KARACHI BRT AND ITS IMPLICATIONS FOR POLICY AND INSTITUTIONAL VIABILITY

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ABSTRACT

In the last decade, cities worldwide have recognized the pressing need for high quality transport to challenge the growth of rapid motorization. Karachi, being one of the fastest growing cities in the world with a unofficially recorded population of 22 million, coupled with inefficient traffic management schemes, lack of integrated planning, ageing public buses and a turbulent political history, is failing to meet the needs of its residents. Travelling from one place to another has become very time consuming, as many people have to change multiple buses just to reach their end destination in dire conditions.

Despite living in times of greater mobility, our society has become more polarized. This heightened mobility has gravely disadvantaged particular members of society, such as low-income residents, children, women and the elderly, according to Prof. John Adams public lecture in 2009 at University College London. Longer commuting times, congested roads, and elevated carbon dioxide levels have now shifted global perspectives into reassessing their values; resulting in the emergence of mass transit mega-projects.

There is an absence of critical research and analysis on understanding the underlying issues in previous failed transport interventions. This paper aims to analyze past projects and assess the direction of transport policies to form an understanding of why many projects have not been successful, focusing in particular on the policy and institutional aspects and what are the implications for the current Bus Rapid Transit (BRT) system. Then by analyzing two emerging cities with different urban, political and financial contexts, lessons for Karachi have been extracted keeping Karachi's urban context in mind.

INTRODUCTION

Many mega projects, due to their sheer size and despite their seemingly controversial nature, usually begin with positive intentions. Whether they are olympic stadiums, highways or mass transit systems; cities use mega projects to stimulate economic growth and enhance their global competitiveness. Altshuller and Luberoff (2003) suggest that politicians undertake mega projects to gain recognition with little attention to the broader context and effect of the project. Projects that fail their purpose too often end up becoming 'white elephants', thus reinforcing the failures of the government. Hence it is imperative to holistically plan mega projects to have a positive effect on society.

An effective master plan allows policy makers to dictate how the city should grow spatially. Policy, therefore, has become more crucial than ever, as solutions to provide mass transport and the need to change travel behavior becomes more imminent. A mass transit mega project has a higher probability of success if planned with strategic land use polices, motor vehicle restrictions, options of non-motorized modes and traffic management strategies (ADB, 2009; Newman and Kenworthy, 1999). Newman and Kenworthy (1999) argue that strategic land use policies such as creating high density and mixed-use developments will discourage driving. Therefore, governments need to play a crucial role in changing travel behavior and pattern. Moreover, Asian Development Bank (2009) suggests that power needs to be vested in a central governing body that has the authority to plan, implement and self-finance these strategies (ADB, 2009). This, however, has been a constant issue for the city, as different authorities control different parts of Karachi and the city government only owns 31% of the land (Hasan and Raza, 2015).

Karachi being a port city is an important centre of economic activity. Increasing congestion, high accident rates and higher travel times may reduce productivity and cause economic losses. Karachi, therefore, is attempting to deliver its first BRT mass transit mega project with help from Asian Development Bank. BRT assistance systems are generally not defined as mega projects, however, Frick (2008) suggests

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that projects that are controversial and complex can also be categorized as one. Although Karachi has had its fair share of transport proposals, none of these plans have materialized, with the exception of the BRT, which is scheduled to start this year. The BRT's success can not only drive future development, but also restore faith in the government. The proposed BRT system in Karachi has the potential to reduce travel times, create new jobs, and mitigate the negative environmental impacts. On the other hand, its failure will be very costly for the tax payer.

BUS RAPID TRANSIT

Wright (2005) indicates that BRT gained recognition in Latin America with Curitiba being one of the first cities to successfully implement it, thus challenging the advance of rapid motorization. Bogota, Columbia then showed the world that buses could be an attractive solution if planned and delivered properly. Bogota's Transmilenio provided high capacity and quality transport solutions at relatively low cost compared to other transport solutions. It is often thought that only metros are the right solution for sprawling cities however, they are too expensive. Buses are traditionally associated with a negative connotation for being unreliable and slow, although buses can be an attractive solution if planned and delivered properly. Nowadays, cities worldwide have replicated the BRT system as it is relatively inexpensive and have a shorter construction period. BRT, if planned in conjunction with the right policies can have many positive social, economic and environmental benefits.

Implementing a BRT solution is not a one-step formula, the key to success is in making smart and informed early decisions (Allport, et al. 2008). Wright (2005) suggests that political will is an important factor in implement at on of BRT systems around the world, as governments want to leave a lasting legacy. Therefore, most of the successful mega projects have had strong institutional frameworks with technical expertise and positive intentions to benefit the society. On the other hand, Karachi lacks the institutional capacity to follow through and to manage transport projects. This is also because Pakistan has had a particularly difficult political history, a turbulent law and order situation, along with ethnic rivalries, military interference and corruption, which has shaped the country's priorities that often find an interface with large public sector policies and projects. The contested political and governance space in Karachi in particular offers unique challenges within the Pakistani context that have had and likely would have a strong bearing on the possible success or failure of projects such as the BRT.

HISTORICAL BACKGROUND

Understanding Karachi's urban and transport system in its historical context will facilitate the discussion on how to avoid mistakes committed in the past that constrained the capacity of the interventions to bring long term and viable improvements in the system. There have been several initiatives introduced by the government to solve the issue of transport; however, there were a lot of factors that caused these projects to fail. It is strongly felt that a failure to recognize and address these issues now may result in the failure of the recently launched BRT project.

Residents have suffered for over sixty nine years because policy makers have proposed different policies and related projects at different time periods that have not made sense holistically. Focus has been on 'projects' – large or small, to tackle the relevant development challenges, rather than integrating projects with a holistic policy and institutional framework. After years of project-based interventions, the 1973-85 Master Plan finally recognized the need for a mass transit solution. By then, government interventions were ineffective and the policy had also shifted to more road-based schemes, leaving very little public funds for transportation projects.

Post Partition

Karachi was once a transport dependent city with high quality trams, inter city rails as well as buses servicing important parts of the city left over from British India. Following the partition, there was an influx of migrants that settled in the urban core and its peripheral vicinity. The tram was popular amongst residents as numbers grew from sixty four in 1954 to one hundred and fifty seven by 1955 (Hasan and Raza, 2015).Due to lack of maintenance, the tram was in bad condition (Imran, 2009) and was causing congestion in the urban core (Hasan and Raza, 2015). The current transport system was unable to cater to their needs due to congestion and financial reasons. After ninety years of service, the system was dissolved in 1975. Sohail (2000) suggests that this period was difficult for the newly independent country as the influx of migrants and economic pressure put a lot of pressure on transport as the demographics from 1951 showed that population had increased by 150%.

From the recommendations of the First Five Year Plan 1955-60, the West Pakistan Road Transport Board was formed in 1957. At this time, the focus was on improving the existing railway, but not expanding it, along with the creation of 1800 miles of new roads (Imran, 2009). This shows how

the government was slowly switching its focus from public transport to automobiles as the Plan recommended new road networks.

Due to the martial law in 1958, decisions made by the government changed the landscape of Karachi (Sohail, 2000). In response to the densification of the urban core, the government drew up the Karachi Resettlement Plan in 1959 in attempts to move the migrants out of the city center to satellite towns to set up new industries (Hasan and Raza, 2015). The industry never flourished and thousands of migrants, in the absence of a public transit system, had to commute long distance to go to work.

Aftermath of the Martial Law

To meet these new transport demands, the Karachi Road Transport Corporation (KRTC) was established in 1959 to oversee bus-based transport projects in Karachi (Sohail, 2000). The KRTC produced three hundred and twenty five buses and had depots and workshops to train drivers. The Second Five Year Plan (1960-65) even allocated money to KRTC to expand its fleet. However, the Plan prioritized road-based construction as it stated that the car was more adaptable and flexible than rail (Imran, 2009). Imran (2009) argues that international consultants like the World Bank encouraged this ideology, along with privatization of transport.

In the 1960s, there was heavy emphasis on industrialization and green revolution, which encouraged more migrants from within the country (Sohail, 2000). The rapid industrialization from the green revolution increased economic pressures, but exacerbated the housing and transport situation, as they did not expand proportionally to the growth in population (Sohail, 2000). Moreover, Imran (2009) suggests that expansions in the city changed the spatial structure and made non-motorized modes, such as walking and cycling more difficult, thereby encouraging a modal shift from non-motorized to motorized.

The second master plan reinforced the privatization philosophy and invited the private sector to invest in transport (Imran, 2009). This caused a proliferation of private buses, which had serious consequences for the city as the transport sector is dominated by a single ethnicity (Sohail, 2000). Similarly, KRTC was also privatized for unknown reasons (Hasan and Raza, 2015). Scholars (Pucher et. al 2004; Tiwari, 2002) imply that privatization of transport services can be efficient and have higher productivity, if an institutional authority ensures successful integration with all existing services.

The plan also called for the creation of the Karachi Circular Railways (KCR) in 1964 to meet transport demand. It was the first and last rail based project in Karachi. The KCR first served the industries, but was expanded to include commuters. It made one hundred and four trips daily in the 70s, and was known for its cheap and reliable service (Sohail, 2000). For the next fifteen years it continued to provide services, but gradually decreased the number of trips. By 1979, the trains needed maintenance, but the government was not allocating enough funds. By 1985, the train was losing Rs. 12 million as ticketless travellers had increased (Sohail, 2000). By 1998, although the population had reached around nine million, KCR was losing around Rs. 6 million, while making only one trip a day (Sohail, 2000). Another argument is that the informal transport sector, also known as the 'transport mafia' wanted KCR to go out of business, so they pressurized the government (Hasan and Raza, 2015). Alongside KCR in 1968, the government tried to introduce another bus-based intervention called the Omnibus. Within a year, it proved to be unsuccessful and was disbanded immediately.

Rise of the Transport Mafia

Multiple failed transport interventions led to the free transport policy in 1971. The government needed help from the private sector to meet transport demands (Hasan and Raza, 2015). Any individual could purchase a bus and apply for a route permit. However there was no mention of regulations or standards set in place. Most people went to moneylenders, based in the province of Khyber Pakhtunkhawa, to buy a bus (Hasan, 1999). Moneylenders purchased mini-buses because they were affordable, however their capacity was limited. Over three hundred and twenty nine routes were issued; however, only one hundred and eleven are in operation now as the other routes were not profitable (Hasan and Raza, 2015). The situation resulted in the informal sector establishing their political and economic hold in the city (Sohail, 2000).

By the 1970s, squatter settlements on the periphery, minibuses, cars and motorbikes had increased rapidly, causing congestion and environmental degradation. The number of motor vehicles had increased to one hundred thousand and motorcycles had grown to about seventy five thousand (Sohail, 2000). As a result, a new master plan was created with the assistance of the United Nations Development Programme (UNDP). A new authority was formed to prepare the Karachi Master Plan 1974-85 (Sohail, 2000). The master plan, keeping in mind the influx of new migrants from the Afghan War, called for the development and expansion of

new roads and networks, providing adequate housing and infrastructure for the squatter settlements along with plans to develop a suitable transport system (Hasan, 2015). Moreover, the government also had plans to develop a new light rail transport (LRT) along with expanding (KCR), which was achievable considering funds had been secured as well.

Even though the plan was promising, political situation worsened as another Martial Law was imposed in 1977. The subsequent governing authority dismissed the LRT project, and abandoned the UN Master Plan (Hasan and Mohib, 2003). As a consequence, lack of planning resulted in more informal settlements along the urban core, which increased the need for travel. The result of the new military rule led to the rise of ethnic politics, violence and corruption, which is causing serious problems till today (Sohail, 2000).

Lack of Institutional Capacity

The new government introduced another bus-based project in 1977 under the authority of the Karachi Transport Corporation (KTC). This authority was legitimized, as it was part of the Karachi Master Plan. KTC introduced five hundred and fifty buses along with new bus terminals (Hasan and Raza, 2015). It also linked with the automobile industry to build large buses to accommodate more passengers. The project was going well as within a year the number of buses increased and even the training institute was re-introduced.

By the 1990s, KTC began experiencing similar problems seen in other projects. There was mismanagement and a lack of technical expertise to maintain these buses (Hasan and Raza, 2015; Sohail, 2000). Hasan and Raza (2015) suggest that the government's capacity to manage the transport projects was low as poor quality spare parts were used, government subsidies were not fulfilled and the technical staffs were not trained properly. By 1996, only hundred buses were operational and the losses were around Rs. 10 million. This was also because one hundred and eighty five buses were destroyed in the political turmoil in 1994-96 (Hasan and Raza, 2015). The failure of the KTC reinforced the belief that only the private sector could manage public transport, although it still tried to introduce other bus-based projects.

A new master plan emerged in the 1980s with the assistance of UNDP called the Karachi Development Plan (KDP) 2000. This plan failed to recognize and consult the informal sectors in the city, which had become very influential (Hasan and Raza, 2015). The plan was not implemented as it failed to recognize the lack of institutional capacity, as many of the recommendations had no legal basis (Sohail, 2000). By the 1980s, the informal transport sector had amassed considerable influence as they exerted their influence to alter an important law (Sohail, 2000). If a mini bus killed someone, the driver would be charged as per Section 304-A (accidental death) and not under Section 302 (murder). Sohail (2000) suggests that this caused the rise of ethnic politics in Karachi.

Project Based Bus Interventions

A key feature of the KDP 2000 Plan was to build eighty seven kilometer of transit ways for buses or rail, which gave way to the emergence of the Karachi Mass Transit Plan in 1987. The government recognized the pressing need to develop a mass transit system due to the unplanned growth of the city and the demand for transport. The study had proposed elevated transit ways with a light rail system and had even looked into the social and economic benefits of the city (JICA, 2012). Despite its appeal on paper, the project may have been too ambitious and failed to conceptualize the financial aspect and the institutional capacity of the project. Hasan and Mohib (2003) suggest that political instability was another factor in the failure of KDP 2000.

From 1996 onwards, the government undertook several bus-based initiatives, despite their previous failures. These projects were introduced during political uncertainty, the on-going Compressed Natural Gas (CNG) crisis, ethnic riots and rising corruption rates. As a result, they weakened public faith in managing transport projects. Projects such as the Karachi Public Transport Society (KPTS) in 1999 and the Urban Transport Scheme (UTS) in 2001 all started with much enthusiasm, but deteriorated due to a lack of government subsidy and mismanagement (Hasan and Raza, 2015; Imran, 2009).

The reason for KPTS's initial success was because the government had provided them with security from the 'Transport Mafia', but as (Hasan and Raza, 2015) soon as the owner passed away, the business was sold and disbanded. In 2001, the private sector was again invited to invest in the UTS. This intervention was a disappointment as the government failed to provide the subsidies needed to compete with the informal sector along with preferential treatment on lucrative routes (Hasan and Raza, 2015). Eight out of the thirteen investors suffered heavy losses, leading to a lack of mistrust and faith in future government projects.

This lack of faith in the government led to a lack of investors in the next government transport intervention in 2007: the

CNG bus project. Instead of its planned 2000 buses, the government invested in seventy five buses (Hasan and Raza, 2015). Shortly after the project was discontinued due to high operational costs, CNG shortage and the worsening political situation.

Response to the Failed Transport Intervention

By 2002, the market response was to introduce *qinchi* to meet increasing demand. They were serving areas which were out of range for buses. Although they are banned now, there are still 14,000 operating in the city (Hasan and Raza, 2015). The public also responded to the transport crisis by purchasing motorbikes, as they were affordable and faster than public transport. Five hundred thousand motorbikes were purchased in 2005 to over one million in 2010 (Hasan and Raza, 2015).

Another transport plan was proposed by JICA under the Karachi Transport Improvement project in 2005. The plan initially called for a light rail transit (LRT), but changed to BRT and called for the revival of KCR (JICA, 2012). However, the KCR revival project has been delayed due to the absence of institutional ownership and encroachment of KCR lands by powerful land mafias (Daily Times, 2014).

In 2007, after recognizing the chaotic nature of growth, another master plan called the Karachi Strategic Development Plan 2020 was developed, that is being implemented to date. However a lack of planning has caused Karachi to expand in different directions. In the backdrop of the history of public transit interventions in Karachi, it is not technical issues that are of a concern. The concerns and the factors that have side-lined all efforts to have a viable public mass transit system in Karachi, are political and institutional along with a failure to develop consensus among key stakeholders – political, administrative, existing transport operators and allied industries, and very importantly the users.

Moreover, transport policies at the national level still encourage private sector involvement (Imran, 2009). Hasan and Raza (2015) state that the private sector has been unwilling to invest due to previous failures. This has caused serious implications moving forward when mass transit becomes critical in a city with rapid motorization and high population growth.

CURRENT SITUATION

Today Karachi's public transport service is mainly in the hands of the informal transport sector due to previous failed attempts at establishing a mass transport system by the government. As a result, the number of minibuses have proliferated, which have had many fold consequences for the city. Corruption has increased, as multiple minibuses run on the same route by bribing police officials; some without permits, viciously competing with other buses for passengers. This has deteriorated the quality and safety of public transport services. Buses are ageing, drivers are uneducated and untrained, and passengers are overcrowded. Minibuses also don't conform to the traffic rules and are a major cause for traffic accidents and congestion, which has resulted in grave negative economic, environmental and health impacts.

Following the failed government interventions, the transport sector has been unregulated for many years. The sector is also losing out on profits, as fares have not increased despite rising fuel costs and the on-going CNG crises. A rise in fares is also difficult to justify in the absence of any improvements in the quality of services being provided. This has decreased the number of buses and worsened the transport problem.

The demand for transport, however, is very high in Karachi. Over 24,227 million trips are made daily and about 60% of trips are made on buses (JICA, 2012). However, public transport accounts for around 4-6% of the modal share of vehicles. This highlights the issue of overcapacity, which leads to unsafe conditions for passengers. The problem is that most people have no other choice and therefore, must use this service. Figure 1 shows the low modal distribution of vehicles as compared to their usage.

Infrastructure

Weak road infrastructure is a major impediment to the current service and all other road users in Karachi. Due to a lack of

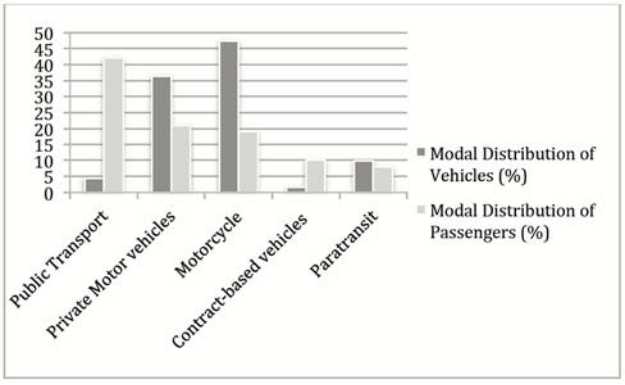

Figure-1: Modal distribution of vehicles and passengers.
Source: JICA, 2012

formal bus stops, poor road conditions and unregulated buses, the average waiting times and congestion has increased. There is also a lack of pedestrian infrastructure for people who want to walk or cycle. Safety has become another looming concern and thus discourages non-motorized travel (NMT). The overall road development is also not well connected, as many projects have been built to suit individual needs and not in respect to an overarching city plan. For example the Lyari Expressway, a controversial project that was opposed by many academics and NGO's as it displaced many people (Hasan, 2005), did not fulfill its purpose of reducing congestion (Ahmed, 2016)

Traffic Management

In Karachi the current traffic management situation allows leniency to cars to drive in any lanes, and park their cars wherever they desire. This issue was also expressed in the new Master Plan as unregulated parking frequently results in congestion (ECIL, 2007). Along with parked car, multiple hawkers providing services to passengers have also encroached upon many roads, essentially causing congestion in areas.

Response

Due to low quality service, many people are opting to buy their own private vehicle. The number of registered motor vehicles has increased very rapidly and if this growth is maintained it could result in upto 2.1 million motor vehicles by 2025, which makes it a pressing matter that can no longer be avoided (Ahmed, 2013). The Karachi Strategic Development Plan recognizes these problems and encourages investment into upgrading the current infrastructure (ECIL, 2007). Without strategic and systematic upgrades, implementing a transport system will be extremely difficult.

KARACHI'S BRT

The Asian Development Bank (ADB) has proposed to develop a BRT corridor in Karachi. ADB has provided a plan with a focus on sustainable planning to effectively target congestion and improve mobility. They aim to reorganize urban growth and promote transport oriented development concepts by integrating mixed land uses and constructing NMT lanes. They will design the BRT operational plan and business model. The BRT will run on a segregated corridor with some elevated corridors along with linked feeder routes. Intelligent transport systems will be an important feature improving reliability and speed. ADB also plans on improving the institutional capacity of the Sindh Mass Transit Coordination Authority (SMTCA) and the Sindh Mass Transit Company (SMTC); however, these institutions are not functional yet in Karachi. Additionally, ADB also aims to facilitate traffic management, initiate an urban development strategy to reduce encroachments and strengthen the capacity of traffic police. Despite their comprehensive proposal, there is a lack of information whether they have commenced with this plan. Additionally, the Japan International Cooperation Agency (JICA) has aided the Sindh Government by conducting a feasibility study for the Red and Green BRT lines (JICA, 2012). Despite Karachi's failed transport interventions, the BRT project has surpassed expectations and has reached the implementation phase. Currently there has been a general consensus that the BRT should be implemented, despite knowing that there is absence of institutional ownership. Currently very little information is available to the public about the process and details of what is happening on ground.

Proposed

Five lines have been proposed in the system with different managements funding and operating the lines. The Federal Government is financing the Green Line, a Chinese consortium has been awarded the contract to build-operate-transfer (BOT) the Yellow Line; Bahria Town developer is financing the Blue Line which will connect the city to Bahria Town; the Sindh Government using public funds is financing the Orange Line; and ADB was supposed to finance the Red Line with the Sindh Government; however, it is unclear whether they are still on-board.

Planning

Both Sohail (2000) and ADB (2009) stress the importance of a single authority to oversee operations to ensure success. However, no single mass transit authority has been established to oversee this mega project. The bill to create a Sindh Mass Transit Authority has been submitted, but it is still pending approval (Bhagwandas, 2015). The fact that the project is being launched without any decision being taken on the Sindh Mass Transit Authority Bill raises serious concerns about the political and institutional ownership of this project and raises the fear that yet again it might fall prey to the political contestations and dysfunctional governance scenario in Sindh and Karachi. The lack of central authority is a huge issue and has been a key reason for the failure of many past interventions as most developments have no interlink to an overall city plan. Moreover, the land development authority has had very little say in the development of the plan. The

fact that the land development authority does not own all the land in Karachi is also a hindrance in the implementation of the transport plan. In the absence of an enabling institutional and legislative framework, many good plans and policies often never get translated from its conceptual phase. In Karachi frictions have always existed between the provincial and local/ city government tier of governance over control of the earlier proposed projects that has limited the proposals to design and planning phase, and hindered actual implementation.

In the past, there has been a reactive approach to tackling a crisis rather than planning ahead; hence none of the interventions have had long term impacts. Before such a massive plan gets implemented, there are some questions to consider in the planning phase that will make the transformation process easier and ensure the success of this mega project. A project of this scale has the potential to transform the landscape of Karachi and hence good planning can ensure efficiency and success of the new BRT project. A mega project built wrong can end up becoming a white elephant and serve as a strong reminder of the lack of institutional capacity and vision. Therefore the aspects that need to be addressed beforehand are:

- Do the routes disrupt any heritage or environmental sites? The environmental impact assessment indicates that some water and gas lines may be in the right of way (ROW); however, the city has not identified these and what will be done about them? Similarly, the Green Line may reduce green spaces in the city. It is not clear yet if public consultations have been conducted with the right interest groups.

- Since different institutions are financing each line, it is important to address the issues related to coordination between these institutions. It is also important to outline processes to monitor performance standards for the different lines.

- It is important to identify how many buses will each line need to guarantee reliability and to maintain speed.

- It is vital to standardize the fares and if the government will provide subsidies.

- It is also important to identify if the BRT system will affect informal and formal businesses and how will they be compensated?

- In order to plan for a sustainable mass transit mega project, nonmotorized transport facilities need to be developed to further discourage car usage. Currently, NMT's account for 20% of the daily trips (JICA, 2012) and despite ADB's proposed plan, will the other financers also give it the attention it deserves?

- If NMT facilities are designed, such as space for pedestrians and cyclists, how will the issue of encroachment be enforced in those public areas?

- It needs to be identified if future areas have been outlined where transit links can be connected.

- It is also vital to outline how will the proposed BRT link up with other possible transit options, like the KCR.

Informal transit

ADB has also proposed that the current bus operators become the operators of the new BRT project (Ahmed, 2013). ADB will provide compensation for operators to scrap their fleet. In previous projects, the transport mafia disagreed, conspired to ruin, and competed with government buses. Their influence suggests that they have been a major opposing force when it comes to introducing any new transport initiative. Since the BRT project has passed the inception phase, one can assume some sort of deal has been made. It is difficult to comment about the extent of the involvement of the different statkeholders in the current project due to a lack of information. One of the lessons from the past has been the failure to build consensus and measures for assimilation between the key stakeholders and existing players. So it is imperative to determine whether they have been included in public consultations as stakeholders.

BRT Fares

Due to the different operating entities, it is unclear what the fares of BRT will be and whether they will be subsidized or not. The current bus fare for the informal transport sector is unsustainable because they are not making any profits (Hasan and Raza, 2015). In order to encourage more transport users and provide mobility options, variety for fare subsidies for the low-income community should be provided, as they may not be able to afford high prices. The city can perhaps have different fare choices or subsidies by using an electronic fare system. Hidalgo and Carrigan (2010) suggest that fares should be based on the actual cost of operations, as this reduces the need for subsidies. However, if the project is too expensive, the BRT fares will be expensive, leading to low ridership levels. If subsidies are provided to compensate for the need of high operating cost then the question about

the sustainability of the project arises. Hence, comprehensive planning is important in the planning phase or it may be disastrous for the city due to the losses it may incur.

The Lahore BRT project had been built using public funds (Husain, 2015). It is, however, incurring a loss of Rs. 5 million as the government is paying a subsidy of Rs. 40 per ride, while passengers are only paying Rs. 20 per ride (Express Tribune, 2014). Although the BRT project in Lahore intended to provide safe and reliable transport, while encouraging public transport usage, insufficient investment in the number of buses and bus stops has resulted in inadequate coverage (Hasan, 2014). This serves as an important reminder for Karachi because the same mistakes should not be repeated, or it will add to Karachi's list of failed transport interventions.

Institutional capacity

Another implication for the BRT is its reliance on the international agencies for intuitional support and detailed plans. This reduces the institutional capacity at a local level because they are not involved as much and hence don't take ownership of the project. Another issue that arises with foreign assistance is that they lack local knowledge of issues and experience of how things are done (Imran, 2009). Although local consultants are hired, the extent of their involvement in planning is limited (Imran, 2009) and depends on the particular agency. Most BRT systems are largely successful if there is strong political will or a leader pushing for implementation (Wright, 2005). For example, BRT in Bogota was the vision of former mayor. In Karachi, there is an absence of political will. Moreover, Imran (2009) implies that there is a serious limitation of institutional capacity due to lack of skills and knowledge to facilitate projects, because of heavy dependence on international institutions for aid and finances.

User Awareness and Public Participation

User education is very important in converting choice riders, as the main aim of the BRT is to encourage an increase in modal share. Hidalgo and Guiterrrez (2013) suggest that new systems and changes require proper user education to improve the project's perception. For example in Ahmedabad, India, planners frequently held consultation sessions with various community groups to increase awareness (NIUA, 2012). There were frequent workshops for public officials, open displays about the BRT at the local university, regular press releases and feedback from the community was highly regarded. As a result, they were able to establish a strong brand image and clear any misconceptions before the launch of the BRT (Kumar et al., 2012). Moreover, Rizvi (2014) suggests that updating and educating the public during the initial phase yielded much better results and eased future implementation difficulties. For Karachi's BRT project, there were some public consultations, but very little information is available on who was present and the extent of engagement of the stakeholders. There have been regular press updates on the project, however, due to lack of user awareness, many people may not be following the project.

LESSONS FROM OTHER CITIES

Drawing lessons from other cities may aid Karachi in improving the current project's viability. BRT systems need to be designed keeping local travel demand and context in mind. Although the cities used for comparison have different set of actors, stakeholders and planning processes, some specific aspect of their process maybe useful. From Johannesburg, one can see the process of how the informal transport sector was integrated into a more formal sector. From Ahmedabad, one can learn more about their governance structure and find ways to strengthen Karachi's institutional capacity.

Case Study 1

Ahmedabad, India

As one of the fastest growing cities in India, Ahmedabad needed a mass transportation system to support its city. In 2012, Ahmedabad's number of registered vehicles doubled from 120,000 in 2001 to 280,000 (Embarq, 2014). Current buses were running under the Ahmedabad Municipal Corporation, but due to a lack of resources and operation inefficiencies, the system was failing, resulting in decreased patronage (NIUA, 2012). The city therefore, proposed the BRT system to address the rapid rate of motorization and decline in public transit usage.

Desire for Change

The government expressed their interest in improving their transport systems. So during the "Year of the Urban Development" the Gujarat Infrastructure Development Board and the Ahmedabad Urban Development Authority conducted a comprehensive mobility plan to improve mobility needs by proposing a BRT system (NIUA, 2012). The BRTS was the result of strong leadership shown by Mr. Gautam of the Ahmedabad Municipal Corporation (Rizvi, 2014), early-informed decisions, and support from their local university,

that is the Centre for Environmental Planning and Technology (CEPT) and Institute for Transportation and Development Policy (IDTP). The city coordinated and communicated well with various stakeholders, carefully considered local context in many of the design phases and utilized the given feedback.

Planning Process

The planning of the BRT was given to CEPT University and they were very thorough in their findings and analysis in proposing solutions (Kadri, 2010). They incorporated a transparent approach in sharing and discussing each step using media and other consultation tools (Rizvi, 2014). The project was aligned with national goals of discouraging the use of automobile dependence and received funding under the Jawaharlal Nehru Urban Renewal Mission (JNNURM) (NIUA, 2012). They focused on 'designing a network and not corridor' and 'connecting busy places but avoiding busy roads' (NIUA, 2012; Rizvi, 2014) and introduced new cycle lanes and footpaths, which did not exist before. To streamline operations and improve accessibility, over a hundred minor design modifications were made (Rizvi, 2014). The design process also included international visits to other cities with successful BRT systems and CEPT relied on lessons from Delhi and Pune to avoid repeating mistakes (Rizvi, 2014). The case study of Ahmedabad serves as an important lesson for Karachi as it can reflect upon the issues encountered in the design of the BRT in Lahore and Islamabad.

Janmarg

Janmarg (meaning "the people's way") was created as a new authority board to plan, design and manage the BRT system in Ahmedabad. It had a strong institutional framework to execute the vision in order to improve Ahmedabad. The new authority included figures such as the mayor, traffic police commissioner, members of political parties, transport specialists and private investors (NIUA, 2012). This mix of people from different backgrounds and skills allowed them to lead an autonomous system. Key responsibilities were demarcated under three divisions (Figure 2).

These divisions worked on their own tasks, but coordinated with each other. The planning department under the operations division was an important department, which conducted passenger surveys, did long-term planning, assessed possible extensions and developed fare structures and business models for the operation management teams.

Policy Evaluation

Janmarg has been quite successful in achieving what it was planned for. The project was inaugurated in 2009 with three months of free ridership to smooth over difficulties and create a positive image. Fare costs ranges are from Rs. 2 to 14 depending on the intended distance. The authorities were also able to minimize adverse environmental effects and decrease waiting times (Embarq, 2014). Another important result was that *Janmarg* encouraged lots of women to travel, thus increasing accessibility (Embarq, 2014).

There were however some issues with the BRT system in Ahmedabad. The fare structure was still too high to encourage travel for low-income residents, NMT's were poorly designed and there were delays with the fare-card system (Rizvi, 2014) (Figure 3).

Furthermore, the BRT system of Ahmedabad also did not connect well to feeder routes and other buses in Ahmedabad. However, Janmarg worked hard to ensure all issues were sorted out as soon as possible.

Case Study 2

Johannesburg, South Africa

Rea Vaya (meaning 'we are going'), launched in 2009 is an example of strong political leadership to ensure the implementation of the first successful government transport intervention in South Africa. *Rea Vaya's* success lies in its dealing with the informal bus operators and turning them into formal operators to provide trunk and feeder route service (Schalekamp and Behrens, 2010). There were two main reasons why they were successful. Firstly, government intervention was effective due to the government's

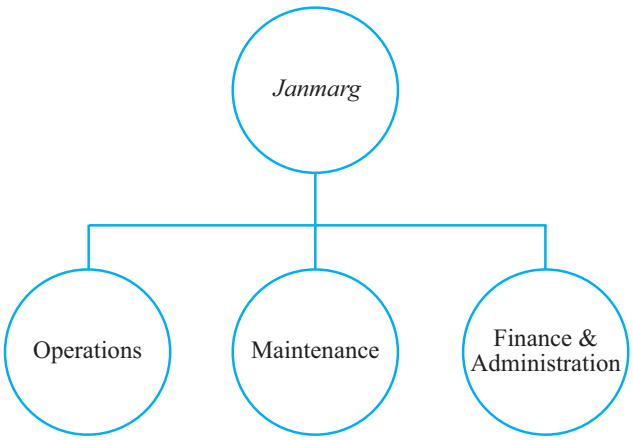

Figure-2: Governance structure of BRT in Ahmedabad, India.

commitment in taking majority of the risk and the informal sector's inclusion in stakeholder sessions to formalize their arrangement. Venter (2013: 118), also argues that the government was also successful because the proposal they offered was attractive and feasible due to a stagnant technological- economic reality. The BRT system included large buses that were technologically advance and could achieve much higher speeds due to segregated roads. BRT operators were paid a fee per bus per km, regardless of passenger numbers, which reduced competition amongst other drivers (Venter, 2013).

Context of Rea Vaya

The implementation of *Rea Vaya* in Johannesburg was by all means not an easy feat, as general mistrust was high. Very similar to Karachi, transport was de-regularized in 1988, giving way to an expansion of the minibus-taxi industry. The informal transport operators responded to demands and penetrated deep into the system becoming quite powerful. Competition amongst drivers grew and associations fought over lucrative routes. The associations would often settle disputes using violence, as the police did not enforce or monitor their activities, which resulted in the drop of safety and quality of service (Venter, 2013). With time the size and influence of mini taxi operators had grown considerably and it became the main public transport provider, as 60% of the population used these minibus taxi services (Berg, 2010). Although previous government interventions were unsuccessful in regularizing the industry, the government was serious in its attempt to formalize it in the case of *Rea Vaya*.

Process towards formalization of Rea Vaya

The city conducted many stakeholder sessions to include the taxi operatives that would be affected in phase one. Securing trust was difficult, but the parties finally reached a decision. The city intended to merge existing operators into the new system and provide driver training. They also required existing operators to remove their vehicles from the routes of *Rea Vaya*. There was uncertainty from other taxi operators and drivers who were not included in the process, but they were not directly affected by the BRT. Before the system was launched, there were threats of strikes and violence. The city reaffirmed that no jobs would be lost and all affected people would be compensated. There were court orders to stop the BRT, which increased the project's uncertainty. Once the system started, the number of passengers grew, and there were fewer glitches. Four months in, there was a shooting as a gunman fired on the bus. This resulted in the deployment of security forces to guard the BRT system (Venter, 2013). Despite all the issues, the system today is working well.

POLICY EVALUATION	
Positive	**Negative**
Decreased travel time (operation efficiency)	Mostly used by largely the middle-income group, with monthly incomes between Rs.10,000- and Rs. 40,000/-
Decreased personal motorised travel (travel behaviour)	24.4% of females use the new bus system and out of that only 6% use it for leisure purposes
Increase in public transport patronage (more market share, from October 2009: 17,315 to October 2011: 135,000)	Yet an expensive option for the low income group
Increased local economy (especially along the corridor)	Only 13 per cent of commuters have shifted from private motorised vehicles
Reduction in accidents	Too top-down transportation planning approach
Improved air quality	Poor integration of other modes (walking, cycling facilities, shared auto rickshaw, public bus)
Increase in social trips (after six month operations)	

Figure-3: Policy evaluation of BRT system in Ahmedabad, India.

IMPLICATIONS FOR KARACHI'S BRT

If one looks at the present BRT experience, it is feared that despite all good intentions, the similar mistakes of the past are being revisited. There is a complicated set of financers, administrators, operators belonging to a diverse set of political/ private, donor sector, etc. In the absence of any clear information or future status of the Sindh Mass Transit Authority Bill, it is not known how this complex web is going to be structured, find synergy and deliver on multiple aspects of implementation, operation, financing, monitoring and regulation. There are only vague statements that existing transport operators are going to be assimilated in the proposed BRT but no clear road map or detailing as to how this will be done. Public participation and user awareness has been limited to a few seminars targeting a limited set of stakeholders that may not be public transport users anyway. There is also no public campaign for information dissemination and user awareness. There is a lack of clarity on the affordability aspect, and maintenance of performance standards, which is critical to the success of any public transit system. These issues need to be looked into and brought more intensely in the public discourse as these factors have defined the fault lines that have derailed all past transport related interventions.

Government interventions in Karachi have failed to not only regularize the informal sector, but also in competing with them. Buses in Karachi are not able to improve technologically, as they have reached their mature phase, like the minibus-taxi in South Africa. Hence there is the possibility that the informal sector might be open to new ideas. In Hasan and Raza's (2015) study, the informal sector implied that if they were given new buses, they would be able to function much better and meet the increasing demands. The informal sector has the technical experience in running the transport sector, along with local knowledge of where the most demand is and where feeder routes are needed. As the present Karachi BRT is concerned, there is a high level of ambiguity as to how the present transport operators are being engaged and integrated in the current plan.

There are many lessons for Karachi from Ahmedabad's institutional framework as well. Each division within the new authority has roles for everyone and there is a focus on coordination and communication between the divisions. Perhaps a new authority in Karachi could also include different stakeholders without any political ambitions and understand that transport based mega projects is an important and much needed service.

Another interesting point to learn from the Ahmedabad case study was the use of local university and local consultants to plan and design the BRT. This helped strengthen local institutions, facilitate research into further BRT areas and spur growth in the economy. It also meant less reliance on foreign interventions.

CONCLUSION

As this paper has highlighted, that other than external factors such as phenomenal rise in population levels, a lack of implementation of planning recommendations and rapid decline in the capacity of urban planning and development institutions since the 1950s has caused Karachi to grow in a sporadic manner, which has had many negative social, political, environmental and economic consequences. The result of unplanned growth has further exacerbated the already existing need for an adequate mass transit mega project. Historically, in assessing the direction of transport policies, more focus has been on road-based projects that cater to the private automobiles and not enough research, funding and priority has gone into public transport projects. Therefore, it becomes crucial to identify and address the pressing challenges associated with planning and delivering mega projects, as they have the ability to transform landscapes. Within this context, a strong institutional framework, backed by political support that can come in the form of an appropriate policy and legislative framework, is very important because it can enable, or if there is a lack of it, constrain transport service delivery. It therefore, comes as no surprise that a lack of political will and institutional capacity in Karachi has caused many plans to fail. Plans have failed to have the required political sanction, and few people locally have had the technical capacity to manage and implement such mega projects. Despite this, even now, in the case of the BRT, most of the discussion and focus has been on the technical merits and demerits of the project and not enough focus on the political, institutional and public legitimacy.

In evaluating the current BRT project's viability, it becomes clear that factors that have derailed former transport projects need to be addressed by policy makers. More transparency and knowledge sharing is required as educating the public will increase positive perception and give projects the required public legitimacy. Researchers should be encouraged to identify major and minor issues that can be rectified before the BRT is implemented. There needs to be an emphasis on facilitating a greater role of local universities, research and development institutes, and consulting organizations to conduct further research in different aspects

of transport and city planning and as such, strengthen local capacity. More public consultations with interest groups and transport users are needed to understand what modifications are required. In addition, there is the critical requirement of working with the ground realities and that means the existing operators catering to the mobility needs of the potential public transport users. Unless a roadmap is charted to define a new role for the stakeholders in formalized systems of public mass transit, there will always remain fears on the sustainability of the proposed initiatives. The much needed public consultations will aid the government officials in achieving consensus amongst key stakeholders and eventually result in smooth implementation of the project.

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