BUS RAPID TRANSIT MANAGEMENT AND
PUBLIC PRIVATE PARTNERSHIP

LESSONS FROM INTERNATIONAL EXPERIENCE

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ABSTRACT

An increasing number of cities are looking at Bus Rapid Transit (BRT) as a lower cost alternative to meeting their mass transit needs. Less fully explored, however, has been the link between BRT and the implementation of transit system regulatory reforms. The ultimate sustainability of any proposed BRT system is likely to depend as much on the system 'software' (The business and regulatory structure) as it is on the hardware (buses, stations, bus-ways, and other infrastructure). A lot of emphasis is laid on the physical aspects of Bus Rapid Transit such as corridor design, bus stations, buses, IT systems etc. These are very important elements that determine the quality of any BRT system. However, creating a BRT system has been used as an opportunity in many places in the world to bring in best practices of public transit management for long term sustainability. In a growing number of cities around the world, the introduction of a BRT system has also been used to implement some important long-term transit sector reforms.

In most places, the process starts with the creation of special management unit or company under public authority, and use of Public Private Partnership (PPP) as an opportunity to realign roles. A focused Special Management Unit under public authority does regulation; planning, management and monitoring of services to make sure the citizens are served well. Private sector investment and efficiency is brought into public transit operations to maximize quality and minimize cost over the long term. Often, this results in major restructuring of public transit operations in the entire city.

This paper goes through the process with examples from across the world of how it has been applied, various institutional and business models that have been adopted, and advantages and shortcomings of various contracting options. It delves into how attempts to bring in PPP have succeeded in different cities around the world, instances where such attempts have failed, and the reasons behind it. The paper ends with a set of best practices that can be adopted by various Indian cities to establish a strong public transport system.

Because BRT presents the opportunity to optimize the system and thereby make bus operations more profitable, introducing BRT gives the city government additional leverage to demand more from private operators. This paper discusses how, in an increasing number of cities, BRT projects have been used to increase private sector investment into the transit system and change private bus operating contracts to include quality of service requirements.

INTRODUCTION

Internationally, an increasing number of decision-makers understand that many of the benefits of a metro system can be achieved at a fraction of the cost by using Bus Rapid Transit (BRT) technology. The relationship between BRT and regulatory and institutional reform, however, is less understood, but one of the most important elements distinguishing Bus Rapid Transit from normal bus-ways. BRT has often been implemented in parallel with, and in fact as a means toward transit system regulatory reform.
In Latin America and other developing countries, where the most successful BRT systems have been implemented, with a few exceptions, bus operations are dominated by the private sector. While publicly operated bus authorities continue to exist in a number of other developing country megacities, in all cases the state-owned operator is rapidly losing passengers to private formal and informal transit operators. In most developing country cities, bus operations are now entirely in private hands. In Quito, Bogota, and Curitiba, the most famous BRT, the systems were 100% in private hands when planning for BRT began.

Public transit services in most developing cities started as private initiatives with little regulation. Poor service quality, unregulated fare, weak scheduling and other issues lead to the creation of monopoly public sector operators. Public authorities in the developing country context largely failed to address the issue of providing high quality public transit service. Lack of accountability of public institutions often led to the misuse of public funds for political or other purposes. Monetary leakages in fare collection and maintenance activities, deteriorating maintenance, and lack of sensible investment into the system lead to worsening of service quality.

Poor services by public operator resulted in decline of public transit passengers. This translated directly into worsening public sector debt or deteriorating quality of service or both. This leads to the reappearance of private operators, in many instances, as informal paratransit operators who sense an opportunity and fill the gap in demand for public transit services. Eventually, many public agencies collapsed leaving public transit operations to large number of unregulated operators.

Unregulated private control of transit operations brought with it a large number of problems, such as dangerous ‘competition for the cent’ killing pedestrians, deteriorating service quality, poor emissions standards, weak scheduling, insufficient service levels to lower income lower density areas, lack of security and benefits for workers. In many instances, the government again got back into action to put in strict regulation and handed over operations to a few large operators, creating an oligopoly. Eventually,
strong public reaction leads to recreation of a monopoly public operator, coming back a full circle. This regulatory cycle’s characteristics, along with reasons for eventual collapse are given in the table below. Many cities in the world have gone through this vicious cycle without finding a workable solution.

<table>
<thead>
<tr>
<th>Industry composition</th>
<th>Characteristics</th>
<th>“Solution”</th>
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<tbody>
<tr>
<td>1. Unregulated private operators</td>
<td>Chaotic, aggressive competition, dangerous driving, unstable services, no integration, variable fares.</td>
<td>Comprehensive regulation by Government.</td>
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<td>2. Highly regulated private oligopoly</td>
<td>Industry consolidates into large companies producing low levels of competition followed by fare increases; political pressures from increased fares result in lower-quality services or company bankruptcies.</td>
<td>Government nationalisation of firms (because ‘only the state can assure adequate services’).</td>
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<td>3. State-owned monopoly</td>
<td>Low cost-effectiveness due to confused corporate objectives (service or profit?); low, sporadic or inappropriate investment; poor services.</td>
<td>Government tolerates ‘illegal’ private operators to meet unfilled market demands.</td>
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<td>4. Mix of public company and unregulated operators</td>
<td>Deficits from public company become politically unacceptable resulting in reduced services and increasing paratransit in the market.</td>
<td>Government gets out of business by privatisation or by withdrawal.</td>
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Implementation of BRT has been utilized as a mechanism for addressing these problems and retaining public transit ridership levels over the long term in a developing country context. Because BRT was introduced primarily in countries where bus systems were already almost exclusively in private hands, BRT was not a mechanism for privatizing bus operations: rather, it was a mechanism for allowing municipal government to establish effective regulatory control over largely privatized transit systems. This paper reviews how significant differences between institutional arrangements in different international BRT projects affected transit service delivery. Recommendations are then given for application to new BRT systems.

**BRT AND SHIFTING TRANSIT’S FINANCIAL BURDEN FROM THE STATE TO THE PRIVATE SECTOR**

Many cities are trying to reduce the fiscal burden of transit systems while attracting new private investment into the system and maintaining good quality customer service. Achieving all three of these objectives is not easy. The public’s financial burden can be reduced by full deregulation and privatization, but this could just as easily lead to disinvestments as investment, and in the absence of safeguards, is almost certain to result in a deterioration of customer service. Ultimately, in any system there will be a tension between public interests and private interests. The ability of the public sector to negotiate a good deal for the public requires it to have access to very complete system information, a skilled staff, and sound advice. The more information the public sector has before the contracting begins, the better chance that the contracting will support the public interest.
BRT in Latin America has demonstrated a successful new paradigm of public sector regulation and private sector operation, combining the efficiency benefits of private sector management with social goals. However, the conditions under which these goals can be achieved are highly specific.

In most Latin American BRT, while the infrastructure and stations are paid for and maintained by the municipality with public funds, the investment into the buses and their ongoing maintenance, the investment in and maintenance of the ticketing systems, and other elements of BRT, all can be paid for entirely by the private bus operators. In this way, the public sector can insulate itself from inheriting a permanent financial burden.

CONTRACTING OF BUS OPERATIONS

To bring in private investment, a clear set of guidelines and a structure of contracting needs to exist. There are two principal forms of contracting.

1. Route/Zone Operations License/Permit
2. Bus Operating Service Contract

Cities across the world almost always explore the first form of contracting. In business terms, it seems to make logic that private operators will know what will bring profitability and therefore would make good choice in route selection. They will compete to bring out the best. From the government’s point of view, it is one headache less for itself. It does not have to worry about planning nor have to spend its own money since operators are expected to earn directly from operations. However, this leads to competition in the market rather than competition for the market.

The government puts out licenses for fixed routes which are bid on by private operators. In the poorest form of bidding, route license/permit fee is fixed irrespective of the route. However, some routes are more profitable than others. All bidders are interested in the most lucrative routes. In most cities around the world, there is a high risk of corruption within the agency responsible for issuing operating permits worth much more than the official price. Often, a black market exists where permits are resold at a much higher price by winning bidders. Low demand routes find very few takers. In the absence of monitoring, license holders for low demand routes ply illegally on high demand routes.

The eventual license holder further subcontracts the business to individual bus driver/fare collector team at a fixed payment/rent per day. It depends on the driver how he earns the money. Incentive to provide good quality service is low. Driver/fare collector’s survival depends on what they earn on each day. They display rash behavior to snatch that extra passenger from their competitor on the street, often leading to fatalities. If this form of contracting were to continue, in the case of open BRT systems, the quality of service to passengers is only marginally better than without a bus-way. This form of competition is called ‘competition in the market’. We shall see later how competition can be retained between operators but ‘competition for the market’ rather than ‘competition in the market’.

To improve the capacity of BRT systems, it is necessary to bring in off-board fare collection. With a form of contracting where operator gets paid by passenger, off-board
fare collection is almost impossible to implement because one does not know how many passengers got into which bus.

Often, to avoid issues of competition, regulator is tempted to create routes where any given corridor has only one route. This creates a monopolistic situation. Further, passengers in a city go from everywhere to everywhere. This means that a large proportion of passengers are forced to make transfers which could have been avoided otherwise. This only adds to passenger discomfort and pushes them towards seeking private modes of transport.

Another disadvantage of a route license is that operations are fixed for the period of contract. Routes cannot be changed based on demand. A good public transit system, especially a BRT system, is one where the routes are optimized so that the profitability per bus goes up and a fewer number of buses can service the same demand.

In case off-board fare collection, it is understood that payments cannot be directly related to the passengers each bus carried. Fare collection is done by a single agency (could be done by the regulator directly). Since fare collection is off-board and not done directly by the bus operator, the only form of comparison for making payment is the number of kilometers each operator plies. Payment to each operator should be proportional to the number of buses they deploy on the system and the number of kilometers they operate. Multiple operators may operate on the same route but they do not compete on the street. Fare revenues are distributed amongst operators proportionate to the number of kilometers they operate. This is the second form of contracting, a kilometer based contract.

When a contract of this form has to be awarded, there needs to be bidding criteria. The bidding criterion in this case is the rate per kilometer, the lowest eligible bidder(s) winning the contract. In a competitive bid, operators offer the rate at which they are willing to operate. Secondly, the regulator as well as each one of the operators needs to have trustworthy/untampered data of how many kilometers each one of the operators has operated. Also, to make it fair, each operator should be offered kilometers proportional to the number of buses they have on the system. Further, since the payment is made from a pool of money that is earned from fare collection, the operators as well as the regulator need to know this amount. In other words, passenger ridership data should be available and be transparent.

Often, for purposes of transparency, fare collection services are offered to a third party where neither the regulator nor the operator can tamper with data. The other reason why fare collection services are given to third party is to bring in electronic fare collection. Implementing such systems, including procurement and integration of technology, and managing them, is a complex job and therefore a capable agency should be put in charge of such function. However, the data of fare collection and ridership has to be transparent and necessary security framework should be implemented where no party can tamper with the data.

If ridership were to fall, then the regulator has to reduce the number of kilometers operated and all operators are equally affected. If the regulator does not reduce the kilometers, then the operators cannot be paid at the bid rate per kilometer. The only other option left to the regulator is to increase the passenger fare to increase the revenue. However, increase in fare can result in a drop in ridership, thereby bringing
revenue down. As one can see, this form of a contract puts the entire risk on the operator. It is possible that no operator is willing to operate on such terms. To put a limit to the risk that the operator is exposed to, often, the regulator gives a minimum guaranteed number of kilometers per bus. It must be noted though that such a guarantee should be as an average over the fleet and should be on a yearly basis and not on a daily basis.

PRIVATE CONTRACTING WHILE MAINTAINING CUSTOMER SERVICE

To improve profitability, the operator seeks to reduce the cost of operations. This would mean smarter choices in maintenance to enhance the life of components (tires, spares), training of drivers to improve fuel efficiency, better scheduling of staff and maintenance to reduce input costs etc. However, it is possible, that the operator may resort to reduction in quality of service (poor maintenance, poor quality of staff, missing stops to reduce passenger intake etc). Therefore it is essential to have quality of service benchmarks and to monitor them. The regulator has to monitor the service quality on an ongoing basis and penalize the operator in case the minimum benchmarks are not met. Conversely, those operators who excel in service quality should be rewarded. An interesting way to achieve this is to collect fines from bad performers and redistribute them amongst good performers. Another means is to impose fines in the form of reduction of allocated km per bus guaranteed and allocating them to the better performing operator. The assessment whether an operator meets service levels or not, should be objective. Evaluation/inspection criteria should be included in the contract to avoid subjectivity and favoritism.

As one can see, access to information is the key to success. The more empowered the regulatory agency is with information, the better it is able to turn the interests of the private operators to the public good. It is equally important that the regulator has capacity to plan well so as to optimize services to public good and monitor services to make sure that quality of service does not suffer. Further, the regulator should be independent to take decision and not suffer from political interference. It should have the right to increase the passenger fare if need be to make sure that the business is in good health.

This discussion started with the opportunity of increasing capacity of BRT through off-board collection. However, all the issues of why this form of contracting is superior to awarding route licenses hold good even when fare collection is not done off-board. The primary requirement is that fare collection be done by a third party on behalf of the regulator and resulting revenue be redistributed amongst operators based on kilometers operated and service level benchmarks.

ISSUE OF SUBSIDY

Fare setting is often a political issue. It is the prerogative of the state to define what levels of fare should be charged from citizens. In a developed system, formal subsidy recognizes the social and economic importance of Public Transport. Many developing cities have publicly owned bus company incurring deficits which are met 'by default' from public funds. This is not regarded as a formal subsidy within the current definition. ¹

¹. Meakin R., Sustainable Urban Transport: A Sourcebook for Policy-makers in South Asian Cities
Subsidy is meant to offset the cost of travel for economically weaker sections and promote public transit...not to cover the inefficiency of the regulator and operator.

BRT AND PUBLIC PRIVATE PARTNERSHIP: THE EXPERIENCE IN QUITO, MEXICO CITY AND BOGOTA

The contracting in Bogota’s BRT is currently a best practice example of balancing the desire for private investment and good management while maintaining good quality customer service. The bus system in Bogota at the time TransMilenio was introduced was composed of thousands of individual owner operators and a few powerful families of bus ‘enterprises’ that controlled the government-issued route licenses and rented them to private bus owners. When TransMilenio began, therefore, the process of transforming the bus ‘enterprises’ and individual bus owners into modern bus corporations was done at the same time as the introduction of the BRT system. TransMilenio regained public control over a dysfunctional, weakly regulated private system.

This long-term economic and financial sustainability beyond the initial capital investment resulted because it was the primary goal of the planning process from inception to implementation. At the same time, however, enormous care was given to ensuring that this did not simultaneously undermine the ability of the municipality to demand good quality service and reasonable fares.²

TransMilenio’s contracts with the trunk line operating companies were written in such a way that the demand risk (the risk that ridership would be lower than anticipated) was reasonably evenly divided between the city and the operating companies. Because trunk line operators are paid by the bus kilometer, they are certain to be paid a certain amount regardless of demand. However, they ultimately bear some of the demand risk, because if the demand is lower than projected, TransMilenio has the right to reduce the total number of bus kilometers servicing the system.

In many countries, BRT was a useful mechanism for introducing quality controls into licensing agreements. In completely deregulated transit markets, regulators have no control over many aspects of bus service that are critical to customer satisfaction. These include:

a. predictable scheduling
b. predictable routes
c. accessible bus route information
d. comfortable and safe vehicles
e. vehicle maintenance
f. safe driver behavior

By introducing competition between private operators, TransMilenio was able not only to demand that the private operators invest in the system, but also insisted on meeting other social goals as part of the points system for winning the operating contract. Furthermore, because firms compete for service within the same corridor, TransMilenio retained the power to penalize companies for poor quality service without

disrupting service in a particular corridor by simply awarding more of the scheduled bus trips to rival companies.

Unlike in most other systems, in TransMilenio neither the trunk line operators nor the feeder bus operators directly collect any fares. In Bogota they are collected by a separate company. The smart cards and turnstiles are amortized over the time of their concession and will later revert to TransMilenio. The revenues go into a trust fund controlled in the name of TransMilenio by another contractor, a financial service provider, who in turn invests the money and distributes it among the partners.

The government is allowed to reduce the passenger fare below the technical fare, but in this case the government has to pay the operating companies compensation. In this way, TransMilenio is insulated from the threat of disinvestment from the system by politicians.

BRT first opened in Mexico City as a single corridor - ‘Insurgentes’. Mexico City succeeded in getting the private operators to invest in the buses and their ongoing maintenance; however, with significant sacrifice of customer service. The private sector operator with largest operations in that section formed a monopoly company CISA, which undermined the bargaining power of the city. There was no competitive bidding and the rate per km was fixed through negotiation. This worked out to be higher than expected. To offset this monopoly somewhat, 20% of the operations are managed by a public sector operator, RTP. Fare collection is managed by an independent company (one of the largest banking firms in Mexico) and money is distributed amongst the operators. The capacity of the regulator, Metrobus, is somewhat weak but has improved with time. Recently a second corridor was opened and was given to another monopoly operator who historically ran buses on that corridor, without competitive bidding.

As a third case, we take the Ecovía BRT line in Quito, Ecuador. The government attempted to bring in private operators in case of an electric trolleybus BRT, Trole, in mid-90’s. However, given the high cost of rolling stock, no private operator came in and a public operator had to be created to manage operations, including fare collection. Operating costs shot up afterwards due to deregulation of electricity prices.

When Quito began to construct a second line, the financial problems with the first electric trolley bus line convinced them to go with diesel technology for the second, Ecovía line. In the second corridor, all the small companies that operated on that corridor were formed into a consortium called TRANASOC. This consortium was “given” the concession. Ultimately, the municipality again assumed the responsibility for bus procurement. They signed an agreement with this monopoly consortium which obligated the operator to begin making payments for the buses only once a certain profit level was reached.

Because the bus consortium collects the fare revenues directly, the Municipality does not have full control over the information about how profitable the company is. As a result, the company to date has argued that they have yet to turn a profit, and thus the Municipality had assumed the entire cost of the bus procurement. At least the consortium operates without operating subsidies, unlike the Trole line which doesn’t get
subsidies but is accumulating debt. The current Mayor is talking about GPS control and better fare supervision.\textsuperscript{3}

**CONCLUSIONS**

While local circumstances may create exceptions, the following are the main conclusions of the institutional and regulatory structures of BRT systems in Latin America:

- Lean SPV as regulator with high level of planning and monitoring capacity
- Private bus owner-operations firms paid on km run rather than route licensing
- Independent fare collection contract (ridership linked service contract)
- Access to untampered information on passenger ridership and bus operations (km & quality)
- SPV has freedom to modify operations as required, based on demand or business opportunity
- SPV is authorized to set fare after all means of optimization are exhausted
- Formal subsidy passed directly to passengers to promote public transit rather than pay for the inefficiency of regulator/operator.

**All operating contracts should be awarded based on fair competitive bidding. Operating contracts should stipulate rewards and fines based on clear service quality indicators to ensure high quality bus service, and more than one private bus company should operate on any given route.**

The construction of dedicated bus lanes, which creates a low risk, high profit transit market, should be used to leverage investment in new buses and a high quality of service from private operators. Ensuring that this leverage can be applied on a regular basis rather than only when a contract expires requires having more than one bus company operating each route, and building a system of immediate rewards and fees for quality of service indicators into the contract.

**ACKNOWLEDGEMENTS AND A NOTE ON SOURCES**

This document is based extensively on a paper titled ‘Institutional And Regulatory Options For Bus Rapid Transit In Developing Countries’ presented by Dr Walter Hook, Executive Director, ITDP, at TRB. The author has also quoted from two other documents

1) Bus Rapid Transit Planning Guide, Institute for Transportation and Development Policy

The author suggests that anyone interested in this topic read these documents.

\textsuperscript{3} Interviews w/ David Briggs, Cesar Arias, and Lloyd Wright.