



**Madam,**

**Project History (manga version)**

# This is Our Metro!

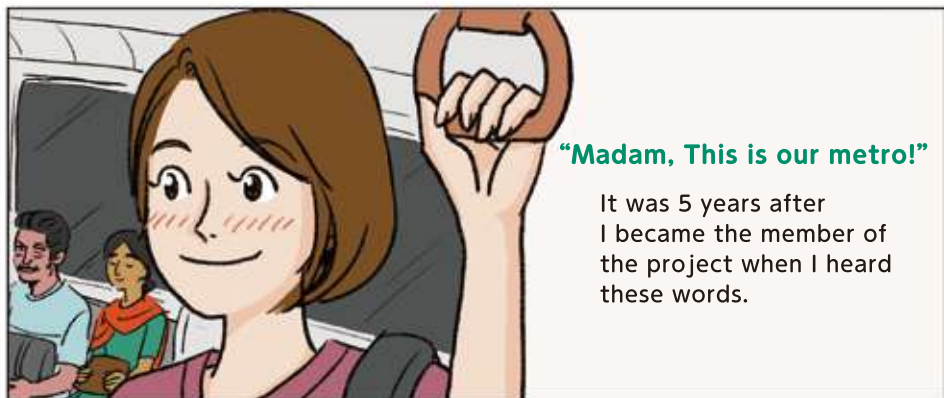
**India and Japan  
Committed to a Better World & Future**



Madam,

# This is Our Metro!

India and Japan  
Committed to a Better World & Future



“Madam, This is our metro!”

It was 5 years after I became the member of the project when I heard these words.

The words that I will never forget...



Oriental Consultants Global Co., Ltd.



I'm Reiko Abe. I'm the chairperson of Oriental Consultants Global India.



When I was a child...

Wow!

## The Kanmon Roadway Tunnel

My father and I drove through the Kanmon Roadway Tunnel, the underwater highway that connects Yamaguchi and Fukuoka prefectures. I remember how I was overwhelmed by the size of it.

Woah!!

Daddy!

This tunnel is so huge!

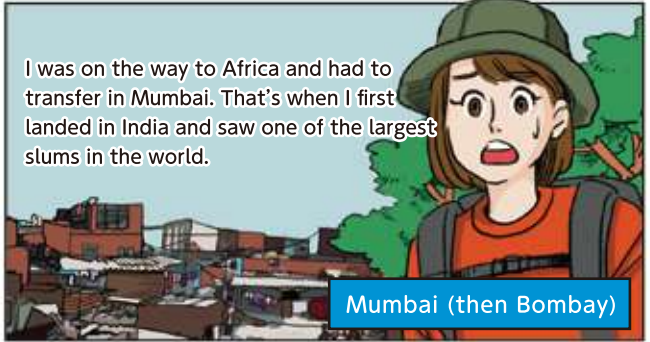
Did people build it?  
That's amazing!

Yes, Reiko.  
You see, so many  
people were  
involved in building  
this tunnel.

I too want to  
build something like  
this when I grow up.

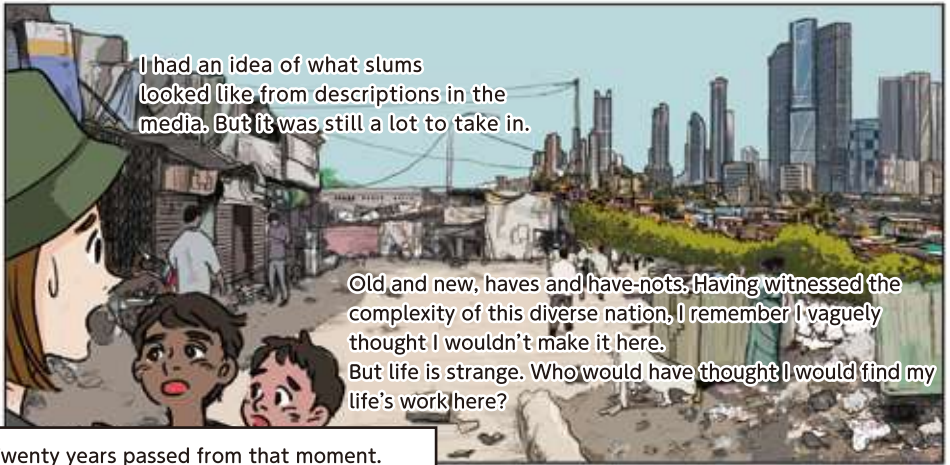


In 1989



I was on the way to Africa and had to transfer in Mumbai. That's when I first landed in India and saw one of the largest slums in the world.

Mumbai (then Bombay)



I had an idea of what slums looked like from descriptions in the media. But it was still a lot to take in.

Old and new, haves and have-nots. Having witnessed the complexity of this diverse nation, I remember I vaguely thought I wouldn't make it here. But life is strange. Who would have thought I would find my life's work here?

Twenty years passed from that moment.

I was offered a position in India as a Chief Tunnel Engineer for a project to build a metro in Delhi. Although willing to take the responsibility, it also reminded me of the uneasy feeling I had 20 years ago.

**インドとは...?**

Brief Overview of India

In the Autumn of 2022, the world's population is expected to be 8 billion!

India is set to become the most populous country!

タージ・マハル  
Taj Mahal

ガンジス川  
River Ganga

人口約14.1億人  
approx. 1.41 billion people

**The capital: New Delhi**

**8 times as large as Japan**

**Total area of 3.287 million square kilometers**

“Can I make it there?”



# Railways in India

India's railway system was built during the colonial time. It has a long history and has been a big part of Indian people's lives.

**350** rupees

A straight line distance of approx. 400 km costs only about 600 JPY.

However, short distance railways that can be used for daily commuting were not fully developed. Also, India and Japan had very different ideas on how the metro should be operated.

Why are the doors of the trains or buses open?

Why...? Hmm what do you mean?

Well in Japan, we don't keep the doors open while the vehicles are moving. Don't you think it's dangerous?



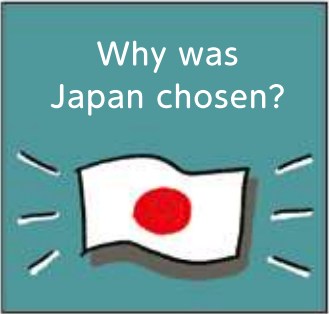
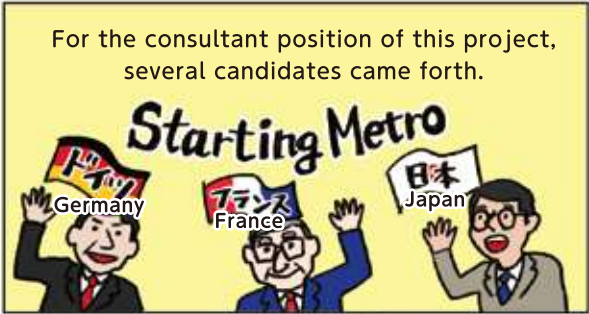
I don't think so. It's more convenient. With no doors you can get on and off whenever you want.

Um, but...

Reiko, that way we get to transport more people and that's what matters.



At that time India already had one metro line, but it took almost 20 years to put it into operation.



It was Mr. Sreedharan, the first managing director of Delhi Metro Rail Corporation, who strongly recommended working with the Japanese consultant.

I see.  
How was it?

It was an  
eye-opening  
experience.

Japan

I was amazed at how safe it was.

The trains were very clean and bright inside.

But more than anything, I was impressed by how punctual it was. The trains arrived and departed on time even though they had hundreds of passengers.

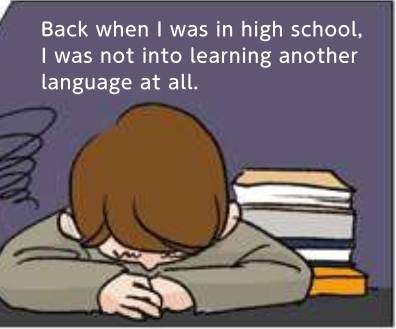


Moved by Mr. Sreedharan's determination and enthusiasm, they decided to choose Japan.





Now that I think about it, I've been working abroad and using English, but...



Back when I was in high school, I was not into learning another language at all.

So when the time came to apply for university, I narrowed down the options for the courses that didn't have foreign language requirements.



I've always been interested in making tangible objects, but the first thing that came to my mind was to make large buildings.

## Yamaguchi University

So I chose Civil Engineering as my field of study.



It was really hard for women to get regular full-time positions. I couldn't get a job, so I went on to graduate school. However, all the professors were reluctant to accept me because they thought I would have difficulty in finding a job.

And in the third year, when I was preparing to enter the Engineering lab,

I want to work for a major construction company!



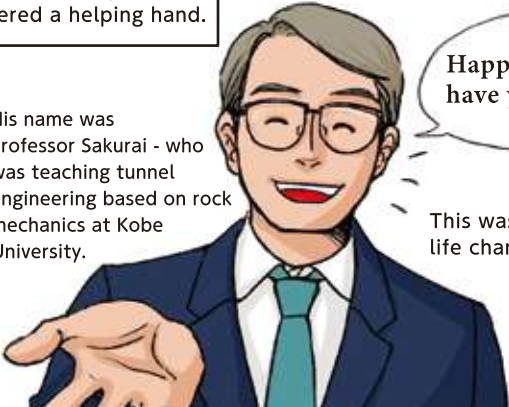
But...



I will take her in!

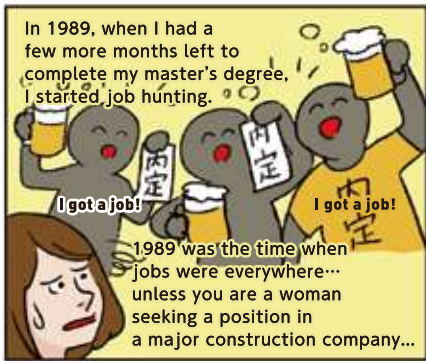
But then one professor offered a helping hand.

His name was Professor Sakurai - who was teaching tunnel engineering based on rock mechanics at Kobe University.



Happy to have you Ms. Abe!

This was one of my life changing encounters.





After that, I had to do a desk job in the planning department at headquarters for 7 years.



With fewer new employees,



My boss told me,

You have a disadvantage as you have no experience working on site. Gain skills that others don't have!

Many from my department were sent to the site but I still had no luck.

So I turned to Professor Sakurai for advice.

Maybe that's something you can think about.

There aren't many civil engineers who can speak English.

Interview at Norwegian University of Science and Technology

You won't regret it!

Please accept me!!

There I was able to gain experience at the tunnel site for a year.

Encouraged by Prof. Sakurai, I ended up spending 2 years at NIT and got my Master's Degree.

Taiwan

Then as soon as I returned to Japan I was sent to Taiwan to build a bullet train.

Taiwan also had a similar mountain goddess story, but...

I was allowed to work on site as I had the proof that Norwegian goddess didn't cause any trouble.

\*Bubble burst = Japan experienced a bubble economy in late 1980s in which real estate and stock market prices inflated to a soaring height. This price bubble burst in early 1990s and resulted in economic stagnation.

However...



Construction companies suffered a lot during the economic crisis. I lost my job.

But I found a job at a construction consultancy company.



There I was given an opportunity to work overseas.



Instead of choosing popular places like Jakarta, Manila or Hanoi where we had already done some projects and built a system in the past,

I wanted to challenge myself and explore a new place.



So I chose **India**.

This is how I ended up coming to India. And how I got involved with the Delhi Metro Project, a big part of my life's work.

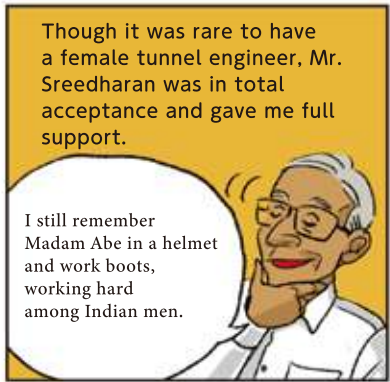
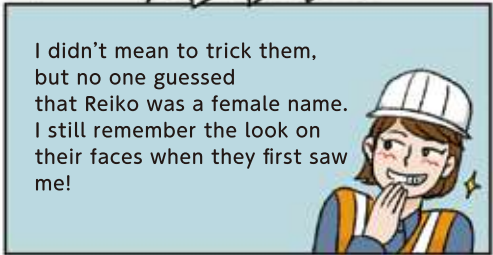


Here is how the story began: Delhi Metro knew me through my CV but we had never met in person until my arrival.



Unlike Japan, no photograph was required so they had no idea how I looked like.

India



Working across different cultures is always a challenge.



Manoj, safety check on underground drilling was inadequate during today's inspection.

I talked to the staff at the site myself, but you are the manager there. It is your responsibility too.

Madam Abe...

Safety check is a must! I have told you that many times.



What's going on?

なんだ なんだ?



.....



It was a big mistake. Later that day, my office door opened with a bang.



Manoj ...What's the matter?

Madam Abe!

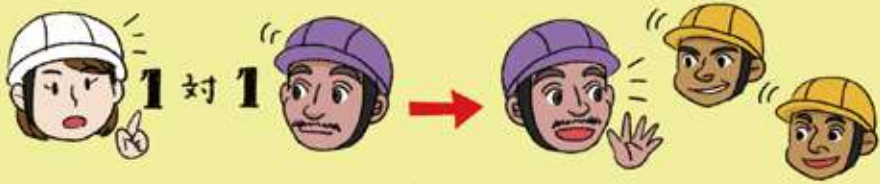
Why did you embarrass me in front of everyone?

Back then, they were not used to interacting with female engineers as there were few, if any, in the field. Therefore, they found it shameful to get corrected by a woman in front of others.

This is a cultural difference. There is no one to blame.

But it did make me realize that I needed to be more understanding and considerate.

Indian engineers were quick to understand when explained properly on a one-to-one basis. Once they understood, they were quick to act as well. High-ranking engineers took the initiative to implement safety measures,



and it gets passed on to junior engineers.

First one was the sense of time.

This project has a long history. Before I joined the team there had been two issues due to the cultural differences.



It was considered normal that the 5-year construction plan gets delayed by 1-2 years.

The Delhi Metro Project was also delayed at first.

One day, a newly hired consultant manager came to visit Mr. Sreedharan.





In order to get results within 3 months,



the Consultants, the Japanese construction companies, JICA and the people who work with Mr. Sreedharan all worked together as a team.

They kept their promise. They did what others thought was impossible.



From that moment on, a sense of trust was formed between the Japanese and Indian teams, and it became easier to accept each other's ways of doing things.

As their mindset about work changed, they became more aware of "efficiency."



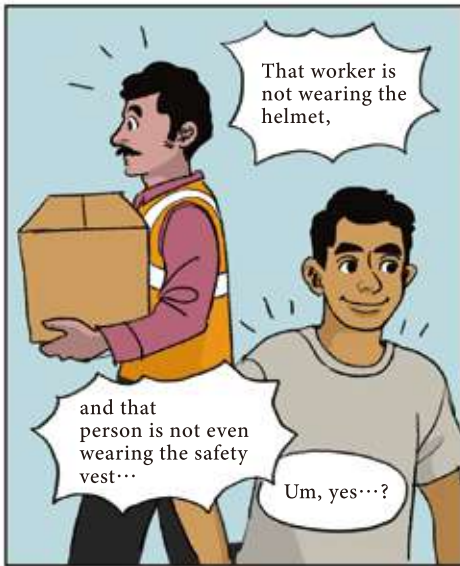
They focused on thinking how to be more efficient, and the term "KOUKI" started to be used in meetings.

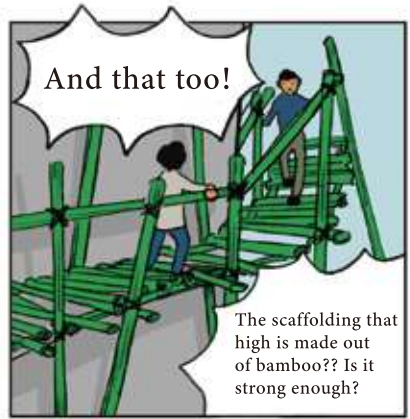
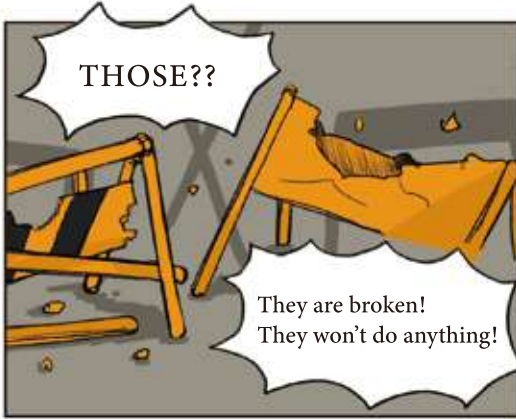
KOUKI = construction period

In the end, this project was completed 7 months ahead of the schedule.

The success of Delhi Metro Project proved that it was possible to complete constructions on time, and the Indian engineers who were part of the project took the lead in spreading the importance of "KOUKI".







That was before I came here.  
But I was still struggling to get the  
workers wear the safety gear.



But wait...  
Does this mean  
Indian people value  
quality things and  
take good care of them?



Once the metro  
is complete...



will they maintain it  
like they did with their  
PPE items?

A senior engineer once told me:

“Safety takes daily commitment”  
Following these words, I went around the  
construction site every day.



Any worker who was not  
wearing the 3 PPE items  
was removed from the site,

and reprimanded  
the managers who failed to  
give safety training.



A month later...

Good morning.

おはよう  
ございます



That was  
a warning signal

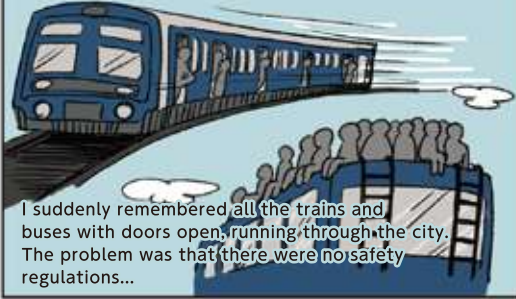
**MADAM IS HERE!!**



to keep them safe...

The Indian side was not willing to take costly safety measures.

Plus, people were not conscious of workplace safety to begin with.



I suddenly remembered all the trains and buses with doors open, running through the city. The problem was that there were no safety regulations...

It would be considered as business interruption to make people follow something that has no official direction.



So we decided to make safety regulations first!

No workers without the required PPE items are allowed to enter the construction site!



If they want to work and make money, then they have to wear the required safety equipment. This method worked.

3 安全靴  
Safety shoes

デキパキ!



Mr. Sreedharan did not hesitate to adopt technology or management methods from Japan, and tried to enable Indian workers to manage and operate on their own.

And it was during the Delhi Metro construction when I got to hear those fateful words...



And finally, Delhi Metro was in operation.

**1日の乗客数  
約506万人!**  
About 5 million passengers per day

**ちなみに  
東京メトロは  
全長195km!**  
Tokyo Metro is 195 km long

It is now one of the largest metros in the world!

**デリーメトロ**  
全長**390km**  
※2022  
  
Delhi Metro  
309 km long (2022)



\*Map taken from Delhi Metro's official website.

以前は...  
人口増加で交通渋滞もひどく...  
Traffic congestion due to population growth

深刻な大気汚染が広がっていた...  
Serious air pollution

道路を走る  
自動車1日あたり  
**70万台減少!**  
Good!

700,000 fewer cars per day on the road!

Delhi Metro

メトロの利用者  
Metro users **増↑**  
increase

CO2 削減  
約99万トン  
990,000 tons  
Reduced



The environmentally friendly Delhi Metro gained global attention,



becoming the first railway to be registered under the Clean Development Mechanism by the United Nations.

Using this project as a model, the Indian government is planning the construction of metros in major cities in India.

Since its opening, the total number of passengers has exceeded India's entire population of 1.2 billion, and it has fully established itself as a means of transportation for Indian people.



In addition, the Metro connects central Delhi with the international airport, making it convenient for those who use the airport.



JICA's cooperation in these projects was not limited to financial support.

They provided technical assistance to the Delhi Metro with the cooperation of the Tokyo Metro



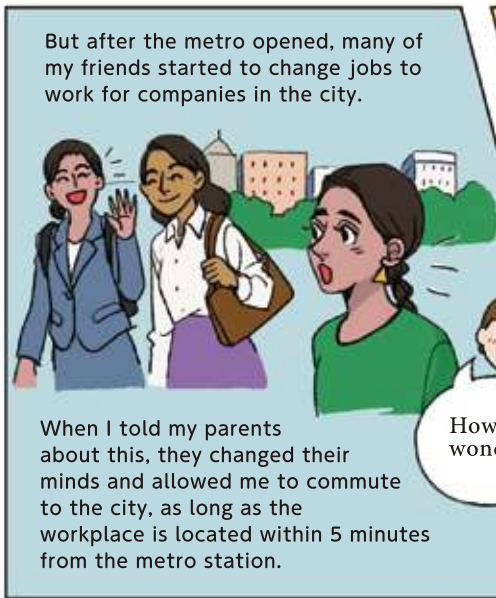
to foster skills required for safe operation, vehicle maintenance and management.



Delhi Metro contributes not only to improving lives of people in Delhi but also to expanding opportunities for women in India



I also asked Deepika, an office worker for 8 years.



They can now send their daughters and wives to work with peace of mind.



Other than  
"convenience,"

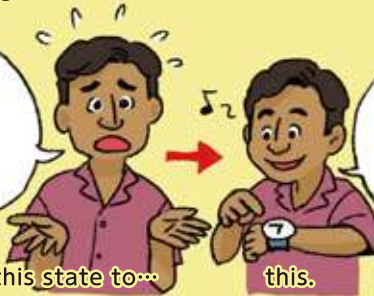


the Metro has  
brought more benefits.

One of them is the concept of "on time."  
Metro's punctuality affected the mindset of people.

And changed their behavior.

If I miss this  
train I don't know  
when I can catch  
the next one.



The next  
one is coming  
in a few  
minutes so I  
can wait.

From this state to...

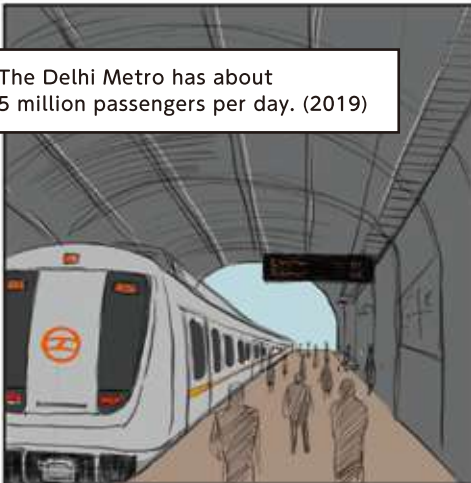
this.

This has created order and allowed  
people to have a peace of mind to wait in line.

This is how our  
mindset shifts...



The Delhi Metro has about  
5 million passengers per day. (2019)



No matter how many and how  
good proposals there might be,  
it wouldn't do much if they were  
not received well or put into practice.

The Delhi Metro Project was  
made possible by mutual efforts  
of both India and Japan.

As I've spent my life overcoming challenges of being a woman, I consider the fact that I got to help expand women's career options to be one of my best accomplishments.

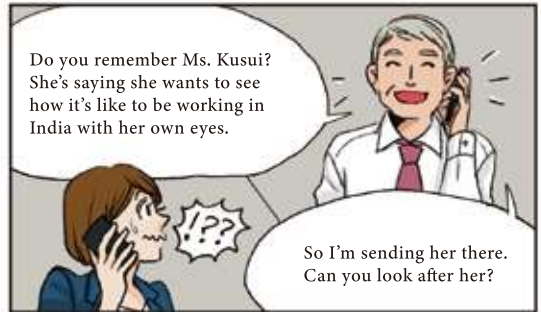
While working as a tunnel engineer in Delhi Metro,



That's when I met Ms. Kusui. At first, I thought she was one of those students who just wanted to work overseas.



A few months later



She came to Delhi at her own expense.



The flight ticket from Japan to India wasn't cheap.



I'll show you the tunnel site today.

Yes ma'am!

Wherever I took her, she was all eyes and ears as if she didn't want to miss anything, which made me believe she was really serious.



And made me decide to take her as my first intern.



One day

Ayako, you will be the second Reiko Abe!



No

I won't be the second Reiko Abe.



I want to be called "the first" Ayako Kusui!

I like that!

イイネ!!

Her words made me happy and proud of her.



How is she now?

Well, she is in Australia managing a project as a Mine Engineer!

I never wanted to give up on something just because I'm a woman or due to some kind of invisible barrier. Looking back, I've always chosen not to give up on things I wanted to do.

Perhaps many people that work for JICA or work through JICA may have similar tendencies.



I didn't give up pursuing my dream to build tunnels,



or continuing to find the right place for me and work,



or taking and integrating the good parts of Japanese and Indian cultures.



Through this project, I learned that Metro doesn't only make transportation more convenient, but also changes the way people live and feel. Knowing all that pushed me to the next stage.

Now I run Oriental Consultants Global India.



We have about 300 employees.

And all of us - Indian staff, JICA staff,

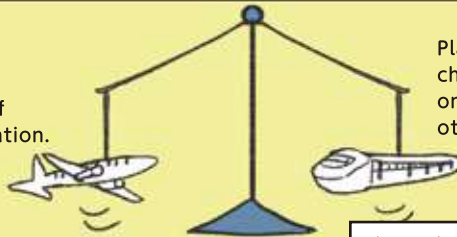
and myself - are moving forward onto a bigger goal.



In India, airplanes are mainly used to travel over 300 km in distance today. However, flights are easily affected by weather conditions and the boarding process can be a hassle.



You cannot get off before the destination.



Plane or train... People are choosing between the two only because there is no other option.

Then why not create more options?

That's right, our next goal is to create another option, a Shinkansen (bullet train) in India. This grand project requires a great deal of collaborative efforts from both India and Japan where we can make use of our past experience of building the Delhi Metro.

Construction of the Shinkansen has already started.

With this new project, how many lives can we change for the better? Just imagining it makes me already excited.



It would be wonderful to hear someone say,  
“Madam, this is our Shinkansen!”



The Japan International Cooperation Agency (JICA) aims to promote international cooperation and provide assistance to developing countries, as a sole Japanese governmental agency in charge of Official Development Assistance (ODA) implementation. “Leading the World with Trust” as its vision, JICA, with its partners, will take the lead in forging bonds of trust across the world, aspiring for a free, peaceful and prosperous world where people can hope for a better future and explore their diverse potentials.

## The Role of JICA in Delhi Metro Project

As Delhi’s population doubled, the number of cars and buses increased rapidly causing traffic congestion and serious air pollution. JICA came forward to provide support for the development of the Delhi Metro since its planning stage in 1995. The Delhi Metro started its operation in 2002, and about half of the total project cost was financed by ODA loans through JICA. They utilized Japanese energy-saving and safety technologies such as the energy-efficient braking system and On-Site Visualization during construction, as well as methods of operation such as operational know-how and passenger alignment.

The Delhi Metro is now firmly established as a means of transportation and is used by as many as 5.06 million people every day.



For more information please check this out!





# The Social Changes Brought About by the Delhi Metro

Improved safe operations and vehicle maintenance

Introduced women-only cars

Use of "an energy-efficient braking system," a Japanese energy-saving technology

Installation of security cameras and emergency alarm systems in cars



Operates on time from early in the morning till late at night

First railway project registered with the UN under the Clean Development Mechanism (CDM)

Established a "clean" image by enforcing a rule prohibiting the disposal of garbage in the Metro

## About Delhi Metro

Delhi Metro is the largest and busiest rapid transit system in India connecting the country's capital region with satellite cities. The metro system is operated by Delhi Metro Rail Corporation (DMRC), a public sector company established by the Government of Delhi in May 1995. JICA has supported for the development of the Delhi Metro since its planning stage in 1995.

1日の乗客数  
約506万人!  
5 million passengers per day



# Correlation Diagram



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Collaboration with : Reiko Abe  
Oriental Consultants Global Co., Ltd.  
Delhi Metro Rail Corporation Ltd. (Delhi Metro)

Manga created by : birujiros

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Check out the Project History Book here



This is a translated edition of the manga, which was created based on the Project History Book written by Reiko Abe, "Madam, This is Our Metro! - Female Civil Engineer in Charge of Subway Construction Quality and Safety Management in India".