



# Breaking Ground

A Narrative on the Making of Delhi Metro

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Front cover photo: Anindito Mukherjee  
Inside the tunnel of Violet Line

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## Note to the Readers

What is presented is a short project ethnography about the birth and the making of ‘Delhi Metro’, which is often referred to as one of the most successful urban transport projects in developing countries. Japan International Cooperation Agency (JICA) has assisted Delhi Mass Rapid Transport System Project, commonly known as Delhi Metro Project (the Project), since 1997 through provision of ODA soft-loan to the Government of India. This project ethnography was produced as a part of JICA’s post-evaluation exercise with an intention to shed light on the processes underlining the development of Delhi Metro. As many readers might not be familiar with the term ‘project ethnography’, a brief note is provided here on how we interpret the term and on reasons why we decided to incorporate it in the post-evaluation exercise of the Project along with the conventional evaluation which was separately carried out based on OECD/DAC five evaluation criteria, the international norm for evaluating development cooperation.

With focus on development projects, project ethnography is a genre of ethnography which constitutes the core of anthropological study. The term ethnography refers both to a qualitative research method involving fieldwork and participant observation, as well as to the research product based on it, usually in written form. Ethnography attempts to make sense of various events or practices of a specific group of people through reconstruction of reality by an ethnographer. Ethnographer, one who makes the observation and documents stories and events through fieldwork, is an outsider, but becomes somewhat part of the group that she/he studies. By becoming a part, the ethnographer is able to understand things

‘within’. One and the first reason why we tried out project ethnography is this power of ‘understanding things within’, i.e. ability to present the ‘insider’s point of view’. We foresaw that collection of accounts and reconstruction of views and practices of those who were closely engaged in the Project could reveal complex processes involved in the development of urban transportation system in Delhi, which the conventional evaluation might miss out as it focuses on the results of the development project, rather than their processes.

Second reason for our trial is flexibility of the ethnographic study. Project, by its definition, has a limited life span and scope. Project ethnography, however, reckons that there is already a long history before the birth of a project which certainly affects project implementation. It also recognizes that impact of a project may continue long into the future or may affect other fields which were not within the scope of the original project design. Unlike the conventional evaluation which often rigidly focuses on a project per se, project ethnography has a certain degree of liberty for expanding scope of investigation across time and social space. Project ethnography allows us to explore what kind of by-product the impacts of the Project have been making beyond the transport sector as well.

The third reason is the attention ethnographic study can draw to socio-political context surrounding a project. Ethnographic study presumes that there are different patterns of values, behaviours, practices and beliefs among different groups of people or in different societies, which are historically and socio-politically generated. These elements strongly shape the trajectory of development and outcome of a project as well. No project can produce exactly the same result when implemented in different localities. This attention to socio-political context is, therefore, important for us to understand better what happened, what impacts were generated and how and why, or why a certain course of action was taken or could not be taken at a particular point in time in the development of Delhi Metro.

It is important to know what has been done or to what degree certain goals, objectives and outputs set at the onset of a project are achieved through post-evaluation exercise. This is the part which the conventional evaluation is good at assessing. In parallel, however, knowing how things were done or not being done, and why they were handled in the manner as they were, is of particular importance to us. To make things work (or to prevent failure), we must understand what motivated a person or group of individuals to take certain actions and why they did not take other course of actions, considering a particular socio-political context where a project is implemented. To draw lessons learned for the future, we wished to unpack partially these complex processes beneath the development of Delhi Metro Project, a seemingly successful case. We believed that project ethnography could do this task effectively, and hence, introduced it in our post-evaluation exercise of the Project.

Being an interpretive study in nature, what a project ethnography can reveal is ‘a partial truth’. Depending on what particular events associated with a project an ethnographer highlights among others, the scope and orientation of a project ethnography change. The relationship between an ethnographer and those who share their experiences to him/her also affects the content and quality of information and stories one can collect. Ethnographer’s background and personality could impinge on the way s/he interprets and weaves stories eventually. The short project ethnography to be presented here is to spotlight just a part of the whole story behind the development of Delhi Metro, but it is true, however partial the story is. We hope that the ethnography could guide you to explore the trajectory of development of Delhi Metro which has become an essential part of daily life in the present day of Delhi.

Advisory Panel on Enhancement of Ex-post Evaluation for JICA

## Prologue

I have been working as a development professional and have had the desire to pen down certain stories for some time, though it wasn't about the Delhi Metro to start with. The stories I wanted to put on paper were about some of the development projects in India and the people involved in them. What I wanted to write was not about what the project was about, but more on people who had dedicated their lives to make these projects possible and bring about changes.

I have seen and been associated with people who have made life's sacrifice at times to make the lives of others better. Their stories, when I am fortunate enough to hear them in person, are filled with inspirations and challenges one might never have imagined. The processes by which these people worked their way through and often overcame the challenges are not simply tales to remember. Thoughts that have gone into them and the courses of action taken have a much bigger message for the world at large. One may say, it comes in the precious form of lessons learnt - something we can all learn from. Perhaps, it will help development professionals to do things in a better way in the future and will save them from avoidable mistakes.

In this story of Delhi Metro, I have chosen to present the story through the view point of certain persons in various sections of this narrative. Certain incidents that took place are construed from the point of view of the particular person's experience, as well as mine who was listening to them share their experiences. People who appear in the narrative are real people. The only exception is a young woman named Anisha and the people around her. They are fictional characters who partially reveal how ordinary people of Delhi perceived various events associated with the Delhi Metro. Their stories are based on real accounts.

# 1

## Delhi Metro Project

As many people know it today, Delhi Metro is a lifeline of Delhi in terms of transportation. The project, sanctioned in 1996, has implemented Phase 1 and Phase 2. Each phase has constructed the network of 65 km and 125 km. Phase 1, which was started in 1996 and completed in 2006 much ahead of schedule time, started with the Red Line connecting between Shahadra and Tis Hazari, and the Yellow Line and Blue Line followed. In Phase 2, that started in 2007, extensions to the existing three corridors were made. Green Line and Violet Line were new additions connecting northwest Delhi and the city of Faridabad. Another corridor connecting the city centre and Delhi's international airport was also included in view of the Commonwealth Game held in 2010. Currently, Phase 3 of the project is under implementation. This includes sections along the major arteries of Delhi, completing the circumvention of the routes. As per the Master Plan of Delhi, the project will be concluded with Phase 4, which will complete the entire network of about 400 km. To show the changes in its network, a map of Delhi Metro indicating the corridors of Phase 1, Phase 2 and Phase 3 (under construction) with some of the station names that appear in this story is given at the end of this document.



# 2

## Beginning of the Beginning

Delhi is said to be as old as the Indian epic *Mahabharata*. It has been the seat of many great rulers. All along, it was exposed to constant turmoil as the city was built, captured, plundered, and rebuilt numerous times. Prophecy has it that whosoever builds a new city upon ruins of another is destined to see it devastated. Delhi has seen seven different cities in the past, the current being the eighth. The place in which the city of Delhi stands today was conceived by Mughal emperors as a place where heaven and earth met. This was one of the reasons the great Mughal emperor Shah Jahan decided to build his new imperial capital on the banks of the Yamuna River and relocating it from Agra. Shah Jahan did not merely move his capital but had a vision. Muhammad Saleh Kamboh, an official historian in Shah Jahan's court, described the city of Shahjahanabad (present day old Delhi) in 1659 AD as:

*“When finally completed, the city was magnificent. Travellers spoke of Shahjahanabad as a place that lacked none of the amenities of urban life. Neither Constantinople nor Baghdad could compare with it.”*

His portrayal of the city was no exaggeration. The city was at the height of the pre-modern urban process in the Indian Subcontinent. In its most glorious days, ancient Delhi captured the hearts of travelers and scholars alike with its marvels. Another noble from the court of Shajahanabad described the city thus:

*“Its avenues are so full of pleasure that its lanes are like the roads of paradise. Its climate is beautiful and pleasant...”*

But that was more than 300 years ago. Although these descriptions pertain to the historical part of the city connected to the Mughal period, one would not find such instances in any parts of the city today. Most parts of Old Delhi are choked due to narrow lanes and the presence of too many people, all jostling for space with a plethora of goods carriers carrying wares to and from the markets here. More modern parts of the city are no better since the arterial roads are always congested with cars, buses, two- and three-wheelers. The side effects of this traffic circus have been severe. Year 2015 saw Delhi in global news as a city suffering from acute air pollution, particularly in the winter months. Some even said that Delhi is worse off than Beijing, the Chinese capital notorious for severe air pollution due to industrialization which poses a serious threat to public health.

### **The Problems**

Some charms of ancient Delhi have remained unchanged. However, the beautiful city once described by Persian scholars is a thing of the past. After 1947, independent India traversed a path of fast growth. The population of Delhi has more than doubled between 1961 to 1981 from 2.6 million to 6.2 million. By 2001, it doubled reaching 13.7 million. More and more people migrated to Delhi in search of better opportunities. With the inflow of people and more vigorous economic activities taking place, the city started to expand. The life of Delhi was no longer confined within the walls of the old city as it had been in the Mughal era. When a city grows, other amenities essential to everyday life must grow with it. While the population surged, the pace of public transport development could not keep up with it. As people started to afford two-wheelers and cars of their own, the ratio of people using public transport declined from 69% in 1991 to 55% in 2001 in urban India. This meant more vehicles on the road, slowly unleashing the problem of traffic jams and congestion. In Delhi (as in many cities of India), vehicle are not the only objects that navigate through the roads. The problems of traffic congestion are often aggravated by the presence of bullock-carts, horse-carts, camels, an occasional elephants and smaller livestock apart from various forms of three-wheelers. Worse still, there don't seem to be any traffic rules and manners, adding to the horrible conditions. It is a vicious cycle of urbanization when the city does not have a solution in place. As the population grows, traffic increases along with the associated problems of traffic jams, pollution, health hazards, loss of time, and a growing incidence of road rage.

It's a city predicament situation. Apart from urbanization that has aggravated the problem of crowding in the city, the situation on the road is further aggregated by the growing middle class. Aspirations for wealth have prompted those with monetary means to own

vehicles, even when it means a degree of inconvenience. If one is of a certain status in Delhi (or in India), he needs to be perceived in a particular manner by those around him. So it is essential for the well-off to own a car, preferably a big one and be chauffeured around town. Although these problems started gradually, Delhi has been putting up with this situation for quite a while now.

Anisha, a college student, has lived in Delhi her whole life. Maybe because she was too young, she doesn't remember the traffic to be so bad when she was small. But it definitely had signs of it. Each year, the traffic on the major roads of Delhi got worse. As the snarls got longer and more intolerable, the people's patience went the other way. Today, they seem to have simply run out of patience with more honking and more brawls on the roads. Lately, Anisha has started to hate the roads of Delhi, not that she has any better choice than to use them. Once, she and her mother were to take a flight from Delhi to Kolkata, where her mother is originally from. They left well in time for the flight to the airport. It was early August. The sky looked gloomy but they didn't think it would rain because there hadn't been any rain during the last one week. As soon as they left their home from New Ashok Nagar in east Delhi, it started to pour.

The chain reactions that followed on the road were miserable. Irritated people started to rush as cars competed to make their ways to reach wherever they were heading. Bikers parked under bridges to escape getting drenched. A conglomeration of fleeing bikers took up half of the available space on the road. What was worse, in certain stretches, the rainwater had no place to run, owing to the poor drainage system. Water started to rise creating water logging and further traffic jams. As the vehicle they were traveling reduced its speed and eventually came to a halt, Anisha and her mother grew anxious since they might not reach the airport on time. Would they miss the flight? *Nani* (maternal grandmother) was on her deathbed. They needed to reach Kolkata at the earliest possible. Anisha was only ten at that time, but she knew the traumatic effects of missing the flight. She wanted to get out of the car and start running to the airport. Wouldn't that have been faster?

It's been ten years from the rain-caused-almost-missed-the-flight incident of Anisha and her mother. They only made it on the flight that day because her mother started to sob at the check-in counter where they were told too late. After much pleading in total desperation, the airline staff agreed saying "just this time." The next moment, they dashed to the boarding gate as if a demon was chasing them. Anisha's mother remembers the ordeal as if it was a courageous act she had put together. Anisha, on the other hand, gets a stomach ache to this day thinking of it. It still makes her nervous whenever she heads to the airport.

So she leaves home now at least three hours before her flight time even if it means killing quite a bit of time sitting bored on a terminal bench.

### **Setting the Stage**

It is believed that planning for a metro system generally starts when the population crosses one million so that by the time the city population is touching two to three million, the system would be in place. Delhi Metro Project only took off in 1996. It seems as if the planning in Delhi had a sluggish start, but that wasn't entirely the case. While urbanization was fast taking place, Metropolitan Transport Project was set up in late 1960s. Since Delhi was not alone in this trouble, three other Metropolitan Transport Projects were established in Bombay, Calcutta, and Madras, the big cities that were more or less in the same boat<sup>1</sup>.

In 1970, the Central Road Research Institute conducted a study on traffic and travel characteristics based on transport demand projections. The report by Central Road Research Institute was probably the first one that mentioned the need for a mass rapid transport system in Delhi. Metropolitan Transport Project was an agency manned by the Indian Railways to prepare an urban transport development plan. Each of the Metropolitan Transport Project had studied and planned for ways to deal with the traffic situations in their city. Calcutta – now Kolkata – decided early on that they will go in for a metro system. Delhi opted for a Ring Railway, a circular railway running parallel to today's Ring Road. The system was constructed in 1975 and subsequently got upgraded for the Asian Games (a pan-continental sports event that takes place every four years, also called Asiad) hosted in Delhi in 1982. Since the route touches close to some of the government offices, it was for a while a popular mode of commuting, particularly for the civil servants. However, the stations are mostly located in places difficult to access and are not properly connected to other transport modes. Coupled with other issues, the Ring Railway was living a slow death, much to the dismay of Delhi's commuters.

### **Growing Pains of Calcutta Metro**

While the Ring Railway was established in Delhi, Kolkata, around the same time period, was already in for the metro system. The Calcutta Metro project was sanctioned in 1972 and construction started in the following year. The very first corridor of the Calcutta Metro ran on a north-south axis from Dum Dum to Tollygunge. At that time, the target was to complete the length of 17 km by August 1987. Being the first ever metro system in the country, Calcutta Metro had gone through growing pains. Financial crunch, diverting underground utilities, traffic diversions, shortages of materials, and land acquisition problems were some of the issues they had to deal with.

Delay in project implementation was triggered by a number of problems. In some sections, the construction came to a halt midway leaving the dug up underground sections in the open. This caused a great deal of inconvenience to the residents of Kolkata by dividing the city almost into two halves. The citizens of Kolkata were greatly inconvenienced by never-ending work on the road. The metro was supposed to have come and saved them from agonizing traffic jams. Instead, its work triggered more traffic jams that seemed without end. Gradually, the momentum for the first metro project in the country was lost.

In 1984, Calcutta Metro was partially commissioned for a length of 3.04 km. However, it took another decade before the project would be fully completed. What was supposed to be a fanfare of building the first metro in the country turned out to be a disappointment. But this bitter experience of Calcutta actually set the foundation for another metro system to come as many later found out.

### **The First Metro Man**

It must have been 1987. A former engineer of the Indian Railways, B.I. Singal, had just returned to India from Taiwan finishing his stint as a design manager working for Taipei Metro project. Since it'd been years, he decided to drop by at RITES Limited to meet his old acquaintance who had now become the managing director of the company<sup>ii</sup>. The then-managing director was delighted to see Singal and listened to his stories about the metros from the Far East. After he completed the story, the managing director looked straight into his eyes. "You must join RITES right away, Singal," he said with a calm voice but with an aura of command. The managing director had a plan in his mind. Looking at the ground situation in the metropolitan cities of India, the country would soon need a solution to urban transport problems. The requirement for building mass rapid transit system would surely arise sooner or later. In all likelihood, the metro system in which perhaps only Singal had familiarity at that time in India, would be a most likely option. After much deliberation, Singal agreed to join RITES and to start an urban transport division. In a year's time, he established a full-fledged team though not necessarily with the experience of metro systems on board. It would have been impossible to find another professional with working experience of metros in the country. However, he made sure that his team had a few professionals who had previous experience of working with the Calcutta Metro.

After leaving the job at the Indian Railways, Singal joined a foreign firm to be part of Hong Kong MTR project. From there, he moved on to Taipei. He spent 11 years building and planning for the metros abroad. In those years, he witnessed the A to Z of metro systems, learning some of the challenges and best practices – the wisdom that would go into the making of Delhi Metro in a few years hence.

Soon RITES was appointed by the Delhi Government to prepare a feasibility study on an integrated multi-modal mass rapid transport system. Metro was one component of it. During his days at RITES, Singal once called on E. Sreedharan, who later becomes the first managing director of Delhi Metro Rail Corporation (DMRC), to travel to Dhaka with him. Singal and his RITES team were there on a reconnaissance visit for a railway project in Bangladesh. Sreedharan was working at the Konkan Railway at that time and Singal was well acquainted with Sreedharan and his technical caliber. Singal wanted to take Sreedharan's opinion on the project. As the talk of Delhi Metro was already underway back home, one night in Dhaka, they discussed about the future of urban transport in Delhi. Among several options, which the city may benefit from, the metro system seemed most reasonable. Their conversation rolled late into the night centering around how the networks should be planned, how the system should be integrated with other transport modes, and what kind of technologies should be brought into. The talks on possibilities of what could be done and how travel across the city would be with the new system were all very exciting. Nevertheless, they both knew that there couldn't be another Calcutta Metro. The discussion thus turned what had to be done differently to avoid all the things that had gone wrong in the metro for the "City of Joy." One obvious thing to them was an institutional setup.



Hong Kong MTR, 1979  
(Photo courtesy: B. I. Singal)



Ring Railway in Delhi  
(Photo credit: Sumit Tharan)

Working in the Konkan Railway, Sreedharan couldn't but help feel being a victim of unnecessary interference by the government. Despite being the chief management director, he was exposed to numerous such instances that made him feel helpless at times. He was certain that a structure that allowed political interference would only be a bottleneck to a large-scale project. At this point, Singal had a suggestion roping in his experience from the Hong Kong MTR, known for completing the project within time and budget. It had what looked like a suitable solution. The institution that implements the project should be independent of all interferences and have full powers to make the decisions it needed. In the

days of the Calcutta Metro, the project was within the jurisdiction of the Ministry of Railways (although the metro projects are now the portfolio of the Ministry of Urban Development). Since a metro project would be located in a particular State, there would be a stake of the State government, too. The ownership of the project, it appeared, should neither be vested to the Central or State governments exclusively. However, if they only had equal shares in the institution, neither one could overpower and dictate terms to the other. Both Singal and Sreedharan agreed that there could be no better option than this model.

In 1990, subsequent to the feasibility study, RITES was now onto the preparation of the detailed project report, a document detailing the elements required for project approval. When the detailed project report was prepared, it had 50 technical reports, 101 tender packages and 2,066 drawings. The reports addressed various aspects of the proposed Delhi Metro, one of them being its institutional setup. It is not difficult to imagine that equal equity participation from the Central and State governments was part of the recommendations. This, by far, was the biggest contribution made by the country's first metro man.

### **Fifty Years Too Early**

Initially, there was a thought within the government to have Delhi Metro project implemented by private concessionaires. Hideo Omori, a Japanese engineer who was working for a company called Pacific Consultants International at that time heard about this new venture<sup>iii</sup>. His guess was that no one would come forward. He was right. When bids were called, there was no interested party. Omori had been working in railway sector in Jakarta for many years and he saw a great potential in Delhi's urban transport sector. When the bid invited by the Indian government closed unsuccessfully, Omori was quick to take action. He arranged for some grants and support from in and out of his company and decided to investigate the opportunity further.

His plan was to have a Delhi Metro project financed by the Japanese government while bringing necessary technologies from Japan. He landed in Delhi in 1991 with the aim to get other Japanese players onboard. Although numbering only a handful, there were several Japanese business firms present in India. He visited them one by one and explained them the project. Despite Omori's excitement, responses from his countrymen were indifferent. Most thought his talk to be a dream and considered it impossible. Once he was told "Mr. Omori, you are 50 years too early to think of such a plan in India. Why don't you come back after 50 years?"

Determined to bag a big project, Omori did not give up even after getting adverse, often bitter, comments from his fellow citizens. He made an implementation plan for the project and provided it to the Japan International Cooperation Agency (JICA)<sup>iv</sup>. Although the reaction of JICA was no better than that of the Japanese companies he had already met, he knew that with or without the Japanese, the project would one day become a reality.

### **The Final Push**

Singal made a series of presentations, 70 to 80 of them, from the time of the feasibility study, detailed project report, and then until finally the project got approved in 1996. Luckily, he had partners. First, it was S. Regunathan, the then Transport Secretary of Delhi. By virtue of his position, Regunathan was fully involved in the process of planning. From 1987, until he was transferred to outside Delhi few years later, he would meet the team from RITES quite literally every week to discuss various matters. One such matter was about underground corridors. Because Delhi was already highly congested in the 1980s, it looked impossible to have surface or elevated corridors everywhere. But having underground corridors was also not so simple given that there were many utilities crisscrossing underneath the city. Meetings were called with agencies like the Delhi Jal Board, which was in charge of water supply and sewerage to consult with them on the possibilities. This exercise prompted everyone to recall the difficulty faced by the Calcutta Metro. Synchronizing with multiple organizations had never been child's play in the country. Realizing how much of the precious time could be lost if not done correctly, Singal and his team suggested in their report to have coordination for utility diversion and land acquisition among other things. If these preliminary things were taken care of, the major construction could be done much more easily.

Around the same time when RITES had submitted the detailed project report in 1990, N.P. Singh was appointed as an Additional Secretary in the Ministry of Urban Development (it was called the Ministry of Urban Affairs and Employment then). Prior to coming to Delhi, he was a Principal Secretary in Karnataka. Singal had all the nitty-bitty details of what had to be done to transform the project into reality. One of the greatest challenges, Singal felt however, was getting the finance needed for it. It was at a conference on mass transit in Paris that the two men met and discussed the possible financial arrangements for the Delhi Metro project. Oblivious of the loud conversations and chattering of other participants in a large banquet hall, the two men sat next to each other at a round table. Although it was the first time they were meeting, they exchanged ideas enthusiastically as though they had been working on a common cause together for some time.

As Additional Secretary at the Central government, N.P. Singh was given the responsibility to prepare a paper on an urban transport system for Delhi. It was around this time that



representatives from JICA came to meet him. The very first meeting with JICA felt like a casual meeting. The Japanese representatives informally told N.P. Singh that they might be interested in financing the Delhi Metro project and would like to look into the technicalities of it. It was a welcome suggestion. The Japanese visited N.P. Singh several more times before taking up their own study. First they did a study on the technical feasibility and then on financial feasibility.

N.P. Singh scanned through volumes of earlier studies on urban transport. Given the gravity of the issue, many expert bodies had been formed and reports prepared in the past. The Planning Commission, the Ministry of Transport, the National Commission on Urbanization and its Working Group, the Ministry of Urban Affairs and Employment, all had their own take on the issue. One thing that was common in existing reports and was clear to him was that mass rapid transit system was not going to be commercially viable. It would not have been possible to finance the entire project solely on the revenues from the fare box. The project needed to be treated as a social necessity to free people from suffering time losses, inconvenience, pollution, and mounting anger. At that time, 88% of the metro systems in the world were running in the red and were subsidized. The only exception was Hong Kong, but it had taken them 10 years into operations to turn it commercially viable.

Nevertheless, in anticipation of the project, the mass rapid transit system project in Delhi got in-principal approval in 1994. Based on the RITES recommendation of a joint venture between the governments of India and Delhi, a corporate structure with equal capital contributions from both governments was created. Although the final investment approval was not in place, the institution responsible for the project, DMRC was registered in May 1995.

JICA initially hinted at financing 85% of the project cost as a long-term debt. Although secured funding was essential for the project, Singh knew it would have been too much and called upon Singal to discuss the same. Just as they had once sat in the Paris conference hall, the two now sat in N.P. Singh's office at Nirman Bhawan to put their heads together once again. Hour after hour, they discussed to find out the most suitable option. Then an analysis by RITES found that there was no need to have 85% of the project cost covered by long-term debt.

As 1996 was approaching, N.P. Singh got a promotion. Normally, a civil servant would be transferred from his post upon promotion. However, the government was already aware that something was brewing in Singh's office. The then Prime Minister of India, H.D. Deve Gowda, was a former Chief Minister of Karnataka. Although N.P. Singh did not know the Prime Minister intimately, being from the Karnataka cadre, the Prime Minister knew of

Singh's working. So N.P. Singh was retained where he was. Most of the officers working in the Prime Minister's office at the time were also from Karnataka cadre and N.P. Singh shared a good understanding with them. It was double lucky that the Prime Minister had urban development as one of his portfolios.

Although the requirement for a mass rapid transit system in Delhi had already become something nobody could ignore, the sheer volume of capital required to build the system and a traumatic experience of the past made certain sections of the government wary of the whole plan. The project cost at that time was estimated to be Rs. 48.60 billion (approximately \$1.36 billion) for Phase 1. The request for final investment was taken to the Cabinet in August 1996. However, given the magnitude of its cost and finding the project not so financially viable, the Ministry of Finance created a tide against N.P. Singh. With the financial internal rate of return pegged at less than 3%, it did not look like a project that could recover its costs. He almost found the situation ironic as his counterpart at the Finance Ministry was his predecessor. "Doesn't everyone know Delhi can no longer wait?" N.P. Singh reasoned it was a social necessity to have metro system in the city. But he was hitting a roadblock.

In the following month, N.P. Singh was called by the Prime Minister to come to his residence and present the case in front of all concerned before a final call could be taken at the Cabinet meeting. By this time, N.P. Singh and Singal were partners in the struggle. For several days, they sat late into the night at N.P. Singh's office preparing the presentation. They made a ten-feet by ten-feet miniature model of Delhi. The model with the suggested metro network was specially made for this occasion. Singal thought it would help the others visualize and understand the whole project better.

The day before the Cabinet meeting, they drove together to 7 Race Course Road, the official residence of the Prime Minister. Tall jamun trees fringed both sides of Race Course Road. They were lush green and the place was silent except for the occasional cooing of doves. This part of the town was so unlike the rest of bustling city. A well-built man in khaki uniform with a walky-talky in his left hand checked the identities and let the vehicle through the gate. "This is it," said N.P. Singh smiling quietly as he looked at the bundle of files on his lap. Singal nodded without a word in response. There was nervousness in the air because of the great responsibility on their shoulders. But both the men knew at the back of their mind that everything would be okay. The day Singal visited the RITES office ten years ago, he never really thought he would come such a long way with the new project. Over the last one decade, planning for Delhi Metro was not the only thing he had been doing, though, by far, he spent more of his time and effort on it than anything else he had put his hands on.

Soon they were standing in front of a power packed audiences. The Prime Minister, Lieutenant Governor of Delhi, Chief Minister of Delhi, Secretary from Ministry of Finance on behalf of Finance Minister and Principal Secretary to the Prime Minister. The presentation went on for more than an hour. The main discussion was on the commercial viability of the project. N.P. Singh justified that the aspects beyond finance had to be considered as well. The economic benefits of having the metro system in place, he argued, would be tremendous. Such benefits would include monetary savings that would result from saving of time by traveling by the metro, reducing the number of road accidents, and reducing pollution, among numerous other things. When he finished talking, the audience were silent as though they were spellbound.

That week was unusual in the sense that three Cabinet meetings were held. After much deliberation, the Finance Ministry was finally convinced. It had taken more than 30 years since the metro system was first mooted for Delhi. Not surprisingly, Singal had spent as many years in planning as the construction of the Phase 1 would take. But finally, Delhi Metro project was now on the verge of seeing the light of day.

# 3

## Making of Delhi Metro

When the Delhi Metro project was originally approved by the Union Cabinet in September 1996, it had three corridors. Out of 55.3 km length for Phase 1, it was to have 25 km from Shahdara to Nangloi, 11 km of underground section from Vishwavidyalaya to Central Secretariat and 19.3 km from Subzi Mandi to Holambi Kalan.

DMRC started its operation in a modest size with very few officials in place. When JICA sanctioned its share of funding in the form of a loan, it did so under the condition that the managing director of DMRC be in place. After much search for right candidate turned out to be unfruitful, JICA indicated that they may stop the funding. Sensing the urgency, the then Chief Secretary of Delhi called on Sreedharan one day. Sreedharan was told over the phone that the Lieutenant Governor of Delhi wished to see him. Sreedharan agreed and made a trip to Delhi. As he was not familiar with the Lieutenant Governor, he first went to the Chief Secretary's office from where the two men went to the office of the Lieutenant Governor together. As they walked in, Sreedharan sensed it wasn't a simple courtesy meeting as he had expected. The Lieutenant Governor was not alone. Along with him were the Chief Minister and the Transport Minister of Delhi. They all had welcoming looks on their faces but seeing them together, Sreedharan suddenly felt the air tight. Sreedharan took his place on the sofa, he was still wondering as to why they had suddenly called for him.

It was the Lieutenant Governor who started to speak quietly. “Look here,” he said casually, his voice tinged with a tone of seriousness. “We’ve been trying to get a managing director for the Delhi Metro project, but we have been unsuccessful in finding the right person.”

Sreedharan knew the situation well as he himself was on the committee that was searching for a managing director. “We feel that you can actually handle this project,” continued the Lieutenant Governor, revealing the real reason for calling him here. While Sreedharan continued to listen in silence, the Lieutenant Governor went on to explain why Sreedharan would be the right person for the job. “Please take it up,” he finally said.

Sreedharan took a deep breath. He felt grateful that they acknowledged his technical capacity and believed in his ability to drive this unique project to fruition. But honestly, he never thought of running the Delhi Metro show on his own. Had he wanted to live and work in Delhi, Sreedharan would have done it years earlier when he retired from Delhi. In fact, he was never keen on staying on in Delhi – it was not a place he considered home. He came from the South and his heart always remained there. At this age, why would he relocate to this bustling, overcrowded and dusty city again?

Straightening himself on the sofa, Sreedharan gently explained why he couldn’t be the DMRC managing director. First of all, he was still fully immersed in the Konkan Railway Project. They still required his services and the Indian Railways were unlikely to let him go. “That is not a problem,” said the Lieutenant Governor looking inquiringly at Sreedharan. “Getting you released from Indian Railways is my responsibility. Don’t worry, I will see to it that you are released.”

As his first excuse fell flat, Sreedharan tried to explain that since he was past the age of 65, the top men sitting in front of him may not be able to bend the rules as easily as they thought. The Central government never appoints someone of that age, and they would not clear his name, he continued explaining. Much to Sreedharan’s dismay, the Lieutenant Governor replied in confidence “That too, leave it to me,” he said. Sensing Sreedharan’s reluctance to take their offer, the Lieutenant Governor lowered his voice, stopped smiling, and then explained that if no one took up the post of managing director, there was a danger of losing the funding secured from JICA and that Sreedharan ought to consider this point and take over. Sreedharan was well aware that the Lieutenant Governor wasn’t bluffing. The room fell silent for a few moments as everyone seemed to be waiting for Sreedharan’s answer. He took another moment to think, closing his eyes for split of second in search of an answer. And then he decided to take the plunge.

From his earlier experience and his ongoing struggle at the Konkan Railway, Sreedharan knew too well that uninvited interference would ruin the party. He set his condition forward that if he was to be the boss at DMRC, he should be given complete freedom to run the organization. There shouldn't be any interference from politicians and bureaucrats. And he should be able to choose his own men. "Agreed," replied the Lieutenant Governor without any hesitation, thus starting the long journey of Sreedharan with Delhi Metro.

### **Money Matters**

When Sreedharan walked into the modest office of DMRC temporarily housed in Rail Bhawan on his first day, he smiled in the corner of his mind knowing well that the most worrying hurdle had already been cleared for the Delhi Metro project. The financial loan extended by JICA to the project, which made up 58% of funding required for Phase 1, came in six tranches<sup>v</sup>. This meant that JICA had decided the amount of loan to be sanctioned for the project in six different years based on their discussions with the Indian side. The first loan from JICA had already been sanctioned in February 1997.

In May 1998, Operation Shakti was launched. It involved detonating five nuclear bombs at the Pokhran Test Range in the Thar Desert of Rajasthan. While India tested nuclear bombs, Sreedharan was tested for his optimistic speculation. The nuclear test had invited economic sanctions on India from a number of countries, Japan being part of it. Most of the officials closely associated with the Delhi Metro project, both on the Indian and Japanese sides, believed that there would be no discontinuity in funding of Delhi Metro since it was a tranche project. And that is the story most people would tell, saying that there was no doubt in their mind. However, on the ground, it wasn't as bright a picture for a few.

Soon after the nuclear tests, criticism from the international community came and some nations reacted with varying degree of sanctions on India. The Japanese government announced that it will freeze all new development assistance loans and grants except those for humanitarian grounds. One day, representatives from the JICA office in India visited Sreedharan. He was not informed precisely why they wished to see him, but was told that it had to do with something about funding the project. As soon as the Japanese walked into his office room, Sreedharan sensed that they had come to see him for some serious business. He greeted them and they smiled in response, though their expression certainly looked superficial. Despite the soaring temperature outside, the Japanese came in formal business attire as usual - crisp white shirts buttoned to the top to make room for the ties they certainly never forgot to wear for official meetings. It must have felt even hotter for the Japanese.

The two men adjusted themselves in the revolving chairs opposite Sreedharan's desk. One of them put his hands on the table, clasping them together. He leaned forward a little and cleared his throat. "Mr. Sreedharan," he said, taking a deep breath before continuing, "We may have to stop financing the Delhi Metro Project" he said bluntly. Sreedharan required no explanation. "How could you say that? The project has started picking up speed. You know how important your funding is to us," said Sreedharan, reacting hastily.

The Japanese responded apologetically in a low voice. "Yes, we know," they said. Then the two men went on to explain taking turns what had been already broadcasted in the news hundreds of times: about how India conducted the nuclear test, what the international community thought of it and that the Japanese government was stopping the official assistance and so on.

With the originally sanctioned amount of funding, DMRC had already started preparing the ground for major works to come. Procurement of the very first batch of civil works and rolling stocks were underway. If the money stopped flowing into DMRC now, all the work would come to a grinding halt.

It was for the first time, Sreedharan lost his temper with the JICA officials. From the day he took up his position as the managing director of DMRC, Sreedharan felt his team and the Japanese have been building a strong partnership. But this conversation felt like the bond they have nurtured was being jeopardized. With rising voice, Sreedharan demanded JICA representatives to decide on the spot whether further funding would be provided for the Delhi Metro project or not. Otherwise, he continued, he would look for an alternative. With or without JICA funding, DMRC will continue the work, so he needed to know what step he had to take next.

The two Japanese men looked at each other but said nothing. Sreedharan knew well that they were not in position to take the final call. They exchanged a few more words with Sreedharan but without any conclusions. Instead, they told him that they would remain in touch with him regarding this matter and thanked him for the time. As the men walked out of his office room, Sreedharan saw one of them loosening his tie as if to relieve himself from a tension.

From 1993 to 1997, the amount of external assistance provided by Japan to India stood above Rs. 40 billion. In 1998, in response to the nuclear test, it plunged to a mere Rs. 5 billion. The share of Japanese official development assistance in total external assistance received in India also dropped from 24% to 6%. For the next three years, JICA did not take up any new projects in India until the economic sanctions were lifted.

However, soon after the two Japanese met Sreedharan, he was informed that for those projects for which funding had already been agreed, the funding would not stop. The JICA representatives never explained to Sreedharan what kind of discussions had taken on Japanese side or how they managed the situation to continue the funding. Next time he saw them, they had a great relief on their face. And the news was a great respite for those working on the Delhi Metro project as well.

### **Standing Ground**

The very first thing that needed to be done at DMRC was to select a general consultant. General consultant is a team of foreign and Indian experts contracted by DMRC who would help in implementing the project by getting involved in designing, contract tender, supervising construction among other things. Since it was considered the first metro project in the line of urban transport in India, JICA insisted and set a condition to empanel a general consultant. The project being funded by JICA, the process of selecting the general consultant was clear. When Sreedharan came to DMRC, the bidding process was already on. All he did was to finalize it.

A Japanese firm, Pacific Consultants International, and their joint venture partners were found to be most technically qualified for the job and an acceptance letter was issued. But this was not meant to be a trouble free ride for Sreedharan. Almost immediately after, he felt the pinch of political interference he had tried so hard to avoid. The Minister summoned him and wanted DMRC to withdraw the letter of acceptance citing that other bidders would have been cheaper. The selection process followed the guidelines laid by JICA, which allowed them to open the financial bid of only the first ranked technical bidder. Only if the financial estimate of the first ranked bidder was unreasonable, could they consider the others. Sreedharan stood ground firmly, fully aware that he and his team had done nothing wrong. He also knew that bringing a Japanese consultant would prove to be beneficial. Japan had excellent metro systems and high speed railways across the country. Given that a large chunk of the Delhi Metro project was made possible with the funding from Japan, he felt that the selected consultant team could act as a useful bridge between DMRC and JICA, if need arose. His job as managing director was not merely to decide on technical matters, he had also to make sure that his organization worked properly.

After much deliberation, although there was nothing to give in, Sreedharan decided to consult a Cabinet Secretary. The Cabinet Secretary reminded Sreedharan that he was in charge. After all, wasn't this the precise reason he and Singal had thought years ago to have a system of institution that could prevent vested interests from influencing important



decisions even before the Delhi Metro project was approved? Wasn't this the reason he had boldly demanded certain conditions be met when he was asked to take charge as managing director by the Lieutenant Governor of Delhi? Sreedharan and DMRC stood their ground with unflinching belief. They had nothing to hide as the selection process had been fair and transparent. DMRC disclosed the bidding process and provided explanations. Eventually, those who had made the unnecessary clamour quietened down and the bid was accepted.

This was just the first incident when everyone at DMRC felt thankful for having an institutional setup that allowed no single party to have a majority say in anything that had to be decided. Sreedharan, being a seasoned engineer, wasted no time in making decisions based on his technical knowledge. In the years that followed at DMRC, he wasted no time to take advantage of the situation where he had the ultimate say in most of the things that had to be done in DMRC. Because he knew his job, he never thought twice on taking decisions that would otherwise have affected the pace of the project.

### **Bringing Japanese on Board**

Years earlier, Sreedharan had had the good fortune of seeing, for the first time, how things worked in Japan. He visited the Tokyo Metro. He was certain that the way the Japanese worked and their technology would be a great benefit to the Delhi Metro. The most attractive trait of all that the Japanese possessed was the way they stuck to time, the way they valued time, and the way they adhered to schedules. It was almost like an obsession. But it was also necessary for urban transport to meet its objective.

There were times when JICA hinted at possible discontinuation of funding, Sreedharan actually wanted to tell them that DMRC could opt for other financing. But he considered it more important for his men to work side by side with the Japanese and learn their tunnelling technologies, their management ethos, their value for time. For operating railway systems in Japan, anything more than a minute was considered a delay when the rest of the world was far more lenient.

When Omori from Pacific Consultants International, now the project director for general consultant team of Delhi Metro, met Sreedharan for the first time, Sreedharan already had the principal of not allowing anything to be late beyond one minute. It was surprising even for the Japanese. Speed and precision are the soul of urban transport. If they are not respected, the metro system will be no different from the railways. And this is why despite initial plans to make the metro interchangeable with existing Indian Railways systems, Sreedharan rejected the idea outright. The purpose of Indian Railways was different, they had a much bigger coverage across the country for a long-distant travel. To be

interchangeable with the Indian Railways meant forfeiting the very core principle of the urban transport system.

Learning the Japanese way would be an asset to India as a whole. Sreedharan knew that soon there will be a need for more metro systems in India. There was no better way to take advantage of Japanese experts while they were here. He didn't want the Japanese to just do their part in the project and leave – but let Indian engineers absorb as much knowledge and skills as possible. Then, in the near future, Indians could do it on their own, not only in Delhi Metro but in other cities, too. So it was not a simple consultancy service, Pacific Consultants International and their partners had to provide to DMRC. Sreedharan wanted Omori and his team to make sure they transferred as much technical knowledge and skills to his engineers. DMRC staff also made sure that they were central to the project instead of having the general consultants handle things. This was their way of making sure that the DMRC brand was established and marketed by none other than themselves.

Omori was highly surprised and impressed with the demands set by Sreedharan. It was a sign of commitment, an indication that the project would head to success. Omori, appreciating the genuine commitment on the part of DMRC, decided that his team would open-handedly support this cause. In his first speech to the contractors who attended a pre-bid meeting, he emphasized that when Delhi Metro become operational, no more than a one-minute delay would be tolerated and the same principle of adherence to schedule must be observed if they were to be part of the project.

### **Diversion of Utilities**

There were quite a few things that the Delhi Metro project learned to tackle correctly after the agonizing experience in making the Calcutta Metro. Ask any Kolkata resident about those years and they would roll their eyes before describing their ordeal. Take for example, Anisha's mother who grew up with two younger brothers lived in Kolkata until the 1980s. Once the works on the Calcutta Metro started in bits and pieces along the whole stretch, the dug up earth divided the city into half, literally. Her mother would describe it as "Kolkata's open heart surgery." Unfortunately for Kolkata, there was no tunnel boring machine in those days that allowed the contractors to make one big hole in the ground, instead of digging up the entire stretch of the metro corridor, through which a humongous excavation machine would be lowered for boring underground. Technological advancement over the years benefitted the Delhi Metro immensely by reducing public inconvenience.

Although 100% Bengali herself, Anisha's mother always grunted when it came to reminiscence about the Calcutta Metro saying, "you don't let the Bengalis build a metro." It would be followed by saying, "they are good for poetries and paintings..." Despite the fact

that the statement of Anisha’s mother bore some truth, it wasn’t really the fault of the Bengali character. To start with, Kolkata only had about 4% as road in total surface space compared to 25% in Delhi or 30% in other cities in the country. It was the old congested city, the rain, and the moving earth that made it so difficult to build a huge infrastructure, especially since it was without any precedence in India.

“We had to walk on wooden planks to cross ditches,” said Anisha’s mother, remembering the way she had to reach school pulling the hands of her younger siblings. Part of the reason why people were put through such a testing experience was the shifting of underground utilities. To build underground sections of the metro, the ground had to be excavated. Before one could go deeper, there would be a complicated network of water supply and sewerage pipes that needed to be shifted out of the way. Other government agencies in charge of these utilities had to be roped in before Metro Railway Calcutta (the metro project implementing agency, now Kolkata Metro Rail Corporation) could get their hands to it. In some cases, these other agencies were reluctant in such a manner that gaps were left in the ground so as not to actually shift the utilities. Coordination among multiple agencies has never been an easy task in India. While the metro agency had its own timelines, the others worked at their own pace causing inordinate delays.



Assembling of a tunnel boring machine

Engineers at DMRC were well aware of the fallouts from the Calcutta experience. The current managing director, Mangu Singh, had worked on the Calcutta Metro project in the past. It was based on this experience that Sreedharan insisted Mangu Singh to join DMRC. Waiting for someone else who had no stake in the project would not yield fruit. Instead of requesting the utility owning agencies to shift the pipes and wires, DMRC decided to take the responsibility upon themselves. Singh recollects how other agencies initially resisted this new found idea. Afterall, it is their property, their territory and they had their own traditional way of working things.

After much persuasion a compromise was reached. The fact that DMRC was staffed by Indian Railways engineers helped convince the other agencies. DMRC would be in control of the diversion work, but would involve the other agencies in preparation of detailed drawings and approvals would be sought from them. During the execution, if they so desired, they could supervise the works. Besides, the contractors who were experienced with other agencies would be used. To make things smooth, DMRC at times recruited retired personnel from utility owning agencies who would liaise with their old colleagues. This way, civil contractors of Delhi Metro would not suffer, by having their machines lying idle on the side, waiting for the utility diversion to be implemented.

The benefit of shifting utilities on their own not only advanced the speed of work, this way, DMRC could make sure that the public would be least disturbed. The first few instances, where the utility owning agencies agreed, were used to demonstrate the capability of DMRC. Having directly witnessed DMRC's competence, other agencies too gained confidence in DMRC. In one instance, a 1.2 m water main needed to be diverted. It was supplying water to 500,000 people. Where the water supply agency would normally take 48 hours to complete a similar undertaking, DMRC did it in 12 hours. The motivation behind was fairly simple: on the account of Delhi Metro work, people should not be inconvenienced. This came as a great surprise to the other agencies too.

### **Other Noble Things**

DMRC taking control of utility diversions has proven to be a noble idea. Nevertheless, that wasn't the only thing Delhi Metro did right or for the first time in the country. Shifting the utilities on their own eliminated unwanted time loss in construction. Furthermore, by reducing the time required for civil works, the Delhi Metro project was ultimately reducing the time the public was inconvenienced. DMRC has employed and deployed their own traffic marshals around the construction sites to guide the vehicle on the roads that are forced to meander through the work sites. Behind the traffic marshals stood a series of sky blue metal barricades that physically separated the construction sites from the rest of everyday public space. India was not used to cordoning off the work site from space for

everyday living even when a large infrastructure was being built. It was one of the things insisted upon by the general consultant for the safety of public. These Delhi Metro barricades are common sight today. The blue barricades that have become iconic to Delhi cityscape were a real eye opener to ordinary citizens when they were first set up.

When some of the first sets of barricades with the red DMRC logo came up in central Delhi, Anisha’s mother drove past them with a sneer. “Wonder what they are making behind the curtain,” she said, expressing her doubt and giving them a quick look from the corner of her eyes. It was a practice no one was used to seeing. In the days of the Calcutta Metro, everything took place in an open theatre. In contrast, the magical works of the Delhi Metro were taking place behind the metal curtain in Delhi. When the work was done for the underground sections, the barricade would be removed and the familiar road came back in view as if nothing had happened. Somewhat cynically, Anisha’s mother would exclaim, “Ha! I wonder if they really did anything underground.”

But DMRC certainly did their job and moved on. Although the elevated sections were only partially veiled, since the erected piers were much taller than the height of the barricades, veiling the real ground activities behind the cordons gave a sense of vanity to the whole mission. In fact, the manner in which the Delhi Metro project approached the construction completely overhauled the culture of construction in India. Apart from cordoning off the work sites, DMRC imposed several safety measures upon the workers that are worthy of mention. Workers were strictly guided to put on gears like helmets and gloves – something unheard of for most who were used to working barefoot, if not wearing tattered footwear.



Barricade of Delhi Metro



Works on elevated section  
(Photo credit: Kaushik Ramaswamy)

It must have been around year 2000. One of Anisha’s maternal uncles, who was working for a local daily at that time, dropped by their flat just as supper was being served. Being a

bachelor, he would drop by for a weekly supper. “Can you imagine,” he said, during the course of conversation at the dinner table, “The Delhi Metro people are making those poor workers wear helmets on their head and gloves on their hands.” Delhi Metro had become his beat and thus, the young journalist was following the happenings on a day to day basis. He often had first-hand information from press visits organized by DMRC. More often than not, he would enter the house with excitement, particularly after the visit to Delhi Metro work site. “Man, these people are doing something unthinkable,” He would explain to Anisha, “those trucks leaving the work site are cleansed off of their wheels so as not to take sand and dust out of the designated area. DMRC even waters the streets so the fine dust accumulated due to construction will not flare up in the area,” he explained. Anisha could feel her uncle’s enthusiasm but failed to understand why such measures were taken. Uncle would then explain that in India, as far as public organizations were concerned, no one had displayed such degree of care for the public whom they were supposed to serve. On the part of DMRC, it wasn’t an easy achievement to induce mostly uneducated migrant workers to buy into the idea that these gears were for their own safety. The workers had never worn these items nor had they seen others doing so. It was certainly uncomfortable for them to grab tools with the thick gloves as their fingers would not move freely.

# 4 Branding Delhi Metro

In December 2002, the first section of the Delhi Metro opened to the public with great fanfare. By the time the short corridor was commissioned, most Delhiites (people living in Delhi), had heard of the great speed at which the project was advancing. Since the construction reached full swing, people had witnessed the works on the ground at some or the other point in time somewhere in the city. However, the outdoor was not the only space that constantly reminded Delhi residents about the modern marvel in the making.

In fact, if one is a subscriber to any of major newspapers in Delhi like the *Times of India* and *Hindustan Times*, there isn't a week that goes by without an article on Delhi Metro. Now that there are more than 200 km of operational network around the capital and knowing that the Delhi Metro project has been around for close to two decades, one would almost wonder if the people of Delhi are any longer interested in the happenings with Delhi Metro. What importance would it have for the people in the city to know what kind of signalling system is going to be used for upcoming lines? Is it coincident that the major publishing houses all carry similar stories on Delhi Metro from time to time, or is there a dearth of more important issues to cover in the city?

The media in India are generally fierce and quite critical of government projects. In a country where large infrastructure projects often fail to meet the deadline and are surrounded with scandals, the media shows little mercy towards them. Contrary to this, a closer look at the stories reported on Delhi Metro reveals that the media is inclined to report it in positive light.

This is a surprising trend since the media could have, if they so wished, unearthed and reported negative stories. Particularly in the case of Delhi Metro, they had to acquire land, demolish what was on the land, and build the infrastructure causing great inconvenience to the public. Any of these incidents could have been taken up as a story that deserved public attention. So why did it not happen?

The reason is not difficult to see. DMRC was fully aware of what the media might be interested in and what kind of repercussions any negative press coverage would have on public opinion. Delhi Metro, therefore, consciously built its rapport with the media. In fact, public relations was an area that DMRC strategically addressed from its early stages of implementation. The public relations team of DMRC paid great attention to use the media as a means of projecting a positive image to society to build confidence in the project. This by itself is a departure from the norm since neither railway nor urban transport projects had ever given much importance to public relations in this country earlier.

### **Selling dreams**

Anuj Dayal heads the public relations team and has been working at DMRC for the past 18 years. Coming with previous experience in public relations, his task was to act as an interface between DMRC and the media. To build Delhi Metro, the project authority had to acquire, destroy, and cause hassles – all rather negative things.

Dayal was aware that if negative stories are projected to the public, the people would perceive Delhi Metro to be another inconvenience, if not a failure like its poor cousin in Kolkata. He could easily imagine how such a pessimistic perception can snowball into a catastrophe. If the people whose land was being acquired and whose everyday lives would be disturbed due to the construction of the metro had no confidence, their feelings would only become a roadblock for the project. Dayal also knew very well that the media, particularly in the Indian capital, was aggressive and having them carry correct facts about the Delhi Metro was essential for successful implementation. No one had quite so far thought of how important public relations can be in railway or urban infrastructure projects. But it was obvious to him that careful handling of the media required great attention.

In the initial days of DMRC, Sreedharan was averse to meeting the media because of his bitter experience with the media during his Konkan Railway days. Sreedharan felt that it was better avoided.

Media persons were not allowed in their office. When a negative report was published, his attitude was to take legal action against the publisher. This was certainly not a good start.



The first thing Dayal had to do was to change the mind of his boss. So Dayal called two journalists from the *Times of India* newspaper one day to provide them a confidence building interview with Sreedharan. Sreedharan was quick to realize that when the information was provided properly, the media actually reported positive stories. Slowly, but surely, his attitude started to change and Dayal's efforts started to fructify.

Another painstaking effort Dayal took was to regularly brief the media on the happenings of Delhi Metro while ensuring that the information given out was centrally controlled. He ensured that any items likely to create negative notions were projected in a positive perspective. It wasn't that he was manipulating the facts. Instead, he was selling the dream of Delhi Metro to the people through the media.

By 2000, Delhi was at the height of chaotic traffic congestions. With madding crowds and reckless buses on the road, people were actually fed up with it. Instead of projecting how many months the metro construction would obstruct the traffic movement on the road, he made sure that the focus of the story was on how transit within the city would be eased once the metro became operational. But these words he was feeding to the media had to be backed by work on the ground. Once the work of Delhi Metro visibly started moving and people could begin imagining the life of traveling in the metro, the positive story effects got magnified and started working.

In fact, it was more than just meeting the press to supply them something they made a living out of. Many months preceding the opening of the metro, the people of Delhi were provided a peek into what an experience it would be to travel on the metro once it was completed. The narratives of Delhi Metro centered around how the opening of the metro system would reduce traffic congestion in the city, thereby resolving other associated problems like pollution, and how comfortable it would be to travel in the metro, an iconic modern transit system India was deprived of until then. First the media, and then through the media, public support was garnered. This was all so important in gaining patronage from the public to help the project achieve its target ridership.

In the years to follow, the works of Delhi Metro progressed and expanded. The size of the public relations team also slowly grew and Dayal's efforts continued in the same manner. Dayal knew the psyche of journalists. Stories are bread and butter for them. So he and his team continued to actively pass on information about Delhi Metro. Dayal also made sure that the technical aspects of the metro were converted into non-engineering words the common person could comprehend. Their rapport building was such that it would not be an

overstatement to say that most of the publishing houses are well-wishers of Delhi Metro today.

One must also not forget that, perhaps for the first time, people witnessed a massive urban infrastructure project unfolding in front of their eyes that adhered strictly to stringent safety measures at its construction sites and in meeting deadlines. Such feats, unheard of in India, won the people's hearts. This is not to say that Delhi Metro doesn't ever have eyebrow raising stories. They sometimes do. But these are glossed over and the media generally shies away from negative reporting. After all, they say, "The Delhi Metro has done so much."

The role of a good public relations strategy is perhaps most understated in railway or urban transport projects. But the public relations strategy of DMRC has proven this wrong. While DMRC never really spent money on advertising the project, it focused on working directly with the media and saved millions of rupees in its place.

### **Opening of the Metro**

Anisha's neighbor, Mr. Agrawal always talked about how he was looking forward to having the metro system up and running in the city. In those days, he often recalled his college days from the 1980s. To commute, he heavily relied on unreliable buses. He would stand waiting for the bus to come without a clue as to when it would finally arrive at his stop. When it did come, it was like making a dash for something extremely precious. The bus never really seemed to stop properly regardless of how many people were waiting for it. Curious by nature, Mr. Agrawal was a well-traveled man. Being aware of metro systems already running in other countries, he was very sure that India's mega cities would require similar systems in the not so distant future. After what seemed like an eternal wait, the dream was finally taking shape.

In December 2002, the first section of Delhi Metro was opened. The inauguration was obviously a big event. Service on the Shahadra – Tis Hazari elevated section of 8.2 km was launched in an event attended by the who's who of Indian politics. Despite the fact that the metro was inordinately late in coming to India, partially because Central and State governments could not agree on it, once the project started to show signs of progress and was able to gain public support, political parties rushed to claim the credit for it. This antagonism between the centre and State was inevitable since the Bharatiya Janata Party was at the centre while Delhi was in the hands of its opposition, the Congress party.

Politicians from both factions who stood at the dais and gave speeches on that memorable day described the Delhi Metro like a "dream come true" and the "result of a synergy." The

media, on their part, highlighted the tug-of-war between the political rivals. Nothing was said about the viability of the project. Everyone was more interested in projecting Delhi Metro as a game-changer for the city. For the political parties, it was strategic move to claim credit to help being re-elected. This gave Delhi Metro even greater free publicity.

### **The Accident**

Despite all the efforts of public relations, an unfortunate event struck DMRC in July 2009. Construction along corridors of Phase 2 was in full swing trying to meet the deadline for commissioning the line before the Commonwealth Games (an athletic event of Commonwealth nations). On its Violet Line, the corridor was being extended from Central Secretariat to Badarpur, thus connecting the city centre to the satellite town of Faridabad. A long steel section of launching girder supporting the construction of a bridge lost its balance. The bridge collapsed. Consequently, seven lives were lost and more were injured. In a large infrastructure site, such mishaps happen unfortunately. But the magnitude of the mishap felt graver because eight months earlier, another accident had taken place in east Delhi at Laxmi Nagar along the Blue Line. There too, a launcher had collapsed and crushed two people with it.

This incident was a litmus test to the credibility of DMRC. The situation looked even more dire the next day. In the aftermath of the accident, there was a huge crowd of media and onlookers at the accident site. A crane was clearing the mess at the site but the weight of the launcher, it was trying to lift, turned out to be too much for it and it came tumbling down. All this happened in the full view of the public. For the first time, DMRC felt the heat of a media backlash and public criticism. Did DMRC put too much emphasis on adhering to the deadline and overlooked quality and safety? Will Delhi Metro be safe enough? Worries, such as these, were looming large and the public wanted to know what was happening.

In an average situation, the tendency is to hide or avoid dealing with the media. But DMRC did quite the opposite. Their public relations already had established, by that time, an image of DMRC as a honest and transparent organization in the eyes of the larger public. An accident could not be allowed to be a turning point for worse. To turn away from it would have meant risking everything that had been accomplished. True to this spirit, DMRC addressed the media about the incidents and was available to respond to any queries that arose.

Anisha's journalist uncle was quite impressed with the way DMRC handled the situation under the glare of the media. "Other government departments would not do this," he said as he watched the flashing news on the television with great admiration. Though he had

stopped covering Delhi Metro about a year ago, he recalled past accidents, of minor nature, taking place at DMRC. He remembered them so clearly just because of the way the public relations team had managed those situations. “I remember one time,” he said looking over his shoulder from the couch and talking to Anisha’s mother with his legs propped up on the coffee table facing the TV.

There was flooding in one of the houses due to the construction activities at a Delhi Metro site. It must have been Dayal, although he couldn’t remember clearly, who called up his newspaper office and informed them about the incident. Knowing that uncle was covering Delhi Metro, Dayal explained what had happened. No one was hurt and arrangements had been made to clean up. At the end of the conversation he said, “Let me know if you need any information.” This was an astonishing act on the part of DMRC. Most of the government organizations normally don’t give out information voluntarily. “These guys are different,” said uncle reassuringly, turning back to the TV screen again.

“Oh, no!” he exclaimed the next moment while still watching the news. The TV channel was broadcasting a close up of Sreedharan being interviewed. The metro man wore an uneasy look, surrounded by screaming voices of reporters shooting questions who were unmindful of the fact that nothing could be heard properly. But the red flashing band with bold white letters said everything: Breaking news “DMRC CHIEF STEPS DOWN.”

### **Recovery from Damage Control**

Everyone in and out of Delhi Metro project was shocked. “Well, he is responsible, isn’t he?” Anisha’s mother, though cynical, finally started paying attention to what was happening. Indeed, Sreedharan claimed responsibility of the recurring accidents and announced his resignation. But Phase 2 of the project was only half way through and the big deadline of the Commonwealth Game was approaching. It would not be prudent to lose the man who has driven thus far at this juncture.

While Delhiites were still in a shock, the Chief Minister came out and took hold of the situation. She told Sreedharan it would not be a wise decision to take. Some of the corridors being constructed are important sections linking the venues of the Commonwealth Games with other parts of the city. And there is the Airport Express Line that has to be built to connect Delhi’s international gateway Indira Gandhi International Airport to New Delhi station. Without his leadership, the project will possibly be in a soup.

Sreedharan was persuaded and stayed on. But DMRC did not simply go back to work looking at the set of deadlines. Similar incidents needed to be avoided and the confidence

of DMRC staff and the public needed to be regained again. Funding the major chunk of the project, JICA was also particularly concerned about safety at work sites.

Prior to the accident, DMRC had an online system of seismic monitoring of construction sites. This method of monitoring had been in use for some time at tunnel excavation and bridge construction sites to check ground conditions. But the system had not been used beyond monitoring at Delhi Metro work sites and the observations needed to be communicated to people at the sites in case any changes occurred, especially if they posed danger. A device was installed to indicate the level of danger at a work site. Results of monitoring were transmitted to a LED signal which would turn either blue, yellow, or red. Like a traffic signal, blue meant it was safe to continue about their work at the particular site while yellow meant it required attention and needed to be reported, and red indicated people to evacuate from the spot. By employing the concept of traffic signals, it was easy to understand even for illiterates who made up a large portion of construction laborers. After piloting the system, the same device was used at an excavation site under Phase 3.

### **The Airport Express Line**

There was a big fanfare about hosting the Commonwealth Games in Delhi. Since India had never been a venue for a major sports event as this, the excitement was to the magnitude of hosting the Olympics. For a few years preceding the event, the D-day seemed like the ultimate target of all there was to in Delhi. Stadiums like Jawaharlal Nehru Stadium and Indira Gandhi Stadium were being revamped in a big way. A new site for the games village, where athletes would be put up, was being developed. Roads were being readied with exclusive lanes for buses to ply between the venues. It was as though the entire city was putting on a make-up to look its best.

Airport Express Line stood within the circle of this Game's enthusiasm. The idea was to have a direct rail connection from the international airport located 15 km southwest from the city center to New Delhi station that provides connection to the rest of the city as well as is the railway head to the rest of the country. Airport Line was to be 22.7 km length consisting of six stations. When completed, it would only take 19 minutes to travel between the airport and the city center. Otherwise, the same distance took at least 40 minutes by car. While the trains on the main line of Delhi Metro operated at a speed of 80 km per hour, the Airport Line was expected to reach 120 km per hour. According to the project planning for the Airport line, it was expected to carry 42,000 passengers each day when its operations reached full swing.

Forty-eight percent of Phase 2 project cost was financed by JICA, and although the plan for the Airport Line was in the pipeline for some time, it was not part of the external funding.

Instead, Airport Line opted for a hybrid Public-Private Partnership. DMRC was well aware of the fact it would be difficult for the concessionaire, the partner private company, to deal with the land acquisition related to the Airport Express Line project. By this time, DMRC had gained confidence and sufficient experience in executing civil works, particularly of the cut-and-cover technology for underground sections. Recognizing the strengths and weaknesses in Public-Private Partnership formation, DMRC took up the task of civil works while the concessionaire was responsible for systems works like signalling and telecommunication, electrical systems, and rolling stock.

Regrettably, the deadline to complete and commission the Airport Line was missed. After missing the deadline several times, the line finally started its service in January 2011 much after the Commonwealth Games. Soon after its operation started, dark clouds descended on the line when cracks in iron beams were noticed due to inadequate filling of materials below the bearings. Apart from the cracks on girders, other technical problems came to light. DMRC was of the opinion that the problem could be rectified while the service continued. However, the concessionaire felt it was necessary to halt the service and the operation was stopped indefinitely. The incident dented the public confidence in the Airport Line.

“Isn’t that scary? Imagine traveling on the train while the cracks on those beams widened,” Anisha’s mother groaned as she watched the reportage on the TV one day. Coaches on the Airport Line were different from those on the main line of Delhi Metro. Seats were not arranged along the sides of the coaches facing each other but in the moving direction as individual seat. Even the exterior looked more fashionable with black windows and red ribbons dancing along the sides of the coach body.

Since she first saw the photographs of the trains, Anisha wanted to take a ride on it. The problems on Airport Line were attended to finally and operations resumed in January 2013. But now her mother was full of concern. “You have no business going to the airport, why would you want to ride on that faulty train?” She said. In fact, Anisha’s locality did not have easy access to the Airport Line, so even after the service reopened, Anisha and her family continued to reach the airport in the old manner: in a car along with Anisha’s anxiety of missing the flight.

No one knows for sure, but the concessionaire must have struggled when the line reopened. The speed of train was only 50 km per hour, making the trip from New Delhi Station to the airport in 45 minutes, no faster than vehicles on the road. Amid loss of public confidence, the first thing the concessionaire did was to hike up the fare from original Rs. 100 to Rs. 130 (the difference of Rs. 30 would get common man a liter of milk). Two months later, the

fare rose to Rs. 180, the upper ceiling fixed by the regulator. Then came the final blow: they suddenly announced that they could no longer operate the Airport Line.

When the private partner walked away, the ridership was a mere 10,000 daily. Although DMRC was not prepared for this orphaned line, they now had to take over the operations in public interest. DMRC had come a long way already but tasked with an ever expanding network and its operations, it seemed like they were forever in the learning stage. And operational failures on the Airport Line were no exception. Instead of taking a plunge, DMRC decided to make a cautious start.

In the first year of taking over the Airport Line, DMRC retained the old fare of Rs. 180. It was a conscious decision to keep it at that level so that revenue will not swamp further by reducing the fare. DMRC's strategy was to first enhance efficiency and capacity. Tracks were improved so that the speed of the train could be increased to 80 km per hour. This would allow passengers to reach the airport in 19 minutes from New Delhi Station. The frequency of trains was brought down to 10.5 minutes from the previous 15 minutes during the peak hours. This meant there would be more trains running throughout the day. DMRC also slashed all unnecessary resources in an effort to reduce expenditure.



Airport Express Line

Delhiites were still wary of using Airport Line even if it was DMRC that was operating it. So efforts were made to increase visibility through marketing. Promotional activities were carried out at several locations in the city. By improving services and marketing them, the ridership increased by 40% in one year. Now was an opportune time for DMRC. The fare was brought down to Rs. 100. In that one year, they also noticed that the Airport Line, in

contrast to the original belief that it would be mainly patronized by international travelers, was used more by those working at the airport. In September 2015, therefore, the fare was reduced to Rs. 60 once again. From then on, the ridership has been on a steady rise.

### **An Iconic Leader and His Making**

Whatever the case may be, DMRC has kept its integrity. Be it building its brand image, dealing with accidents, or tackling unexpected problems. The organization started in a modest way but made rapid growth in terms of number of its employees. Their business activities have expanded into many areas. It is almost a wonder to see this undaunted attitude throughout the organization and its history. One of the greatest reasons for this was the man at its helm, and the consistently high values he set for the organization.

Eighteen years ago, when Dayal joined DMRC, he was somewhat reluctant of leaving an established organization, the Indian Railways. Like many others who took up the career in the early days at DMRC, one part of him was excited about the new challenges and the opportunities of building an organization from scratch, while the other part was the feeling of uncertainty in working for an organization that had no previous standing. But today, almost two decades later, Dayal recalls that his worries were soon wiped away working with the great leader, none other than Sreedharan.

Like many other DMRC officials who worked directly with and knew Sreedharan, Dayal has a great admiration for him. If one talks to old-timers in DMRC, it is apparent that Sreedharan was not just a celebrated figure but a real person too. His working and personal qualities were such that he was able to move the hearts of many. He commanded real respect from the people around him. One of the things that transformed Dayal's initial hesitation towards working with an infantile organization into pride was the kind of motivation he got from Sreedharan and his senior associates. It was not an exception made for Dayal, it was the style of Sreedharan to trust in the ability of his juniors and give them space to make decisions on their own. This won the hearts of many in DMRC, especially for those coming from behemoths like the Indian Railways where liberty of independent decision making was not vested in them and was rare indeed. Officers were given opportunities to come up with new ideas and Sreedharan would encourage them to do so. They were allowed to pursue and achieve what they had set their sights on.

“Working with him was like a meditative experience,” Dayal recalls the earlier days with Sreedharan. Each day was a challenge one would want to take up and make the most of. It was in these qualities that the young lot at DMRC found a leader to follow. The leader was never short of living the example himself. He did not preach the work ethics like punctuality and hard work but he lived by them. Although, when he was appointed the



managing director of DMRC he was already past the normal retirement age, he was no less fit than his younger counterparts. He was in his office everyday dot at nine. Site inspections, that could at times become physically demanding, were never a problem, either. It was not simply the way Sreedharan lived; he knew that setting an example himself was the key to inculcating important values for professional life in others around him. He gave much of the credit to his upbringing in being able to do so.

But he was not short of mentioning his own mentor who helped him shape the work ethics which brought Delhi Metro to its claim as a success story. It was G.P. Warriar, a former Chairman of Railway Board. G.P. Warriar was said to have been an extremely efficient officer. During his days in the Indian Railways, Sreedharan has worked under Warriar. When Sreedharan started as a trainee, Warriar was his Executive Engineer. And it was Warriar who saw technical skills in Sreedharan and nurtured his talent. Sreedharan, in turn, saw an inspiration in Warriar.

The metro man is certain that many of his values -particularly integrity he stressed so much as one of the foundations of Delhi Metro work culture and concern for people around him evolved while working with Warriar. And it was Warriar's concern for his junior that landed Sreedharan his association with the Calcutta Metro in 1971. At that time, Sreedharan was already posted in Kolkata as a deputy chief engineer of Eastern Railway but was about to be transferred. Since his children were attending a new school after his transfer from the South, Sreedharan was in a fix. He couldn't leave his family in Kolkata and go elsewhere. When Sreedharan went to meet Warriar, as he used to often do, Warriar must have sensed his plight. Though he never asked Warriar for help in this regard, Warriar made arrangements for Sreedharan to be posted at the Calcutta Metro so he could continue to stay in the city with his family.

Great leaders are not born out of the blue. His inspiration helped mould his leadership and personal character. In fact, Sreedharan was fortunate to have a few others who helped him excel in his early career. In his biography, Sreedharan recalls the first trip to Japan to study the metro system in place of his senior officer who declined the offer and recommended Sreedharan's name instead. The retirement of the senior officer was nearing, and he felt it was in the best interest of the country to send a younger officer who will have more years to use the knowledge he would absorb from a foreign country. Limited opportunities and the costly nature of foreign trips often make civil servants grab any chance that comes across. However, this rational and well thought out gesture of his senior officer remained with Sreedharan for many years to come.

Just the way Sreedharan was inspired and shaped by leaders around him, he made sure that there would be enough officers like him even after he was gone. And in reality, his legacy seems to survive to this day even after he stepped down from the post of managing director. Mangu Singh, the present managing director of DMRC was selected internally. Mangu Singh has been with DMRC from the beginning, so he has seen all phases of Delhi Metro and was no outsider to the work culture and ethics fostered in DMRC. Without doubt, he is not alone in saying that the legacy created by Sreedharan lives on.

Sreedharan was also a man of vision. Although he did not have love for Delhi, he once told someone that he wanted Delhi Metro to generate the kind of vitality for Delhi that the city of Kyoto had in Japan. Kyoto is an ancient city in Japan. It is widely believed due to its cultural importance and being the center of Japanese cultural consciousness, Kyoto escaped being destroyed during the World War II. The city's charm must have warded off the evil doing. Kyoto to Sreedharan is what Shajahanabad was in the Mughal era. Except that the latter could not escape the fate of destruction of different kinds.

# 5

## Changing the Lifescape of Delhi

*“The doors slid open  
And I stepped in...  
What a great relief it was  
To be so far away  
From the madding crowds,  
The smoke and the chaotic traffic,  
The rashly driven blue-line buses,  
The stray cattle on the roads...”*

That’s how a poem written by a Delhi resident Jasbir Chatterjee about the Delhi Metro starts. It was written in 2006 and depicts the street scene of Delhi filled with people, vehicles, and cattle side by side. People who are familiar with Delhi would agree that the poem is no exaggeration. The poem goes on to say:

*“The doors closed  
And the train started gliding...  
What a great relief it was  
To be so far away  
From the scorching heat,  
The terribly long power cuts,  
The little, gnawing worries,  
The daily drudgery of existence...”*

*I spotted a vacant seat  
And I sat down...  
What a great relief it was  
To see  
Everything so spotlessly clean;  
Not a single scratch,  
Not a single speck of dust,  
Not a single perverted message  
Scratched on the walls..."*

The poem captures the contrasting atmospheres prevailing inside the metro train and the world outside. One can also feel the sense of relief a passenger experiences the moment she or he steps into a Delhi Metro coach. And that's how that is. If the outside street scene is a dusty battlefield one has to struggle to navigate through, inside of Delhi Metro is a stark contrast it was so difficult to imagine earlier in this city life.

On the road, people brave the heat and dust and, at times, the unsuspecting risk to their safety and life while traveling. Blue-line buses have ceased to operate in Delhi. However, when they were in operation, they mauled quite a few people as they recklessly sped around. Such was the way Delhiites went about their daily business since there were no means unless you were somewhat better protected in your own car. But all that has changed with the Delhi Metro. For the first time, people have been given the privilege of traveling in clean and air conditioned compartments with doors that actually shut! What's more, people in Delhi are now able to go from one place to another with a fairly accurate estimate of the time required for travel, instead of saying: "Well, that depends on the traffic..."

It is the very quality of life that Delhi Metro has changed for the residents of the city. Although the metro is only one mode of transport, it has brought about the realization in people that they, even if they are living in India, have the choice to travel in comfort; that it is possible in a country like India to have the means, which earlier seemed to be a privilege of those living in the more developed world. No government policy or religion has been able to achieve the kind of feat the Delhi Metro has achieved.

### **Valuing Time**

Delhi Metro, by providing reliable and comfortable services, has transformed the way Delhiites commute. In the city where travel time was so difficult to estimate, it has brought a service that is on-time. This has inculcated a sense of timekeeping in the city for the first time. Before Delhi Metro, the word "punctual" was not in the dictionary of Delhiites,

particularly when it came to moving around the city. To start with, in general, keeping time has never been a strong virtue in India. In any case, it was difficult for people to be on time, when there was no time-table for buses and one could only gauge the time after looking at the situation on the road. Traffic often forced people to set aside extra time for traffic jams. With VIP movements and water-logging during the monsoon, to name a few, there were numerous additional reasons why people could not reach places before time, if not on time. It was simply not in hands of the people to decide how much time it would take from one place to the other.

With Delhi Metro, approximating travel time between two points became unimaginably easier. Now people are entitled to say that they will reach there in 30 minutes instead of saying that they will be there in 30-45 minutes if the traffic situation is good. At times, Delhi Metro obviously experiences problems like power tripping and delays due to too many passengers. However, the punctuality of the Delhi Metro service is said to be 99.9%. This means 99.9% of the trains reach stations within less than two minutes delay.

### **Ushering the Change**

Physically separating the outside world from its stations and trains, Delhi Metro has created a space for different behaviour inside. The use of Delhi Metro has prompted passengers to behave in a certain manner by keeping the place clean and having a kind of modern system people aspired for.

It was only a few years after the first section of Delhi Metro started operations that Anisha experienced her first ride. In her locality of east Delhi, people said that the metro will be coming their way, but that was going to happen much later. To take a joy ride, the neighbor, Mr. Agrawal took Anisha to Connaught Place, a central business district in the city. From there, they had a short ride one Sunday morning.

Anisha was mesmerized by the technologies in place she had only seen in the films taking place in other countries. There was automatic entry. There were escalators (which, to her, seemed to ascend and descend a little too fast for inexperienced users). There were electronic display boards indicating the time till the next train arrives in the station. And it was clean! There was no litter on the floor, no spit marks, and no bloody marks of *paan* anywhere.

It was almost impossible to understand the atmosphere created inside the Delhi Metro premises. If people could behave inside the Delhi Metro, why couldn't they do so outside? "Isn't it wonderful?" Asked Mr. Agrawal as he smiled realizing Anisha's astonishment. Just three days ago, she had an English grammar exam at her school. The test paper read:

*“Fill in the blank with appropriate adjectives.*

*1. Delhi is a \_\_\_\_\_ and \_\_\_\_\_ city.”*

Anisha wrote in these blanks “dirty” and “jammed.” Had she known the environment inside the metro, she would have written “clean” and “proud” instead. She explained to her neighbor what she should have given as answers to the test question. Mr. Agrawal laughed out aloud on hearing this and said, “Delhi Metro is a vehicle of social transformation.” That sounded too difficult for Anisha to understand. So he explained further by telling her that the people in India had potential to change. But they needed a reason; they needed someone else to show the way.

### **Safe Mobility for Women**

More than ten years have passed after her first metro ride. Anisha is no longer a school girl but attends college now. She has grown up now and started going around the town on her own, attending classes, visiting friends and what not. By the time she was allowed to go beyond her locality, the metro service had already reached New Ashok Nagar. As far as Anisha can remember, metro has been the means of mobility for her. The picture has been quite different for a generation older than her, including her mother.

Anisha’s mother never learnt to drive a vehicle though her husband insisted in the past that knowing to drive would help her move around freely. It would have reduced much responsibility on his side as well. Before New Ashok Nagar was connected by the Delhi Metro, Anisha’s mother always thought twice before going out of the locality. How should she reach the destination? Until what time can she stay out without worrying about the return trip? She never really took the bus, it was not considered safe and using it wouldn’t look good for a woman of her status anyway. In any case, taking blue-line buses would have been a risk. The auto-rickshaw was a plausible means to reach other parts of the city, as long as she returned home before it was too late. Despite Anisha’s mother never really having had a bad experience using auto-rickshaws to travel, the fact that she had to worry about it deterred her at times to go out. At other times, she would depend on her husband to accompany her.

It is pertinent for Delhiites to admit that the city has never been a safe place for women. The city has been disgraced a number of times, particularly in more recent times, in the name of crimes committed against women. Public space has been one of the most notorious places women face harassment of all sorts. And public transport was by no means a safe haven. That was until the Delhi Metro came. This is not to say that the Delhi Metro is free of problems for women passengers. It still constitutes the list of places the city women most

frequently experience harassment. Female only coaches in the metro are only a response to the persistence of such problems.

But, in comparison to other modes of travel like public buses and auto-rickshaws, Delhi Metro is by far the better way to travel. One can travel with ease and peace of mind. Coaches will never be deserted in the metro. The coaches and stations are always well-lit. Passengers are better behaved than those on the buses. Help is always available at the station, in case one requires it.

Undoubtedly, it means that the metro has given better mobility and a safer option for Delhi's women to travel. In fact, many women take advantage of this safe mode to go out more than they ever did. With the opening of metro Blue Line (not the blue-line buses!) connecting New Ashok Nagar to central Delhi and other parts of the city, Anisha's mother learnt quickly how this new mode of transport could alter her life. The apartment in which she and her family live is located at a mere five-minute walk from the metro station. As long as she is going to places that are well-connected by the metro, the old worries cease to crop up in her mind. She has more freedom to go out without worrying about the time and without depending on someone else. It is not only in day time that women now go out more frequently than before using the metro. It has given a chance for women to step out during late hours as well.



Inside women's coach



Barakhamba Metro Station

Once the metro station was constructed and became operational, the area around the station was also transformed. Apart from being well-lit, there were more people around the station. Passengers are one, but many vendors popped up in the area seizing the new business opportunity. This meant the area became active until late at night. This has created an atmosphere that is safe for women to walk alone at least within a certain distance from the station. Indirectly, the metro has improved the security of the local areas it runs through.

### **Sense of Identity**

Delhi is said to have had seven avatars before and the current one is counted as the eighth. The Pandavas and Mughals alike, the former occupants of Delhi attained glory and disappeared. Modern day Delhi owes much to the fact that the Partition after Independence has reshaped its population. In 1947, many Muslim residents of the city fled to Pakistan while there was an inflow of Sikhs and Hindus in the opposite direction. Today, most of the people who inhabit the city trace their roots to Delhi only a generation or two. The city has also attracted other migrants from all corners of the country. Average Indians have strong ties to their ancestral places, so even those born and brought up in Delhi or sometimes third generation residents of Delhi consider themselves from Patna, Nasik, Trichy and a host of other places. Despite having several world heritage sites and many other landmark monuments like the India Gate and Lotus Temple, and being home to many higher academic institutions and government and corporate offices where people make a living, Delhi has been an unfortunate child. No one claims the city to be fully their own.

Just as several civilizations came and went, each in its distinct way, the peoples of Delhi are unique, each in their own ways. It is this distinctiveness that made up a segmented society where Delhiites had no bonding with each other in modern history. Everyone was part of the city but no one lived up to say it was their own. No one had a long enough heritage to identify themselves with the city. Heritage monuments that are landmarks of Delhi were always considered things of the past. Collectively, modern day Delhiites have nothing in common to identify themselves with.

The dilemma, however, is changing with the coming of the Delhi Metro. The underground section comprises only about 25% of the total length of Delhi Metro. Elevated corridors have become very much part of the city landscape today. It crosses the River Yamuna, seemingly in slow motion from a distance. The Qutub Minar looks down on the Yellow Line from above the sparsely covered Aravalli hills. It is these passing landscapes that one sees from the windows of a Delhi Metro train, he becomes familiar with particular scenery that passes by and starts to develop affection.

For Anisha, the view between Nehru Place and Kalkaji Mandir stations is her favourite. The train glides by the side of the Lotus Temple giving her a magnificent view of the marble clad structure at eye level. When she started her course at Jamia Millia Islamia University, she found it to be a treat every morning on her way to college. Now it has become a daily routine to be greeted by the modern-day wonder. Her secret viewpoint, however, is located between Akshardham Temple and Yamuna Bank stations, another route she must take to commute between her home and college everyday. Mondays are



particularly special when Akshardham Temple, one of the favorite tourist spots for domestic tourists, is closed and Anisha gets an undisturbed view of the pink sandstone complex. On other days the premises is generally swamped by visitors. But it is not the architectural monument that is her preferred sight. Just beyond the Akshardham station towards Yamuna Bank, a two-second view of a waterhole crops up where a pair of black-headed ibis nestle. Obscured by thick bushes, the birds have made safe haven just a few meters away from the nearby road. Above the bushes is an expanse of farmland that stretches until the banks of the River Yamuna. On days Anisha does not find a seat in the coach, she tries to find a spot by the door. She wouldn't be disappointed to find the pristine white body of the ibis contrasted by its pitch black head moving about. It is the best kept secret she found one day gazing out of the door. It is only because the train runs on an elevated stretch that she gets a vantage view from above the surrounding wilderness. She will miss this secret view point once a new corridor of the Delhi Metro opens for service allowing her to skip this section of the city and reach college much faster.

The everyday view of Delhi Metro has given people something they can identify with. This has given them a new sense of belongingness. And it is not only the view from inside the trains but Delhi Metro itself is now a landmark in the city that makes average Delhiites proud. A city that has been difficult to commute and navigate through was a constant irritant in the minds of its residents. But Delhi Metro has changed all that and brought a reason for Delhiites to like the city they live in. The increase in such awareness has only been possible because construction of the Delhi Metro has been well received by the residents of the city. Today, its service is an essential part of the daily lives of Delhiites.



Metro train cross the Yamuna River

# 6

## Riding into the Future

Delhi Metro has come a long way. It started its journey through a treacherous path where most believed it to be an impossible task. The deception was strong simply because it was in India. An India that had seen the agony in Kolkata. But Delhi Metro has proven its skeptics wrong. Once it glided into the implementation phase, it picked up speed in a way that no one in India had seen before. Construction of Phase 1 was completed much ahead of time without compromising the quality. The fact it is happening in India was a marvelous act put together.

But this is no miracle story. Seeing the achievement of Delhi Metro, other cities across the country are following its path. Soon after Delhi Metro, Bangalore seized the opportunity. Today, there are twenty plus metro systems either being built or planned in the country. Imagine the way Delhi Metro transformed the lives of people in Delhi. No, it isn't just the way the people of Delhi go about their daily chores – it is the construction culture, the belief that large scale infrastructure projects can be successful, and the realization that a government institution can serve the customers. But will other metro projects be able to do the same?

### **Institutional Setup That Worked for Delhi Metro**

Learning from past difficulties and examples of trendsetters in other countries, Delhi Metro has done a few fundamental things right. While the base on which the project was planned had strong bearing, it also needed the right mix of ingredients to make it perfect. One such

thing is the institution in which neither Central nor State governments had majority control. This was coupled with the right leadership to take advantage of the system.

With careful consideration, DMRC was established with equal equity participation from the Government of India and the Delhi government. Such a structure was uncommon at that time in India. In principle, it would have avoided one party having more voice than the other. This structure was proven to be ideal but by itself could not have been effective. The other metro agencies in India, which followed the footsteps of Delhi Metro, were setup more or less in the same manner. However, not all of them are on the right track today. A brief look at the other metro projects reveals several reasons why the same equation may not have necessarily produced the same results elsewhere.

We ought to recall that Sreedharan, upon being posted as managing director of DMRC, insisted on complete freedom. The fact is, bosses of other metro projects can be also entitled to the same freedom but many are perhaps hesitant to demand or exercise the power. Sreedharan, though nominated by the Delhi government, had no real obligation to the government. This must have allowed him to take decisions free from compulsions.

This is not to say that only Sreedharan could have achieved this. Although only time will tell, there are a select few who seem to be traversing on the same path as that of Delhi Metro. One thing they have in common is that they have men on top who know the business. And they know it well because they are technocrats. Their background enables them to be confident and comfortable enough to make decisions at the speed needed for smooth implementation of projects. Barring a few, the metro organizations in India today are headed by bureaucrats. In fact, many things the managing director would have decided in DMRC, others would take up at Board meetings. Sreedharan himself had pointed out once saying, “(Bureaucrats) should have the courage to stand up to their convictions and take decisions and not leave everything to the politicians.”

Do the bureaucrats have the conviction? Sreedharan was the captain of the ship. Whether the ship floated or sank was in his hands. And Sreedharan was the captain at DMRC for 14 long years. When a bureaucrat is appointed, he will have little say on how long he is going to stay in the post. In turn he has a limited sense of ownership to the project.

One must also not forget that Sreedharan was a visionary. He was not just a task-master but was an inspiration to the many who worked with him. Because he was a living example, his qualities percolated to those around him. Many people who worked closely with the Delhi Metro project observed that Sreedharan’s visions and work ethics permeated the organization from top to bottom.

How many Sreedharans would be there in the country? Not too many, most are quick to respond. But it's not something that only Sreedharan can achieve. If the right environment is provided and an individual has certain qualities, the right mix of these ingredients can perhaps manoeuvre the situation in better ways.

### **Metro and Other Modes of Transport**

Success of the Delhi Metro project defined by being able to implement the project within the planned time and cost has inspired the rise of other metro systems across the country. As in the case of the share holding pattern of the implementing agency, upcoming projects followed several other aspects on the pattern of the Delhi Metro. It may be too early to say whether what has worked for the Delhi Metro would necessarily work the same way for other metro projects. Learning from the painful experience of making the Calcutta Metro, the Delhi Metro was able to avoid many practices that would have otherwise costed the project dearly.

But that is not necessarily to say that whatever was done by the Delhi Metro is the right way or the only way forward. Newbies are also learning from the Delhi Metro experience and doing things differently. For instance, Delhi Metro has struggled to integrate itself with other modes of transportation in the city. For varying reasons, DMRC was unable to plan for multi-modal integration early on in the project. Second generation metros like the Chennai Metro have put strong emphasis on this same issue from the very beginning. Prompted by the Delhi Metro's case of 75% passengers using non-motorized means to and fro the metro stations, Chennai Metro believed that a similar scenario would prevail in their city. So they felt it was important to have an efficient means of transfer. Otherwise, people would opt for private vehicles. Today, Chennai Metro, although still very limited in its operations, is integrated with state-run transport buses, the suburban railway, mass rapid transit and the Indian Railways. Chennai's feeder bus system also seems to be faring well so far. It has thoughtfully connected many of the stations keeping in mind the ease of access to surrounding facilities by providing foot-over-bridges and paving sidewalks, etc. The case of Chennai has to be also looked at in different light. Unlike Delhi, its underground section has a larger share while its climatic conditions have also proven to be tougher. Just as Kolkata was disadvantaged by its timing in history and its own set of problems, if one was to look for a right mix of ingredients for a successful metro project, there would be numerous factors that would need to be considered.

Having said that, there is no doubt that the work culture nurtured and passed down among DMRC employees has been of tremendous wealth to the project. A modern transport system that India had not seen earlier has also triggered behavioural changes among the masses. Above all, it has made the commuting much easier for the people of Delhi.

### **End of Success Story?**

Delhi Metro is still expanding. In fact, DMRC is expected to operate an ever expanding network, while construction of new stretches continues. It has not had the time to consolidate itself. When the first works started and people waited in anticipation, there was shining hope. When it started its operation, there was much excitement. Witnessing nearly two decades of building the metro, people have gotten used to the usual sight. More than ten years of its operation has made it a part of the routine life in the city. Quite naturally, the initial shine has waned somewhat.

In its Phase 3 network, DMRC is tirelessly working to build an additional 159 km of lines. In the backdrop of praise the project has received, particularly for completing Phase 1 earlier than its target, now any delays seem out of proportion. DMRC is also confronted with surging ridership. Despite slow growth of ridership initially, in 2016 it has recorded the highest of ridership of 3.3 million in a single day. In some busy sections, eight coach trains ply at a frequency of 120 seconds. Although DMRC's target is to reduce this to 90 seconds eventually, that would be the best they can do. During rush hours, some stations are overcrowded. Even though additional automated fare collection (entry and exit gate) machines have been installed, it takes time for people to pass through the entry gate due to security checks. This often leads to long queues of people that spill outside the station and onto the nearby streets.

The new challenge, therefore, appears to be to reinvent the wheel. In the years to come, people will become too used to having the Delhi Metro around. Its glory may diminish. On the other hand, someone must look back and see what their story would be like at a further point in history. Because the experience and significance of Delhi Metro may begin to hold a different meaning in the future.

## Afterword

To uncover what has gone into the making of Delhi Metro, a series of interviews were conducted with people who have been associated with the project in a multitude of ways. These include former and current officials of DMRC, JICA and the governments of India and Delhi, consultants who have been involved either at the planning or implementation stages, civil and systems contractors, passengers, journalists who have been covering the project, and officials from other metro projects in the country.

Initial interviews began with JICA officers who have worked with the Delhi Metro project in the past and the top management of DMRC. Through these interviews, some names of individuals who are considered to have made substantial contributions or played key roles in certain incidents were recommended. Subsequent interviews were conducted based on earlier recommendations. In some cases, I have gone back to the same individuals to get more detailed accounts of things. Some others have been my personal acquaintances or whom I met by chance. Most of the interviews were conducted over the course of two and a half months. Whenever interviewees agreed, the conversations were recorded by an audio device which helped me to concentrate on the conversation rather than jotting down notes. The audio records were particularly helpful for revisiting the conversations. For instance, specific statements of an individual that did not make sense at the time of the interview began making sense after gaining information from other interviews. Because this exercise was not just about collecting facts, some interviewees found it difficult to share certain kinds of information. On the other hand, some had stories they wanted to share and were extremely gracious to open up.

Delhi Metro, being a huge project and having comparatively long history already, has countless number of people who are associated with it in one way or another. Despite my wish, it would have been impossible to interview them all. Although I conducted more than

50 interviews, it is a very small fraction of what I could have discovered. Through these interviews, I have also realized that each person had unique stories of their own. Describing each and every story here would be an impossible task. Since the starting point of my exercise was JICA and DMRC officials, subsequent discourses were strongly influenced from their points of view. Had I ventured off in different manner, perhaps this narrative would have taken a different turn. Within the given limitations, I have selected certain stories that I felt particularly meaningful at this point in time.

Although it was sheer coincidence that I was given this assignment to write a story on the Delhi Metro Project, the environment in which this opportunity came could not have been better. I am extremely thankful to JICA Evaluation Department, particularly Ms. Eri Kakuta for remembering me from years back that I have had interest in “processes” of development project. Ms. Yasuko Matsumi, a pioneer in project ethnography, has been a mentor for me in the process of making this story. It was only through this assignment we met for the first time, but she has given me unconditional support along the way. She once said that “there are stories waiting for someone to write.” I happened to be the particular “someone” this time and hope I have done justice to Delhi Metro story. There are many other wonderful stories that need to be discovered and shared in the field of development. The story of Delhi Metro is just one such case. This type of work may or may not find an appropriate place in JICA’s evaluation work. Whatever the case may be, it will be wonderful if similar effort is continued in the future. Because, only if the stories are told, they will begin to hold meanings.

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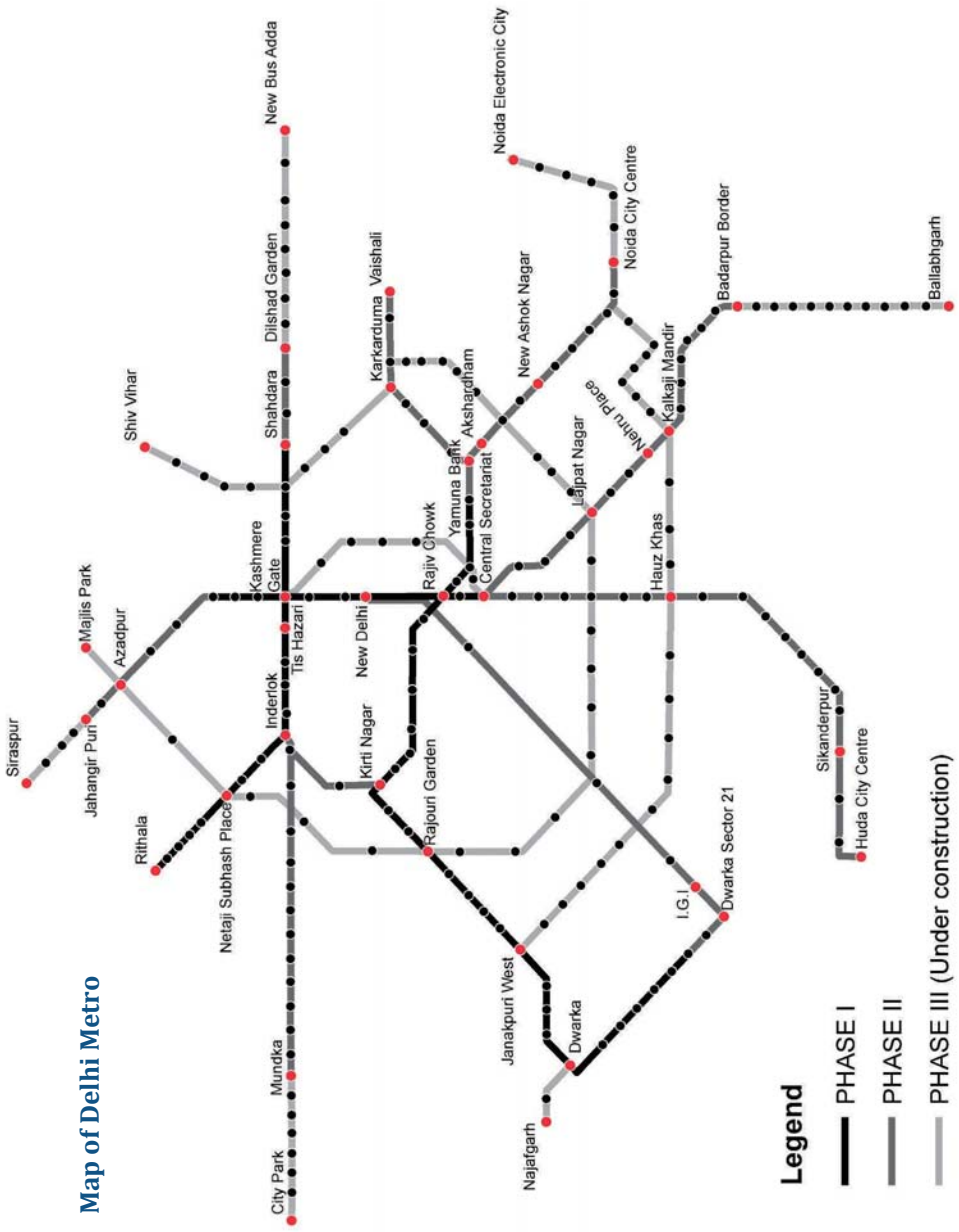
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# Map of Delhi Metro



## Legend

- PHASE I
- PHASE II
- PHASE III (Under construction)

## Endnotes

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<sup>i</sup> Cities of Bombay, Calcutta and Madras are now called Mumbai, Kolkata and Chennai. Similarly, the Calcutta Metro, the first Indian metro system, is now known as Kolkata Metro.

<sup>ii</sup> RITES is a public sector undertaking created to provide technical services in the transport sector.

<sup>iii</sup> Consulting businesses of Pacific Consultants International was later transferred to Oriental Consultants Global.

<sup>iv</sup> The agency was originally known as Overseas Economic Cooperation Fund (OECF). In 1999, OECF has changed into Japan Bank for International Cooperation and subsequently in 2008, the operation of official development assistance loan was merged with JICA. The funding agency changed its name while Delhi Metro project was under implementation, for the convenience of readers, only the name is JICA is used.

<sup>v</sup> Financial loan of JICA (called official development assistance loan) is low-interest and long-term concessional fund. The loan is provided to developing countries to assist their effort in tackling development issues.

## Reviews

## **A Review by Takema Sakamoto, Chief Representative, JICA India Office**

The biggest achievement of Delhi Metro project is that the project could inculcate the social innovation among the citizens, such as changed behaviour and mind-set of people in Delhi besides showcasing the new construction culture in India. Delhi Metro is the most sophisticated urban transportation system, which has been providing punctual, comfortable and safer public transport service. Thanks to its reliable operation, the people in Delhi, who previously tended to rush into trains with less consideration for the vulnerable, like elders, women and physically challenged, have started behaving properly and think of waiting for the next train, which is easily predictable due to punctual operations. Dramatic modal shift from private vehicle transportation to mass public transportation is now witnessed obviously, thereby resulting in the less use of private vehicles, thus less vehicular pollutants besides reduced traffic accidents. This ethnography describes well about such changes in peoples' mind and behaviour caused by Delhi Metro in Chapter 5, as well as the background stories of the project development which will also provide lots of lessons learned for the future projects.

Generally speaking, although the success of infrastructure projects is often explained in terms of the scheduled completion within the planned time and budgeted cost, I would like to emphasize that it is also important to evaluate how projects influence lifestyle of the people. In this aspect, Delhi Metro indeed deserves the title of a successful story. The project is definitely a model case worth to be emulated everywhere.

While appreciating the success story of the project, we also need to focus on the challenges ahead for the sustainable city. One of the crucial issues that need to be tackled is further promotion of multi modal integration besides exploring possibility of the Park and Ride facility. In parallel, at metro construction stage, effective integration with other modes of transportation systems is also necessary. Recently, DMRC and Government of India have been expressing their keenness for multi modal integration and the last mile connectivity. JICA is very glad to give support on those issues and continues our communication with DMRC and Government of India to achieve the more comprehensive integrated public transportation systems. Delhi metro is still evolving, and the strong need for tackling the challenges need to be continued.

## **A Review by T. Gupta, Chief Engineer/Planning, DMRC**

The Process Evaluation apart from ex-post evaluation report of Delhi MRTS Project (Phase -2) by JICA provides deep insight into the process of making of Delhi Metro.

Ms. Yumiko Onishi, the expert deployed by JICA has brought out true ethnography about the birth and making of Delhi Metro which proved to be one of the most successful Urban Transport Project in the country, underlining the qualitative research involving field work and participant observation by the expert.

The MRTS project since its inception has been aided by JBIC/JICA and proved as highly appreciative, successful bond of friendship between Japan and India.

The Process Evaluation has brought out that implementation of Metro Rail Project in Kolkata turned out to be a disappointment and momentum for the first Metro Rail Project in the country was lost. But the Metro Rail Project in Delhi managed in highly professional manner by the astute management under iconic leadership made it possible to implement Delhi MRTS Phase-I & II within a short stipulated time and sanctioned budget.

The MRTS system in Delhi & NCR is the highly convenient, time saving, safe, environment friendly mode of travel. Delhi Metro has brought change in the life style of people and created a space for different behaviour inside Metro Rail System. The use of Delhi Metro has prompted passengers to behave in a dignified manner by keeping place clean, orderly and kind of modern system aspired for. DMRC has created safe environment for women by reserving coaches especially for women passengers.

The success story of Delhi Metro shall continue with the highly appreciated cooperation of JICA. DMRC is engaged in implementation of 160 km in Phase - III and another 104 km in Phase IV under the approval process.

Looking forward to continuing cooperation.



From  
the People of Japan

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‘The report was excellently researched and is extremely detailed going into the history, genesis, and evolution and development of the Delhi Metro Rail Corporation LTD (DMRC). I think it is now a valuable piece of our history in DMRC and I thank JICA and the author Yumiko Onishi for this report.’

*Anuj Dayal,*  
*Executive Director / Corporate Communications, DMRC*

‘This is indeed a great effort to bring in an ethnographic analysis of the story of Delhi metro. The writing is good and commands the needed absorptive mind of the reader. The findings are very true and natural. The reader will get the story well for sure.’

*Dr. V. Kurian Baby, IAS (Indian Administrative Service)*

‘Yumiko Onishi’s document, *Breaking Ground: A Narrative on the Making of the Metro*, brings alive the various aspects of the change that the Delhi Metro deserves a sole credit for bringing about. ... This is an account that needs to remain in public memory, especially in India.’

*Ms. Elizabeth Kuruvilla,*  
*Journalist*

‘At a time when Delhi Metro has become a familiar service we tend to take for granted, this book provides a much needed record of its birth pangs, trials and tribulations, as well as the numerous facets of daily life that have been enriched by the creation of a clean, efficient and safe mode of transportation in Delhi!’

*Ms. Dinakar R,*  
*Entrepreneur/Founder, Kai-PDQ Innovations*

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