Localizing Global Solutions: An Area-Based Framework for Transferred Interventions

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Abstract:
Urban mobility interventions often fail in developing economies because transferred policies lack compatibility with local contexts. Using India as a case study, this paper investigates why common solutions like Flyovers and Bus Rapid Transit Systems (BRTS) yield inconsistent results compared to their donor cities.
The analysis identifies four critical contextual barriers: imbalanced income distribution, high modal diversity (mixed modes), the informal economy, and complex socio-cultural factors. For instance, flyovers often ignore the majority of slow-mode users, while BRTS faces land constraints and middle-class resistance.
The study concludes that the efficacy of transferred solutions depends on their compatibility and congruence with local realities. To address this, the paper proposes an Area-Based Approach (ABA)—a framework focusing on localized territories to better understand user needs. This shift is essential for achieving equitable, inclusive, and sustainable urban transportation outcomes.

Key words: efficacy, transfer, measures, mitigation, context, interventions.

INTRODUCTION:

The unprecedented growth in urban population and rapid urbanization has thrown challenges in many forms at urban local bodies (ULB'S) in developing economies to grapple with; the most complex and severe being tackling mobility issues. Developed economies dealt with issues and problems which arose due to urbanization and motorization in their cities by drawing up a slew of policies, mitigation measures and infrastructural solutions. These nations have gained substantial experience in tackling issues like congestion, pollution, accessibility and safety. To a certain degree their economic progress is attributed to their improved transport infrastructure and networks translating to faster and efficient mobility. (Stead et al., 2008; Montero, 2016, Goetz, 2019)

In contrast most developing economies facing rapid changes within their cities have only recently started taking measures to counter and manage the issues and problems with mobility. However, solutions are rarely indigenous since globalization as well as limited exposure in managing complex mobility issues has seen a rising tendency amongst such economies to seek transfer of solutions and strategies from developed ones. This tendency can also be attributed to two aspects; firstly that whenever a need arises to tackle situations and issues not faced previously and for which existing conditions are non-workable that precedents are searched for as exemplars and emulated to save time and effort by recipients (Rose,1991, Dolowitz and Marsh, 2000,Bradford,2004, Mokhtar and Haron,2007) Secondly, the experience of tackling challenges in developed nations has generated a vast knowledge reserve, research and their applications in transportation planning, many of which have become benchmarks in the place of origin.(Preimus et al ., 2008, Montero 2016). By gaining political sanctions and public approval this has led to transplants or transfers in planning approaches, design solutions, policies, technology and expertise for achieving better mobility and accessibility outcomes without thought being given to the suitability of solutions to the contexts in which they are being implemented. (Stead et al., 2008)

Recent studies have indicated that even in developed economies transferred solutions have not yielded the same degree of success as witnessed in the place of original application. This finding is attributed to the specific history of a geographic area and way the city evolves and functions (Cervero, 2003, Pucher et al., 2006, Whitelegg, 2010, Allouche, 2016).

Transferred policies, interventions or measures seem to have different outcomes in recipient cities than donor cities and although acknowledged in literature in the transport domain it has not been avidly explored for either the rationale or the degree of effectiveness nor the outcomes. This paper attempts to put forth that contextual indicators and parameters play a significant role in the efficacy of policies and interventions in urban transport planning. For the developing economies both are important and relevant as they are mostly resource deficient.

RESEARCH METHODOLOGY

1. Qualitative Comparative Case Study: This study adopts an exploratory and descriptive qualitative research design using a Comparative Case Study approach. The primary objective is not to generate new primary data, but rather to establish a conceptual-theoretical link between the context of developing economies and the outcomes of transferred transport interventions. The paper is structured as a descriptive analogical argument where a set of contextual factors (the determinants) are systematically linked to observed outcomes (the efficacy/failure) of specific interventions. The study seeks to systematically identify and categorize the determinant factors (e.g., modal diversity, informal economy) that are often overlooked in policy transfer literature. It documents the characteristics of the urban transport environment in the recipient context (India/Developing Economies). Through a comparative analysis of two distinct intervention types—Flyovers and Bus Rapid Transit Systems (BRTS)—this study evaluates the premise that the efficacy of transferred infrastructure is a function of its congruence with local socio-economic determinants.

2. Scope, Context, and Case Selection: The geographical scope is set within developing economies, with a specific focus on India as a generic, representative context for cities in South and Southeast Asia. India was selected due to its pronounced characteristics in a) Rapid, unplanned urbanization and high population density b) Extreme socio-economic inequality and modal heterogeneity (coexistence of walking, cycling, informal transport, and private motor vehicles) c) history of adopting major infrastructure projects from Western and advanced economies.

The two cases were selected as critical examples of transferred infrastructure and policy:

- Case 1: Flyovers (Infrastructure Transfer): Represents a traditional, supply-side solution transferred primarily from Western cities. The analysis focuses on its efficacy concerning traffic flow versus its impact on equitable road space allocation and non-motorized transport (NMT).
- Case 2: Bus Rapid Transit Systems (BRTS) (Policy/System Transfer): Represents a contemporary, policy-heavy solution transferred primarily from successful systems in Latin America (e.g., Curitiba, Bogotá). The analysis focuses on its efficacy concerning public transport modal shift versus its challenges related to institutional capacity and social acceptance/integration in the Indian context.

While Flyovers and BRTS represent opposing ends of the transport planning spectrum (supply-side vs. demand-side), both serve as evidence that technical efficacy is secondary to contextual alignment

3. Data Sources and Analytical Framework:

Data Collection: The analysis relies exclusively on secondary data sources. These sources include Peer-reviewed academic journal articles and books on urban transport policy transfer and planning in developing countries. Official government documents, policy recommendations (e.g., National Urban Transport Policy), and official reports from international bodies (e.g., World Bank, UN-Habitat). Case-specific performance evaluations and published studies detailing the ex-post outcomes and public reception of major Flyover and BRTS projects in Indian cities (e.g., Delhi, Ahmedabad, Pune).

Analytical Framework: Contextual-Congruence Analysis

The core of the methodology is a Contextual-Congruence Analysis, which follows three structured steps:

Context Mapping: Systematically identify and document the multi-dimensional contextual determinants of Indian urban transport (e.g., Financial, Evolutionary, Modal, and Political/Structural factors) as detailed in Section 2.

1. **Intervention Rationale:** Trace the donor-city rationale for the two interventions and the stated objectives for their adoption in the recipient cities.
2. **Congruence Assessment:** Compare the fundamental design requirements of the transferred intervention (Step 2) against the reality of the local context (Step 1). The analysis determines the degree of compatibility and congruence between the intervention and the local determinants, explaining the observed positive, mixed, or negative efficacy.

Study is presented in sections.

- Section one is a discourse about the urban mobility dynamics, approaches adopted to mitigate them and the phenomenon of transfer.
- Section two focuses on the distinguishable characteristics of the urban environments of cities of developing economies through the Indian and the American cases which foster their specific transport environments.
- Section three traces the challenges posed to urban transportation in India
- Section four presents an examination of some of the transferred solutions in specific Indian cities their outcomes and analysis.
- Section five delineates the area-based approach, an ex-ante evaluation and implementation framework, thus setting up a goal specific methodology it concludes with a discussion of the implications of transfers about the context.

Section 1:

1.1 The phenomenon of transfer in urban transport planning:

As defined in the literature Policy transfer is a process by which knowledge about policies, administrative arrangements, institutions and ideas from the donor setting is used in the recipient setting. Policy transfer can involve a number of processes (Dolowitz and Marsh, 1997 and 2000, Stone, 2001, De Jong et al., 2002).

Transfer can take place across time, within countries and across countries. Additionally, there are different degrees of transfer. This can be direct emulation of policy, legislation or techniques as well as various forms of emulation, mutation, synthesis, hybridization and inspiration. Transfers can be voluntary or coercive or combinations thereof. There is a vast literature addressing the issue of transfers being successful, inappropriate, uninformed, incomplete transfer or even wrong adaptation. (Dolowitz, Marsh 1996, Stone 2001, De Jong 2002) The post-industrial revolution era witnessed rapid progress resulting in growth of cities, economic progress, mass production, inventions, computerization and technological progress mostly manifested in western, north- western parts part of the globe. This triggered urbanization and with urbanization came the necessity of infrastructure to distribute benefits of growth and progress symbolized by auto mobility (Vasconcellos 2001, Ksiqzkiewicz, 2012).

The term “Economic progress” became synonymous with development and advances in state-of- the- art technology and infrastructure provision in these countries. This phenomenon set the trend and reinforced the belief that for progress to be evident focus on infrastructure investment and development was essential to a nation’s progress and livability. It is to this notion that the transplant of ideas, technology, policies and planning from developed to developing economies owes its genesis. (Dolowitz and Marsh, 2000, Priemus et al, 2008, Metz, 2008, Sheppard et al 2013)

It is significant that till 1987 when The UN World Commission on Environment and Development floated the concept of sustainability in its report “*Our Common Future”* this transplant had been slow and limited to a few sporadic instances. But post globalization expedited the percolation of transplants in mobility related

issues to urban centers. The trigger was also the fast pace of growth of many cities in developing countries faced with challenges to streamline their transport network and meet the growing demand for road capacity. An occurrence which the developing nations perceived as similarities with the developed nations situations a few decades earlier which was well documented in the rigorous studies dealing with myriad technical and planning aspects of mobility (Montero, 2016).

Developing economies perceived the advantage of improving mobility with measures and equated it to economic progress for their cities. Better networks were not only faster negotiators but also growth inducers and indicators of progress as well as development. This became the basis to involve economics and engineering disciplines to frame urban policies and interventions in transport planning (Metz, 2008).

Globalization in the seventies brought in multi-level collaborations across the European Union encouraging balanced growth for sustainability. Initiatives and programmes abounded in funding and provision of technical expertise in the form of consultants as well as for development and research focused primarily on urban areas. This triggered transnational knowledge transfer and when required logistic and financial aid too. Similar initiatives were launched by World Bank, UN and other international banks like the Asian Development Bank for development of the underdeveloped and the developing world. Thus, a platform for the conveyance of technology transfer, technical knowhow besides research and evaluation methods which had originated in developed economies began to percolate in the developing world as partnerships and collaborations were established.

Therefore, in the case of urban transport planning the phenomenon of transfer manifested through the scientific investigative methods for problem identification and surveys, funding and planning models, reforms in policies, planning and institutional systems, innovations, methods of appraisal and provision of Infrastructures etc. required to meet current and future demand in the developing economies.

Outsourced Knowledge sharing, capacity building collaborations, consultants from the international domain and Special Purpose Vehicles sprung up in the international market for building state of the art Infrastructure in a highly competitive environment and were largely responsible for domestic consultants being less favoured by many nations. Hence transfers mostly occurred as direct emulation but also by drawing parallels within situations, discreet emulation or as a combination of all in the urban transport planning domain (Rose, 1991, Dolowitz and Marsh 2001, Priemus et al. 2008, Roy, 2005 Montero, 2016).

Although this heralded well intentioned endeavour of importing the best practices and solutions implemented elsewhere, most have not borne the same results as their places of origin or their benchmarked cities (Dolowitz and Marsh, 2000, James and Lodge, 2003).

1.2: Urban mobility dynamics and conventional methods in urban transport planning in the developing economies

The built environment is a matrix of land parcels where people reside, and work connected by a system of networks. In an urban setting the land parcels also serve other functions such as entertainment, healthcare, education, socializing and commercial engagement. Thus, the built environments are a complex conglomerate of land parcels and networks changing with time and space and emerging as a dynamic spatial organization. Mobility is at its core to be functional and accessibility as its direct measure of success as a highly desirable livable area. The use of this space depends on the complex mix of socio- economic and cultural configurations that the population of the city exhibits and the function that it serves at the regional and national level (Vasconcellos, 2001, Cowie, 2009).

The city's ability to serve its purpose and be attractive to its citizens depends on its transportation networks, their form and characteristics. Thus, mobility requirements translate into the provision of road infrastructure and facilities related which are efficient, reliable and quantifiable. Urban transportation traditionally has been given technical treatment as it was perceived to lie within the larger domain of engineering, allied disciplines of physics, mathematics and economics. Mobility indicates people's movements with differing socio-political

characteristics, needs and interests over a spatial- temporal dimension. (Vasconcellos, 2001, Salter and Hounsel 1996, Newman and Kenworthy, 2011)

Mobility requirements also change with family cycles, their concurrent or contemporary needs, interests as also their economic status changes. Apart from people, road networks also relay goods and services and therefore have a significant role to play in the economic growth and progress of the urban center as many studies have indicated a city today faces varying demands on its network posing many challenges for planners and policy makers to prioritize interventions in urban transport to satisfy them. With variety of choices available while planning and designing transport networks better insights are needed to achieve planning Goals (Bertolini, 2005; Smith, 2008)

Conventionally road space organization and use have been dealt with by using traditional techniques of traffic engineering and traffic management. Traffic management is a non-technical branch and approaches problems and issues in a practical and administrative capacity. It relies on symbolic communication tools and the citizens respect traffic rules for efficacy. Traffic engineering relies on quantitative aspects and adopts approaches which need quantitative data using tools to manage and interpret this data. The assumption of rationality in the planning process tends to simplify data to be used in modelling and forecasting. For forecasting future traffic demand the four-step model, developed in the 1950s and 1960s or the seven phased approach has been conventionally used. Forecasting was done for modal split, trip generation, trip distribution, traffic assignment too. Academic literature in transport reveals an abundance of modelling techniques and simulation methods for analyzing and forecasting traffic demand, mostly for faster modes or pedestrians but few analyze and predict demand for the vast range of modes available and used in developing economies to give a realistic outcome (Salter and Hounsel, 1996; Strauss and Moreno 2013)

But quantitative data cannot resolve or address those issues which are about equity, inclusion and sustainability without qualitative inputs. Urban transport Planning processes are generally exclusionary rather than being interdisciplinary as they tend to ignore social, cultural, psychological, behavioural and other contextual aspects which rely largely on qualitative analysis (Vasconcellos 2001, Salter and Hounsel 1996) Survey and investigation methods, performance evaluation techniques and ex ante evaluations are all based and designed to elicit indicators for deficiencies or problems in mobility but are mostly based on quantifiable data. These are tailored to the needs of and based on extensive studies conducted in developed economies especially the Euro American sector and rarely in the developing economies (Salter and Hounsel, 1996, Montero 2016).

Such methods when adopted in developing economies due to knowledge transfer reveal only those aspects which are in consonance with those of developed economies. This posits therefore that when ex ante evaluations are done in developing economies it is inevitable that identified issues and problems seem similar. Thus, knowledge transfers occur whenever remedial measures are sought for a location despite data conflicting with the local needs (Roy, 2005). Many measures have resulted in a proliferation of infrastructure provision, in addition to road network and capacity addition such as road widening, grade separators, flyovers, over bridges and underpasses, ring roads, rapid transit systems etc. which obtain justification and sanction for execution regardless of their congruence to local needs in cities of developing economies.

Many cities across developing economies have implemented transport infrastructure projects during the decades spanning 1990 and 2010, mostly as collaborations with their developed counterparts or organizations from these regions. Seemingly congruent visions and goals aided such collaborations which furthered the aspirations of the developing economies to be rapidly elevated on the economic scale and be on par with them. Two major instruments supported them, forecasting and appraisal techniques of transport projects (Vasconcellos, 2001).

Section 2:

THE URBAN TRANSPORT ENVIRONMENTS:

Significance and relevance: City environments constitute the socio-economic-cultural milieu of the population within their physical setup where various activities take place. These set-ups differ within and across nations as no two cities are similar in any parameter viz. their growth pattern, evolutionary history, geography or demographics. They are unique and would have a unique outcome to a successful intervention in any other city. Although the urban environments in developed economies appear to have similarities recent studies have indicated that even in these economies transfer outcomes varied in policy or planning proposals when implemented. (Dolowitz and Marsh, 2001, De Jong 2002).

If this is the case with developed economies non consideration of local attributes will significantly alter project outcomes in developing economies. Exemplars of best practices whenever adopted if not thoroughly analyzed and contextualized for all possible outcomes, successful transfer assimilation is not achieved (Mickiewicz and Vigar, 2009).

The efficacy of transferred infrastructure is contingent upon a complex interplay of localized variables. These factors, categorized figure 1 and explained herein (refer figure 1), represent the "friction" that occurs when global models encounter the distinct socio-economic realities of developing economies.

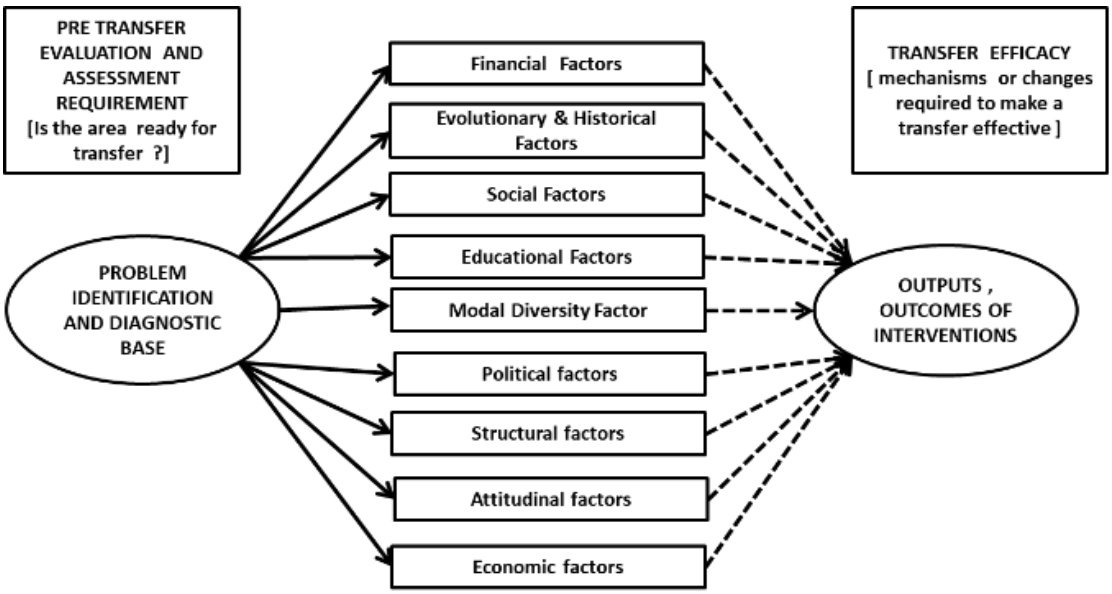

Figure 1: Conceptual flowchart for diagnostic Evaluation and Assessment of local factors for efficacy of policies and infrastructural solutions.

2.1 Socio-Economic Polarization and Affordability

Affordability is a primary determinant of mobility and accessibility, as it dictates mode selection and the appropriation of road space. In developing economies, imbalanced income distribution creates disparate mobility requirements that are difficult to reconcile within a single transferred model (Census of India, 2011). Unlike developed economies, where smaller income margins allow for a range of voluntary modal choices, mobility in the Global South is often a forced consequence of economic constraints rather than a preference (Vasconcellos, 2001; Mahadeviya et al., 2011). This polarization is physically manifested in housing patterns; the prevalence of informal, low-rise developments on small land parcels leads to fragmented street networks that struggle to support large-scale, corridor-based transport interventions.

2.2 Evolutionary and Morphological Divergence

Most cities in recipient contexts have evolved organically, resulting in a dualistic urban structure where organizational planning frameworks must contend with a combination of planned and unplanned sectors. Urban expansion often absorbs peripheral rural hamlets, creating "urban-rural hybrids" that maintain distinct

socio-cultural behaviours and resist standardized planning interventions. Consequently, cities in developing economies operate within two simultaneous environments: the formally organized and the dominant, ad-hoc, independent environment (Vasconcellos, 2001; Mahadeviya et al., 2013).

2.3 Socio-Cultural Spillovers and Street Utility

The demographic heterogeneity of the recipient city—encompassing diverse ethnicities, religions, and social allegiances—results in varied perceptions of public space. In this context, the road is not merely a conduit for mobility but a multi-functional "activity hub." Street space serves as an extension of the domestic and social sphere, hosting religious festivities, political processions, and informal domestic activities. This non-transport utility of the road creates a socio-spatial complexity that standard global transport models, which view the street solely as a traffic corridor, fail to accommodate.

2.4 Educational Polarity and Citizenship Development

Education levels act as a proxy for the development of "urban citizenship" and adherence to formal regulatory frameworks. In many developing contexts, the urgency of livelihood often supersedes formal education, leading to a traffic environment characterized by a lack of awareness regarding rights, risks, and institutionalized road behaviour. This polarity results in "defective knowledge" of civic duties, where citizens possess limited means to influence state policies or navigate the sophisticated traffic management systems often accompanying transferred solutions.

2.5 Modal Diversity and the "Hostile Road Environment"

A defining characteristic of transport in developing economies is high modal diversity, where motorized, non-motorized, and animal-driven modes compete for the same right-of-way. The road serves as both a transit route and a site of commerce; for example, non-motorized modes (NMT) are frequently used for the mobile vending of merchandise. This disharmony between fast-moving motorized vehicles and sluggish, labour-intensive modes creates a "hostile environment" marked by constant safety risks and unpredictable user behaviour (Vasconcellos, 2001). This friction is exacerbated by the encroachment of utilities and debris, which further reduces the effective capacity of the planned network.

2.6 Political-Institutional and Bureaucratic Frameworks

The political environment in recipient cities is often characterized by multi-agency fragmentation and susceptibility to shifting ideological factions. This creates a "bureaucratic lag," a legacy of colonial administration where intermediaries can redirect resources, extract class benefits, or delay project implementation (Agrawal, 2006). Within this social structure, dominant groups (higher and middle-income classes) often exert disproportionate influence on decision-making, ensuring that transferred projects align with their specific mobility needs—often at the expense of the wider population (Vasconcellos, 2001).

2.7 Structural Disparities and Spatial Street Patterns

Recipient cities exhibit a skewed spatial distribution where economically weaker sections are often relegated to the city's periphery with minimal transport access. This haphazard development is reinforced by planning authorities who prioritize "high growth" areas while neglecting marginalized zones. Furthermore, local City Development Rules (CDR) often result in complex street patterns with frequent junctions and varying road lengths, making the installation of automated traffic management systems—designed for the long, uninterrupted blocks of Western cities—technically unfeasible.

2.8 Attitudinal factors and Modal Hierarchy

The ownership of private motorized vehicles, particularly cars, is deeply tied to social status and economic aspiration. Increased income often leads to a "rejection" of NMT or walking, as these modes are viewed as markers of lower social standing. This psychological barrier is reflected in institutional apathy toward NMT projects, which are frequently deprioritized in favour of motorized infrastructure (Vasconcellos, 2001; Beirão et al., 2007; Silvestri et al., 2024).

2.9 Economic Duality: The Informal-Formal Symbiosis

Unlike the highly regulated economies of donor cities, recipient cities thrive on a massive informal sector that utilizes transport networks as its primary marketplace. Informal commercial activities—such as hawking and mobile eateries—establish a symbiotic relationship with formal land uses, clustering around transit hubs to serve pedestrian flows. This competition between goods and people for road space requires constant negotiation, a factor rarely considered in the rigid spatial requirements of transferred global solutions.

Section 3:
CURRENT INDIAN TRANSPORT ISSUES, CHALLENGES AND THEIR MANAGEMENT

As per census figures 2011, about 377 million people live in urban areas and predictions indicate that this number would double in the next 30 years (Figure 2).

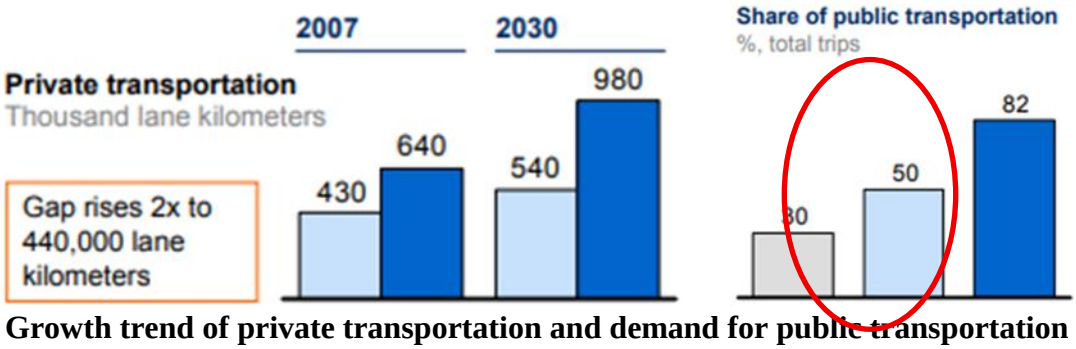

Figure 2: Growth trend of private transportation and demand for public transportation in urban areas. (Source: McKinsey Global Institute report, 2010)

This implies that existing urban areas would grow in size and density apart from newer additions and hence it is projected to encounter more complex issues regarding transportation and mobility in the future Current status of the Indian transport scenario is not very encouraging as congestion, pollution, deprivation and exclusion along with safety and security concerns are prevalent in most tier I and tier II cities (NUTP 2005, Wilbur Smith 2008, McKinsey Global Institute, 2010).

3.1 Non-Availability of Public Transport Systems:

Barring the metropolises, other large cities in India have a deficient public transport system. In which cities public transit system could be workable and effective in reducing demand is a major issue of concern. Currently mostly private, intermediate public transport or para-transit vehicles cater to this demand in Indian cities. Increase in per capita income in urban areas in recent years is another reason for private vehicles increasing numbers. These modes then compete with the predominant modes for transport or movement in Indian towns and cities like walking, cycling and public transport. (Savage and Dasgupta, 2006)

3.2 Rising personal vehicle ownership:

The number of two-wheelers and cars though high is lesser as compared to developed nations Car ownership ranges from 3-13 percent, two-wheelers and bicycles ownership from 40-50 percent in Cities and Towns. Other privatized modes thrive such as cycle rickshaws, autos, and tempos for public transportation. As per census 2011 figures, there is a rise in middle class population mostly in urban areas of India. Thus, rising income levels are a major contributor in rising ownership of two and four wheelers along with the absence of reliable alternative public transport modes and community perception (Mohan,2001)

3.3. Diagnosing urban mobility issues and searching for mitigation measures:

Most studies commissioned by the Indian Central Government, State Governments or even Urban Local Bodies in India conclude that congestion, rapid increase in vehicle population, high fuel consumption, poor transit facilities, pollution, safety and security problems, lack of NMT facilities, lack of infrastructure, safety and security are the central / prime challenges which plague Indian Cities and need to be mitigated (Wilbur Smith,2008, McKinsey Global Institute, 2010, Tiwari 2011). However, mitigation measures such as policy reforms and management plans are rarely given their due share of thought. Influential stakeholders usually

advocate capital intensive measures such as road widening schemes, overpasses, underpasses, flyovers and expressways. City Development Plans and Master Plans are replete with such proposals. (BDA, 2012)
The Indian case is typical of transfer in the form of emulation mostly. Since transport infrastructure is largely visible and makes an impact on the public mind, it becomes the identity for a city. Hence state and city policy makers push for such landmarks to be built and commission them without much thought being given to their relevance or consequence in the place of adoption (Robertson, 2007, Preimus et al, 2008)

Section 4:

THE CASE OF TRANSFERS AND TRANSPLANTS: INDIA

India has always looked towards its progressive counterparts to find solutions and lift itself at the global level to be competitive. Two of the transfers which are now dotting the urban environment are presented as case studies to underline the significance of the factors mentioned above in establishing their relevance and efficacy.

CASE I: FLYOVERS

Despite global examples when flyovers are being pulled down or recommended for demolitions, Indian city administrations are proposing and executing flyovers regardless of whether they aided or harmed the socio-economic fabric or are relevant to the context. In 2010 when Delhi hosted the commonwealth games 24 flyovers and grade separators were commissioned to be completed before the commencement of the games. Despite this average travel speeds in New Delhi still range between 10- 24 km/hr. (Mohan, 2001, Tiwari, 2011,) The case of Bangalore, India, one of the fastest growing cities largely due to migration of middle-class people from other parts of the country is an example of transfer without regard to context. Mobility issues and problems are the prime concern for Bangalore City administration and the state despite concerted efforts (TERI, 2008).

Literature on benefits or dis-benefits of such transport mega links to the urban area they are designed to serve is very frugal and limited with hardly any evidence of studies done ex-post. There are examples like the San Francisco Embarcadero flyover demolition or the Cheonggyecheong rejuvenation in Seoul, but systematic approach is lacking in understanding the dis-benefits.

Historically speaking motorization was slow in the seventies decade when Chennai became the first city to emulate the American urban freeways symbolizing progress and economic supremacy to build its first flyover. Its Anna flyover set a precedent in the country for not only itself but other cities in the country to follow suit. Currently the Indian metropolises are burgeoning with flyover projects with tier two and tier three cities following suit building them as mitigation measures to avoid congestion. Contrary to expected outcomes from this endeavour traffic congestion is observed to be more today than it was before flyovers were built. Building and recommending flyovers as a panacea for Indian traffic conditions is a form of transfer which is the outcome of a fear of being left behind in the global race for economic standing, it is also the case of idealized and mistaken model transfer.

The Working Group, constituted by the Planning Commission of India for the 11th Five Year Plan, Government of India, stated that in Indian Cities, the investments largely have been made in the past few years to improve transport. These are: (1) Construction of flyovers in many cities; (2) widening of roads and (3) construction of the Mass Rapid Transit System (MRTS) (Delhi). The group also observed that flyovers, road widening did not produce desired improvements in traffic conditions at the same time have reduced or were responsible for removal of pedestrian facilities. (GOI 2006, 2011).
Therefore, Flyovers in India are transferred solutions which did not give the same outcome as the donor country USA, due to following reasons:

1) Indian cities have mixed modes plying on the streets and witness a great variability in traffic behaviour.2) The flyover as a measure caters only to the needs of fast modes disregarding the majority who walk, bike and use slow modes for daily subsistence or commute. 3) Most Flyovers have long distance links and commuters of slow modes are not their main users. Hence at junctions where the two routes congregate it becomes a chaotic zone delaying the faster moving vehicles and thus negating its benefits.4)It is also a design issue since

the existing street patterns are organic, an outcome of informal planning and have differing widths where broadening or levelling is not easy.5)The Indian society has culturally entrenched values which not only make the road commuter a customer of the informal businesses which are conducted on the road sides but also one who prefers to relate to the environment of the street which a flyover does not offer to him.

CASE II: BRTS

The bus rapid transit systems modelled on the Curitiba and Bogota template is another transfer in the Indian urban environment. These were sanctioned for nine cities and have been implemented in phases. A study on BRTS systems found that in the eight cities where it was implemented has not yielded the benefits predicted except to some extent in the case of Ahmedabad. Ahmedabad was lauded as the most successful and was awarded the sustainable city by World Bank and since then has become a benchmark for establishing such systems in the country (Figure 3). However, a study By UNEP on the city's BRTS after five years of its operative phase revealed the following: 1) The targeted low-income group were still using their preferred mode i.e. Walking and bicycling were common, especially among women living within 500 meters. 2) The BRTS was more in use in the newly developed areas of the city than the old. 3) The customer base consisted of 47% of previous users of public transport which was shut down and only 12 % newer commuters were added 4) The BRTS route passed through 70% slum areas and yet only 0.4% used it. Concurrently private vehicle ownership has grown at a steady pace of 10% and 13% respectively as per RTO records thus its benefits were far from realized (Mahadeviya et al, 2013)In other cities Pune, Jaipur, Delhi and Indore this system is facing problems and issues and authorities have found it to be unsuccessful in weaning the private motor user into taking benefit of BRTS

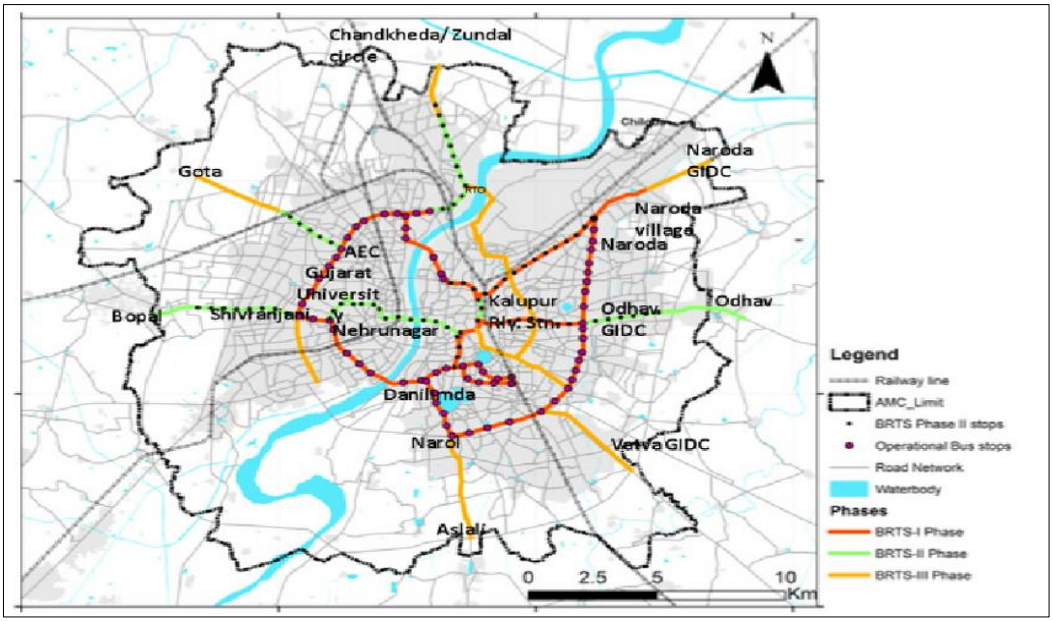

Figure 3: Ahmedabad's JANMARG BRT systems: phases I, II and III.
(Source: CEPT University, Ahmedabad.)

ANALYSIS:

It is clear the BRTS in India too is a transferred solution which did not give the same outcome as the donor cities Bogota and Curitiba, due to following reasons:

The divide in affordability of the demographic constitution of the city and with the attitudinal aspect ascribed to the Indian citizen makes the Indian middle-class population reject the public transit option. 2) The dedicated or closed Bus routes for a BRTS also requires a clearance of 45-60 Ms. which on Indian city roads especially within old city areas is difficult to allocate without sacrificing the spatial needs of other modes and activities which by displacing causes loss of revenue, livelihood and discontent. Hence mostly, such intervention would not be successful if speed and reliability need to be offered as an alternative to private modes.3) the informal sector in India is one of the major drivers of the city economy and the slow mode road commuters are the main customers. Most dedicated routes are provided near the median of the road, and the customer is alienated

from establishing a commercial engagement with street side vendors. 4) The flexibility of other personal modes, bicycling included, is more attractive than going by the bus route which is a set one. Only in Mumbai, India are commuters rely on public transit and are used to a different lifestyle and urban environment.

Table 1 below illustrates the fundamental divergence in urban determinants between donor and recipient contexts. This divergence suggests that the failure of interventions like Flyovers and BRTS is not a failure of the technology itself, but a failure of 'contextual congruence'—where the physical and social realities of the Indian streetscape (high modal diversity and informal economies) are fundamentally at odds with the assumptions of the donor model."

Table 1: Comparison of Socio-Technical Determinants

Feature	**Donor City Context (e.g., European/Latin Am.)**	**Recipient City Context (e.g., Indian Cities)**	**Impact on Transferred Intervention**
Modal Split	Homogeneous (mostly cars, buses, or trains)	**High Modal Diversity** (Rickshaws, cycles, pedestrians, handcarts)	Standardized BRT lanes or flyovers ignore "slow" and "informal" modes, causing localized bottlenecks.
Income Distribution	Relatively stable middle class	**Extreme Inequality** (Gated communities vs. informal settlements)	"Premium" infrastructure (flyovers) often bypasses the majority who cannot afford motorized transport.
Economic Structure	Formal employment/fixed hubs	**Dominant Informal Economy** (Street vending, home-based work)	Fixed transit routes may not align with the fluid, non-centralized travel patterns of informal workers.
Space Constraints	Planned right-of-way (ROW)	**Organic/Encroached ROW**	Difficulty in allocating dedicated lanes for BRTS without causing massive displacement or congestion.
Social Perception	Transit as a utility/social equalizer	**Status-Symbol Bias**	Middle-class "attitudinal rejection" of public transit in favor of private vehicle ownership.

Section 5:
DISCUSSION AND CONCLUSION:

The two specific cases give a clear indication that transfers when adopted from donor cities are not successful. Neither road capacity increase nor closed and open form of BRTS has been found to resolve transport issues. Both the flyover and dedicated bus System has its genesis in USA dating back to the 1960's. In the USA flyovers were successful in faster mobility of vehicular traffic and thereby people. Similarly in Curitiba and Bogota BRTS was and remains

However, in India they are far from being the success stories as they had proven to be in the places of their origin. Despite perceived similarities between the problems and issues faced by the donor city, the transferred solutions do not seem to perform to the degree envisaged or predicted and is ineffective in the context in which it is provided.

As section three has shown there are typical characteristics of urban environments in Indian cities, which play a key role in the success or failure of projects. Without considering local needs and making it relevant to the context in which the intervention or measures are being implemented it will not yield desired results (Marsden and Snell 2009, Tiwari, 2011, Tiwari and Jain 2012, Stone 2017)

The phenomenon of "policy transfer" in urban transportation is often driven by the desire of recipient cities to replicate the perceived modernity and efficiency of donor contexts. However, transport policy transfer is rarely a purely technical exchange; it is a complex process frequently hampered by institutional and political misalignments (Marsden and Stead, 2011). In the context of the Global South, this mismatch is further exacerbated by unique "socio-spatial" realities.

Whenever western-centric or even successful South American models (like BRTS) are transplanted into Asian developing economies, they often encounter a "one-size-fits-all" failure due to high modal diversity and deep-seated income inequality (Pojani and Stead, 2015). In the Indian context, while localized strategies are emerging—most notably through the Smart Cities Mission—there remains a critical tension between macro-level infrastructure goals and the micro-needs of the local population (Praharaj,2021).

Consequently, achieving "contextual congruence" requires moving beyond aggregate city-wide planning toward an Area-Based Approach (ABA**)**, a spatial tool. The ABA as a spatial tool looks at the "catchment area"—including the informal vendors, the pedestrians coming from slums, and the local shops. This framework allows for a more granular understanding of the informal economy and socio-cultural factors that, as Venter et al. (2019) suggest, are the true determinants of whether an intervention fosters genuine accessibility or localized chaos.

It is therefore proposed that an Area Based Approach (ABA) (Harfst, 2012, Galanakis 2024) for intervention transfers which if applied would give a deeper comprehension of situational aspects thereby working towards better outcomes than traditional four step models have shown. (Harfst, 2012, Sanderson 2017).
The Area-Based Approach (ABA) (refer figure 4) for transport projects shifts the focus from treating an entire city or a single corridor in isolation to planning for a cohesive, locally defined territory.

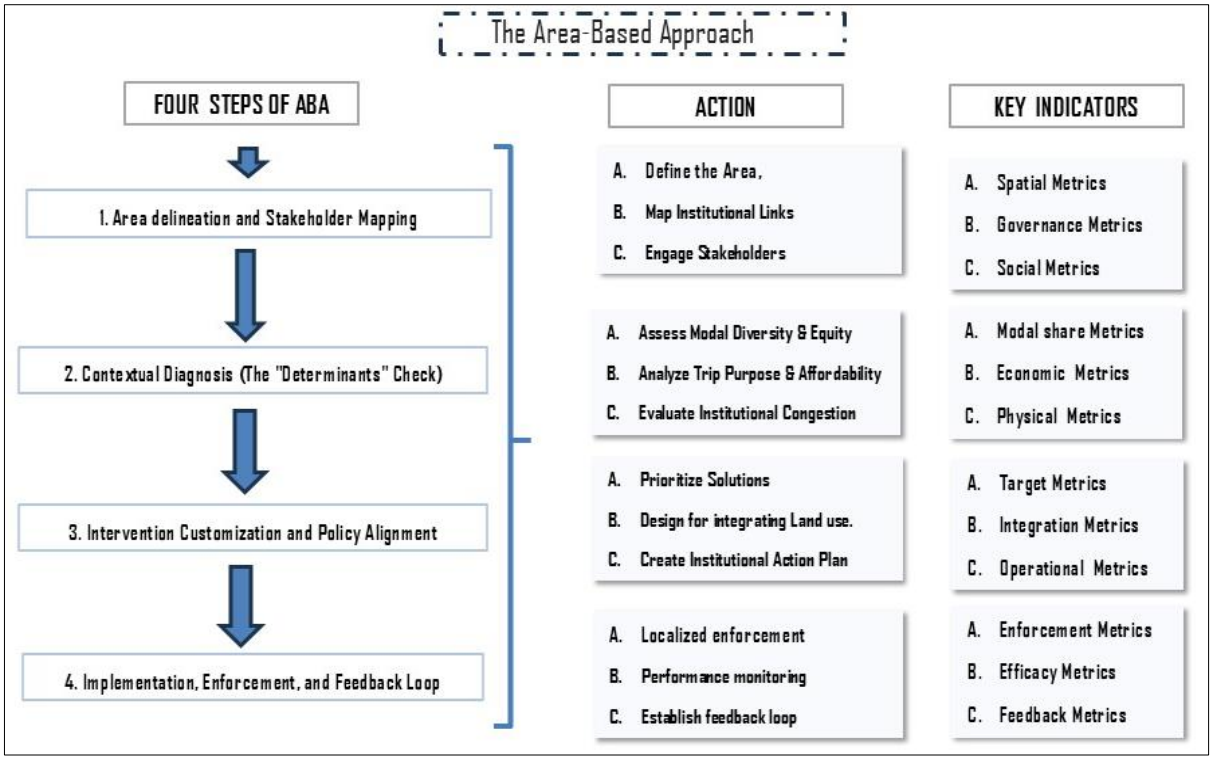

Figure 4: Area-based approach

Its goal is to achieve contextual congruence by integrating transport solutions with the specific social, economic, and physical characteristics of that area. The ABA for transport is structured into four sequential phases: Delineation, Diagnosis, Customization, and Implementation & Monitoring (refer figure 4 and Table 2a-2d).

Step 1: Area Delineation and Stakeholder Mapping

This initial step defines the spatial and institutional boundaries of the intervention zone, moving away from large-scale, city-wide master planning.

(Table 2a)

Action	Description	Key Indicators
A. Define the Area	Delineate a geographically compact area (e.g., a commercial hub, a large residential neighbourhood, or a Transit-Oriented Development zone) that shares **homogeneous land use patterns** and **interconnected trip ends**.	**Spatial Metrics:** Area size (), Population Density (), Job Density (Jobs/Area), Trip Internalization Rate (Percentage of trips starting and ending within the area).
B. Map Institutional Links	Identify all relevant agencies responsible for different aspects of the area (e.g., municipal corporation, traffic police, utility board, informal market regulators) to ensure coordinated action.	**Governance Metrics:** Number of agencies with jurisdiction, clearly defined decision-making matrix.
C. Engage Stakeholders	Identify formal and informal user groups, including street vendors (the informal economy), non-motorized transport associations, residents, and business owners, for participatory planning.	**Social Metrics:** Share of vulnerable road user groups (cyclists, pedestrians), Number of registered informal enterprises.

Step 2: Contextual Diagnosis (The "Determinants" Check)
This is the most critical phase, where the **contextual determinants** identified in the paper (socio-economic, modal, evolutionary) are quantified and analyzed to understand the area's specific needs.

(Table 2b)

Action	Description	Key Indicators
A. Assess Modal Diversity & Equity	Quantify the actual space and time allocated to different user groups, prioritizing the most numerous and vulnerable.	**Modal Share Metrics:** Percentage of trips by Walk, Cycle, Public Transport (PT), 2-Wheelers, and Cars. **Equity Metrics:** Road space allocated to NMT/PT vs. Private Vehicles (). **Fatalities/Accidents by Mode.**
B. Analyze Trip Purpose & Affordability	Understand *why* people travel (e.g., jobs, market access) and their ability to pay for various modes, directly addressing the informal economy and low-income access.	**Economic Metrics:** Average Trip Cost as a Percentage of Daily Income, Average Public Transport Farebox Recovery Ratio. **Trip Metrics:** Dominant Trip Purpose (Work, Education, Errands).
C. Evaluate Institutional Congestion	Analyze the physical manifestations of institutional failure, such as encroachments, unmanaged parking, and utility cuts, which severely undermine infrastructure.	**Physical Metrics:** Percentage of sidewalk/road space occupied by encroachments or unauthorized parking. **Conflict Points** (road segments with high modal friction).

Step 3: Intervention Customization and Policy Alignment
Based on the diagnosis, this step involves tailoring the intervention (whether it's a transferred measure like BRTS or a new, localized solution) to fit the area's profile.

(Table 2c)

Action	Description	Key Indicators
A. Prioritize Solutions	Select or adapt an intervention that demonstrably addresses the area's **dominant problem** (e.g., if NMT share is high, prioritize cycle tracks; if congestion is due to poor PT, prioritize dedicated bus lanes).	**Target Metrics:** Defined improvement targets (e.g., Reduce average commute time by 20%, Increase NMT share by 10%).
B. Design for Integration (Land-Use)	Ensure the transport intervention is directly integrated with adjacent land use. For instance, bus stops must align with local market/commercial access points, and sidewalks must connect to residential areas.	**Integration Metrics:** Access Time/Distance to Nearest PT Stop from all residences/jobs (should be < 5 min walk). **First/Last Mile Connectivity Rating.**
C. Create Institutional Action Plan	Develop a specific operational plan that includes cross-agency responsibilities for implementation (e.g., Police for enforcement, Municipality for maintenance).	**Operational Metrics:** Budget allocated for enforcement, Inter-agency Sign-off Rate for infrastructure design.

Step 4: Implementation, Enforcement, and Feedback Loop
The final phase emphasizes the enforcement and continuous evaluation necessary to sustain the positive outcomes, especially given the challenges of maintaining discipline in transferred systems (e.g., keeping BRTS lanes clear).

(Table 2d)

Action	Description	Key Indicators
A. Localized Enforcement	Implement strict, locally-focused enforcement (police, camera-monitoring) specific to the area's challenges (e.g., fines for encroachment on sidewalks or illegal BRTS lane use).	**Enforcement Metrics:** Rate of Compliance (e.g., of BRTS lane free of mixed traffic), Rate of Encroachment Clearance.
B. Performance Monitoring	Regularly measure the efficacy of the intervention against the targets set in Step 3.	**Efficacy Metrics:** Change in Average Travel Speed (for target mode), Change in Commuter Satisfaction Index, Change in Daily Ridership (for PT).
C. Establish Feedback Loop	Create a formal mechanism for citizens, including the informal economy groups, to provide feedback on the intervention's usability, safety, and equity.	**Feedback Metrics:** Number of official grievances or positive feedback reports (e.g., per month), **Public Perception Rating** of the improved area.

This paper has addressed the following: firstly, how the transport planning and policy environments seem similarly structured to those of developed economies and hence becomes a case of knowledge transfer by itself. Secondly it attempted to elicit factors which are different to the developed economies from where transfers seem to have occurred. Thirdly it is clear from the cases presented that a transferred measure will not have the same degree of success as it had in its place of origin. This indicates the need to consider the nature and character of differences in the backgrounds of a recipient city for transfer which should be thoroughly understood. This study suggests that apart from the traditional set of indicators used in transportation planning there is need to generate Area based Approach to develop specific goals and indicators to be identified to evaluate a planning option transferred or otherwise before implementation (Figure 4).

This study demonstrates that transport planning environments in developing economies often mimic developed contexts, facilitating problematic knowledge transfers. The analysis reveals that transferred measures consistently fail to achieve their original efficacy due to significant differences in recipient city backgrounds. Consequently, the paper argues for a shift from traditional global indicators toward an Area-Based Approach (ABA).

As projected by the UNDP (1980), the ABA focuses on small, socially cohesive territories to identify local strengths, bottlenecks, and endogenous potential. This approach allows for:

- Tailored Interventions: Actions are precisely matched to local competitive advantages and "real needs."
- Validation: Concepts are supported by regional projects such as Transit Oriented Development (TOD).
- Contextual Efficacy: Addressing user-specific issues to ensure a "best fit" for planning interventions.

SUSTAINABLE AND EQUITABLE OUTCOMES

The turn of the century has highlighted that there is no universal "best fit" solution for urban mobility. While developed countries face externalities from road infrastructure and automobile rise (Urry, 2004), developing economies must prioritize inclusivity. Aligning with the Bangkok 2020 Declaration (Goal 17), transport must achieve social equity at the local level.

Future research should evaluate transport interventions based on local sustainability and equity rather than global benchmarks. Success should be viewed as a symbiotic ecosystem of localized outcomes where policies originate from a context-specific, area-based foundation.

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