in the flyover building activities next to their neighborhood. This has further deteriorated the pedestrian road safety in the area.
- Overall, this interview hints at many structural issues of living in poverty such as informality of housing and job market, no social security for the workers, gender issues within a household, hostile road environment for cycling, bias towards motorized vehicles in the urban projects, ineffectiveness of the micro-finance institutes etc.

A4. Specimen Transcripts of two interviews

Female, Age: 41 - Sweeper in a hospital, salaried employee (on contract) Q: What is your name? Tell me about yourself.

A: My name is Pratima H Patel. I live in Saiyejpur-Boghar-Kubereshwar Mahadev's Girimunj society and come from there. We are three people in the house, me, my husband and my son. We have two daughters, but both are married. The son is doing his college in FY (First Year). My husband is working in a garment factory.

Q: What is your age?

A: My age is 42 years.

Q: Is your husband educated?

A: No. He has studied only till 3rd class.

Q: And you?

A: Till 10th class.

Q: Where do you live presently?

A: I live in Girimunj society; it is a Chali opposite Kubereshwar Mahadev.

Q: Since how many years have you been living there?

A: I've been living there for around 22 years.

Q: How did you come to live in that house?

A: I had been living in that house on rent but I bought it 5-6years ago from my husband's elder brother.

Q: Where did you stay on rent earlier?

A: In a house in the same society.

Q: Were you living together?

A: No, we lived separately.

Q: Can you tell me how did you change houses?

A: We used to change house for reasons like the owner having problems or any other reason he would give; and as such no owner allows anyone to live on rent for more than 12 months.

Q: So did you change houses every year?

A: Yes, in every year or two at the most.

Q: So it must be a lot of trouble for you.

A: Yes, a lot of trouble.

Q: What kind of trouble exactly?

A: The children have to study and even then changing house is always troublesome.

Q: Not like that. One is the hindrance to your son's study. What other troubles? Any problem in commuting?

A: No, our commuting is that of routine and there is no problem in it. Because we are living in the same area since 22 years.

Q: Why did you choose this area only?

A: Because we got comfortable in that area and also because my husband's elder brother lived in that area. He has his own house there since the beginning

Q: Did you find any help from anyone in buying the house from any neighbours or relatives?

A: No help from anyone. My husband's brother had sold off the land we had in a village and we bought the house from the money that came by selling it.

Q: What do you think about the advantages and disadvantages of now having shifted from living in a rented house to buying a house of your own?

A: Living in one's own house has obvious advantages. We had to pay rent every month and adjust the remaining income. Then have to pay the electricity bill to them, whatever amount they quote. Now after having my own house, we can pay the light bill anytime we want.

Q: Since how long have you been doing job here?

A: Earlier I used to go (work) in a private hospital.

Q: Which private hospital?

A: Sterling Hospital. There I worker for around 3-4 years.

Q: And here?

A: I've joined this place 4 months ago.

Q: On what post are you working here?

A: I'm a maid servant here.

Q: So what did you do earlier?

A: I did nothing before that. I kept to home.

Q: How did you then decide to work?

A: As the children grew up and my husband, who was working in a mill, which closed.

Q: How long has it been that the mill got closed?

A: It has been 18years since the mill got closed. Then he used to do stitching and other works from home. But then it wasn't enough to make the ends meet.

Q: So did he support you in your decision to go out and work?

A: Yes

Q: What does he do now?

A: He goes in a factory.

Q: How does he go?

A: His work place is around 15-20 minutes away so he goes walking.

Q: How did he go earlier?

A: He used to go in bus. He used to get the city bus.

Q: How did you go for work where you worked earlier?

A: I too used the city bus.

Q: Direct bus...?

A: No there is no direct bus, so I used to have to go to Lal Darwaja. During my morning duty, going via Lal Darwaja was very difficult because it used to be crowded with college going students. Many times in such cases the bus used to not even stop. Even today we face this problem.

Q: So what do you do for this? Do you go in a shuttle sometimes?

A: Yes, if the bus doesn't stop, we have to catch a shuttle-rickshaw.

Q: How much would it be costing?

A: In shuttle, to reach till kalupur from there, it took 7-8 rupees and from Kalupur to the here; another 5 rupees. So everyday it took 12-13 rupees for the onward journey itself. Q: And if you travel in the bus?

A: If sometimes I get a direct bus, it takes 6 rupees else 7 rupees. So it takes 15-16 rupees for both going and returning.

Q: So do you come back home walking?

A: From Income Tax area we have to any way come walking.

Q: How much kilometres would that be?

A: I'm clueless about the kilometres but it takes 15 minutes.

Q: So is walking problematic for you?

A: It is problematic.

Q: What about the traffic?

A: Yes, when we get down and the traffic flow starts, it gets difficult to cross the road.

Q: Has something of that sort (accident) happened to you?

A: No. It has not happened anytime yet.

Q: Yes, so you walk carefully.

Q: So even your husband goes walking. What is his age? Does he have any problem in walking?

A: His age is above 45. And he does not have any problem in going walking.

Q: Does he not drive a cycle?

A: No he doesn't know how to drive a cycle.

Q: So you never bought a cycle?

A: No, We never bought a cycle.

Q: How does your son go to college?

A: He travels in bus.

Q: And when he used to go in school?

A: His school was nearby.

Q: Does he (your husband) have to do the same work whole year?

A: yes.

Q: How much might you be earning? Approximately?

A: I get around Rs.5000

Q: How is your shift changed? And how troublesome is it?

A: In summers if my shift gets over in the afternoon, then walking from Income tax to home is really troublesome. It rains only sometimes so that is not much problem.

Q: Why did you leave your earlier job?

A: That place was far and this is nearer.

Q: Had you got any training for the job here?

A: I got the job based upon my experience.

Q: Earlier you didn't work and now you work, so has there been any change in the habits in your house?

A: Earlier only my husband was earning so I had to run the household only from it, my two daughters' and the son's education so I used to do some small work like stitching and knitting which gave some relief to me in managing expenses. But now it is relatively good because now I and my husband both work.

Q: What are the problems in commuting for job?

A: It is problematic that buses don't stop, many times I have to wait for more than an hour at the bus stand and it gets very late by the time I reach home. In all this many times the expense increases. If the average expense is 15rs, in such cases it becomes 20-25 rupees.

Q: if you spend 20-25 rupees in such cases, in what matters of household do you try to economize?

A: Yes we do but that is...But then we don't have any such expense which can be cut down upon. Still, we cut down on vegetables or other groceries.

Q: Were you living here only or did you come from other place?

A: My maternal side is Pirana

Q: So you shifted from there?

A: My husband used to work in Ashok Mills in Naroda and he used to find it very far to travel. So we came here. And here his elder brother was staying so we came beside them.

Q: What is the reason that you got fixed here then? Why did you decide to finally settle here?

A: What can I say about that!

Q: No, but then I want to know why and how do people settle!

A: Here we get everything in the city. We had a village there and even a farm, but couldn't adjust with farming. And here if we work somewhere and earn, it is easier to run the house.

Q: If you were given an option to change any of these, what would you change: The place where you live or the place where you work? Or would you change your mode of transportation?

A: I would change the transportation. I would wish that in less cost I would get to work and get back from work quickly.

Q: do you think you financial condition would improve then? A: Yes

Q: How would it improve?

A: That, as I told you, when we don't get the buses on time, when we have to hire special rickshaws and when we have to spend 20-25 rupees while if it takes lesser then it would financially create a difference for us.

Q: If your income increases, what would you change?

A: I would consider what is more important for the household and accordingly would buy that.

Q: What would be that important thing? What would be the most necessary thing you would get if your income increases?

A: An instrument for transportation.

Q: If your income increases then if you buy a vehicle, would you start commuting on it or even then use the public transportation?

A: That will depend upon how much my income increases and the affordability.

Q: What would you wish to get for your children in future?

A: I have thought about my son's future; if he gets a good post at work then we would buy a four-wheeler.

Q: Now, I want to know what are the changes and the problems you have come across from the time of your marriage till now. What are the things that have occurred? I shall not ask you bit by bit so you just tell me at one go. I want to know this because my condition might be different and so would be anyone else's as much as yours! I want to know how different women run their houses in different circumstances.

A: When I got married, my husband was working in a mill, and our in-laws lived in the village so we both were alone here. Even we were living there but then because of the distance we came and settled here in Ahmedabad. When I came here, my first daughter was one and half years old and I was 7 months pregnant when my husband lost his job after the closure of the mill. That time we didn't have much problem as we got some remuneration from the mill. But after a year, because my husband didn't have any other skill for any other work, which he doesn't even now, and kept at home without any work, problems started to increase. We had our second daughter. Two years after that I had a son so gradually problems started to increase even more. I'm not acquainted much with anyone here but my husband's brother's wife knew a lady who advised me to work and helped me get work as maid at houses. That work was to wash clothes and utensils at 3-4 houses. I did that for 6-7 years. My children, as they gradually grew, they helped me in domestic work. My elder daughter used to do the domestic chores at the age of 6. There has been a lot of pain in life. Because of my lack of money, I got my both daughters marry in a court. My son has passed 12th class. I have done many different works, domestic jobs at different houses. I joined a stitching class and there I used to get only Rs.700 salary. My husband's salary used to be very less. The condition of my house was very serious and my parents too helped me a little.

Q: But today your condition is good.

A: yes, but even today my husband's salary is very less. His salary is Rs.3000 so I run the household from my salary only.

Male, Age: 40 - Street Vendor, Eastern core city

Q: Tell me your name and a few things about the people living in your family.A: see; in my family... there is me and my father who was working in Lal Mill but he got paralysed. And he has got no relief from it even today. When we went for his medication, the cost of a Rs.5 lakh treatment was Rs.5o lakh and he died because we didn't have the capacity to look after his treatment and medication.Q: In which year?

A: In which year... It is 2011 right now...he passed away somewhere around 1999. Q: What is your name and who all do you live in your house?

A: My name is Samjhibhai Bachubhai Patni. Rekha ben Samjhibhai Patni is my wife and my five children live too. The eldest one, the daughter's name is Anuben samjhibhai Patni. The second one is Mehulbhai Samjhibhai Patni. The third, Vipulbhai Samjhibhai Patni, The fourth, Sahilbhai Samjhibhai Patni, and the fifth one, is Artiben Samjhibhai Patni. We are these many people and till today we have got no

governmental facility, the house is under cutting, we do not get any facility. Even this BPL cards which have come out; we've not got them yet.

Q: So are you BPL (Below Poverty Line – cards distributed by the government)? A: No

Q: had you filled the form for it?

A: Yes, we had filled it but our names only have not come in it. So how can we run the household and take care of the kids. I've just returned from work and you've come. I do business in Maninagar.

Q: What business do you do?

A: I sell vegetables. I peddle and sell vegetables.

Q: from where do you bring the vegetables?

A: from Jamalpur. We bring it from Jamalpur and by 7 am we reach Maninagar, do the business and by 4pm.. see, if the work gets over early only then, otherwise I return late. What happened today...There was *Mandavdi* in Ghodasar. Mandavdi means all the whole-sale business is closed. So we bring little and sell it and earn the living.

Q: How much worth of goods do you buy everyday?

A: Everyday we purchase around Rs.600-700 worth of goods, due to inflation. And the travel expense comes to Rs.20-30 daily.

Q: How do you go to Jamalpur daily?

A: We go to Jamalpur in rickshaw.

Q: Do you go alone or go in groups?

A: We go in groups. How can we afford the charge if we go alone! The charges from here to Jamalpur are Rs.40-45

Q: how many people do you go in one rickshaw?

A: In one auto, 4-5 people go together as shuttle and he (the driver) takes Rs.10 each from us. And after loading the goods, the return charges are Rs.20 each. So Rs.30 per day, amounting to Rs.900 per month is my expense.

Q: So do you come here and then arrange the goods in your *laari* (cart)? Where is that cart?

A: My laari is here only. I load the card with the goods and we go to Ghodasar. Q: How do you go?

A: We go walking. We walk through the alleys and get customers on the way. If the goods are sold early, we return back early and if they don't, we return late. So the goods must be sold for us to earn something.

Q: So if you buy goods for Rs.600-700, then at what amount does it get sold? A: See, if we buy goods worth Rs.600-700, it gets sold off for Rs.800-850; not more than that.

Q: So you earn Rs100-200 every day after that?

A: I get around Rs.100 every day after cutting all the other expenses of the business. So my monthly income is around Rs.3000

Q: Since when are you doing this business?

A: I have been doing this business since I was 15 years old. I even left my school for that. When I was studying in 8th class, I saw the condition of my house, that my father was paralysed, mother kept ill (She has TB and had breathing problems). So since then I am the only one to earn in my house. I had to earn the living and so I left the school. So I used to run the household and at a yound age I was made to marry while my parents were alive. In our society, parents always think of doing good to their children and now I am a father of five children. It happens out of ignorance and then it also becomes very difficult to lead life. We don't have any governmental support. See, we don't have a BPL card; the ration my father had made, our name isn't there in it. My name is there, but when I go to the ration shop I'm said that as my father is dead, my brother is dead (who died in an accident) and everyone is dead, and then even my wife's name isn't there; only me and my sister's names are there now, rest are deleted, so I cannot avail of the ration card.

Q: If you want to get her name in it, what would you have to do?

A: They're asking for bribe. They're asking for Rs.1000-2000. How can we poor people bring that from and give. This is only for a ration card.

Q: So you take your cart from here to Ghodasar daily. At which places do you sell there?

A: There is Ghodasar, Maninagar, Jawahar Chowk, Dakshini Society, like that. Q: How did you start off from Ghodasar?

A: See Sir, this business was done by my parents earlier and in their absence I took over so I knew where they did the business and so according to that I continued.

Q: So all the people of your community go there or at different places?

A: At different places. There might be 10-20 people of our community and out of the others, some go to Kankaria, some go to Vatva, different places... All of them don't have contracts at the same place.

Q: How many kilometres is Ghodasar from here and how long does it take to go there from here?

A: From here it takes 45minutes to 1hour by walking and talking the cart.

Q: So while going from here, doesn't traffic bother you?

A: Yes it does and there being some big instruments in it, if a vehicle speeds by, it may hit it and go. So that fear is there.

Q: Has that happened to you in these 10-15 years?

A: It has happened but it is normal that if a vehicle hits the cars, all the vegetables fall down and makes a loss for me. Nothing apart from that and nothing of dangerous sorts has happened.

Q: What is your further future plan?

A: My future plan is this Sir, Our house is declared to be in the cutting zone (for roadwidening) and I have children. We pray that the government gives us proper ration facility and though wherever but a good accommodation be provided to us. We pray for this.

Q: How did you come to know that this is under cutting?

A: It has been measured. Many big officers have themselves come here and measured it for cutting. And I already showed you the marking how much it is. More than that, these AMTS buses and the luxury buses run powerfully on this road so our children have a lot of difficulty on this road.

Q: Had any one met with an accident here?

A: Yes, my brother died in accident here. The place where we are sitting right now, me and my brother were sleeping and at 4am in the morning a vehicle came and ran over him. He hardly lived for 4-5 days and then he died.

Q: How long before did this happen?

A: This happened 10-12 years ago. We filed a police case in Manavgram Police chowky in Rakhial. What they said was that the tractor that hit him was not insured and so to get the claim we would have to substitute it with another one. My old man was

living then; he said that he wanted to claim on the tractor that hit his son. But till today there has been no resolve on the case. And the advocate whom we had hired for this case took away the money and eloped away. So presently we have got no decision. So this is dangerous for our children and I pray for better facilities so that this doesn't happen again in my lifetime.

Q: So what are the luxury (BUSES)'s timings?

A: The luxuries (buses) start after 9pm or 10-11pm in the night. Even the tractors and all come after 11-12 in the night. And even the police department is not taking any care this matter. Nobody is there to look into this.

Q: Your house has come under cutting (demolition); so how much prior time have they given you.

A: Now this year will end, 2011 and in 2012 they will start the demolition and they said something like, asking us to manage the place accordingly. They had gone off saying that but yet they have not come back. They want to make a circle near that cross road. They'll make circle and for that our house will be demolished, then where do we go, Sir!

Q: Today everywhere in Ahmedabad there are talks of growth and development. What do you think of it? What our Chief Minister and everyone else are saying about...

A: Listen, now the form we have filled has names of certain people in their name-list and our name is not there at all. We live on the road and our names are not there and those who live on the inner side, their names are there in the BPL list.

Q: How did they get the BPL card?

A: See, their BPL work they did at the ration shop using their connections and support from each other and there is no support for us. We do not have any connections. Q: You have this demolition in this place; don't you have any leader amongst

yourselves?

A: No one.

Q: Do you go to and talk to the local political party person of this area or anything of that sort?

A: No, nothing of that sort. Lallubhai Ratnabhai is the owner of our *moholla*. He can be counted as the leader, but he never comes to inform us about any facilities that come. He supports only his relatives and tells them to do this or that.

Q: So is this his private land?

A: No it not his private property, nor under his ownership. There is someone else, but I don't know who, who owns it. We've inhabited this place since 40-45 years and still no tax-bill has come for us and no water-tax. He is fudging everything.

Q: Now that your house is under demolition and if you wish to buy a new house in some other place like *Chali*, how much money do you think would be required? A: Look today if I want to buy a house, it'd take around Rs.2-3 lakh. But leave Rs.2-3

lakh, we don't even have Rs.20,000-25,000.

Q: Any other *Chali* of your own community, a chali like this, would cost how much? A: Rs.2-3 lakh or 4 lakh

Q: Even for a Chali?

A: Even in a Chali. Even if it would be of our own community, It is we who would be the needy in the deal and so whatever they ask, we would have to pay.

Q: Where nearby is another such Chali of your community?

A: They are *Lallu Ratna Ni Chali* and *Satyadev Ni Chali*. Only these are the two in this area. Apart from that there is one in Chandola area.

Q: Won't you go there?

A: Yes we can go that far too but then they'd sense that I'm the needy in the deal and would quote me Rs.3-4 lakh for a house that might be actually worth Rs.1 lakh Q: So no help from the community?

A: No help.

Q: So since how long have you been travelling to Ghodasar by walk?
A: My age was around 13-14 years and I was in 7th-8th class, since then. I used to go along my old man (father) to support him. So after my mother and he died, I started doing the business in their place. I left my studies for this.

Q: How many years have passed since then? Twenty years?

A: Yes, it must have been 20 years since then.

Q: So in these 20 years do you find the traffic increasing or as it was.

A: No, it does feel to be increasing. It doesn't seem to be any less. Now we get fear while passing through Ghodasar gam, Khokhra gam and Maninagar railway station at 9 or 10 at night because of hooligans and the *powderya*.

Q: Why?

A: We would pass through alone with our carts and they would scare us with knifes and all and rob us.

Q: What is *powdery*.

A: Those who intake brown-sugar. And if we don't give money, they beat us or show us knives. So we leave these places before 9 or 10 in the night; in fact leave off by 7-8pm. So we also trick them this way.

Q: So what is the solution for this situation?

A: The solution would be whatever the incumbent government brings for the poor people, whether it is Narendra Modi's government (at the state) or Manmohan Singh's government (at the centre)... Now whoever has this BPL are getting many good benefits and those who don't have it aren't! Even our ration is stalled now. When we go to the ration shop and ask them to make a new card for us, the controllers ask us for money. I have already produced the death certificates of my parents; still they are not giving ration to us. They're asking Rs.1500 and when we don't have that kind of money, how can we give it! We earn meagre 50-100 rupees every day and pay 100-200 rupees light (electricity) bill; so poor people like us, where can we go! So the benefits the BPL card holders get, even we, the normal card holders should get. And after this demolition, we should get some housing facilities. This is our humble request. Q: Yes that is correct, but we do not come from the government. We are just doing a research and whatever report we prepare, we send it to the higher authorities and whether or not to work upon it is upon their discretion. So we do not want to give you any false promises. We're just here to discuss.

A: (The wife speaks) Yes, you must be legal people so...

Q: No, we're not even from the legal department. We're just doing a research.

A: Yes, so you officials come for the betterment of the poor people.

Q: We do present our case forward to the higher authorities. But the government might not have wanted to work upon it! They're doing the Kalyan mela scheme but no one here might have come under it.

A: Yes, no one in this whole line/stretch has got it. The BPL card which gives benefits of free medication and health services and other things have not been availed by us. Q: Which other means of transportation do you use apart from shuttle-rickshaw?

A: Nothing apart from it. If we want to go to some village, we use the railways. Q: What about municipality buses?

A: Yes, we use the municipality buses to go to places like Kalupur, Saranpur or Lal Darwaja. But generally I have to wait for the bus for 10-30 minutes and sometimes it comes immediately.

Q: Is it cheaper for you?

A: It is cheaper.

Q: So shuttle-rickshaw is costlier?

A: yes it is. A shuttle-rickshaw would coast Rs.10 from here to Kalupur while Bus would cost Rs.5 only.The red-buses are of-course cheap for us.

Q: Do most of the people of your community use shuttle-rickshaws too?

A: Yes.

Q: Anything else, Sir?

A: No nothing else.

Q: Where will you fill all these details? A: I have recorded it on this (recorder).

A5. Quantitative data – Household survey form

1. Reference

Forn	Form No.				:	Surveyor name:	
Area	:			Sett	ement Code:	Settlement name	e:
Nam	e of the head of	the household	:	Nam	e of the respo	ondent:	
2 . I	Household Info	rmation					
Sr. No.	Name	Relation with head of the household	Sex (M/F)	Age	Education	Main Activity	Subsidiary activity
	1	2	3	4	5	6	7
1	Head of the Household	1					
2							
3							
5							
6							
7							
8							
9							
				<i>.</i>			
Coc the	le (Relation with Household) (2)	h Head of	Educatio	on (5)		Activities (6-7)	
1. S	elf		1. Illitera	te		1. Salaried empl (regular waged)	oyment
2. V	/ife / Husband		2. Literate			2. Daily Wages employment (casual labour)	
3. S	on / Daughter		3. Primary education (Upto 8 th)			3. Self Employed (work in h/h enterprise)	
4. G	irandson / Grand	d Daughter	4. Matric	ulation	/upto 12 th	4. Domestic Worker at Fixed Rate	
5. N	lother / Father		5. Gradu	ate		5. Honorary Worker	
6. N	lother in law / Fa	ther in law	6. Certifi	cate C	ourse	6. Home-based	paid work
7. D	aughter in law		7. Others	s (Spe	city)	(house manager	unpaid work
8. U	ncle/ Aunt					8. Attending edu institute	cational
9. C	others					9. Pensioners/re recipient	mittance
10. Nied	Brother / Sister /	Nephew /				10. Unemployed disability	– due to
						11. Unemployed work	– seeking
						12. Others - spe	cifv

Note for the following table: If there are more families within a household then ask the following questions to one family in detail. If there are more than 4 trips in a day then use an extra sheet of paper to record the same. Let the respondent specify the purpose and the mode of the trip. M1, M2, M3... = member 1, member 2 etc. T1, T2... = trip 1, trip2 and so on for the following table.

No. of the mem ber	Na me	Tri ps	Where a they tra- the last	III did vel on day?	Trip Purpos e	Mode	Dista nce	Time taken (excluding waiting time, if any)	Waiti ng time (if any)	Expend iture (if any, in Rs.)	How many days in a week?
			From	То	•		_	•	-	0	•
		T 4	1	2	3	4	5	6	1	8	9
		13									
		14									
		T1									
		T2									
		T3									
		T4									
		T1									
		T2									
		T3									
		T4									
		T1									
		T2									
		T3									
Child 1											
		T1									
		T2									
		T3									
Child 2											
		T1									
		T2									
		Т3									

3. Member-wise trips in the previous working day (A)

(B) Work trips for People who are changing multiple locations in a day (ie. Self employed people, vendors etc.)

No	Nam e	Which areas did they go on last workin g day?	Mod e	Avg. time spent travellin g	Avg. Distanc e travelle d (In Km)	If motorised modes then avg. CNG/Diesal/Pet rol use in a day.	Expenditu re (if any, in Rs.)	How many days in a week ?
(C) F	Road Ac	cidents a	nd risks		•	•	•	

(-)			
1	Have you or someone from the family been a	Yes	No
	victim of a road crash in last 5 years?		

2	If Yes Please give details								
Case	Mode used	Mode responsible for the crash	Kind of Injuries/disability	Cost of medical expenses	Days Hospitalized/ Unable to Work				
1									
2									

4. Housing and Living Conditions

1	What is the type of the house?	Kutcha		Semi-P	ucca		Pucc	а
2	What is the material used to build Walls and Roof?	Wall Material				Roof Ma	aterial	
3	What is the tenure arrangement of the house you live in? Tick the right option	Owned		Rented			Shar	ed
4	If it is Owned, How much amount did you pay for it?	Rs		in			(Year)
	Have you done any major investments in this house? Tick the right option	Yes			No			
	If Yes, Please indicate the following , Purpose	Investment Year			Amoun	t (in Rs.))	
5	If it is Rented, What is the rent you pay for it?	Rs		/Mont	h			
6	Tick and write the appropriate spaces in the house	Rooms	(no.)	Separa	te Kitch	en	Floors	(no.)
7	What is the area of the house you have owned or rented?	Area				(unit)		
	Do you pay property tax? (Tick and Write the appropriate value)	Yes		No			Rs	

5. Urban Basic Services (Tick the Appropriate)

No.		Household level services	Tick if yes
1	Water supply	Household Tap	
2	Toilet	Household toilet	
3	Sewage	Piped sewerage	
4	SWM	h/h collection	
6	Electricity Connection	h/h level electricity connection	
		and meter	

6. Income and Expenditure

1.	What is your household	Rs		/month, or Rs. /Year	
2.	Do you save a fixed amount monthly?	Yes	No	If Yes Rs.	/month
3	Where do you generally put your savings?	Bank	Post- Office	Others	_(Specify)
	Do you have an insurance of any kind?	Yes	No	Premium Value Rs.	
4	Household Expenditure (Last day, month, year)	Daily (Rs.)	Monthly (Rs.)	Yearly (Rs.)	
	Food				
	Energy (electricity,				
	kerosene, cooking,				
	water heating etc.)				
	Clothes + Footwear				
	Education – School /				
	College fees etc.				
	Health				
	Transportation				
	Rent/ Instalments for				
	house loan if any				
	All other (consumer				
	durables, phone bills				
	etc.)				
	Debt repayment (on all				
	debts together)				

9. Surveyor's remarks

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A6. Statistical tests – detailed results

	Ν	Mean	Std. Deviation	Std. Error	95% Confidence for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
walking	1381	1.400	1.9576	.0527	1.297	1.504	.2	30.0
Cycle	445	4.661	4.2411	.2010	4.266	5.056	.5	25.0
AMTS	326	7.824	5.5318	.3064	7.221	8.426	.5	31.0
BRTS	14	6.821	4.3572	1.1645	4.306	9.337	1.5	16.0
Auto Rickshaw	109	5.904	4.0440	.3873	5.136	6.671	1.0	18.0
Shared Rickshaw	521	5.233	3.7490	.1642	4.911	5.556	1.0	23.0
M2W	119	7.067	5.7390	.5261	6.025	8.109	1.0	25.0
Hand Cart/ Pedal Rickshaw	67	4.845	3.6775	.4493	3.948	5.742	.3	10.0
Multiple Mode	395	9.608	7.9090	.3979	8.825	10.390	1.2	90.0
Total	3417	4.485	5.1941	.0889	4.311	4.659	.2	90.0

1. Mode/Distance – Equality of means tests – One way ANOVA (Table 5-7 and 5-8)

Test of Homogeneity of Variances									
Levene Statistic		df1		df2	S	ig.			
75.937			10		3406	.0	00		
ANOVA									
	Sum of Squares	df		Mea	an Square	F		Sig.	
Between Groups	29454.846	10)	294	5.485	159	9.995	.000	
Within Groups	62704.099	34	106	18.4	410				
Total	92158.946	34	16						

Robust Tests of Equality of Means								
	Statistic ^a	df1	df2	Sig.				
Welch	164.914	10	163.001	.000				
Brown-	125.832	10	472.120	.000				
Forsythe								
a. Asymptotic	a. Asymptotically F distributed.							

	= $($ $($ $)$ $)$ $($ $)$ $($ $)$ $)$ $($ $)$ $($ $)$ $($ $)$ $)$ $($ $)$ $($ $)$ $($ $)$ $)$ $()$ $($										
	Sex	Ν	Mean	Std. Deviation	Std. Error Mean						
Distance	Male	2165	5.239	5.6899	.1223						
	Female	1252	3.181	3.8702	.1094						

Independent Samples Test									
	Levene's for Equa Variance	s Test Ility of es	t-test for	Equality of	Means				
	F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Con Interval o Differenc Lower	fidence f the e Upper
Equal variances assumed	105.712	.000	11.370	3415	.000	2.0586	.1810	1.7036	2.4136
Equal variances not assumed			12.548	3327.491	.000	2.0586	.1641	1.7369	2.3803

3. Correlations results - trip length, trip cost & hh income (Table 5-15)

Descriptive Statistics			
	Mean	Std. Deviation	Ν
Household income, Monthly	6385.00	3959.304	3427
Distance	4.485	5.1941	3417
Expenditure	4.95	12.095	3417

		Trip length	Trip cost	Household income,
				Monthly
Trip length	Pearson Correlation	1	0.436**	0.053
	Sig. (2-tailed)	-	0.000	0.082
	Ν	3417	3408	3416
Trip cost	Pearson Correlation	0.436**	1	0.019
	Sig. (2-tailed)	0.000	-	0.269
	Ν	3408	3417	3416
Household	Pearson Correlation	0.053	0.019	1
income, Monthly	Sig. (2-tailed)	0.082	0.269	-
	Ν	3416	3416	3427
** Correlation is sig	nificant at the 0.01 level ((2-tailed).		

Household income, Monthly			
Mode	Mean	Ν	Std. Deviation
	6000.00	2	.000
Walking	5789.15	1383	3659.201
Cycle	6586.07	445	3882.971
AMTS	6175.76	330	2970.210
BRTS	4814.29	14	3307.069
Auto Rickshaw	6718.18	110	3909.907
Shared Rickshaw	6479.35	523	3675.245
M2W	8593.22	118	3846.937
Hand Cart/ Pedal Rickshaw	7462.69	67	4427.286
Multiple Mode	7315.70	395	5053.652

4. Mode-Distance by trip purpose and locations - ANOVA (Table 5-19)

Case Processing Summary						
	Cases Inclu	ıded	Excluded		Total	
	Ν	%	Ν	%	Ν	%
Distance * Residential Location	3381	98.6%	47	1.4%	3428	100.0%

Report				
Distance				
Residential Location	Work and nonwork	Mean	Ν	Std. Deviation
Core city	Work	4.429	437	3.9298
	Education	1.628	211	2.3264
	Other	3.219	842	3.5623
	Total	3.349	1490	3.6365
Periphery	Work	5.491	262	5.4091
	Education	2.686	152	3.9124
	Other	3.914	562	4.4883
	Total	4.146	976	4.7585
Resettlement	Work	9.268	249	7.9335
	Education	3.133	144	2.8961
	Other	6.275	522	6.6038
	Total	6.595	915	6.8661
Total	Work	5.993	948	5.9730
	Education	2.372	507	3.0999
	Other	4.250	1926	4.9827
	Total	4.457	3381	5.1877

ANOVA Table						
		Sum of Squares	Df	Mean Square	F	Sig.
Distance *	Betwn Groups	6106.544	2	3053.272	121.545	.000
Residential	Within Groups	84856.781	3378	25.120		
Location	Total	90963.325	3380			

Measures of Association		
	Eta	Eta Squared
Distance * Residential Location	.259	.067

A7. Ethical review application and approval



FACULTY OF ENVIRONMENT AND TECHNOLOGY

RESEARCH ETHICS SUB-COMMITTEE

APPLICATION FOR ETHICAL REVIEW

This application form should be completed for any research involving human participants conducted in or by the University. "Human participants" include living human beings, human beings who have recently died (including body parts), embryos and foetuses, human tissue and bodily fluids, and human data and records. Research should not commence until written approval has been received from the University Research Ethics Committee (UREC) or Faculty Research Ethics Sub-Committee (FRESC). You should bear this in mind when setting a start date for the project.

This form should be submitted electronically to the Secretary of the Faculty Research Ethics Sub-Committee, Research Office, Room 3Q29 (<u>fetresc.enquiries@uwe.ac.uk</u>) together with all supporting documentation (see below). A signed hard copy of the application form should also be submitted.

You are advised to read the guidance at

<u>http://rbi.uwe.ac.uk/intranet/research/ethics/</u> on 'How to complete an application for ethical approval' in conjunction with this form.

Please provide all the information requested and justify where appropriate – the spaces will expand to provide additional space.

For further guidance please contact Jane Newton or Carolyn Webb in the Faculty Research Office at <u>fetresc.enquiries@uwe.ac.uk</u>, or telephone 0117 328 3102

Project Details:

Project title	Exploring poverty-transport linkages: Mobility practices of
Project funder	UWE (internal)
Proposed project start	February 2010
date	
Anticipated project end	January 2013
date	

Applicant Details:

Name of researcher	Rutul Joshi
(applicant)	
Faculty and School	Centre for Transport and Society, Department of Planning

	and Architecture, Faculty of Environment and Technology
Status (Staff/	PG Research Student
Postgraduate Student/	
Undergraduate Student)	
Email address	Rutul.Joshi@uwe.ac.uk
Contact postal address	(temporary address)
	7 Shraman Apartments, Prabhacolony, Usmanpura,
	Ahemedabad – 380014 (India)
Contact telephone	+91-9913590009 (temporary)
number	

(for completion by FETRESC) Date received: FRESC reference number: Scrutiny – Cttee/CA Outcome: Applicant informed:

For All Applicants:		
Has external ethics approval been sought for this research?	Yes	No - X
If yes, please supply details		

Name of co-researchers (where applicable)	N.A.	
For student applicants only:		
Name of Supervisor (for PG and UG student applicants) ¹ Supervisor's email address Supervisor's telephone	Prof. Graham Parkhurst, Centre for Transport and Society, Department of Planning & Architecture, Faculty of Environment and Technology. graham.parkhurst@uwe.ac.uk +44 (0)117 32 82133	
number		
Details of course/degree for which research is being undertaken	PhD (Transport Studies)	

¹For student applications supervisors should ensure that all of the following are satisfied before the study begins:

 The topic merits further research

 The student has the skills to carry out the research

 The participant information sheet or leaflet is appropriate

 The procedures for recruitment of research participants and obtaining informed

 consent are appropriate

 Supervisor comments:

 I agree that people living in poverty should not be classed as intrinsically vulnerable but welcome the use of existing outreach workers known to the interviewees to facilitate

associations of the research with authority.

interactions with the researcher as a means to minimise

Details of the proposed work:

1 Aims and objectives of, and background to the research:

The research aims to explore through a specific city case-study why the poor in developing countries make (or create) their travel and mobility choices and how these choices are influenced by urban transport planning and governance. Travel choices are short time decisions such as mode, destination, route and time or days of trips. Mobility choices are long term decisions such as residential and job location, vehicle ownership and preferences for modes etc.

Urban poverty is a gripping issue in the rapidly urbanizing developing world. Poverty consists of many interlocked aspects such as food security, livelihood, shelter security (including access to water and sanitation), health and education services, social networks etc. One such aspect is transport which determines the crucial links between housing and labour markets. However, transport and poverty linkages in developing cities are largely neglected both in transport studies and in development studies. The social and political approaches of viewing transportation as economy generating activity overrides other human development concerns (like poverty).

There has been a rapid growth in ownership and use of private motor vehicles in the developing cities along with increasing household incomes and escalating industrialcommercial activities in the city regions. Traditional 'compact' cities in developing world are beginning to become more dispersed with growing private motor vehicle use, whereas the majority of investments in the transport infrastructure facilitate motor vehicle use. The poor are generally dependent on public and human-powered transport modes which are constantly being degraded with the proliferation of private vehicle usage. Inadequate transport provision coupled with lack of accessibility and mobility affect the urban poor disproportionately compared to others in the city leading to deprivation and increasing vulnerability.

Transport system plays a crucial role in preventing or enabling the poor to access resources which are crucial for their daily activities. Transport-based mobility can be seen as negotiating choices and weighing options between residential mobility (moving residences over time) and labour market mobility (changing job).Relatively little is known about how the urban poor negotiate the complexities of their daily lives in relation to their mobility (and travel) choices viz. existing transport systems, land use structure and the planning policies. This research is one such attempt by understanding the linkages between their transport-mobility and various aspects of living in poverty.

2 Research methodology to be used (include a copy of the interview schedule/ questionnaire/observation schedule where appropriate):

This study has adopted an inductive research strategy based around attempting to 'build theory' following the data analysis. In the first instance, this study intends to unpack the 'mobility of the poor' as contextualised phenomena rooted in the spacetime of everyday life. Further this study will also engage with the choices and attitudes of the poor people involving transport.

The research takes a mixed methods approach involving individual interviewing, quantitative household surveys and key-informants interviews along with secondary documentary analysis. The qualitative components highlight the 'mobility choices' or long term decisions related to residential location, employment locations, vehicle ownership and mode to work, including the strategies to cope with deprivation and the constraints of mobility.

Individual interviews: Individual interviews will be conducted as part of this component and it will be conducted in local language (Gujarati) with the adult respondents. Respondents will broadly be selected on the basis of varying residential location (including access to public transport), types of job profile (and distance to work), primary transport mode use representing gender balance and covering all communities in the selected low-income settlement.

Key informant interviews: individual interviews will be conducted where government officials, academicians, development professionals with the NGOs etc. will be the respondents.

Household Survey: Quantitative surveys will be used to test the claims arising from the qualitative analysis. The short-term decisions referred to as 'travel choices' - frequency of travel for various purposes, mode, destination, route and time of day of trip - will be captured in detail in the quantitative household surveys. This survey will be conducted in the household settings answered by the one adult member of the family.

3 Selection of participants:

Will the participants be from any of the following groups?(Tick as appropriate)

- Children under 18
- Adults who are unable to consent for themselves²
- Adults who are unconscious, very severely ill or have a terminal illness
- Adults in emergency situations
- Adults with mental illness (particularly if detained under Mental Health Legislation)
- Prisoners
 -] Young Offenders
- Healthy Volunteers (where procedures may be adverse or invasive)
- Those who could be considered to have a particularly dependent relationship with the investigator, e.g. those in care homes, medical students
 - Other vulnerable groups
- None of the above

(² Please note, the Mental Capacity Act requires all intrusive research involving adults who are unable to consent for themselves to be scrutinised by an NHS Local Research Ethics Committee – Please consult the Chair of your Faculty Research Ethics Sub-Committee or Amanda Longley or Alison Vaughton (RBI) for advice)

If any of the above applies, please justify their inclusion in this research

There will be no participants from the groups listed above.

Note: If you are proposing to undertake research which involves contact with children or vulnerable adults you will generally need to hold a valid Criminal Records Bureau check. Please provide evidence of the check with your application.

4 Please explain how you will determine your sample size/recruitment strategy, and identify, approach and recruit your participants. Please explain arrangements made for participants who may not adequately understand verbal explanations or written information in English;

Recruitment: As first step of this research, three municipal wards dominated by

informal settlements will be identified in the city of Ahmedabad based on the secondary data such as instances of poverty, varying location from the city centre and also by including views from the local researchers and NGOs. There are local NGOs working with various communities living in almost all informal settlements in Ahmedabad and the field workers of these NGOs belong to the same informal settlement. They become the key facilitators to identify the respondents for the qualitative interviews as they are aware of diversity of socio-economic situations in the settlement and in the municipal ward. Similarly, the local NGOs and their field workers would also help to conduct (quantitative) household surveys in the selected informal settlements. However, to begin with, many casual visits by the researcher in the selected settlements are anticipated for the careful consideration of the suggestion from the field staff members and to build a rapport with the community. Later on, the household surveys will be closely monitored by the researcher to ensure the randomness and to avoid the possible bias by the field staff. SAATH (saath.org) and SEWA (sewa.org) are two prominent NGOs working with the poor communities in Ahmedabad and an association with them is confirmed. For the key informant interviews, the respondents will be identified on the basis of their official positions or based on their publications or work in the related subject matter.

Sampling: Quantitative sampling will represent statistically significant sample size based on number of households in the selected informal settlements. For instance, if a municipal ward consisting of 5000 or more households living in the informal settlements is selected then the total sample size for the ward would be around 250 households (about 5%). The household surveys will be conducted in three municipal wards. Stratified random sampling will be employed which will represent unbiased spatial representation as well as including every 'nth' house in the survey covering all the streets in the cluster of the selected settlement. The households within a municipal ward will be stratified on the basis of housing conditions defined by the Census of India. Housing condition (material used, structure etc.) can be used as a proxy to income levels to determine the poorer amongst the low-income settlements.

Language: Main survey instruments (individual interviews and household survey) dealing with the low-income community are first prepared in the local language (Gujarati) and then translated in English mainly for academic deliberations. This is done to avoid academic jargon and to keep the flair of local language in the original survey instruments. All surveys will be conducted in the local language. The researcher is well familiar with the local language as a native speaker and he is expected to carry out all gualitative interviews by himself. For the guantitative component of household survey, the staff from the local NGOs will be recruited who are again native speakers. Almost all the respondents are expected to be familiar with the local language. The second widely spoken and understood language in Ahmedabad is Hindi. For the respondents who would prefer not to communicate in Gujarati (i.e. non-Gujarati speaking migrants) will be given the option of responding in Hindi. However, whether there is a need to translate the survey instruments in Hindi or not will only be considered after visiting the settlements and deliberating with the local field workers based on the possible number of non-Gujarati speaking respondents. The key-informants interviews can be conducted mainly in English as English is working language in the most government offices, non-governmental organisations and academic institutions. However, if the respondents wish to converse in the local language, it could be facilitated easily.

5 What risks (eg physical, psychological, social, legal or economic), if any, do the participants face in taking part in this research and how will you overcome these risks?

The participants will not face any physical, legal or economic risks. Working with the

local NGOs is seen here as an advantage to mitigate any possible risk. All interviews/surveys will be within household settings or within the field office of the local NGOs in the semi-public zone such as semi-open spaces etc. The timings of the interviews/surveys will be fixed with the consent of the respondents. Any suitable timing in the day, which doesn't create hindrance to the economic, social or household activities of the respondents, will be followed. Deliberation with the local field workers also help in being sensitive to local customs and etiquettes.

As in common with all research involving human participants, the interviews/surveys carry some social/psychological risk as it involves sensitive issue such as poverty which may lead to possible embarrassing situation. However, the survey instruments are designed to capture such issues implicitly by putting transport or mobility related situations upfront and then, corroboratively constructing scenario about poverty. Some proxies of income such as housing conditions, regularity of employment, expenditure on recreation, vehicle ownerships, credit liabilities etc. will be employed to build scenarios. The survey instruments also avoid using terminology such as 'poverty' or 'deprivation' instead generic words such 'situation' or 'condition' are used in the local language to hint at their socio-economic attributes. However, if the respondents want to voice their opinion about their situation voluntarily without any prompts from the researcher then their opinions will be documented. It is important to make sure that respondents feel that their 'voice is heard' and any deliberate attempt by the researcher to avoid talking about subject such as poverty might lead to the possible social/psychological risk of being discontent about their 'voices are not being heard'.

One of the risks of conducting such studies is indirectly creating expectations of change or improvements in the individuals and in the communities. Sometimes such expectations can also shape participation and giving a response in the particular way. The participation information sheet would explain this upfront that this is an academic endeavour and neither it is aiming at immediate change in situation nor it is compelled to make any recommendations to the government authorities. In the recruitment process of the respondents also this will be mentioned clearly and repeatedly that the interviews or the surveys are conducted to hear people out and to understand the situation and any change or improvements are not the focus of this study.

Unlike certain countries and cultures, giving financial remunerations to the respondents/participants is not practised in India. In absence of such arrangement, introducing remuneration to the respondents for this study alone may affect voluntariness of the response creating unnecessary contestation in the community. And the response itself can be skewed or exaggerated. Given the context, the financial remuneration can be disbursed to the community-based activities, common funds for festivities etc or as a contribution to the existing micro-finance or self-help groups. The decision regarding financial remuneration will be taken after a deliberation with the community leaders and the local NGO.

6 How will you obtain informed consent from the participants (include copies of participant information sheets and consent forms)? What arrangements are in place for participants to withdrawn from the study?

Qualitative Interviews (including the key-informants interviews): For the interviews, the consent will be in the written form which will be duly signed. The respondent will be explained the purpose of the interview and shown the participant information sheet with an option of keeping a copy. Agreement to take part in the study and consent for audio recording will also be secured on a verbal basis by

ticking the consent form which will be signed by the respondent. If the interview is in the local language then it will be later transcribed professionally into English.

Household Survey: For the household surveys, the consent will be in the written form which will be duly signed. Representative of a household approached will have the purpose of the survey explained and shown a copy of the participant information sheet in the local language. There will be an option to keep the sheet. Agreement to take part in the study will be secured on a verbal basis with an appropriate box on the form ticked to confirm this agreement has been solicited. Completion of the interview will include questions about consent regarding use of the data.

However, there might be a concern with the literary level of the respondents and thus, the surveyors will be trained to ensure that they speak to the literate family member within the household. If there is no literate family member in the household (which is very rare given the urban literacy levels) then the surveyors will be trained to read out the necessary information to the participants and fill up the form for them. The presence and supervision of the local NGO representative will also help in this situation.

Participant information sheets will be issued and signed copies of the consent forms will be retained. It will be made clear verbally that withdrawal is an option.

7 How have you addressed the health and safety concerns of the participants, researchers and any other people impacted by this study, that are greater than those encountered in normal day to day life?

The following good practice procedures will be followed.

Quantitative data collection – household survey:

- The survey team will always work in at least pairs for the surveys, and will act as buddies for each other. Interviewers will be expected to report back in person or by phone at the end of the working day.
- Team members will carry ID cards issued by their organisation (the local NGOs) and offer a phone number for their credentials to be checked.
- Surveyors will only be expected to approach the respondents in the household settings only.
- Risks of exposure to extreme hot weather will be managed by agreeing safe refuges such as covered areas, nearby restaurants, community spaces or the local NGO office. These will also be available for breaks and 'comfort needs'. The respondents will be asked to carry water bottles/drinks to avoid any health risks due to hot weather.

Qualitative data collection – personal interviews:

- The Researcher will carry ID card and offer his visiting card for his credentials to be checked.
- The researcher will be accompanied by at least one person (research assistant) who will take notes in addition to the audio recording. The local field worker who will help with the appointment of the respondent is also likely to remain present during the interview.
- Sensitivity to gender issues will be ensured. If a woman is being interviewed then it will ensure that the research assistant and the field worker are also women accompanying the researcher. It is observed from the past experience of the researcher that the female respondents in the informal settlements in Ahmedabad would not have problems in talking to a male interviewer. However, if the respondent is not comfortable in conversing with a male

interviewer (the researcher) then the accompanying research assistant will be trained to conduct the interview.

 Interviews will be held at the semi-public places such as the local NGO office or on the plinth near the house or in the forecourt of the house.

8 Please explain how confidentiality will be maintained:

Participants in the household survey and personal interviews will be kept completely anonymous. All documents related to data collection or describing the sampling process (which can identify with urban areas or informal settlements) will be kept in a secured way (See section 9).

It will not be possible to offer anonymity for the key informants' interviews as it will be known or knowable which individuals occupy which official or organisational roles. However confidentiality will be assured using the following arrangements, which will be carefully explained: interviewees will be advised to withhold information which they are not comfortable with sharing. If preferred by the interviewee, the researcher will also offer an additional step of asking respondents to confirm the transcripts or notes after the interview or to confirm specific quotes used in the thesis. However, all participants in the key-informant interviews will be informed professionals, and in general the research activity will be to document and to get insights into the events which are already in the public realm (i.e. local news paper, websites etc).

9 Please describe how you will store information collected in the course of your research and maintain data protection:

Working copies of the interview/survey data will be disassociated with the personal identity of interviewees, except for a file relating personal data with ID numbers. This file will be encrypted, password protected, and placed on a secure area of the UWE network. Only the supervisors (Graham Parkhurst, Yusak Susilo and Charles Musselwhite) and the researcher (Rutul Joshi) will know the password. All the survey forms will be carefully destroyed after the data entry is over and random verification done.

10 How will the results of the research be reported and disseminated? (Select all that apply)

Peer reviewed journal
 Conference presentation
 Internal report
 Dissertation/Thesis
 Other publication
 Written feedback to research participants
 Presentation to participants or relevant community groups
 Other (Please specify below)

11 Are there any other ethical issues that have not been addressed which you would wish to bring to the attention of the Faculty and/or University Research Ethics Committee?

Words such as 'poverty' or 'poor people' are used as part of the research as the main theme which may raise ethical questions given the cultural context of some academic environment. However, the usage of such words does not mean to denigrate or deprecate any individuals, groups or countries. The justification the usage lie in two strong reasons as explained below:

1. The phenomenon of 'poverty' is best explained by the usage of this term. Any

attempt to describe it as 'social exclusion', '(multiple) deprivation', 'economic vulnerability' etc does not provide same meaning as the word 'poverty' and any such attempt either mislead or dilute the concept of poverty. There has been massive academic literature on poverty issues and for the settings of the developing countries, this concept is widely recognised and re-affirmed through various studies.

2. The international developmental organisations such UN agencies, the Work Bank, Asian/African Development Bank, Oxford Poverty and Human Development Initiative (OPHI) etc use the word 'poverty' as part of their wide variety of developmental program and research. The usage of word 'poverty' is also to identify with the larger international fraternity and their various activities.

Checklist

Please complete before submitting form

	Yes/No
Is a copy of the research proposal attached?	Yes
Does the project involve human participants?	Yes
Have you explained how you will select the participants?	Yes
Have you described the ethical issues related to the well-being of participants?	Yes
Have you considered health and safety issues for the participants and researchers?	Yes
Have you included details of data protection including data storage?	Yes
Have you described fully how you will maintain confidentiality?	Yes
Is a participant consent form attached?	Yes
Is a participant information sheet attached?	Yes
Is a copy of your questionnaire attached?	Yes
Where applicable, is evidence of a current CRB check attached?	-

Declaration

Principal Investigator	Rutul Joshi
Signed	Rutul Joshi – as confirmed by email
Date	19 th May 2011
Supervisor or module	Prof. Graham Parkhurst
leader	
Signed	Prof. Graham Parkhurst – to be confirmed by email
Date	19 th May 2011

The signed form should be emailed to the Secretary of the Faculty Research Ethics Committee at <u>fetresc.enquiries@uwe.ac.uk</u>. Any application by/on behalf of a student must be accompanied by an email from the student's supervisor confirming the content of the form. A paper copy with signatures should be sent to Carolyn Webb in the Research Office, 3Q29, School of the Built and Natural Environment, Frenchay Campus within 5 working days of the electronic version.

Attachments:

- 1. Ethical review application form
- 2. Research Proposal (detailed version in form of first year progression report)
- 3. Participant Consent form
- 4. Participant Information Sheet
- 5. Questionnaire(s)
 - a. Draft interview guide
 - b. Household survey questionnaire (will be submitted at the later date)



FACULTY OF ENVIRONMENT & TECHNOLOGY

FACULTY RESEARCH ETHICS COMMITTEE

Your ethics application was considered under Chair's Action.

Committee Reference No.	FETREC10-11/30
Name of Applicant	Rutul Joshi
Home Faculty	FET
Title of Proposal	Exploring poverty-transport linkages: Mobility practices of the urban poor in Ahmedabad (India)
Outcome	 The Chair is content to approve the application subject to the following: You notify the Faculty Research Ethics sub Committee in advance if you wish to make significant amendments to the original application; You notify the Faculty Research Ethics sub Committee if you terminate your research earlier than planned; You address the three conditions below
Comments	The following additional reviewer comments were reported. They are intended to be helpful for you to consider as you finalise your methodology and implement the research. Reviewer Comments On the whole this is a well thought through and sensitive application which takes account of the major issues and sensitivities with this kind of research. The applicant is to be applauded for dealing with the issues so well. However, the following points need to be addressed to the satisfaction of the Chair of the committee before the research begins, particularly the first point relating to consent and the participant information sheet:
	Participant information sheet:
	The information sheet should normally inform the participant about what taking part will entail such as how long will it take, what form it will take etcetera. This sort of basic information needs to be included otherwise their consent is partial and the information sheet as it currently stands is more of an introduction than an explanation of what the research will entail. The draft interview guide introduction states, 'Remind participant of the following from the participant information sheet' and goes on to list,'Purpose of the research and how it is conducted, time taken etc' and 'What happens to the material collected'. However, the information sheet does not

contain this information. Condition 1: I would suggest the information sheet should be extended to include this sort of information to ensure when they sign the consent form they are doing so in a fully informed way.
This is poorly phrased in places (particularly the first and second paragraphs) and given that this is what will be read by the participants (translated in most cases),I think it needs to be addressed.
Condition 2: This original version should be corrected/made clearer. This is an ethical issue in the sense that the information presented to respondents should be as clear as possible and if I think it is unclear then it is likely also to be unclear to the participant.
Application form:
Q6. The section on verbal consent is confusing as it appears to imply verbal consent will be the norm ('Agreement to take part in the study will be secured on a verbal basis') but then goes on to state that 'Participant information sheets and consent forms will be issued and signed copies retained and it will be made clear verbally that withdrawal is an option'. Condition 3: please clarify whether consent is always written or whether verbal consent will be allowable.
Consent form: The name of the person to contact in the UK should also be given (i.e. Professor Parkhurst?)

Date

24/5/2011

Signed

Alam hyon.

Prof Glenn Lyons Chair, Faculty Research Ethics Committee

Copy to

Graham Parkhurst