Analysis Of The Privately-Owned Metro In Gurgaon With A Focus On Its Revenue Generation Model And Its Comparison To The Rail Systems Of Tokyo

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ABSTRACT

This paper aims to analyze the Rapid Metro, Gurgaon with a special focus on the methods of revenue generation employed. The basic background of the metro is studied and the avenues of revenue generation explored are closely scrutinized. There is an inherent need to not only focus on the short term and fairly evident methods, but also inter-twine growth with revenue generation techniques and explore innovative areas, while keeping in mind a macro vision for the future of the metro. This is much required as the long term sustainability of a public transport system largely depends on kind of revenues it can generate. A large number of privately-owned public transport systems have failed due to inability to sustain the finances of the project. The importance of revenue maximization ascertained, large scale recurring profits can be obtained by better land use policies and network integration. This paper also draws comparison with the successful parable of the rail system of Tokyo, which is the best example of privately owned and operated rail system in the world and the perfect example of how a rail system should develop over time. The factors that make Tokyo a successful model are closely studied and elaborately discussed and conclusions are drawn as to how lessons can be learnt to adapt the model in Gurgaon.

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1. INTRODUCTION

The Rapid Metro Rail is a mass rapid transit system in the city of Gurgaon in Haryana. Upon its completion in mid 2013, it will be the first completely privately owned & operated metro system in India.

The first phase, beginning in April 2013, starts from Sikanderpur, covering a total distance of 5.1 km in a total of six stations. The section between Sikanderpur and DLF Phase II is to be double-tracked while the rest of the system will consist of a single tracked loop comprising of DLF Phase II, Belvedere Towers, Gateway Tower, Moulsari Avenue and DLF Phase III metro stations. The Sikanderpur station of Rapid Metro consists of a 90 X 9 m walkway that allows commuters to change with the Sikanderpur metro station of the expansive Delhi Metro. Those commuting in the Delhi metro will not have to purchase a separate token to travel by the Rapid Metro. The Delhi metro token/ Smart card can be used with the Rapid Metro as well. The contract to build the metro line was awarded to Siemens, which also includes five three carriages metro trains.

The metro will operate from 5 am to 12 pm, with three trains comprising of three coaches. The average delay between two trains would be 4 min, which will be adjusted to suit peak and non-peak hours. Each train will have a capacity of 800 passengers and the metro is designed to carry as much as 30000 passengers per hour. The trains would have a maximum speed of 90 kmph and an average speed of 30 kmph. The platforms are 75 m long and the length of a train would be 59.4 m and it will consist of three coaches. The coaches are 2.8 m wide, have roof-mounted air conditioning along with four doors on each side of a coach.

The second phase of the metro will run from Sikanderpur station to Sector 56 in Gurgaon. It will be 6.1 km long and consist of six stations to be travelled in a span of eighteen minutes. It is expected to be operational by July 2015. The developers also have plans of expanding the metro to Udyog Vihar along with connectivity to the Airport Express Line through an exchange with the Maruti Udyog metro station of the IGI-IFFCO Chowk line. The extension would serve well the needs of both Old and New Gurgaon.

2. MODEL OF OWNERSHIP

The line will be built, operated and maintained by Rapid Metrorail Gurgaon Limited (RMGL), an association of Delhi Land & Finance (DLF) and Infrastructure Lease & Financial Services (ILFS). DLF has many properties near the stations and ILFS is the majority shareholder in the venture. ILFS has 74% share whereas DLF has the remaining 26%.

Originally tendered as a point to point link between Sikanderpur and National Highway 8, the DLF wanted to extend the metro to the cyber city and adjoining areas. Hence, HUDA issued a new tender in July 2008 and DLF-ILFS was the only one to bid for it. The project will be

implemented in a Public-Private Partnership agreement wherein the private party will bear the entire cost of the project and the Haryana Government will provide the right of way on a lease hold basis. The cost of operation and maintenance also falls on the private party.

HUDA is only a partner in the construction of the metro corridor as it has provided the right of way and will not be a partner in sharing of profits from the Rapid Metro and only DLF-ILFS will reap the profits as they have borne the finances of the project.

3. COSTS

Initially there were objections by the Haryana Urban Development Authority (HUDA) to a private party reaping profits from public transport but an agreement was reached on the same. The private party needs to pay HUDA Rs. 7.65 billion over 35 years in connectivity charges as well as 5-10% of advertising and property development revenue.
(http://www.hindustantimes.com/India-news/Haryana/Gurgaon-s-own-Metro/Article1-432346.aspx)

The contract for the Rs. 9 billion project was awarded in July 2009. As of October 2012, the first phase of the Rapid Metro was estimated to costs Rs. 1088 crore. The estimated costs of the second phase is Rs. 2100 crore and will be built under the DBFOT – Design, build, finance, operate and transfer basis.
(http://articles.economictimes.indiatimes.com/2012-10-01/news/34198105_1_gurgaon-metro-cyber-city-and-nh-8-rapid-metro-rail)

Moreover, for the development of urban transport, investment decisions are very important. It is critical to make right investments at the right time to reap proper dividends. In the early stages of economic development, the rates of return may be low and the inflow of money may be really high but if investments decisions are put-off to a later date, rail development becomes progressively difficult as the value of properties increase, car ownership increases and the city gets better used to alternative modes of transport.

The major costs of the Rapid Metro can be divided into a fixed component and a variable component. The fixed component for the Rapid Metro would be in terms of the construction cost, the cost of land (or the one-time payment made for the right of way) and the cost of carriages and rolling stock. Most of this has already been paid and is accounted for in the proposed cost of construction of the metro. The variable costs would be those incurred in the operation and maintenance of the metro. However, the variable costs only be guessed but not accurately accounted for, as these are the ones that will at best only be accurately known once the metro begins its operations.

4. SOURCES OF REVENUE GENERATION

1. Primary Sources of Revenue

The metro has projected a daily ridership of about two lac passengers per day (http://www.thehindu.com/news/cities/Delhi/article3441568.ece). The primary source of revenue would be the money generated from the sale of tickets. The commuters will be charged a constant rate of Rs. 12 for the entire line. The commuters travelling in the Delhi Metro will not have to buy a new ticket for the Rapid Metro. The same token/Smart Card can be used. The revenue will be divided between the Rapid Metro and the Delhi Metro electronically. The automatic fare collection system is supplied by the Thales Group.

2. Secondary Sources of Revenue

The Rapid Metro will allow businesses to reach out to the thousands of commuters that will traverse the metro line every day. According to the geography of the area where the first phase of the metro is set up, the majority of target audience is expected to be educated, brand conscious, tech-friendly and working professionals with a relatively high income of Rs. 30000 onwards and thus can act as attractive targets for advertisers. The secondary sources of revenue generation for the Rapid Metro can be broadly classified into the following:

a. Naming Rights
b. Retail
c. Advertising

a. Naming Rights

In an innovative step in the Indian marketing arena, inspired by the rapid transit systems of the United States, the Rapid Metro has given Corporate Entities the opportunity of naming rights on a public transport network for the very first time. It is a different and holistic way of advertising which has never been offered on so large a scale before in India. As a naming rights partner, companies will get the exclusive privilege to:

1. Name trains, stations, line or skywalk after their brand
2. Advertise on Rapid Metro
3. Establish Retail Outlets
4. Have the first rights and exclusive business generating partnerships.

Vodafone and Micromax have already entered into a deal with RMGL and have bagged the naming rights to two of the six stations. Belvedere will be called Vodafone at Belvedere and

Moulsari Avenue will be called Micromax at venue[1]. Depending on the size and location of the stations the companies will have to pay anything between Rs. 2.5 crore and 7 crore a year for a five-year contract.

b. Retail

RMGL is renting out spaces on the six stations of the metro line. The spaces will be available for retail and commercial use on License basis. The nature of the activity and facilities includes cafeteria, departmental stores, convenience stores, discount stores, hypermarket, restaurants, food and beverage stalls, telecommunication services, information centers, billing counters, gift shops, hotel reservation desks, florists, kiosks, offices, banks, financial services, ATMs, vending machines, pharmacy, showrooms, general utilities, etc. Retail formats include:

1. Booth
2. Cart
3. Kiosk/Standalone
4. Vending Machine
5. Product Display
6. Dedicated Retail Area

c. Advertising

Various advertisers, businesses and agencies can pay to advertise on several RMGL's assets. Advertising inventory includes:

I. Inside Station:

- Backlit Panel Displays
- Product Displays
- LCD Displays & Screens
- Digital Information Pods
- Smart Cards & Tokens
- Escalators & Staircases
- Lifts
- Ticket Gateways
- Posters
- Queue Separators
- Sampling Opportunities

[1] (http://articles.economictimes.indiatimes.com/2012-11-13/news/35086620_1_stations-rapid-metrorail-gurgaon-private-metro)

- Experiential Marketing

II. Train:

- Train Branding
- Train LCDs
- Straphangers & Handlebars
- Train Wrap

III. Rapid Metro Civil Structure:

- Pillars
- Skywalks/Bridges
- Viaduct
- Station Roof Branding (http://www.rapidmetrogurgaon.com/Advertizewithus.aspx)

5. REGULATIONS AFFECTING REVENUE

1. Regulations regarding Floor Space Index (FSI)/ Floor Area Ratio (FAR)

The regulations regarding FSI/FAR were intended to prevent random and uncoordinated development, to preserve the interests of neighbors and avoid congestion around human settlements. However, in India the meaning of the laws regarding it is narrowly contemplated as prevention of congestion in the central area of various cities and they're implemented without due consideration of their effects.

The Floor Area Ratio is a measure of the intensity of the site being developed. It is calculated by dividing the area of all the floors of the building upon the total area of the plot on which the building is built. The Floor Area Ratio can be used to limit the amount of construction at a particular site. An example of such a phenomenon is that if the FAR for a certain piece of land is 0.5, then for all the structures constructed on that area, the ratio of all the floors in those structures to the area of the land must be 0.5. FAR has a major impact on the value of the land (Edward Ptacek, 2009). High FAR results in a high value of the land.

There is excessive land use control in Indian cities which record the lowest maximum FAR at the centre of the city. For example, in Mumbai's central district, maximum FAR is only 1.33, whereas in most megacities around the world, FAR varies from 5 to 15 in the centre to 0.5 in suburbs. Presently, FAR values in India range from 1 to 4, while that in New York and Manhattan is 15, in Shanghai 13.1 and ranges up to 15 in Hong Kong (Sridhar, Institute for Social and Economic Change, 2007) . Presently the FAR in Gurgaon varies somewhere between 1 and 1.5.

(http://www.huda.gov.in/Pages/TownPlanning.aspx) Without higher FAR, real estate projects suffer a lot as they become financially infeasible. With low FAR, the city expands unnecessarily and that too also in suburbs where FAR is high. This needs to financial infeasibility of public transport in these areas.

Several bodies have advocated that the regulations regarding Floor Area Ratio in properties near metro rail corridors be relaxed so that they can be used for accommodating more businesses and generate more money for the metro. If we are able to optimize the existing structures, not only will business prosper, it will also help the environment through a better utilization of land. FAR should be much higher along rail transit corridors in order to allow more people to live along the corridor and thus there is more ridership and optimal land use.

6. NEED FOR EFFECTIVE METHODS TO MAXIMIZE REVENUE

When we talk of a privately held public transport, apart from the conspicuous need of generating more profits, we have several other inconspicuous revenue dependent factors which govern the sustenance of the metro and hence the need for innovative and effective methods to maximize revenue is paramount. The American Dream Coalition Fact sheets busts the myth that there is no need to worry about the initial cost of the metro system and the line and other infrastructure once build are deemed to last forever. On the other hand, in the actual scenario, its findings indicate that rail lines must be built and rebuilt and most of the machinery and the equipments need to be replaced every 20 to 30 years.

For example, in the United States of America, the Washington Metro was built at a cost of $ 12.5 billion. As of now, the management of the company predicts that over the next ten years they'll need to spend another $ 12.5 billion on the renovation of the roadbed, to replace the metro trains, and for the repair of the metro stations. According to the administration they lie under the category of capital costs but actually they're maintenance costs. (Advani and Tiwari, IIT Kharagpur,2005)

In this way, the maintenance of rail is much more costly than of any other forms of public transport and it would require different and innovative revenue generating sources of steady income in order to sustain itself and provide its facilities to the optimum. Metros should create their own resources than be completely dependent on loans for their finances.

Moreover, with the first phase expected to cost around Rs. 1088 Cr, the second phase around 2100 Cr., the connectivity charges to be paid to the Haryana Urban Development Corporation amounting up to Rs. 7.65 billion over a period of 35 years along with a fraction of the property development and advertising value, it is paramount for the Rapid metro to push for richer avenues for increasing income.

7. INTERGRATING REVENUE GENERATION WITH GROWTH

From the discussion above, it is well evident that any private rail system needs to seek new methods to generate revenue in addition to the conventionally used methods such as advertising and retail. One such technique would be to integrate revenue generation with growth, along the lines of the Tokyo Metro. Poor ridership, in most cases, results from inefficient design and planning of the public transport system. Thus in order to increase revenue generate from primary sources via increased ridership, the coming phases of the metro should take into account factors such as

a. Effective Land Use Management and Real Estate Development

The integrated approach of revenue generation coupled with growth can be that of identifying relatively under developed areas close to city center and investing in both rail and land development. The company needs to start with the real estate and housing well in time before the railway construction so that it can generate the money it needs for the railway construction and consequent expansion. If growth is planned in this manner, it will also lead to an increase in ridership. DLF already owns a large number of properties along the established corridor of the first phase of the metro.

b. Efficient Network Integration and Feeder Systems

The ridership of any metro rail depends heavily on the how well its different stations are integrated with the area it serves by other forms of transport. A well networked transport system capable of servicing the deep pockets of an urban area is paramount in generating high ridership. The commuters that use a metro rail can reach it by walking, cycling, using private transport or public buses. Feasible walking distance to the metro stations is a luxury of a selected few. Cycles are not too popular as feeder modes in the urban demography in which the Rapid metro is being planned and constructed. The issue with those with private transport is the insecurity about the keep of their vehicles while they are away for the day. A measure to combat can be well-maintained and large parking spaces with sufficient safety measures so as to ensure a sense of safety to the consumer.

However, of all the feeder modes, the one that remains the most important and vital is the bus mode. Unless there is an established Bus Feeder system to integrate and provide its services to far flung residential pockets, the demography of Gurgaon may not allow RMGL to reap optimum profits. Buses are the cheapest and most convenient public transport for the common man. The Rapid Metro needs to ensure that there are dedicated bus service to feed its metro stations by either setting up its own bus service to support the metro, thereby increasing revenue both in the form of increased ridership and revenue collected from bus fares, or it can enter into agreement with private contractors who are already ferrying Mini Buses from the few existing

DMRC metro stations and Delhi-Haryana border deep into Old and New Gurgaon.

Thus, in order to maintain high ridership and obtain maximum benefit on an investment from such a transport system, the owners must ensure that the various feeder modes are well integrated to expand the reach of the Rapid Metro farther to areas which the metro does not service at the present.

8. THE TOKYO SUBWAY

The Tokyo subway is one of the world's largest subway systems and undoubtedly the best to be run as a Public-Private enterprise. The entire length of the network is 329 km and comprises of 13 lines containing 274 metro stations. It ferries an estimated of 8.7 million passengers everyday.

The Tokyo subway primarily comprises of two operators:

1. Tokyo Metro: It was earlier known as Teito Rapid Transit Authority (TRTA) and was only recently privatized in 2004. It operates nine lines consisting of 179 stations. 195 km . It ferries approximately 622 million passengers per day.
2. Toei Subway: It is an organization run by the Tokyo Metropolitan Government. It operates four lines consisting of 106 stations.

Prepaid rail passes can switch freely between the two lines which are well integrated using a set of particular codes, colors and numbers. However, the fares are charged separately for each leg of the journey. Prepaid rails passes facilitate easy exchange between the two networks on a single card known as the PASMO. However, those travelling using a normal ticket need to purchase a second ticket if they have to switch from one network to another.

9. METHODS EMPLOYED BY THE TOKYO METRO FOR REVENUE GENERATION

1. Retail

A new class of convenient and user friendly business facilities have been developed in the stations of the Tokyo Metro as well as other buildings which are directly connected to the metro station. These facilities include the like of Echika, Echika Fit and Metro Pia .

"Echika" is a commercial facility built at the stations aimed at integrating railway facility and commercial establishment. It makes the stations space attractive and increases convenience. "Echika Fit" is a smaller sized mall, more targeted to customers on the go and is meant by the company as a good and perfectly right-sized underground shopping mall.

Along with these facilities, also present are METRO's kiosks, automatic vending machines, coin lockers and ATMs on the premises of various stations.

In order to make the experience more holistic, the Tokyo Metro heavily promotes the use to electronic money in the form of PASMO cards in the above mentioned commercial facilities and kiosks. There are two types of card facilities:

1. The first is a TO ME card which only functions as a credit card
3. The second is a TO ME card PASMO which combines the function of a TO ME card and a PASMO in a single card.

PASMO is a rechargeable contactless smart card ticketing system for public transport introduced in Tokyo in 2007. It is usable in local subways in Tokyo as well as a number of national railways of the Japan Rail network. Through collaboration with Japan Railways East, passengers can use Pasmo cards wherever Suica cards are accepted to ride nearly any railway or bus in the Tokyo metropolitan area.

It is possible to accumulate two kinds of points using these cards; Metro Points which are a point service of the Tokyo Metro and credit card company points. Moreover, the points that are accumulated can be transferred to Pasmo and special services can be received while using the card at participating retailers.

2. Real-Estate Development

The Tokyo Metro has actively developed office buildings, hotels, housing, golf-driven ranges, and rental storage space, in areas surrounding the rail corridors of the Tokyo Metro. They are actively involved in developing real estate projects to promote the revitalization of areas along the railway lines.

3. Advertising & IT Business

The Tokyo Metro also generates significant profits from its advertising business. The advertising modes include hanging posters inside metro trains and wall posters in the subway stations and these receive a lot of attention as the metro ferries a large number of riders every day, a large portion of which are corporate workers. Additionally, also available are a variety of other advertising media such as digital signage, etc. in the trains and on the platforms. As an added facility to the customer, the Tokyo Metro provides wireless LAN services at all the 175 stations to enhance the customer convenience within the station premises.

10. FACTORS CONTRIBUTING TO THE SUCCESS OF RAIL SYSTEMS IN JAPAN

The success of the Tokyo Subway can be attributed to the following:

(i) Extensive support by the government in terms of finances and regulations

The Government of Japan has constantly strived to enhance and improve its subway network as an answer to the high traffic congestion problem that Tokyo has faced and to connect the suburbs to the centre of the city. The subways we planned and constructed by the government and have only been privatized as late as 2004. Thus the government understands the vitality of the metro rail as the backbone of the public transport of the city and takes considerable steps to help it with the finances and frames its regulations with a view to encourage metro travel.

For example, the rail lines connecting the New Tama Town to the main city was built by two private companies, Keio and Odakyu, but they were unable to construct the lines due to financial complications. In 1972, the Government instituted a program to support the construction of urban private railways, wherein the construction of rail lines was undertaken by the state-owned Japan Railways Construction Public Corporation, which was financed through Treasury Investment and Loans. Upon their completion, the rail lines are given to private operators to use for and the construction cost was to be repaid over the years. The interest was partly subsidized by the government. Keio and Odakyu benefitted from this scheme and were able to connect and operate trains from New Tama Town to Tokyo by 1990. The interest payments for the same were taken care of by the private property developers.

The urban railway in Japan faced financial difficulties due to the huge initial finances required as input. The government came to their rescue providing aid in various forms. For the subways, a program was initiated in 1962 to subsidize part of the interest paid on investment. This program was amended in 1967 into a direct subsidy for construction. In the beginning, the subsidy provided was a mere 10.5% of construction costs. However, as construction paced up over the years and inflation soared, the construction costs increased to a great extent. Responding suitably, in 1978, the government allowed a subsidy of as much as 70% of construction costs on condition that the National Government will provide for half the subsidy if the state government agrees to subsidize the other half (35% each). (The World Bank, August, 2000)

The National Government also embarked upon a comprehensive plan for greater Tokyo in terms of long-term land use policies. The first of these plans was designed to remove the extreme population and concentration pressure on Central Tokyo. The plan included control of population and employment concentration in Central Tokyo, control on the location of new factories being setup in Tokyo, development of distribution houses in outer Tokyo, development of large-scale housing facilities in outer Tokyo, development of satellite towns and a transport system properly connecting the entire framework.

Moreover, the Japanese government has played an immense role in integrated rail and land development to promote settlement of large-scale populations in suburbs and in new town development. In case of the Tama New Town, the planning and most of the land and housing development was carried out by the public sector. Private companies also participated in the development of the area by deciding to build and operate rail lines but due to the considerable financial risk involved; construction was carried with government's support in rail construction and financing.

The government also introduced many land use measures which were intended towards a planned and proper growth of the city. These measures included determination of areas where urbanization is allowed to take place (Urbanization Promotion Areas) and where it is to be restricted (Urbanization Control Areas). These governments also had a fixed plan for every area where urbanization was allowed to take place in terms allowed density, building codes and other rules. These measures also formed a basis of providing urban facilities to these areas and guided the policies of 'land readjustment' and 'urban redevelopment'. The Japanese government has ensured that the set guidelines and policy regulation are properly implemented and strictly maintained.

The government has also protected the rail operators from excessive competition using licensing schemes and allowed the rail operators to operate bus enterprises that can either function as an extension to the metro or serve as feeder modes to enhance the ridership of the metro. Moreover, the government, through its policies has intensely tried to encourage rail use and discourage the use of private automobiles. This it has accomplished by heavy taxation in various forms that a consumer has to pay to own and maintain an automobile.

Understanding that fares are insufficient to completely recover the money that a private company has put in construction and development costs, the National Government of Japan has provided strong financial support to private rail companies in terms of direct subsidies for construction costs and interest, available of long term loans on favorable terms and equity. The subsidies provided to subways were initially very low as the cost of construction of a subway was relatively low. This was because most of the construction of subways was underground and thus construction was uninterrupted and land was available easily. However, as the costs of construction of subways increased with passing time, the grant of subsidies for the same was consequently increased. It is most certain that the metro in Tokyo would not have expanded as much had it not been for the government's strong support.

(ii) Well Planned Development

Historically, even before the subways expanded, the new town development of Tokyo was carried out with extensive involvement of the private rail companies. Thus, rail formed the backbone of transport in Tokyo as it evolved over the years. The demography of Tokyo is very much similar to Gurgaon in that, at least commercially, it is highly centralized. The central Tokyo forms the hub of all business activities and is an area of high population density. The concentration of these businesses to Central Tokyo escalated land prices and housing rents to highly unaffordable rates in the area. As a result, the demand for affordable housing accelerated in far flung areas, the outer city and the suburbs. Both private and public rail companies eagerly accepted the opportunity and extensive construction of housing facilities was

started.

The key element to it was the rail-oriented new town development, which spread across not only in the city, but entire Japan. The major private railway companies, that provided suburban rail services in Greater Tokyo branched out and expanded their business to include activities like real estate development, retail and bus operations.

One of the most successful land development projects by a private rail company in Japan is the "Tama Den-en Toshi (Tama Garden City)" (The World Bank, August, 2000). Located 15-35 km southwest of Tokyo, this project aimed to convert a vast, hilly, thinly populated area into a planned community of 5000 hectares consisting of half a million residents and to construct a rail line connecting this area to central Tokyo. Extensive construction was carried out developing 3000 hectares for a population of 4,40,000, between 1959 and 1989. The most vital element of this project was the system of 'land readjustment' to develop the land needed for the construction of the railway and for real estate. Instead of acquiring all the land, which would have been very expensive, Tokyu Corporation formed a co-operative of landowners that consolidated properties, redeveloped them without transferring ownership and returned smaller but fully serviced parcels to landowners. This mechanism had long been extensively used in Japan and was successfully re-implemented by Tokyu. Interestingly, the Tokyu Corporation undertook the entire construction free of cost for the housing corporation but instead acquired a certain reserved fully developed sites for its own. The project was largely successful and the sparsely populated area went to become highly developed within a span of few years. The privates companies actively promoted the development of the area in planned ways to increase population and ridership of their rails. The methods used for achieving it included selling land, constructing housing, developing recreational centers, markets, malls and schools. The Tokyu Corporation was able to generate significant revenue and reap good dividends from the venture.

(iii) Socio-Economic Environment

When compared to other metropolitan cities, the car ownership in Tokyo is one of the lowest. This limited use of vehicles has resulted from the high cost of ownership and maintenance of an automobile in the Tokyo Metropolitan area. Both the national and local governments have imposed heavy taxes on the use and purchase of automobiles. These taxes include the likes of vehicle acquisition or excise tax, an annual automobile registration tax, a surcharge based on vehicle weight and high fuel taxes. Not only does this policy check vehicle use but also helps generate sufficient funds for the infrastructure development of the city. Another major problem is the parking space. Those who want to purchase a new vehicle in Tokyo have to show proof to the government that they have their own ample space to park their cars. Due to the high cost of land in Tokyo and the narrowness of the roads, this stringent law on mandatory off-street parking space is a strong deterrent to buying a private automobile and encourages travel by the subway. The use of the metro has further been enhanced by various corporations providing full travel allowances only to those employees who travel by the metro. This selective perk not only serves as an added economic benefit in terms of monetary savings but also gives the freedom to choose a residence in the suburbs which are well connected by the metro. Thus, with

cheap affordable housing in the suburbs and commuting allowances encourage people to use the metro and dissuades them from buying private automobiles.

Not only does Tokyo discourage metro travel by restricting automobiles but also attracts riders by the high quality of service that it provides. This rail network is efficiently implemented, highly convenient, and relatively cheaper and connects the centre of the city to the remainder really well.

The strong initiatives and support from the government ever since the mid twentieth century, the well thought out and planned expansion of rail in Japan and economic considerations ensured that rail networks already became well developed in Japan much before the automobiles became popular.

11. ADAPTING LEARNING IN AN INDIAN CONEXT

In so far as how Gurgaon has developed; there is a strong need to study its demography thoroughly before proposing mass transit systems to solve the city's traffic problems. The centralization of employment and the random manner in which land has been developed so far to provide for housing makes it all the more important to tread carefully.

The Rapid Metro is just starting with its operations, but as is evident from Tokyo's example, the decisions that will be made today are very crucial as they will have a deep impact on how the system is going to shape up over the next few years, thus determining sustenance. The Tokyo metro has set a strong precedent when it comes to running privately owned public transport systems synergistically with government aid and here is a strong model that ought to be replicated. Innumerable private mass transit system have failed because of their inability to plan for the long term which inevitably results in making the metro unviable followed closely by financial collapse.

Primarily, for the Gurgaon story to succeed, the government needs to be better involved in the implementation and growth of the project. Rather than just restricting its role to providing the right of way and collecting revenue, the Haryana government should actively work towards promoting metro travel and engage in the long term development of the system. Owing to the difficulty in land acquisition and the demography of Gurgaon, the Haryana Government can play a strong role not only by helping to procure land for the future development of the project but also framing its policies and regulations while keeping in mind the development of Gurgaon metro rail. The government needs to understand that regulations like restricting Floor Area Ratio are highly detrimental to both the metro's and the public's interest and should thus push for allowing higher FARs along the rail corridor and areas well connected to the metro. The Haryana Urban Development Authority needs to take greater responsibility as the Rapid Metro can be an answer to Gurgaon's traffic woes and planning is one crucial aspect where participation from the government can make all the difference.

The first phase of the metro station would be operating in a well established area surrounding the DLF cyber-city. While the traffic generated from these areas may be satisfactory, the rail cannot solely rely on it for its ridership. Moreover, now that the Rapid Metro has thought of expanding to Sector-56 in the second phase of the metro, it has to consider feeder modes for its stations. The government can license

the rail operators to ply feeder buses exclusively from stations to far flung pockets of Gurgaon like the Sohna road or Sector 10 which are dense pockets of residential areas. Smooth connectivity to the metro will also enhance the value of the properties that are well approachable and hence the rapid metro can reap in benefits by effective land use and real estate development.

As in clearly noticeable, Gurgaon is a land of extremes. Either you'll find well constructed, hi-tech concrete jungles or villages where development has not quite reached. There are many sporadic malls in the area but accessibility to them is limited only to those with the virtue of a private vehicle. Thus, it is an opportune time for the Rapid metro to provide a holistic service to the residents of Gurgaon by providing travel and retail services alike. Custom, one stop shop stores can be built at the stations along the lines of the 'Echikas' of the Tokyo Metro. Since the metro would be well integrated and it will reach out to a wider mass and allow a wider mass to reap the benefits of convenience stores and provide better customer experience. Additionally, services like free Wi-Fi can be provided as these would be needed most of the commuters who'd be the office going middle class using the line to and fro from work.

Thus, to put it in a nutshell, better, active and more holistic government participation, prudent, long-term and planned growth, innovative methods to connect with the commuters and legislations supporting the growth of the metro rather than thwarting it is what it'll take us to replicate Tokyo's success.

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