



Ms. Mercedes Rosalba Araoz Fernandez
Second Vice President of Peru

July 12, 2017

Dear Honorable Ms. Mercedes Araoz,

We would like to send our best wishes to you and your beautiful country, Republic of Peru.

It was a great honor to meet you and have an opportunity to introduce Seoul Metro to you when you visited us on June 30.

As introduced, Seoul Metro opened its service in 1974, 111 year after the first metro system in London was opened. Despite of relatively short years of operation, over the 40 years, Seoul Metro experienced a number of trial and error due to drastic changes of the city and its transport, and finally made 'Compact Development'. Nowadays, Seoul Metro is recognized as one of best metro systems in the world by overseas media such as CNN, BBC, and Railway Gazette. We are eager to cooperate to build world class metros in Peru like us.

Moreover, at design and construction as well as operation stage, we can provide detailed suggestion regarding operation issues that we can predict from our experience, which will reduce not only additional cost and time, but also trial and error after the beginning of operation, and improve management efficiency.

If we are given a chance to cooperate with Peru in metro business, we are ready to do our best. Should you have any question about metro construction, please don't hesitate to inform us.

Lastly, we enclose a photo album of the visit, hoping that it remains in your memory as beautiful moments, and prepared description on each topic which you had a question about as well as the summary of the visit to give you more detailed and specialized information. You may refer to the following pages for details.

We hope that you had a great time in Korea, and sincerely wish to see you again.

Sincerely Yours,

A handwritten signature in black ink, appearing to read 'Kim Tae Ho', written over a horizontal line.

KIM, Tae Ho
C.E.O of Seoul Metro

Seoul Metro

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Matter of Concern During Visit to Seoul Metro

1. How to Maintain Security in Stations & Metro Trains

1) We operate the system called ‘Metro Security Guard’. Total 300 security guards (male 88%, female 12%) play roles as below:

- Crack down troubles in trains and stations such as soliciting, smoking and threatening other passengers, and conduct preventive activities against sexual harassment in trains
- Conduct first action in case of emergency like fire and terror
- Maintain order when there are large-scale rallies and protests
- Hand over criminals caught in the act to police

This system was first introduced as a policy to prevent sexual harassment during rush hours at metro by Seoul Metropolitan Government. As a result, in 2016, Metro Security Guards cracked down 121,799 cases and prevented potential crimes.

2) Furthermore, there are ‘Metro Police Squads’ at 27 stations of 8 lines with 171 police officers. Their role includes but is not limited to patrolling, arresting criminals at stations, analyzing crimes at metro, and establishing countermeasure and solutions.

2. Seismic Design of Seoul Metro

Like Peru, Korea is not an earthquake-free country, either. In 2016, total 254 earthquakes including an earthquake of magnitude 5.8 occurred. Accordingly, Seoul Metro has been conducting seismic reinforcement to bridges, stations, and tunnels to prevent damages due to earthquakes.

During the construction stage of lines 1~4 in Seoul, there was no related standard in Korea, so seismic design was not applied. After related standards were made, Seoul Metro started seismic reinforcement to bridges, tunnels, and stations of lines 1~4. Unlike previous construction, lines 5~8 were already built with seismic design applied with standard of magnitude 5.7~6.3.

If seismic design is applied and reinforced at design and construction stage in Peru, it’d ensure maintaining facilities to be resistant to strong earthquakes without trial and error.

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3. Distance Between Stations of Line 1~8

(unit: km)

Lines	Total	Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8
Average Distance	1.08	0.78	1.2	1.12	1.22	1.03	0.92	1.12	1.04

There are metro lines stations were built every 4~500 meter, but the average distance between stations of Seoul Metro is 1.08km because Seoul city designed metro network with the following principle; every citizen can access the nearest station from their residence within 10 minute walk.

When a city of Peru designs its metro network, average distance between stations can be decided according to direction of the city plan.

4. Etiquette & Safety Promotion Video Clips at Stations

We play video clips where popular animation characters feature to promote etiquettes and safety rules since 2016, which draws attention and interest from passengers regardless of their ages. It's played regularly at every station of Seoul Metro and other railway operators in Korea as a campaign under Ministry of Land, Infrastructure and Transport.

The purpose of the campaign is to reduce safety accidents at stations by 30 percent. Since 75 percent of safety accidents at stations are related to escalators, stairs, and platforms, the campaign focuses on them.

The five etiquettes and safety rules include;

- 1) No smartphone while walking
- 2) Mind the gap between train and platform
- 3) No running in platform and stairs
- 4) No running and hold the handle at escalators
- 5) No rush to catch a train.

5. Train driver's Pointing-and-Calling

Pointing-and-calling means pointing an object to check, check it with eyes again and call out loud. This is meant to reduce human errors and improve cognitive concentration.

Specifically, if checked with eyes only, the possibility of error is 2.68%, but after pointing and calling, it decreases to 0.38%. That is why pointing-and-calling was settled to be a method to prevent drivers' human errors at Seoul Metro,.

If one-driver system is selected in Peru for metro operation, pointing-and-calling system is highly recommended to introduce in order to improve safety.

6. Summary of the Visit

Else than referred above, Seoul Metro introduced that we operate 8 lines, 277 stations, 300km of network, and our daily ridership is 6.8 million, which makes metro's modal share 39%. Seoul Metropolitan City has around 26 million of population including 10 million population of Seoul city itself. Plus, the headway is 2.5 minutes ~ 6 minutes.

We also visited Control Center for not only train operation but also engineering parts which are rare in the world. Maintenance system using Internet of Things (IoT) was also shown, for example automatic tunnel system check-up from trains in service.

Finally, we visited the driving cabin of a train in service. The train we took is equipped with automatic driving system and roles of drivers include controlling doors and passenger safety in case of emergency. We finally saw how well tunnel is kept clean and how safe if platforms are equipped with Platform Screen Doors (PSD)