

**People's Republic of Bangladesh
Dhaka Mass Transit Corporation Limited**

**PEOPLE'S REPUBLIC OF BANGLADESH
THE PROJECT ON TECHNICAL
ASSISTANCE
FOR
MASS RAPID TRANSIT SAFETY
MANAGEMENT SYSTEM OF LINE 6

TECHNICAL PRODUCTS**

JULY 2023

Japan International Cooperation Agency (JICA)

**Nippon Koei Co., Ltd.
Osaka Metro Service Co., Ltd.**

IM
JR
23-100

Annex 1: Work Plan (Draft)

The Project on Technical Assistance for MRT Safety Management System on Line 6

Work Plan (Draft)

25th /Feb./2021

JICA Expert Team (JET)

Outline

1. Safety Management System
2. Outline of the Work
3. Current Employment Status of DMTCL
4. Issues and Approach on the Work
5. Important Activities of the Work
6. Work Schedule

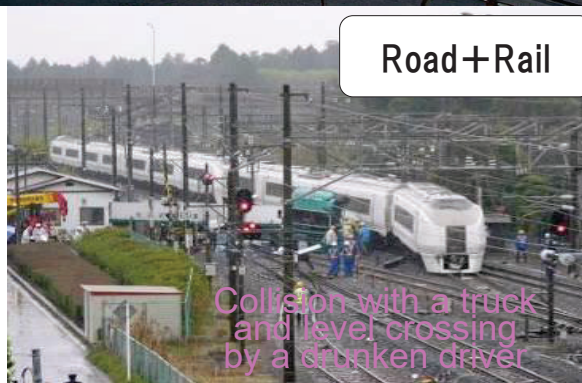
1. Safety Management System

NIPPON KOEI



1.1 Importance of Safety Management

Many fatal accidents caused by human error occurred in 2005 by various transport modes.



1.2 Serious railway accident in Japan

- Date: 25th April 2005
- JR West, Fukuchiyama line
- Situation of damage:
 - 107 death - 562 Injured
- Cause: overspeed, APS defectiveness, management method to drivers, etc.

What can we learn from the accident?



Source: The Yomiuri Shimbun

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1.3 Lessons Learned from Fatal Accidents

The direct cause was “Human Error” , but...

The background was “Company Management system”

- High pressure of “Prevention of delay” for profit
- Blaming person who caused “Human Error”
- Insufficient measures against risks.
- Insufficient Maintenance

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⇒ Introduction of **Safety Management System** in Japan

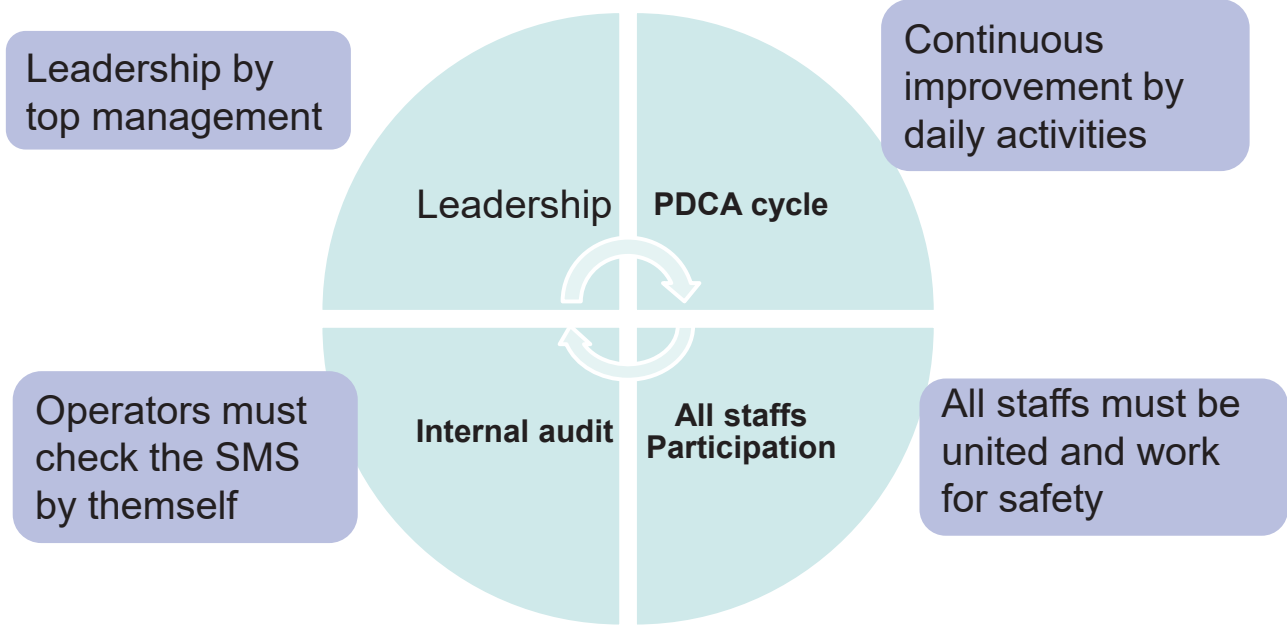
TA for MRT Safety Management System on Line 6

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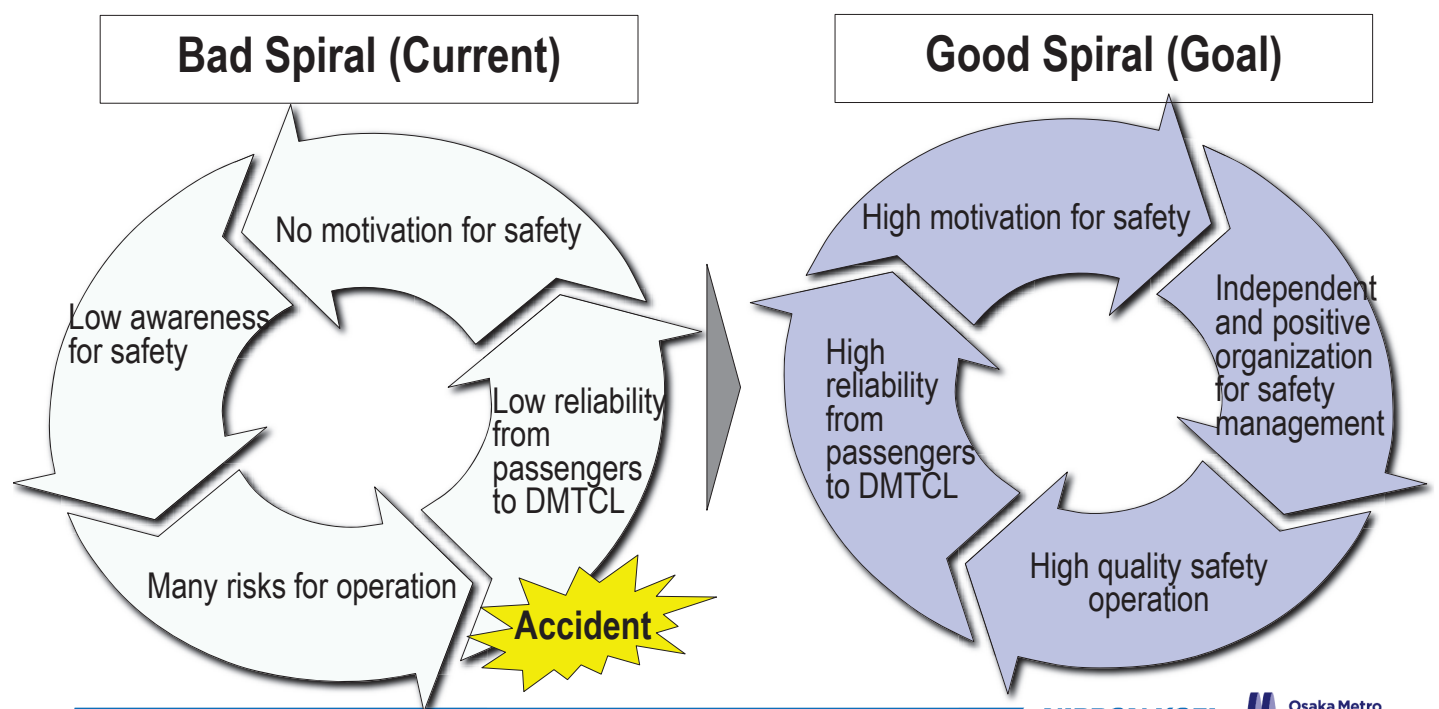
1.5 Develop the Safety Management System(SMS)

Key to success for developing the SMS



1.6 Change to “Good Spiral”

Change to “Good Spiral” is essential for establishing SMS

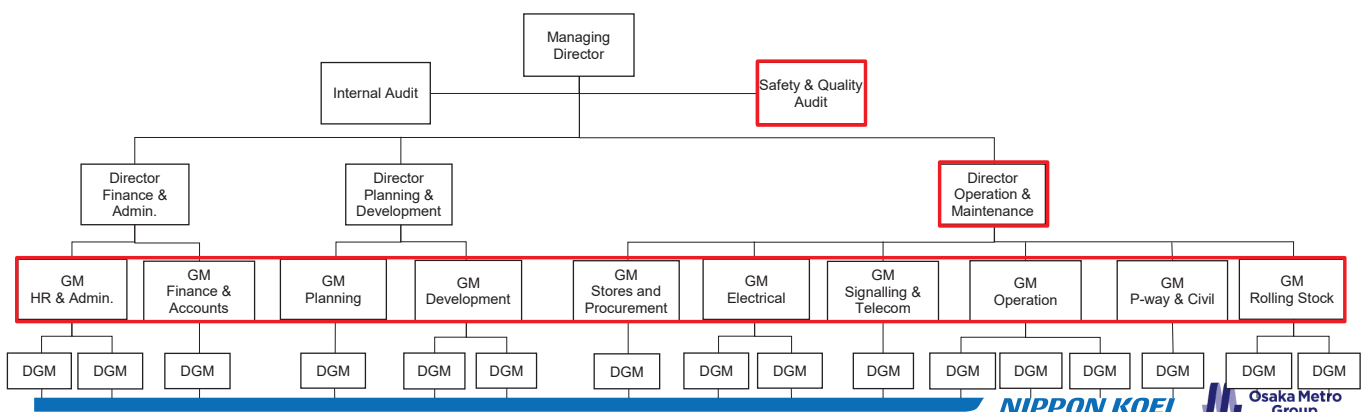


2. Outline of the Work

2.1 Project Implementation Unit (PIU)

- **Leadership of Management level** is essential for SMS
- **Establish PIU** as soon as possible

Director O & M	1 person
Director Safety & Quality Audit	1 person
Manager Safety & Quality Audit	1 person
GM	7 persons



2.2 Output (based on “Record of Discussion”)

[1] High priority regulations & manuals for safety are regulated

1-1: Discussion and Preparation of Safety philosophy and policy
(by the management level of DMTCL)



1-2: Assignment of PIU

1-3: PIU identify the prioritized rules and manual for safety

1-4: PIU discusses and prepares safety regulations and/or manuals



1-5: Safety regulations and/or manuals are approved within DMTCL.

1-6: Follow-up activities will be carried out for the implementation and management of safety regulations and/or manuals.



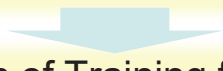
1-7: Implementation of Public Relations (PR) activities

2.2 Output (continued)

[2] Safety activities will be implemented by DMTCL

2-1: Approved regulations/manuals are shared within DMTCL.

2-2: A safety internal audit system is established.



2-3: Implementation of Training for emergency activities
and Review of the safety management plan based on the trainings.

2-4: Safety internal controls of DMTCL are established.

2-5: Safety management activities by DMTCL will be evaluated and advice will be given by experts before the full opening of MRT Line 6



[Safety Internal Control Activities in Osaka Metro]

2-6: PR activities related to the established safety management system and operation will be carried out.

2.3 Counterpart and Related Organizations

Since MRT-Related SMS is the first TA project in Bangladesh, Involvement of related organization is essential!



Relation	Stakeholders	Role
C/P	DMTCL	O&M organization
Related Organization	DTCA	Regulation, planning and arrangement of transportation
	MoR	Evaluation and advise the safety to BR
	RTHD	Supervisory ministry of DMTCL
	Power Division	Advise the safety for power supply and electric system of substation
	BTRC	Advise the safety for signal & telecommunication
	FSCB	Advise the safety from a viewpoint of fire fighting
	Bangladesh Police	Advise the passenger safety management and cooperation during accident and disaster

3. Current Employment Status of DMTCL

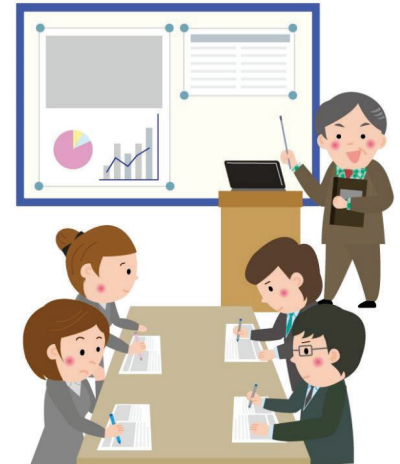
3. Current Employment Status of DMTCL

“The basis of safety is human resources”

⇒ Promotion of employment is crucial for SMS

Number of Employees

	Plan	Actual (as of Jan,'21)
Regular	1,023	67 (6.5%)
Outsource	896	0 (0.0%)
Total	1,919	67 (3.4%)



Basic training will be required for newly employed staffs.

4. Issues & Approach on the Work

Issue 1: How to set an index to objectively and effectively evaluate the outputs of the Work

Outputs especially potential outputs are difficult to evaluate.



Approach 1: Evaluation index setting including obvious outputs and continuous monitoring

- ✓ Refer the “Safety Management System in Japan”.
- ✓ Conduct Baseline Survey to know the safety awareness



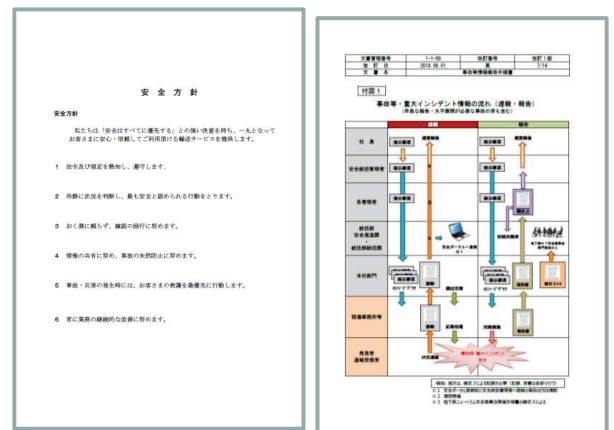
Issue 2: Creation and management of safety-related documents by DMTCL itself

No any documents have been created as of now.
Documents shall be prepared by DMTCL.

Approach 2: Implementation of training and guidance by Japanese MRT operator

Osaka Metro(OM) will present...

- ✓ Training and guidance by actual experiences of OM
- ✓ The “Essence” for building SMS



(Example of OM SMS documents)

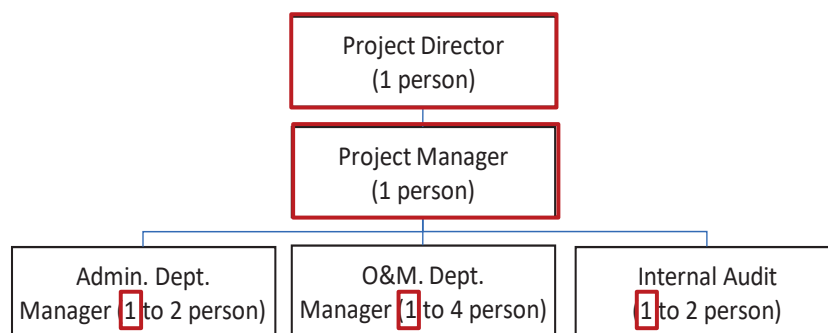
Issue 3: Development of the project implementation team in Bangladesh

Need to establish PIU as soon as possible.
The number of candidates are 10.

Approach 3: Extensible and effective PIU composition based on the current DMTCL employment status

Initially **5 persons** shall be appointed.

Before the training in Japan, more 5 persons shall be appointed



Issue 4: Complementing the total training system by Online training

Since Opening of MRT is approaching, early training is required.
Need to complement all trainings even during COVID situation .

Approach 4: Strengthening the training outcome by three-step trainings

Training in Third Country

Target: PIU 5 persons
Contents: Correct the other country's examples and applicability to DMTCL

Training in Japan

Target: Each level total 36 persons
Contents: Review of Online trainings, Site visit, fomulation of safety policy

Online Training

Target: All DMTCL staffs
Contents: Fundamental of safety, Japanese experiences, role and responsibility of each level

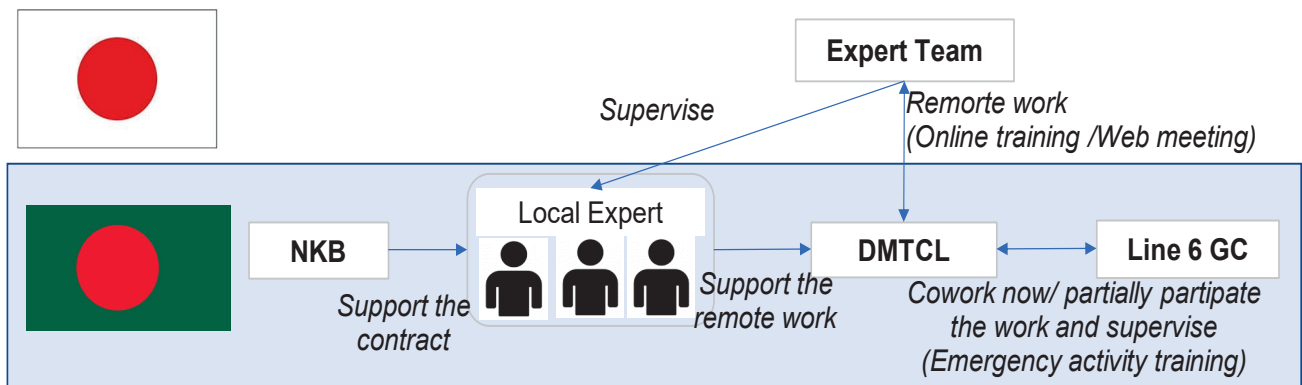
4. Issues & Approach on the Work

Issue 5,6: Uncertain schedule and restriction of activities due to the influence of COVID-19

Flexibility and reliable works are important.

Approach 5,6: Efficient remote work by utilizing local resources and remote technology

Local resources, ZOOM, wearable cameras, other tools.



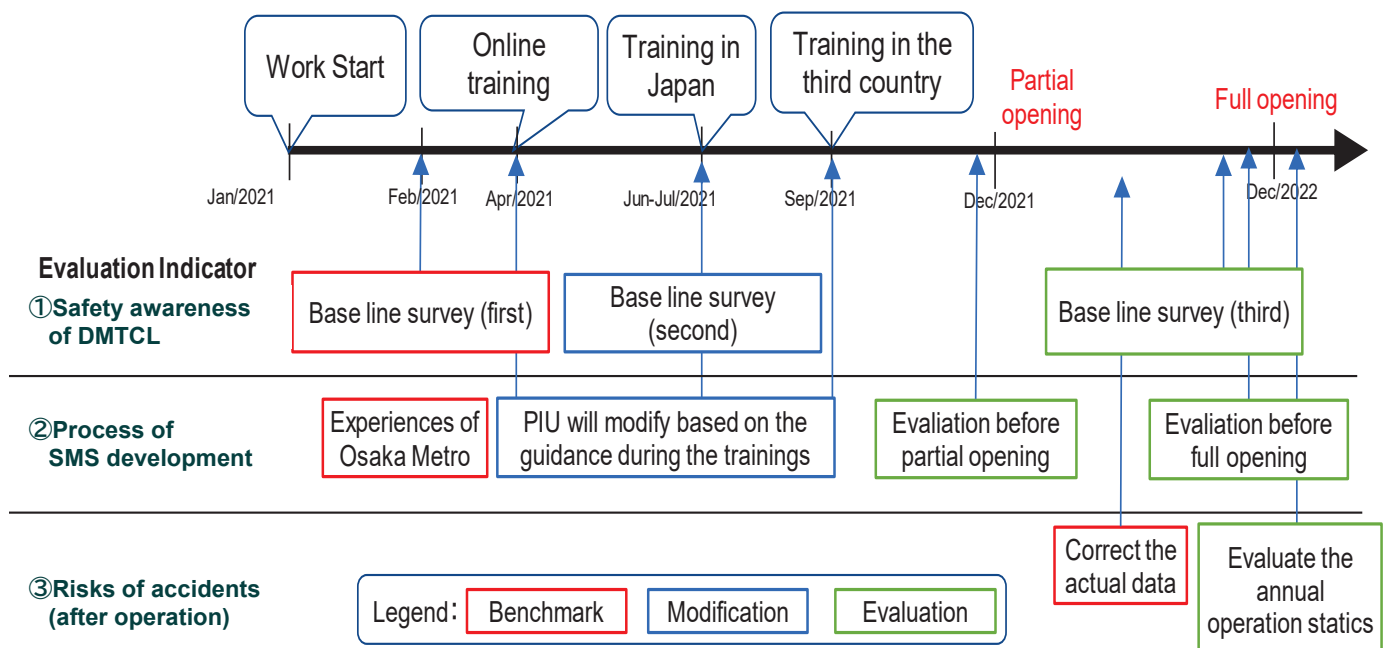
5. Important Activities of the Work

5.1 Summary of Important Activities

- 1st PIU establishment
- 2nd Setting indicators, benchmarks and target goals
-> Conduct Baseline survey
- 3rd Discuss and establish safety related documents
->Conduct trainings, (1) Online, (2) in Japan, (3) in Jakarta
- 4th Establishment of SMS in DMTCL
-> Lecture, guidance, monitoring and evaluation by JET
- 5th Public Relation(PR) activities
(to Bangladesh citizens, Japanese citizens and doners)

5.2 Setting indicators, benchmark and target goals

JET set three indicators for evaluating of our activities up to Full opening of MRT




[Indicator 1] Safety awareness of DMTCL

Data Collection Method	Benchmark	Goals
Baseline survey	The output of the first baseline survey	All staffs have the safety awareness and are able to act by themselves.

[Indicator 2]

Process of building a safety management system

Data Collection Method	Benchmark	Goals
<p><u>Original:</u> Comparison of the experience of Osaka Metro</p>  <p><u>After trainings:</u> DMTCL will revise as necessary</p>	<p>Internal meetings, reports, and trainings are implemented. Minimum level for safety MRT operation will be required. Benchmark shall be done quantitatively.</p>	<p>Higher level that Osaka Metro has been done in Japan.</p>

[Indicator 3] Risks of accident after opening

Data Collection Method	Benchmark	Goals
Data collection of the actual statistics after opening	<p>Risks of accident will be shared and measured internally after opening.</p> <p>Minimum level for safety MRT operation will be required.</p> <p>Benchmark shall be done quantitatively.</p>	Higher level which Osaka Metro has been done in Japan for risk measure of accident.

5.3 Trainings (Online Training)

Enabling Early stage / on-demand training



	Contents	Expected output (what will be understood)
All staffs	Railway accidents in Japan	The history of railway accidents in Japan
	Develop the safety-first philosophy	The safety awareness, necessity of the development of safety-first philosophy, The contents of establishment of safe culture
	Transport safety management system	The positive action to establish safety culture
Director class	Responsibility and role of director class	The responsibility and role of director class
Manager class	Responsibility and role of management class	The role for developing a safety management system by responsibility and authority by themselves
Person in charge	The role of a person in charge class	The role for developing the safety management system and its examples

5.4 Trainings in Japan (Osaka Metro)



- ✓ Established in 1933
- ✓ Privatized in 2018
- ✓ Operates 9 Lines, 138 km network
- ✓ Ridership: 2.5 mil /day (in 2019)

<https://www.osakametro.co.jp/>

TA for MRT Safety Management System on Line 6



5.4 Trainings in Japan (summary)

JET will conduct trainings in Japan for four groups

	Group	Participants	Duration	Training period*
1 st	A Group	6 persons/ Top manager	8 days	Early to middle of June 2021
2 nd	PIU	10 persons/ PIU	13 days	Middle to end of June 2021
3 rd	B Group	10 persons/ Manager	9 days	End of June to early July 2021
4 th	C Group	10 persons/ Person in charge	9 days	Early to middle of July 2021

*training period shall be flexible

The training in Japan will be conducted by Osaka Metro at training center in Osaka.

TA for MRT Safety Management System on Line 6



5.4 Trainings in Japan (A Group)

Formulation of the safety policy by top manager

Candidate	Aim of selection	Concept of the training
MD (1)/ Director (2)/ GM (3)	MD/Director/GM are the core of the business management group. Training will be focused on the management level.	<ul style="list-style-type: none"> Understand the importance of the active involvement of the management level Clarify the area of responsibility and authority

Review of Online training, learn the examples of safety management documents, discussion on safety policy, site visit, etc.

5.4 Trainings in Japan (PIU)

Formulation of the safety management documents by PIU

Candidate	Aim of selection	Concept of the training
Director (1) / Safety & Quality Audit (2)/ GM (7)	Director O&M/ Safety & Quality Audit / GM are the core of the operation section. The training will be focused on the top managers of operation.	<ul style="list-style-type: none"> Understand the role and responsibility of the manager of operation section and learn the fundamental idea of organization management Prepare the safety management documents

Review of Online training, learn the examples of safety management documents, discussion on safety management documents, site visit, etc.

5.4 Trainings in Japan (B Group)

Learn the practical activity for the safety-first philosophy as a manager class.

Candidate	Aim of selection	Concept of the training
DGM (10)	DGM level is selected among all sections	<ul style="list-style-type: none"> ▪ Understand the role and responsibility of being a manager ▪ Learn the fundamental idea of organization management

Review of Online training, learn the examples of safety management documents, discussion on safety management system as a manager, site visit, etc.

5.4 Trainings in Japan (C Group)

Learn the practical activity for the safety-first philosophy as a person in charge.

Candidate	Aim of selection	Concept of the training
Safety & Quality Audit (2) / Assistant Manager etc. (10)	Safety & Quality Audit and Assistant manager level who has a good attitude and high-test scores are selected. Candidates are selected from various sections for synergy effect.	<ul style="list-style-type: none"> ▪ Understand the role of a person in charge ▪ Possible to act the work as the safety-first philosophy

Review of Online training, learn the examples of safety management documents, discussion on safety management system as a person in charge, site visit, etc.

5.5 Trainings in Jakarta

Like DMTCL, Jakarta MRT (MRTJ) is an organization that gathered and opened human resources with less railway operation experiences.

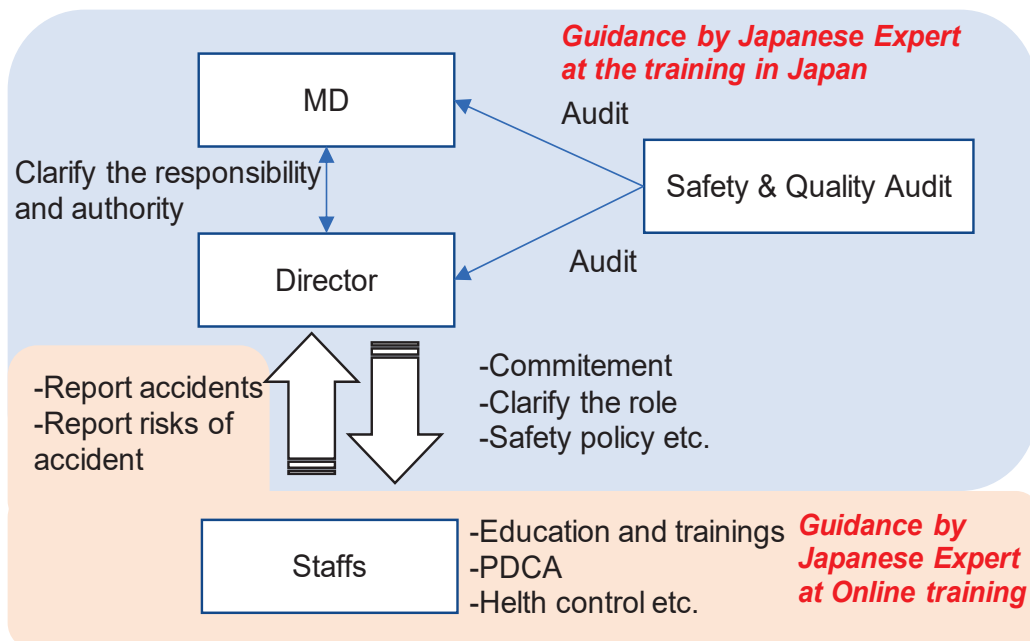
Group	Candidate	Duration	Expected output
PIU	5 persons (TBD)	7 days	Understand the safety documents, the management system, safety facilities and operation method in Jakarta.



https://www.jica.go.jp/publication/mundi/1905/201905_03.html

5.6 Establishment of Safety Management System

It is important to work together with **MD, Director, and Safety & Quality Audit (Internal Audit).**



JET will give lectures and guidance to the top management.

5.7 Evaluation of the Activities by JET

JET will evaluate the activities by the following items

Items	Contents	Indicators
Positiveness of activity	Evaluate the participant of JCC, Online training, training in Japan, training in a third country, other meetings	Number (ratio) of participants
Way of the achievement of benchmark and goals	Evaluate how much DMTCL considers and reflects in its actions the way of achievement of benchmark and goals	Qualitative evaluation by the expert team
Change of safety awareness	Evaluate how safety awareness has changed based on the baseline survey	Quantitative analysis
SMS implementation after the Work	Evaluate how much DMTCL can operate without the advice and guidance of the expert team	Qualitative evaluation by the expert team

5.8 PR Activities



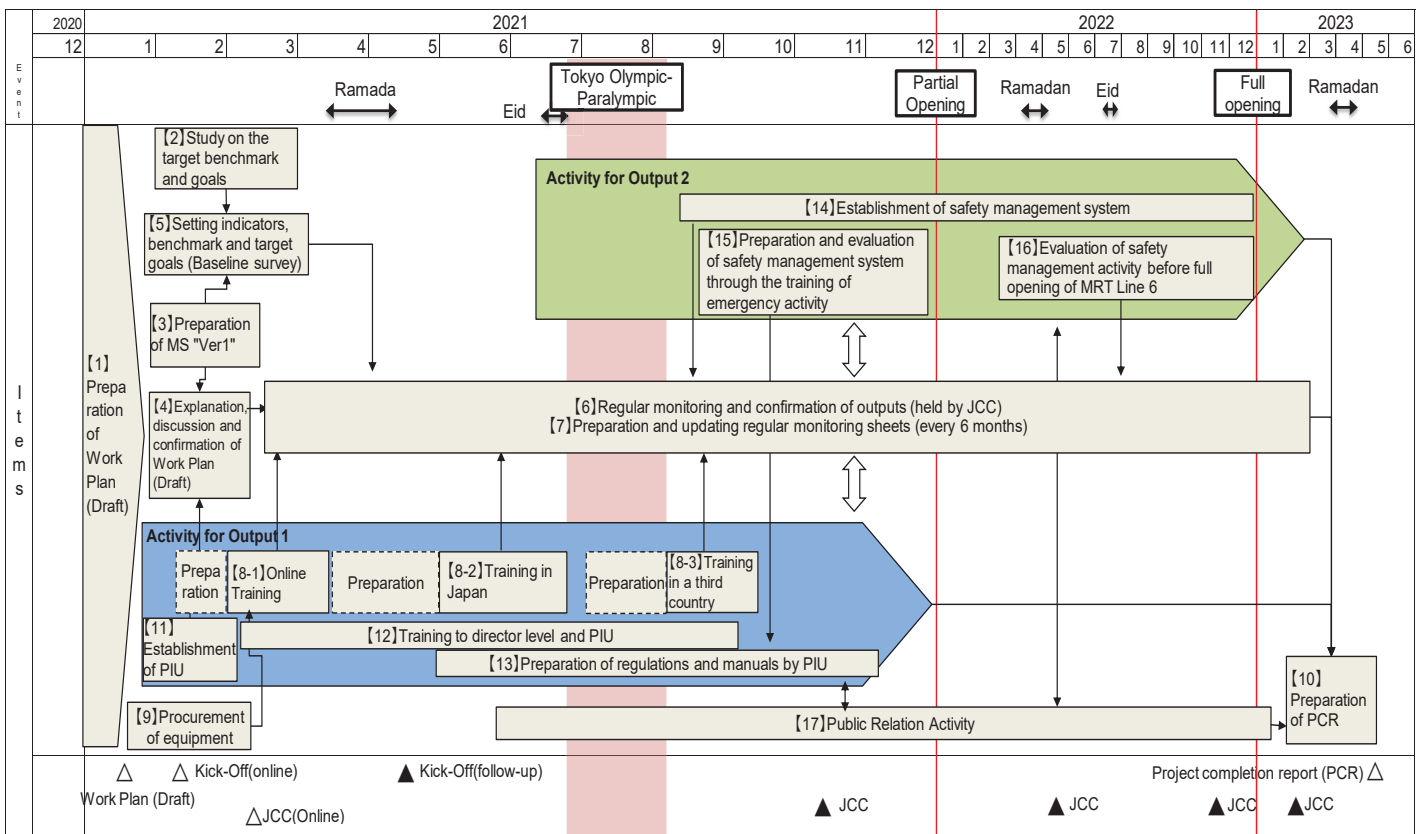
The purpose is to ...


- Appeal the importance of safety
- Appeal to citizens about DMTCL's activity

PR Media	Contents	Target
TV CM	Broadcast on local television	Bangladesh citizens
Newspaper	Conduct press release from DMTCL regarding the opening of metro, and op-ed on paper	Bangladesh citizens
Animation movie	Uploaded to YouTube, SNS, DMTCL/ expert team websites. Broadcast at DMTCL's PR facility (exhibition center).	Bangladesh citizens
Advertising in the train and/or at the station	Use the advertising space inside the train and/or at the station.	Bangladesh citizens
Online script and journal	Post online articles that specialize in transportation and railways in Japan.	Japanese citizens
Safety report	English and Bengali version will be printed, mainly distributed to donors. The data will be uploaded to DMTCL's HP and SNS.	Bangladesh citizens

6. Work Schedule

We are just at start-line, we will support you!





Thank you very much for your kind attention
আপনাদের সবাইকে ধন্যবাদ

Annex 2: Revised Work Plan

THE PROJECT
ON
TECHNICAL ASSISTANCE
FOR
MASS RAPID TRANSIT SAFETY
MANAGEMENT SYSTEM OF LINE 6

WORK PLAN

APRIL 2021

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

NIPPON KOEI CO., LTD
OSAKA METRO SERVICE CO., LTD

The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6

Work Plan

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Abbreviation

ADB	Asian Development Bank
BR	Bangladesh Railway
BTRC	Bangladesh Telecommunication Regulatory Commission
COVID-19	Corona Virus Disease 2019
DGM	Deputy General Manager
DMTCL	Dhaka Mass Transit Company Limited
FSCB	Fire Service and Civil Defense
GC	General Consultant
GM	General Manager
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
MD	Managing Director
MLIT	Ministry of Land, Infrastructure, Transport and Tourism
MRTJ	Mass Rapid Transit Jakarta
MoR	Ministry of Railway
NKB	Nippon Koei Bangladesh
NKDM	The name of Consultant team of GC
PDM	Project Design Matrix
PIU	Project Implementation Unit
PO	Plan of Operation
RTHD	Road Transport and Highways Division
ToT	Training of Trainers

1 INTRODUCTION

1.1 Importance of Safety Management System

1.1.1 Transportation Safety Management System in Japan

In Japan, Safety Management System has been developed based on the many serious accidents and those lessons learned even though each operator had implemented the safety measures. Especially, many accidents and troubles caused by human error occurred frequently in 2005 in railway, automobile, shipping and airport sectors respectively.

In the derailment accident on JR Fukuchiyama Line, which killed 106 passengers and 1 train driver, reports of minor troubles and incidents were utilized for high pressure re-education as a penalty, and disciplinary action. Those management side pressure was a heavy burden on the employees' daily activity. Although the direct cause of the accident was the driver's human error, it was concluded that the radical background of the driver's human error was management method of the company (organization) to each driver in the committee of human error accident prevention. As common causes of these accidents, "insufficient involvement of management side in ensuring safety" and "insufficient communication and information sharing between management side and employees' side" were identified.

Based on the above lessons learned, National Transport Safety Board was established and the transportation safety management system was started in Japan in October 2006. This safety management system is covering not only the railway operators but also all transportation field operators.

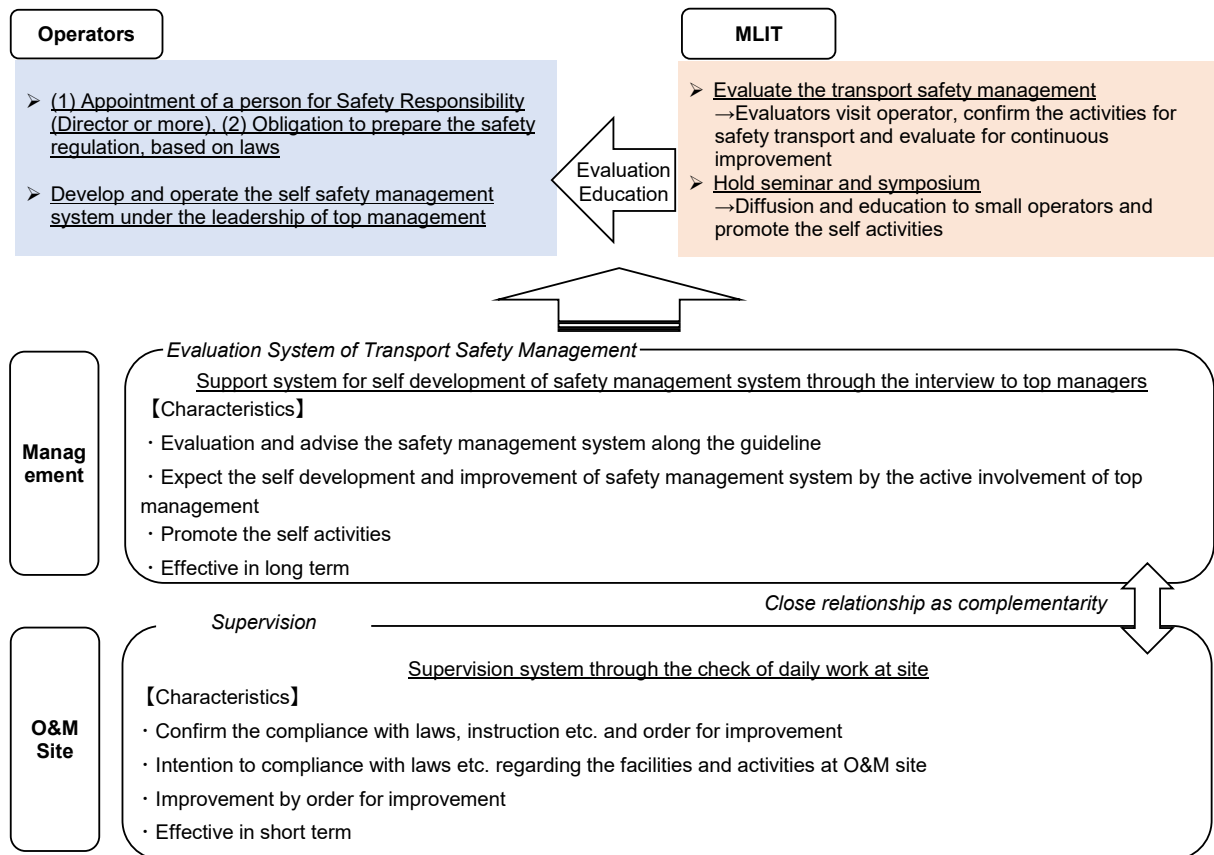
Under the transportation safety management system, the first priority of the transportation business is that "**ensuring transportation safety forms the basis of the transportation business.**" as a business that entrusts human life. In other words, once an accident occurs, not only physical damage but also human life is lost. Furthermore, it is important for all parties involved in the transportation business to keep in mind that the trust of the railway business will be lost and the business itself will not survive.

In addition, transportation safety management system in Japan requires "widely disseminate safety awareness" and "construction of a safety management system" as an organization, rather than assigning the cause and responsibility of an accident to an individual.

Under the above circumstance, Japanese railway operators including Osaka Metro **have built a safety management system led by the heads of organizations** such as the president and the general manager of the operation division through the all company staffs. General managers of each department carry out their responsibilities and strongly promotes safety management.

Furthermore, under the transportation safety management system in Japan, in order to increase the effectiveness of safety improvement, operators themselves voluntarily and

proactively promote transportation safety initiatives. It is required to **continuously improve the safety management system** built by the PDCA cycle.



Source: Modified by JICA Expert Team based on MLIT (Ministry of Land, Infrastructure, Transport and Tourism)

Figure 1-1 Overview of Transportation Safety Management System in Japan

1.1.2 Safety Management System in other countries

In urban railways supported by Government of Japan, support of transportation safety management is also provided as well as infrastructure development.

For example, the Jakarta MRT (MRTJ), which opened in 2019, continues to support the creation of regulations and manuals. As a result of these efforts, No major accidents have occurred since the opening as of today.

In addition, on Ho Chi Minh Line 1, which is currently under construction for opening, human resource development such as safety management departments and support for building an organizational structure are being provided.

Furthermore, not supported by Japan, but transportation safety management systems have been established in major cities such as Singapore (SRMT) and Hong Kong

(MRT) where urban transportation has developed in Asia. Continuous operation and external reporting are being made¹.

1.1.3 Application of Safety Management System to Dhaka MRT

Dhaka MRT is the first urban railway in Bangladesh and is expected to transport a large number of passengers with high frequency. Therefore, it is desirable to introduce the safety management system and its experiences/lessons built over many years in Japan to Dhaka MRT to reduce the risk of accidents.

The people of Bangladesh are very interested in it and therefore, by providing safety and high-quality transportation services, public confidence in railways will increase. As a result, it is expected to contribute to mitigate traffic congestion and other economic activity by promoting the use of railways.

1.2 Background and Objectives of the Project

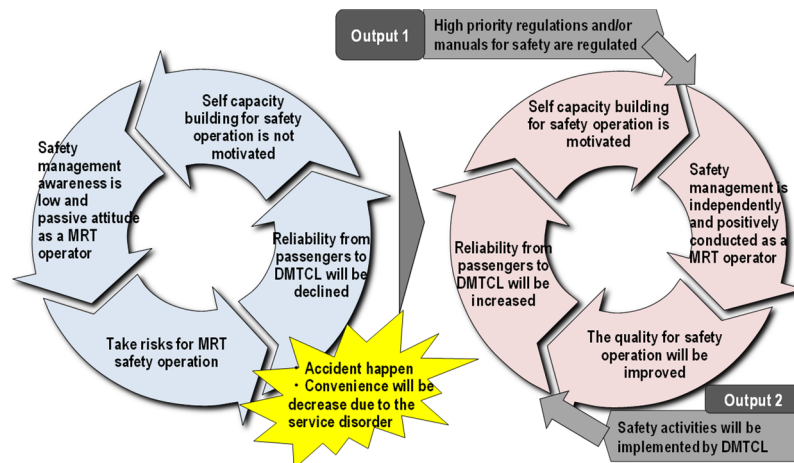
The Dhaka Mass Transit Company Limited (DMTCL) was set up in 2013 as the implementing agency of the Dhaka Mass Rapid Transit (MRT) with the launch of the MRT Line 6 construction project. The Vice Minister of the Ministry of Road Transport and Bridge (MORTB) and Road Division are the majority shareholders of DMTCL. Once operational, DMTCL will operate and maintain the MRT as the MRT operator.

At present, DMTCL has a total of 176 employees as the implementing agency for the construction of MRT Line 6, Line 1, Line 5 North and Line 5 South. However, most of the staff are borrowed or retired from the Roads and Highway Department (RHD) and the Public Work Department (PWD). The borrowed staff are expected to return to their original organizations after the commencement of operations. DMTCL has not been able to motivate itself as the MRT operator during the operation and maintenance stage.

In addition, there is a critical shortage of human resources with experience in railway operations, which is essential for a railway operator, with a small number (six staff) from Bangladesh Railway (BR) and others. Recently, DMTCL has hired 64 young DMTCL employees (two to three years post-graduation) and will be trained by Line 6 GC to acquire knowledge and skills required for the MRT operation and maintenance. While the training of Line 6 GC focuses on the technical matters of MRT operation, the Project specializes in the strengthening of management capabilities related to MRT safety operation.

The Project aims to contribute to the change of the negative cycle of DMTCL from passive, in terms of capacity building due to lack of experience in MRT operations, to a positive cycle of capacity building as a self-reliant MRT operator. This will be achieved by acquiring safety management skills that will motivate them to take a proactive and positive approach toward transport safety. These activities will lead to the prevention of serious accidents.

¹ <https://www.smrt.com.sg/Portals/0/InvestorRelations/SMRT-Group-Review-2018-2019.pdf>
<https://www.mtr.com.hk/sustainability/2019rpt/en/safety-first.php>



Source: JICA Expert Team

Figure 1-2 Current Recognition (Left) and Ideal Goals (Right)

1.3 Relationship between Line 6GC and the Project

The consulting service for the Dhaka Urban Transport Improvement Project (Line 6 GC) is made contract with DMTCL, and focuses on detailed design, bidding support, and construction supervision for the opening of MRT line.

Line 6 GC has formulated manuals, rules, regulations, etc. for each technical item necessary for railway operation and maintenance and will hire and train human resources.

On the other hand, in order to realize safe railway operation as a railway operator, it is necessary to raise awareness of safety management as an organization of DMTCL, build a safety management system, and develop regulations specializing in safety.

This work is a project to provide technical cooperation based on Japanese technology and experience so that DMTCL can think about it and build systematic safety management including the development of regulations. This work shall be cooperated with Line 6 GC Team each other.

1.4 Outputs of the Work

The expected outputs are divided into the following two outputs, which specifically include seven and six outputs, respectively:

Output1: 「High Priority Regulations and/or Manuals for Safety are Regulated」

- 1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL.
- 1-2: Project Implementation Unit (PIU) of the Project is assigned.
- 1-3: PIU identifies the prioritized rules and manual for safety.

- 1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team.
- 1-5: Safety regulations and/or manuals are approved within DMTCL.
- 1-6: Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals.
- 1-7: Public relations (PR) activities related to safety enhancement are carried out.

Output 2: 「Safety activities will be implemented by DMTCL」

- 2-1: Approved regulations and/or manuals are shared within DMTCL.
- 2-2: A safety internal audit system is established.
- 2-3: Training for emergency activities are conducted, and the safety management plan is reviewed based on the trainings.
- 2-4: Safety internal controls of DMTCL are established.
- 2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6
- 2-6: PR activities related to the established safety management system and operation are carried out.

1.5 Counterparts and Related Organizations

Table 1-1 summarizes the counterparts and related organizations. Bangladesh Police has not been considered in the Record of Discussion (R/D) which was agreed between JICA and DMTCL; therefore, the necessity of Bangladesh Police as a related organization shall be decided through the discussion with JICA and DMTCL.

Table 1-1 Counterparts and Related Organizations

Relation	Stakeholders	Role
Counterparts	DMTCL	To conduct the operation and maintenance of the MRT lines
Related Organization	Dhaka Transport Coordination Authority (DTCA)	To conduct the regulation, planning and arrangement of transportation within Dhaka. In line with Metro Rail Act, safety inspectors of DTCA will advise the safety operation to DMTCL
	Ministry of Railway (MoR)	To evaluate and advise the safety of Bangladesh Railway
	Road and Transport Highway Division (RTHD)	To make arrangements among MoR, Planning Ministry, Ministry of Finance, etc., as a supervisory ministry of DMTCL
	Power Division	To provide advice about the safety for power supply and electric system of the substation
	Bangladesh	To provide advice related to signal and

Relation	Stakeholders	Role
	Telecommunication Regulatory Commission (BTRC)	telecommunication
	Fire Service and Civil Defense (FSCB)	To provide advice about the station service, MRT operation and evacuation from the viewpoint of fire fighting
	Bangladesh Police (to be discussed)	To provide advice about passenger safety management and cooperation during accident and disaster

Source: JICA Expert Team

1.6 Establishment of PIU and Its Role

In the Project, the PIU will be established as soon as practically possible during the early stage of the Project. It is confirmed that the PIU will assume the main role of the activities of the Project.

The PIU will be selected from the existing manpower of DMTCL staffs as additional charge. The assumed staff will be at the director level and general manager level as summarized below. In total, 10 members will be selected.

Table 1-2 Candidate Position of PIU

Position	Nos.
Director O&M	1
DGM Safety & Quality Audit	1
Manager Safety & Quality Audit	1
Each GM	7

Source: JICA Expert Team

The expert team will encourage DMTCL to determine PIU members, however, the expert team also actively recommends members and conditions for selecting members to ensure the effectiveness of PIU. For instance, participation in an operating position from DMRTDP is one of the options.

2 CURRENT RELATED ON-GOING PROJECTS AND CURRENT CONDITION OF DMTCL

2.1 Project Progress of MRT Line 6

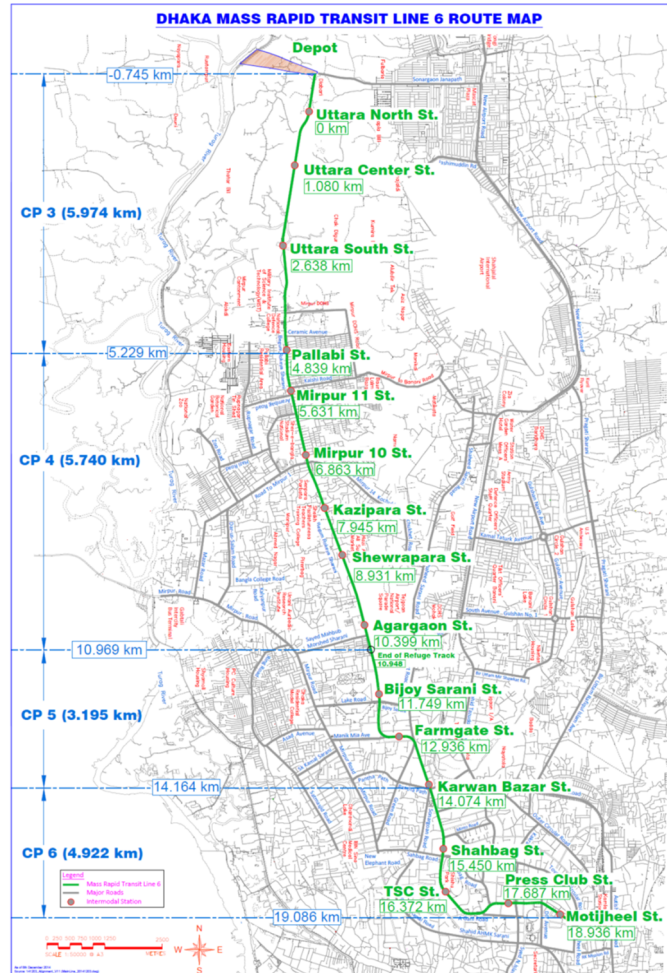
2.1.1 Overview

MRT Line 6 is 41 km long, which was proposed under the Revision and Updating of Strategic Transport Plan (RSTP), and runs along the north-south route through Dhaka City. Approximately 20 km of the line connecting the Uttara North Station in the northern part of Dhaka City and the Motijheel Station in the southern part is currently under construction with the support of the Japan International Cooperation Agency (JICA) as a priority section.

In addition, the Phase 1 section of this priority section will start from the Uttara area of the new residential area and will pass through the commercial Mirpur area to Agargaon Station, which is 12 km long. It is scheduled to partially open at the end of 2021.

The Phase 2 section has seven stations and is about 8 km. The section starts from Agargaon Station, passing through Dhaka University Station and Bangladesh Secretariat Station in the educational district, and ends at Motijheel Station located near Kamalapur Station of the Bangladesh Railways (BR). The line is scheduled to open at the end of 2022.

In addition, there is a plan to extend approximately 1 km from Motijheel Station to Kamalapur Station of BR, and it is expected to open after 2026.



Source: JICA Expert Team

Figure 2-1 Route Map of the High Priority Route of MRT Line 6

Contract packages are divided into the following eight packages:

- CP-01: Depot Civil
- CP-02: Depot Architect
- CP-03: Uttara North Sta. ~ Pallabi Sta. (Partial Open Section)
- CP-04: Pallabi Sta. ~ Agargaon Sta. (Partial Open Section)
- CP-05: Agargaon Sta. ~ Karwan Bazar Sta. (Full Open Section)
- CP-06: Karwan Bazar Sta. ~ Motijheel Sta. (Full Open Section)
- CP-07: Rolling Stock Procurement
- CP-08: Railway System

The number of passengers is estimated to be approximately 500,000 passengers per day in 2021 at the opening year. The planned operations will include six cars in a train set with 4 minutes and 30 seconds headway during peak hours. The structure is all elevated and the entire 20 km section is connected in approximately 38 minutes when operating at the maximum design speed of 100 km/h. The depot is located near Uttara North Station at the northern end of the line.

2.1.2 Progress of the Construction

The progress of each package is summarized in Table 2-1.

Table 2-1 Progress of Each Package

CP	Progress
CP-01	Construction work started in 2016 and was completed in 2018
CP-02	Construction work started in 2017 and is 70% complete. Completion of the construction is planned to be in December 2021.
CP-03	Construction work started in 2017 and is 65% complete. Completion of the construction is planned to be in December 2021.
CP-04	Construction work started in 2017 and is 65% complete. Completion of the construction is planned to be in December 2021.
CP-05	Construction work started in 2018 and is 25% complete. Completion of the construction is planned to be in December 2022.
CP-06	Construction work started in 2018 and is 38% complete. Completion of the construction is planned to be in December 2022.
CP-07	Contract was made in 2018 and is 55% complete. Completion of the procurement is planned to be in June 2023.
CP-08	Contract was made in 2018 and is 35% complete. Completion of the procurement is planned to be in June 2023.

* As of the end of December 2020

Source: JICA Expert Team

At this moment, it has been officially announced that the MRT Line 6 will be partially opened in December 2021; however, due to the influence of COVID-19 pandemic, the partial opening and the full line opening time is expected to be delayed.

2.2 Progress of Development of Other MRT Lines

2.2.1 MRT Line 1

MRT Line 1 consists of two lines that cross north to south and eastern Dhaka. The total length of 52 km for the line is proposed by RSTP. Of these, a total of approximately 28 km on the two lines, the Airport Line and the Purbachal Line, has been identified as the highest priority development line.

The Airport Line runs from the Airport Station in the north side of the line to Kamalapur Station in the south with a length of 14.9 km and 12 stations. The structure is underground which is the first underground metro in Bangladesh. The Purbachal Line is from Purbachal Terminal Station on the east side of the line to Future Park Station, which is the connecting station to the Airport Line. The line has 3.4 km length and seven stations with mainly elevated structures.

The number of passengers is expected to be 800,000 per day in 2026 at the time of opening, and the composition of rolling stock is planned to be eight cars in a train set from the opening year.

JICA conducted a feasibility survey in 2017, and an ODA loan was signed between the Government of Bangladesh (GoB) and JICA in 2017. Detailed design work has been carried out since December 2018 and is still ongoing. From now on, the tender for each contract package will be held, and work is underway with the target of opening in 2027.

2.2.2 MRT Line 5

MRT Line 5 was proposed by RSTP as a 43 km line which is the east-west corridor of Dhaka City. MRT Line 5 consists of two lines, a 29 km north line and a 17 km south line. Phase 1 of Line 5 North is the section from Hemayetpur Station on the west side to Vatara Station on the east side. Line 5 South is from Gabtoli Station to Dasherbandi Station. In both cases, the structure in the city center is underground and that in the suburbs is an elevated structure.

Depots for Line 5 are planned separately between the south route and north route. Bulk land has been secured near Hemayetpur Station on the west side for the north line and near Dasherbandi Station on the east side for the south line.

For MRT Line 5 North, an ODA loan was signed in 2018 with the support of JICA, and detailed design work has started in 2020. The basic design and detailed design have proceeded, and work is underway with the prospect of opening around 2029. For the MRT Line 5 South, a pre-feasibility study was implemented in 2018 with the support of the Asian Development Bank (ADB). Currently, the consultant selection for the feasibility study (FS) and detailed design is underway, and operations are expected to begin after 2021. The expected opening year is 2030.

The MRT and bus rapid transit (BRT) in the Dhaka Metropolitan Area have been developed as priority routes that cross north and south. These lines are Line 6, Line 1 and BRT Line 3. The Line 5 route is an east-west corridor that intersects with the lines and holds an important role for connectivity of the public transportation network.

2.2.3 Other MRT Line

MRT Line 2 is a route selected by the Japan-Bangladesh Joint Platform Meeting, which is under the framework of the MoU between the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan and Public Private Partnership Authority (PPPA), Bangladesh that was signed in 2017. It is being implemented through public-private partnership (PPP). At present, basic information is being collected and the legal system related to PPP is being studied. No specific engineering studies or feasibility studies have been conducted. The expected opening year proposed by RSTP is 2035.

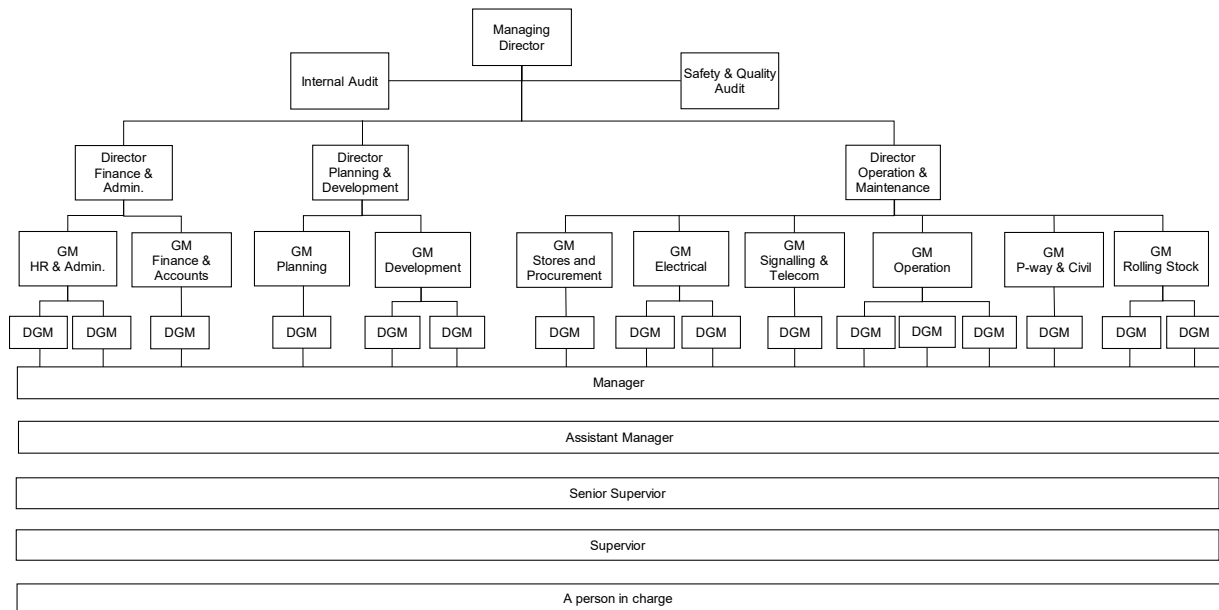
Since the MRT Line 4 was proposed by RSTP, there has been no concrete progress such as securing FS and funding sources.

2.3 DMTCL Organization and Progress of Employment

2.3.1 DMTCL Organization

DMTCL will be the operating company of Dhaka MRT, which was established in 2013 in line with the implementation of the construction project of MRT Line 6. Since it will be the first MRT in Bangladesh, institutional development of GoB has been supported by JICA continuously from the beginning. JICA dispatched an advisory expert, "Institutional Building Assistance (IBA)", to GoB to analyze and examine the basic organizational system and the draft framework for legal development. Specifically, it has been formulated that the Dhaka Transport Coordination Authority (DTCA) will function as a post-opening regulatory and supervisory body for planning and coordinating general urban transportation within the Dhaka Metropolitan Area. The DTCA will formulate a law that stipulates that DMTCL can carry out business implementation and operation and maintenance for MRT after opening, register companies necessary for establishing DMTCL, and formulate the Metro Rail Act (Urban Railway Business Law), which is the basis of urban railway business. Based on this, DMTCL will operate the MRT business.

The required personnel for DMTCL has been proposed by the General Consultant (GC) team of MRT Line 6 and was approved by DMTCL. A simplified organization chart is shown in Figure 2-2 below.



Source: JICA Expert Team based on information from Line 6 GC

Figure 2-2 DMTCL Organization Chart (Simplified)

Under the Managing Director (MD), there are three directors, ten general managers (GM), and 16 deputy general managers (DGM). Under the general and deputy general managers, managers, assistant managers, senior supervisors, and supervisors are allocated. An internal audit is located under the direct control of MD.

Employment style is divided into two types: regular basis and outsource basis. Regular employees are mainly in charge of core operations above the supervisor level, and 1,023 staffs are scheduled to be hired. Outsource employees are mainly in charge of maintenance staff, various machine operators, security, cleaning staff, etc., and 896 staffs are scheduled to be hired. The total number is 1,919. The details are summarized in Table 2-1 below.

Table 2-2 Recruitment Plan of DMTCL

Serial	Designation	HQ			O&M			DMTCL Total (HQ + O&M)		
		Reg	O/S	Total	Reg	O/S	Total	Reg	O/S	Total
1	Managing Director	1	0	1	0	0	0	1	0	1
2	Director	2	0	2	1	0	1	3	0	3
3	General Manager	4	0	4	6	0	6	10	0	10
4	Dy. General Manager/ System Analyst/Principal Training Institute/Company Secretary	10	0	10	10	0	10	20	0	20
5	Manager/Vice Principal Training Institute	14	0	14	22	0	22	36	0	36
6	Assistant Manager/Training Coordinator/Programmer ICT/PS to MD	21	0	21	29	0	29	50	0	50
7	Office Secretary/Admin. Officer/Asst. Programmer/ Finance Officer/Officer Envi. & Reh/ Safety & Quality Audit Officer/ Demonstrator/ Estate & Legal Officer/ HR Officer/ Empl. Welfare Officer/Chief Traffic Controller/ Chief Crew Manager/Chief Driving Inspector/ Chief Depot Controller/ Senior Section Engineer / Station Master/ Marketing Officer/ Revenue Officer/Feeder Service Officer/ Security Officer etc.	21	0	21	82	0	82	103	0	103
8	Accountant/Photographer/Traffic Controller/ Crew Manager/ Depot Controller/Section Engineer/ Line Supervisor /Junior Marketing Officer/Jr. Revenue Officer/RS Controller/Jr. Feeder Service Officer/Jr. Security Officer etc.	3	0	3	157	0	157	160	0	160
9	Imam/Station Controller/ Train Operator/ Sr. Maintainer [all trades]/ Sr. Machine Operator etc.	1	0	1	170	0	170	171	0	171
10	Executive Assistant/Maintainer [all trades]/Machine Operator/Driver(CMV)/Office Assistant cum Computer Operator/ Auto CAD Operator/Data Entry Operator /Customer Relations Assistant etc.	61	0	61	167	0	167	228	0	228
11	Automobile Driver/Ticket Mach. Operator/ Skilled Mach. Operator/Skilled Maintainer [all trades] etc.	0	23	23	110	324	434	110	347	457
12	Semi Skilled Maintainer[all trades]/ Semi Skilled Machine Operator/ Muazzin etc.	1	0	1	130	0	130	131	0	131
13	Despatch Rider/Office Attendant/Cook/Gardener/Cleaner/Security Guard/ Helper etc.	0	49	49	0	500	500	0	549	549
Total		139	72	211	884	824	1708	1023	896	1919

Source: Line 6 GC

While DMTCL is an organization responsible for operation and maintenance, it is composed of a project team for the Dhaka Mass Transit Development Project (DMRTDP), which is responsible for the construction project until the start of operation. Line-wise teams are composed in DMRTDP and most of the staff are composed of borrowed employees and retirees from the Roads and Highway Department (RHD) and Public Works Department (PWD). After the opening of the business, the borrowed employees are scheduled to return to their original organization in principle.

2.3.2 Progress of DMTCL Employment

In the beginning, except for DMRTDP, the only person who is responsible for operation and maintenance in DMTCL was MD. Employment has been gradually conducted since 2019, and now a total of 64 staffs are employed in the core departments excluding MD and its secretary. The breakdown of the current employment status is as follows:

Table 2-3 Current Employment Status (as of December 2020)

Position	Current Employed Staff (Plan)
<i>MD's Office</i>	
MD	1 staff (1 staff)
Company Secretary	1 staff (1 staff)
<i>Operation</i>	
Asst. Manager OCC Manager	1 staff (1 staff)
Asst. Manager Train Operation	1 staff (1 staff)

Position	Current Employed Staff (Plan)
Station Controller	35 staff (68 staff)
Driver/ Train Operator	1 staff (52 staff)
<i>Rolling Stock</i>	
Asst. Manager RS Planning/Training/Budget	1 staff (1 staff)
Asst. Manager RS Inspection	1 staff (1 staff)
Asst. Manager RS Insp. and Plan. Monitoring	1 staff (1 staff)
Asst. Manager RS Electrical	1 staff (1 staff)
Asst. Manager RS Mech. (Aircon and Door)	1 staff (1 staff)
Asst. Manager RS Mech. (Bogie and Pneumatics)	1 staff (1 staff)
Asst. Manager Mill Wright	1 staff (1 staff)
Section Engineer Electrical	1 staff (4 staff)
<i>Electric</i>	
Asst. Manager Substation & Switchgear	1 staff (1 staff)
Asst. Manager SCADA	1 staff (1 staff)
Asst. Manager Building Services (E&M)	1 staff (1 staff)
Asst. Manager Lift	1 staff (1 staff)
Asst. Manager Escalator	1 staff (1 staff)
Section Engineer OCS	1 staff (1 staff)
Section Engineer TPC	3 staff (5 staff)
Signaling and Telecom	
Asst. Manager Signaling/Main Line	1 staff (1 staff)
Asst. Manager Telecom. and AFC Depot Maintenance	1 staff (1 staff)
Section Engineer Signaling UTN	1 staff (1 staff)
Section Engineer Telecom and AFC UTN	1 staff (1 staff)
<i>P-way and Civil</i>	
Asst. Manager P-Way	1 staff (1 staff)
Asst. Manager Civil & Structures	1 staff (1 staff)
Section Engineer P-Way	2 staff (3 staff)
<i>Store and Procurement</i>	
Asst. Manager Stores and Procurement	1 staff (1 staff)

Source: JICA Expert Team based on information from Line 6 GC

For the next employment schedule, 114 staffs including assistant managers, system analysts and programmers have already completed the examination and are waiting for official employment. Subsequently, positions for senior personnel in the director class and each section were officially recruited in May 2020, and the recruitment process is underway.

The current number of employees is far from the 1,023 regular basis employees, and active employment is expected to continue. In addition, since the management class or higher, who plays an important role in the Project, has not been employed, it is necessary to promote employment immediately.

3 OVERVIEW OF THE WORK

3.1 Issues for Work

3.1.1 Issue 1: How to set an index to objectively and effectively evaluate the outputs of the Work

As the outputs of the Work, the obvious outputs are "maintenance and approval of regulations and manuals" shown in Output 1 and potential outputs are the "establishment of internal safety audit system and establishment of internal control" shown in Output 2.

It is necessary to set indicators that can objectively and effectively evaluate each result, in order to recognize the current situation for DMTCL itself, recognize the outputs of implementing activities, and motivate them in the future.

For setting the evaluation index, there are also issues regarding the specific contribution to safety (reduction of accident risk, etc.) and how to evaluate the potential content (awareness, organization management, etc.).

3.1.2 Issue 2: Creation and management of safety-related documents by DMTCL itself

DMTCL has no experience in the MRT operation and has no experience in creating and managing safety documents as well.

Furthermore, the DMTCL staff currently involved in the construction project of each line are mainly construction-related and are not hired under the condition of the responsibility for operation and management. This is the reason why the enhancement of motivation for operation and management is low.

Under the circumstance, it may be difficult to conduct the effective safety management activity with regard to the document creation and its management.

For DMTCL, the issue is to promote the philosophy of safety to the DMTCL staff and to improve their effectiveness in the document creation and its management based on abundant experiences of MRT operation in Japan.

For instance, the important philosophy is the necessity of the safety awareness, actions under the emergency situations, etc.

3.1.3 Issue 3: Development of the project implementation team in Bangladesh

As summarized in Chapter 2, the employment progress of DMTCL is not satisfactory. The main persons of PIU shall be at the management level, however, those positions are still vacant. In accordance with this situation, the authority, responsibility, and decision-making process within DMTCL are unclear.

Furthermore, it is expected that PIU members will be busier because they must work in addition to the current work for opening.

In order to carry out PIU's mission, a high job performance and motivation including understanding of the operation of the MRT are required for each member. Under the implementation of the Work, it is the issue to establish a project implementation team on the local side with the clarity of the scope of DMTCL's authority, responsibility, and decision-making process.

3.1.4 Issue 4: Complementing the total training system by several types of trainings

The impact of COVID-19 is expected to affect training in Japan. On the other hand, the opening day of Dhaka MRT is approaching, so early training is required. Therefore, in the Work, we propose to conduct the face to face and online training (hereinafter Hybrid training) at Dhaka that can be implemented at an early stage. Hybrid training and face-to-face training have their own characteristics and advantages, and the issue is to proceed with the Work even under the COVID-19 situation to enhance the training effect by considering mutual complementation methods.

3.1.5 Issues 5: Uncertain schedule due to the influence of COVID-19

Since the convergence of COVID-19 cannot be truly foreseen, it is the issue to consider flexibility and reliability in the work schedule even if Japanese experts cannot travel to Bangladesh.

3.1.6 Issues 6: Restriction of activities due to the influence of COVID-19

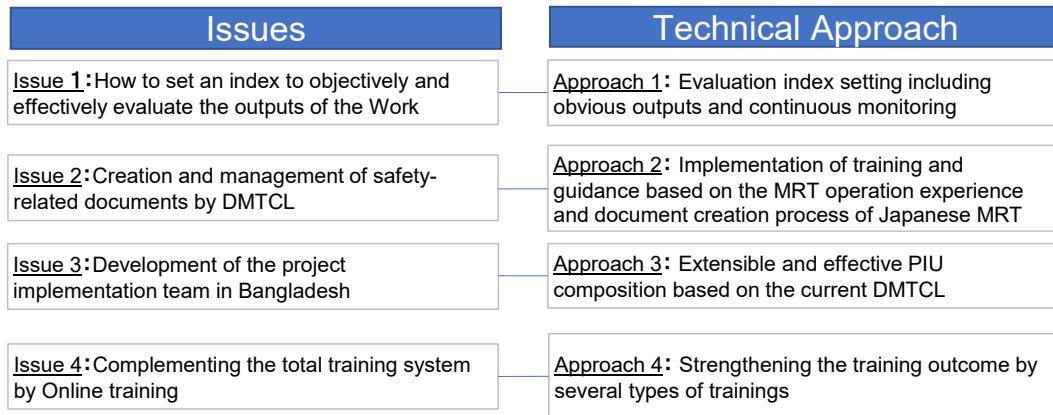
COVID-19 may also influence to the activities of the Japanese experts and DMTCL such as training in Japan and in a third country. The issue remains on how to carry out activities with flexibility and continuity under the effect of COVID-19.

3.1.7 Issues 7: Health and safety risks in Bangladesh

Safety and health risks do not only include COVID-19, but also terrorism, traffic accidents, and others. These should be duly considered in order to reduce safety and health risks for a smooth and safe work implementation.

3.2 Technical Approach

The technical approach is summarized in the figure below based on the issues mentioned earlier.



Source: JICA Expert Team

Figure 3-1 Technical Approach on the Work

3.2.1 [Technical Approach 1] Evaluation index setting including obvious outputs and continuous monitoring

For evaluation of subjective items such as safety awareness, the expert team will propose quantitative evaluation methods and continuously monitor them. Regarding safety awareness, the approach is to conduct a baseline survey. We quantitatively express the safety awareness inherent in DMTCL employees on an individual/organizational basis, and continuously monitor them.

In addition, as an example of evaluation of management development, we will refer to the evaluation method in the "transportation safety management system" in Japan, which states that "the business operators build and review the safety management system by themselves under the direction of the top management." The expert team will set evaluation indexes so that DMTCL can also evaluate and continuously monitor the management system.

3.2.2 [Technical Approach 2] Implementation of training and guidance based on the MRT operation experience and document creation process of Japanese MRT operator

Our approach is to provide training and guidance by Osaka Metro, which has more than 70 years of experience in MRT operation and has continuously built up safety awareness through the implementation of safety management. For training and guidance, the expert team will keep in mind to tell the "essence" based on the actual experiences of MRT operation in Japan. Specifically, in addition to the many experiences of Osaka Metro, the training and guidance will be able to tell the experience of the safety management currently operated by Osaka Metro, their management methods, internal control, internal audit system, etc. As a result, DMTCL

hopes to be able to independently manage this and build a long-term safety management system.

3.2.3 **【Technical Approach 3】 Extensible and effective PIU composition based on the current DMTCL employment status**

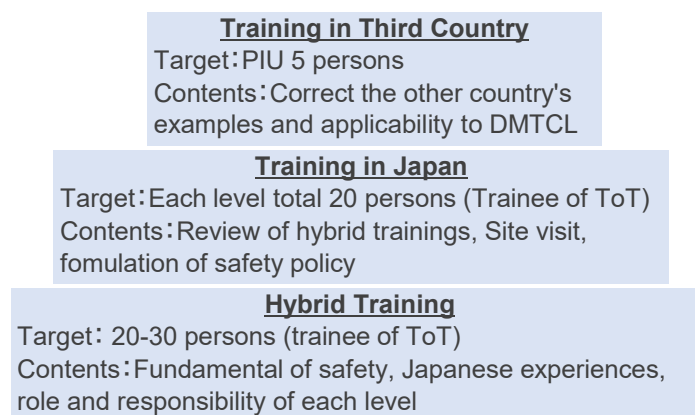
Based on the current employment status of DMTCL, the expert team will routinely supervise the project to make the PIU team composition.

The approach, for example, is to start with a small team of about five members at the beginning of the Work, and then will be advised to maximize the member of PIU when employment progresses. In addition, since the construction team of MRT Line 6 may know the current situation and is considered to be effective for future operations, the expert team advises that the construction team of MRT Line 6 should also be appointed as a PIU members.

3.2.4 **【Technical Approach 4】 Strengthening the training outcome by several types of trainings**

The approach is to enhance the training outcome by three-step training that takes advantage of hybrid training in Dhaka, training in Japan, and training in a third country. Hybrid training will cover the fundamental contents. These are, for example, the need for safety management, experience of accidents in Japan, and the roles of each position. Target trainees will be 20-30 DMTCL employees (including PIU members) who will be the Training of Trainers (ToT). The training in Japan begins with a review of the hybrid training and includes practical content that can only be done face-to-face, such as a site visit to the Osaka Metro facility, support for formulating the Safety Policy, and discussions related to various document preparation. The training in a third country will be more about practical content and the adaptability to DMTCL.

In this way, each type of training will have linked contents, and the training content will be deepened for each training to enhance the training outcome. As for the method of linking online and face-to-face training under the COVID-19 situation, the expert team will make a training plan with reference to best practices of other projects.



Source: JICA Expert Team

Figure 3-2 Composition of the Three-Step Training

3.3 Management Approach

The management approach based on the issues as mentioned earlier is summarized below.

Issues	Management Approach
<u>Issue 5</u> : Uncertain schedule due to the influence of COVID-19	<u>Approach 1</u> : Efficient remote work by utilizing local resources
<u>Issue 6</u> : Restriction of activities due to the influence of COVID-19	<u>Approach 2</u> : Building a business activity system using remote technology
<u>Issue 7</u> : Health and safety risks in Bangladesh	<u>Approach 3</u> : Proposal of safety and health management system during the field work

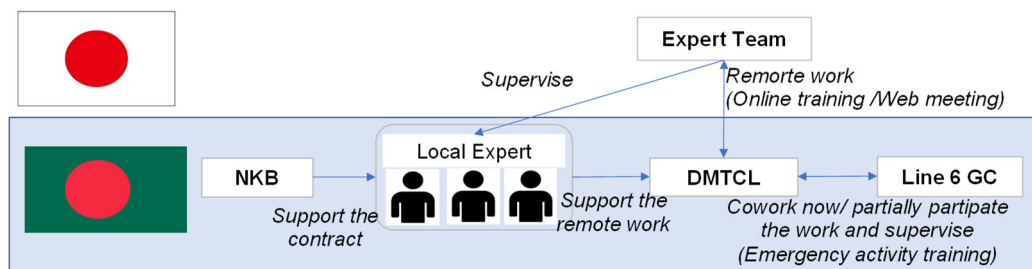
Source: JICA Expert Team

Figure 3-3 Management Approach on the Work

3.3.1 [Management Approach 1] Efficient remote work by utilizing local resources

At the beginning of the Project, the Work will be implemented remotely. On the other hand, the main Japanese employees of Nippon Koei Bangladesh (NKB) and Line 6 GC have resumed service in Bangladesh as of October 2020. Under such situation, at the beginning of the Work, local employees hired through NKB will provide remote work assistance to the expert team. In addition, for major web meetings, the main personnel of Line 6 GC, which has a close relationship with the DMTCL side, will participate and supervise the training and conferences effectively. The expert team will also collect information of the employment status of DMTCL.

The expert team will regularly hold an internal web meeting (one or twice a month) between the expert team and the local expert to check the work status such as document creation on the DMTCL side and their activities. The expert team will thoroughly supervise and control the quality of the Work.



Source: JICA Expert Team

Figure 3-4 Management Structure under the Remote Work

3.3.2 [Management Approach 2] Building a business activity system using remote technology

Currently, DMTCL uses ZOOM for online meetings, therefore the expert team will also use ZOOM for regular web meetings. In addition to e-mail, the expert team will utilize tools such as Slack, WhatsApp and Viber, which DMTCL uses on a daily basis to communicate at the same speed working in the local area. Documents created on the DMTCL side will be shared with the expert team through the cloud to provide timely guidance.

In addition to the above, in order to check the on-site activities of DMTCL one by one such as training for emergency, the expert team will utilize a wearable camera that can broadcast and record videos in detail. In addition to on-the-spot timely guidance, the expert team will also provide feedback at a later date based on the recorded video.

Furthermore, if it is difficult to carry out training in Japan due to travel restrictions, etc., the expert team will use a wearable camera in the same way, and conduct an online site visit, including an introduction of MRT operation and training facilities on the Osaka Metro side. This is to note that that both sides communicate with each other with a presence of reality.

3.3.3 [Management Approach 3] Proposal of safety and health management system during the field work

In response to the terrorist attacks in Dhaka in 2016, the expert team will take appropriate safety measures in the Work as well. In the Work, measures are taken with reference to the latest "Safety Measures in Bangladesh" and "Safety Measures Manual" issued by JICA. Documents will be shared within the team and to ensure compliance.

As measures against COVID-19, the expert team will thoroughly comply with the "Regulation of Overseas Travel under the Epidemic of Coronavirus Infection (COVID-19)" issued by JICA when traveling in Bangladesh. In addition, we take commonly implemented infection control measures such as wearing a mask, measuring the temperature, preparing a hand sanitizer, securing a physical distance (approximately 2 m) and arranging the office/meeting room with separation, arranging large (such as "Noah") size vehicles where only three people (+ driver) or less can ride, and constant ventilation in rooms and vehicles. In the event of infection, the expert team will take the necessary measures with prompt consultation with JICA.

Before traveling, the latest local information will be collected through NKB and Nippon Koei's Health and Safety Management Office. Decision for traveling will be carefully determined according to the individual circumstances of each company and Japanese experts.

3.4 Methodology of the Work

3.4.1 Tasks and its Methodology

[1]Preparation of Work Plan (Draft) <This document>

The basic approach and methodology, items and contents, implementation team, schedule, etc., regarding project implementation are summarized in the work plan (draft) and should get an approval from JICA.

After that, the work plan (draft) will be discussed with DMTCL and the counterpart organization, and obtain approval for the approach, methodology, contents, procedures, etc.

The work plan (draft) shall be flexible plans and processes with a margin so that the intentions of counterpart organizations and schedule changes can be arranged.

[2]Study on the target benchmark and goals

The evaluation indicators are classified into three categories: (1) safety awareness of DMTCL employees, (2) process of building a safety management system, and (3) risks of accident after opening.

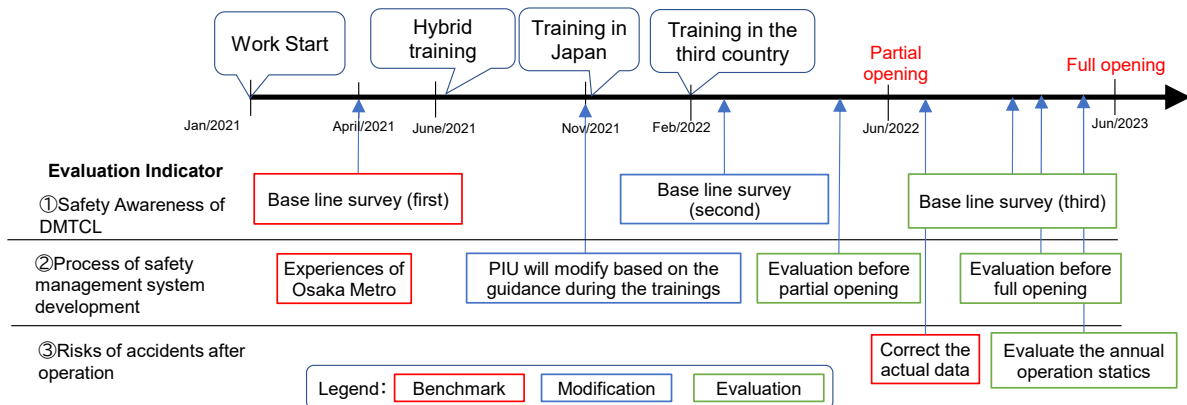
We are considering further classifying the items from these three major categories so as to satisfy a total of 13 output items of the Work.

Table 3-1 Evaluation Indicators, Benchmarks, Goals, and Data Collection Method

Evaluation Indicator	Data Collection Method (Draft)	Benchmarks (Draft)	Goals (Draft)
Safety awareness of DMTCL	Baseline survey	The output of the first baseline survey	All staffs have the safety awareness and are able to act by themselves.
Process of building a safety management system	<u>Original</u> : Comparison of the experience of Osaka Metro <u>After trainings</u> : DMTCL will revise as necessary	Internal meetings, reports, and trainings are implemented. Minimum level for safety MRT operation will be required. Benchmark shall be done quantitatively.	Higher level that Osaka Metro has been done in Japan.
Risks of accident after opening	Data collection of the actual statistics after opening (contents and the nos. of accident and near miss accident)	Risks of accident will be shared and measured internally after opening. Minimum level for safety MRT operation will be required. Benchmark shall be done quantitatively.	Higher level which Osaka Metro has been done in Japan for risk measure of accident.

Source: JICA Expert Team

For the above three major items, the timeline for setting benchmarks, revising indicators, and evaluation is summarized below.



Source: JICA Expert Team

Figure 3-5 Timeline for Setting Benchmarks, Revising Indicators and Evaluation

Table 3-2 Examples of Benchmarks and Goals (Potential Output: After Opening)

Output	Evaluation Indicators*	Benchmark	Goals**
2-2 A Safety internal audit system is established	① Internal audit plan is formulated including internal audit policy and important confirmation matter	Internal audit plan is formulated	Discussion including accident risks with MD is made and reflected in the plan
	② Internal audit is implemented to MD and safety manager	Minimum once a year	Implemented based on the audit plan which is formulated by the responsible person of internal audit
	③ Outcome of the internal audit is reported	Outcome is reported	Measures are discussed based on the outcome of the internal audit under the leadership of MD
	④ Measures are conducted based on the indication by internal audit	At least one necessary measure is taken	Verification of measures taken is done and reported to MD
	⑤ Education and training are conducted for a person in charge of internal audit	At least one education and/or training is conducted	Continuous education and trainings are conducted including the information collection of other operators and proposal of measures

* Example of transport safety management system in Japan

** Example of Osaka Metro

Source: JICA Expert Team

[3] Preparation of Monitoring Sheet Ver.1

Prepare Monitoring Sheet Ver.1 based on the format of Project Monitoring Sheet I and II. Regarding the content, the index set in [2] will be added based on the Project Design Matrix (PDM) and Plan of Operation (PO). The deadline for each monitoring period should be clearly shown in each version so that the required output can be seen by everybody.

[4] Explanation, discussion and confirmation of Work Plan Draft

The Work Plan Draft will be examined including countermeasures, and the expert team will send an email to DMTCL in advance before the explanation of the outline. Discussions will start after receiving comments from DMTCL.

Since the establishment of PIU has not been completed at the time of discussing the Work Plan Draft, the explanation to DMTCL will be given to the executive level including MD.

[5] Setting indicators, benchmark and target goals (conduct the baseline survey)

The benchmark and target goals examined in [2] will be proposed and finalized through the kick-off with DMTCL and JCC. In the baseline survey, the expert team finalizes the questionnaire survey form, and local experts conduct the survey. Items and target respondent of the baseline survey are assumed to be as follows. The questionnaire is attached to Attachment 1. Questions are prepared that ask the degree in four stages and that can be answered in a multiple-choice manner. Items that require many ideas are free answer types. Total tabulation and analysis will be done for all DMTCL, department wise and personal wise. The outcome of the training and guidance will also be analyzed.

<p><u>Understand the importance and necessity (All staffs)</u></p> <ul style="list-style-type: none"> • Brain storming of necessary documents (free answer) • Necessity of education and lecture of document management • Importance of sharing the information of near miss accidents • Importance of preparation of accident countermeasure • Necessity of internal audit • Importance of PDCA cycle • Importance of PR, etc. 	<p><u>Awareness (All staffs)</u></p> <ul style="list-style-type: none"> • Compliance for traffic rule • Report the minor trouble to boss • Reliability of railway system • Self-confidence not to make error • Instruction from boss and its enforcement • Health control • Understand the safety activity and its meaning, etc. 	<p><u>Awareness (Manager)</u></p> <ul style="list-style-type: none"> • Awareness for compliance of traffic rule and its actual gap • Reliability for railway operation • Human resources for DMTCL • Own role • Acceptance of the opinion from subordinate • Discipline of the person who make mistake • Grasp the work items of subordinate • Acceptance of the report from subordinate, etc.
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Source: JICA Expert Team

Figure 3-6 Outline of Baseline Survey and its Target Answerer

[6] Regular monitoring and confirmation of outputs (held by JCC)

JCC is held regularly about twice a year. Related organizations, JICA, Line 6 GC, etc. participate to share the progress of the project, issues, and results, and discuss countermeasures for the issues. Especially, Line 6 will be a good example for urban railway safety management in Bangladesh. It is the aim to build a feasible safety management system in Bangladesh based on the comments of related organizations, including future expansion of other MRT lines. It is necessary to reflect these in the setting of indicators, benchmark, and target goals with their evaluation.

The indicators, benchmark and target goals set by experts, and monitoring results will be expressly summarized at each JCC. The achievement status of the outputs together with the implementation process will also be confirmed. Based on the discussion on JCC, indicators, benchmark and target goals will be revised. To confirm the results, the expert team will quantitatively confirm the degree of achievement of the initially set

indicators, benchmark, and target goals one by one. If it is found that it is desirable to revise the index itself as a result of this monitoring on JCC, then it will be revised.

Furthermore, in addition to regular monitoring twice a year through JCC, the outputs will be confirmed each time through a web conference between the expert team and DMTCL, and supervision and guidance will be given to see if there are any major delays.

[7] Preparing and updating regular monitoring sheets (every six months)

Based on the result of [6], the Monitoring Sheet Ver.1. will be updated at least every six months according to the timing of JCC. DMTCL will take the initiative of discussing improvements through JCC and trainings, and reflect them in the monitoring sheet.

If improvement points are found through the training conducted by GC, the details will be reflected in the monitoring sheet as appropriate and managed. When preparing and updating the Monitoring Sheet, consideration will be given to monitoring by both Bangladesh and Japan, and the contents and progress will be confirmed by JCC.

[8] Implementation of Trainings

(1) Training types

As shown in the technical approach, the trainings will be implemented in three steps: hybrid training, training in Japan, and training in a third country. Table 3-3 shows the characteristics of each training and the concept of mutual complementation.

Table 3-3 Characteristics and Idea of Complementarity for Three Types of Trainings

Trainings	Advantage of each training	Target staffs	Complementarity of each training
Hybrid Training	<ul style="list-style-type: none"> · Early implementation is possible even under the restriction of travel from Bangladesh to Japan · Line 6 GC can participate from Bangladesh 	Total 20-30 staffs Refer to [8-1]	<ul style="list-style-type: none"> · The contents will be fundamental one and orientation for other trainings shall be a classroom learning style · Help for early development of PIU and decision making development
Training in Japan	<ul style="list-style-type: none"> · Training effectiveness is high because of the mutual discussion and direct guidance of expert team · Real experiences are possible in the site 	Total 20 staffs : Refer to [8-2]	<ul style="list-style-type: none"> · Guide the real experiences of MRT operation with the training facilities in Osaka Metro · Self-consideration by each position and role · Mutual discussion with DMTCL and expert team · Output of the training is easy to confirm
Training in a third country	<ul style="list-style-type: none"> · Possible to learn the developing countries' MRT operation that has been supported by JICA as well. 	Total 5 main PIU members	<ul style="list-style-type: none"> · Learn the issues of safety management implementation in developing country based on the training in Japan.

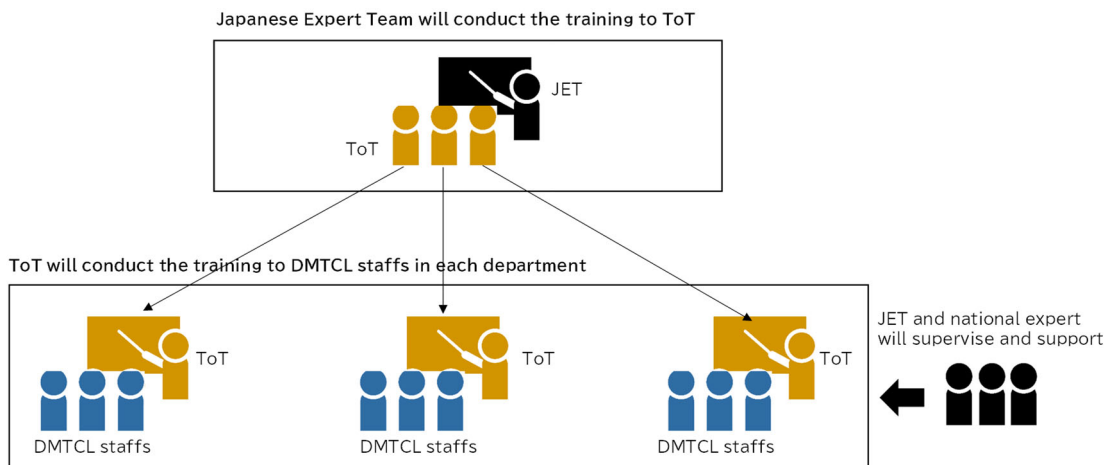
Source: JICA Expert Team

(2) Training style

Training of trainers (ToT) style shall be applied for the overall trainings to build the sustainable training system within DMTCL. Candidates of ToT will be selected from the

various types of department and levels including PIU members. The key to success of ToT style shall be the selection of trainees. National staff of expert team will conduct the screening of selection with some criteria and finally decided by expert team.

Expert team will conduct the above three types of training to trainees of ToT. After the trainings, trainees of ToT will conduct the necessary trainings to all DMTCL staffs. Expert teams and its national expert will supervise and support to implement the trainings.



Source: JICA Expert Team

Figure 3-7 Concept of ToT Training Style

[8-1] Conduct hybrid training

Since the opening of Line 6 is approaching even under the COVID-19 pandemic situation, the expert team will proceed with the hybrid training that can be implemented and build the fundamental knowledge of safety management system for taking the training in Japan and the training in a third country.

(1) Training Method

In order to minimize the risk of COVID-19 affection, minimum Japanese experts will visit Dhaka and remaining Japanese experts will standby through online in Japan. Expert team will conduct “tests” to confirm the achievement of understanding at the end of each.

Table 3-4 Alternatives of Hybrid Training Method

Possibility to visit the DMTCL office			Training Method	Confirmation method of the Outputs
Case	DMTCL staffs	Local experts/ Japanese experts		
1	Possible	Possible	Japanese experts and local experts will present lectures in the DMTCL office and other Japanese experts will stand-by online and response to questions through the screens. Laptops of local expert and that of	<ul style="list-style-type: none"> Local experts will monitor the situation Tests will be conducted

Possibility to visit the DMTCL office			Training Method	Confirmation method of the Outputs
Case	DMTCL staffs	Local experts/ Japanese experts		
			Japanese expert are connected.	
2	Possible	NOT Possible	A recorded video will be shown on the two-wide screens in DMTCL office. Laptops of DMTCL staff and that of Japanese expert are connected.	<ul style="list-style-type: none"> • Attendance will be confirmed. • Tests will be conducted
3	NOT Possible	NOT Possible	Each participant will connect to the Webinar URL.	<ul style="list-style-type: none"> • Attendance will be confirmed. • Tests will be conducted

Source: JICA Expert Team

(2) Training contents and target trainees

The training content is assumed to be for each group as summarized in Table 3-5. The target trainees will be divided from each level across various technical fields.

Table 3-5 Contents of Hybrid Training (Draft)

Group	Time	Contents	Expected Outputs
All Trainees	2.0 (h)	Railway accidents in Japan	Understand the history of railway accidents in Japan (no tests)
	2.0 (h)	Develop the safety-first philosophy	Understand the safety awareness, necessity of the development of safety-first philosophy, understand the contents of establishment of safe culture
	2.0 (h)	Transport safety management system	Understand the positive action for establishing safety culture
Director class	3.0 (h)	Responsibility and role of director and management class	Understand the responsibility and role of director class Understand the role for developing a safety management system by responsibility and authority by themselves
Person in charge class	3.0 (h)	The role of a person in charge class	Understand the role for developing the safety management system and its examples

Source: JICA Expert Team

[8-2] Conduct the training in Japan

The training in Japan will be conducted by Osaka Metro, and it is assumed that the training will be conducted at the training center of Osaka Metro in Nakamoju, Osaka.

The training will be conducted in Japanese and English and will focus on content that is highly effective in face-to-face training, such as discussions, presentations, and site tours, in addition to classroom lectures. The training will be conducted four times in total, as shown in Table 3-6. In addition, the grouping and its aims are summarized in Table 3-7.

The item "[12] Training for management level and PIU will be conducted in Japan.

Table 3-6 Essence of the Training in Japan

	Group	Nos. (person)	Duration* (days)	Training Period**
1 st	A group	10	13	November 2021
2 nd	B group	10	9	November 2021

*Including travel date

**This might be modified due to COVID-19 and employment status of DMTCL

Source: JICA Expert Team

Table 3-7 Grouping and its Aims

Group	Candidate*	Aim of selection	Concept of the training
A group	MD (1)/ Director (2)/ GM (5)/ DGM (2)	MD/Director/GM are the core of the business and operation management group. Training will be focused on the management level.	<ul style="list-style-type: none"> · Understand the importance of the active involvement of the management level · Clarify the area of responsibility and authority · Understand the role and responsibility of the manager of operation section and learn the fundamental idea of organization management · Prepare the safety management documents
B group	Safety & Quality Audit (2) /Assistant Manager etc. (8)	Safety & Quality Audit and Assistant manager level who has a good attitude and high test scores are selected. Candidates are selected from various sections for synergy effect.	<ul style="list-style-type: none"> · Understand the role of a person in charge · Possible to act the work as the safety first philosophy

*This might be modified due to COVID-19 and employment status of DMTCL

Source: JICA Expert Team

The specific contents, types of the training, and the expected outputs of trainings in Japan is summarized in . It is also assumed that a site visit and tour of Osaka Metro facilities, such as the depot and the accident exhibition center will be done. In addition, expert team will introduce the latest technologies such as DX and IT utilization in safety management. Furthermore, considering that the underground metro has been developed in Dhaka, the safety management contents of the underground section of Osaka Metro will be included in the training.

Table 3-8 2nd Training Itinerary (A Group) (Draft)

Day	Contents	Type	Expected Outputs
Day 1, 2	Sat/Sun (Travel/arrival in Osaka)		
Day 3	Mon Railway accidents in Japan (review), Develop the safety-first philosophy (review)	Classroom	Understand the purpose of the training related to safety. Understand the safety awareness, necessity of the development of safety-first philosophy
Day 4	Tue Transport safety management system (review), examples of safety management	Classroom/ discussion	Understand the contents of establishment of safe culture
Day 5	Wed Responsibility and role of director and management class (review)	Classroom/ discussion	Understand the role for developing their own safety management system
Day 6	Thu Safety management	Classroom/	Select the necessary documents for

Day	Contents	Type	Expected Outputs	
	documents, guide the formulation of safety management documents	discussion	DMTCL Documentation of the necessary documents and understand the document management	
Day 7	Fri	Guide the formulation of safety management documents and safety policy	Classroom/discussion	Documentation of the necessary documents of practical contents and understand the document management
Day 8, 9	Sat/ Sun (Leave)			
Day 10	Mon	Site visit	Site visit	Understand their own responsibility referring to each department
Day 11	Tue	Discussion on safety management system, summary of trainings	Discussion	Guide the practical activity for safety first philosophy based on the current situation
Day 12, 13	Wed/Thu (Travel)			

*Itinerary shall be modified as necessary

Source: JICA Expert Team

Table 3-9 2nd Training Itinerary (B group) (Draft)

Day	Contents	Type	Expected Outputs	
Day 1, 2	Sat/Sun (Travel/arrival in Osaka)			
Day 3	Mon	Railway accidents in Japan (review), Develop the safety-first philosophy (review)	Classroom	Understand the purpose of the training related to the safety. Understand the safety awareness, necessity of the development of safety-first philosophy
Day 4	Tue	Transport safety management system (review), examples of safety management	Classroom/discussion	Understand the contents of establishment of safe culture
Day 5	Wed	Responsibility and role of a person in charge of safety (review), Safety management documents	Classroom/discussion	Understand the role for developing the safety management system and its examples Documentation of the necessary documents of practical contents and understand document management
Day 6	Thu	Site visit	Site visit	Understand own responsibility referring to each department
Day 7	Fri	Discussion on safety management system, summary of trainings	Discussion	Guide the practical activity for safety first philosophy based on the current situation
Day 8, 9	Sat/Sun (Travel)			

Source: JICA Expert Team

If it is not possible to conduct the training in Japan due to COVID-19, the following are considered.

Table 3-10 Pattern Wise Situation of Training in Japan and Measures of Implementation

Pattern	Situation	Methodology for Training
Pattern 1	Impossible to travel from Dhaka to Japan, but possible to travel from Japan to Dhaka	Japanese expert team will travel to Dhaka and conduct the training in Dhaka. Site visit will be implemented by connecting Japan (Osaka Metro HQ) and Dhaka (Japanese Expert) by wearable camera.
Pattern 2	Neither Impossible to travel from Dhaka to Japan, nor travel from Japan to Dhaka	Implemented through online training by connecting Dhaka and Japan. Site visit will be implemented by connecting Japan (Japanese Expert) and Dhaka (local expert) by wearable camera.

Source: JICA Expert Team

[8-3] Training in a third country

(1) Reason for selecting the training in a third country

Based on the fundamental contents learned in the hybrid training and the training in Japan, the training will have a multi-perspective view by grasping the operational status of MRT in developing countries. The candidate training site is Jakarta MRT (MRTJ), which is a "2-3 years senior class" that was constructed and operated with the support of JICA and opened in 2019. Like DMTCL, MRTJ is an organization that gathered and opened human resources with less railway operation experiences. At the time of the training, various issues related to MRT operation, including rolling stock maintenance, will come to rise in the future in Dhaka, therefore the expert team believes that the issues MRTJ is facing are common issues that DMTCL will face in the near future.

(2) Essence of Training

DMTCL will hear about the points that will be helpful to Dhaka in the operation of MRTJ and incorporate them into the operation of DMTCL. The confirmation points are assumed to be as follows, and the questionnaire will be sent to MRTJ in advance so that answers can be obtained by the time of training. The target trainees will be about five people who will be the core of PIU and will be selected through training in Japan.

If DMTCL and expert team cannot travel to Jakarta, the expert team contacts MRTJ through a local subsidiary of Nippon Koei Co., Ltd in Jakarta for online training that connects the three bases in Japan, Dhaka, and Jakarta.

- Prepared contents before opening (type and contents of safety documents, safety management system, and instruction system)
- Situation and details of implementation procedure after opening which are state of occurrence of unforeseen circumstances, status of implementation of education / training, status of review of documents, organizational revision after opening, status of review / improvement related to introduction / revision of equipment / systems, method.
- Activities to accidents and near miss accidents which are whether the reporting method and number of accidents and near miss accidents, communication system, processing method, information development method, and training was useful in handling accidents, and whether the procedure manual was reviewed.
- What kind of guidance was given by the JICA technical professional team, etc. and how was it incorporated?
- Underground safety management facilities and operation methods
- Public relations method and means

Table 3-11 Training Itinerary of Third Country (Draft)

Day		Contents	Type	Expected Outputs
Day 1	Sun	Travel		
Day 2	Mon	Courtesy visit to MRTJ, introduction of Dhaka	Classroom/ interview	Understand the safety documents and the management system of

Day		Contents	Type	Expected Outputs
		MRT, hearing to MRTJ		MRTJ
Day 3	Tue	Site visit	Site visit	Understand the safety facilities and operation method of MRTJ
Day 4	Wed	Additional hearing and discussion among DMTCL	Site visit/ interview	Understand and deepen the overall safety management system in MRTJ
Day 5	Thu	Summary of the training	Discussion	Arrangement and adjustment of incorporation to the operation of DMTCL
Day 6	Fri	Presentation of the summary and output	Discussion/ presentation	Mutual understanding with MRTJ and networking with MRTJ
Day 7	Sat	Travel		

Source: JICA Expert Team

[9] Procurement of training/communication equipment

Basically, there is no provided equipment and the expert team is expected to purchase. Regarding the procurement for the Work, the expert team will procure two large displays in Bangladesh, two cameras/microphone sets one each in Bangladesh and Japan, and one wearable camera in Japan for hybrid training and daily web meeting. Efficient web conferencing and training will be possible by connecting one PC of a local expert who will be hired in the Work to the Japanese side and sharing the screen of the Japanese side on the display. After the completion of this work, it will be usable for any activities in DMTCL.

In addition to this, if it is found that other equipment are needed during the implementation of the Work, the expert team will consult with JICA and for the approval of additional purchases.

[10] Preparation of Project Completion Report

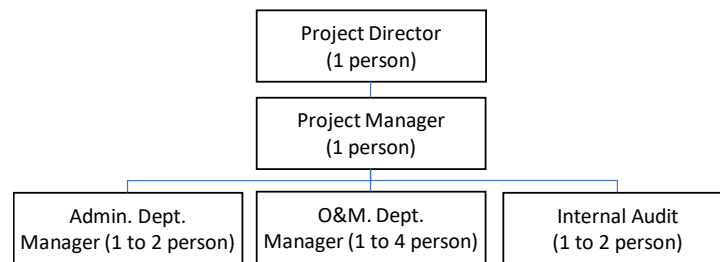
The project completion report will be prepared together with the counterpart organization after incorporating the activity reports of the counterpart organizations, such as training reports and action plans. The report covers the vision to be aimed, the gap with the current situation, future action policies, etc., so that the counterpart organization can also use it as a base for MRT safety operation plans.

[11] Establishment of PIU for the Work

In order to establish and start PIU at an early stage, the expert team will encourage DMTCL to consider the leader/member/responsibility sharing plan of PIU before the JCC, taking into consideration the employment status of DMTCL at the beginning of the Work. After that, at the same time as explaining the work plan of the first JCC, the expert team will appoint the PIU candidate with the idea of ensuring the effectiveness of the safety management system in Japan. An example of this would be that the safety general manager allocates the director class.

As described in Technical Approach 3, in consideration of the current employment status of DMTCL, PIU will initially appoint about five people, and then expand to ten people by the training in Japan. From the perspective of gender balance, the expert

team will consider the appointment of female employees for PIU member or participation of training in Japan. Current consideration of PIU composition is shown in Figure 3-8.



Source: JICA Expert Team

Figure 3-8 Composition of PIU

The DMTCL needs to take the initiative to establish PIU member. On the other hand, expert team also recommends members and conditions for selecting members to ensure the effectiveness of PIU. Expert team is considering that the members of DMRTDP continuously join DMTCL for operation and maintenance position.

For example, Mr. Md. Saidur Rahman, who is the Additional Project Director (E & M System and Rolling Stock) of Line 6 from BR, is considered to be a best person. He has leadership and capability and will play an important role as well as an operation and maintenance stage after opening. The expert team would like to recommend him, including the future promotion of DMTCL positions.

[12] Training to director level and PIU

This content will be conducted by hybrid and training in Japan for Group A shown in "[8-1] Implementation of Hybrid training" and "[8-2] Implementation of training in Japan".

For the proper operation of safety management, it is necessary for the director level and PIU, who are directly engaged in system development and management, to fully understand their roles as summarized below.

Expert team will try them to understand the necessity of continuous practice and review by introducing the activities of Osaka Metro.

- Safety first awareness and build a safe culture in DMTCL
- Acceleration of communication between employees and manager level based on safety policies
- Thorough awareness of legal compliance and safety first
- Internal audit and effective activity toward near miss accidents information
- Preparation and approval of necessary documents

In addition, in order to make the director level and PIU understand the importance of continuously implementing safety management through the "PDCA cycle," frequent monitoring will be carried out by the expert team even after the completion of various trainings.

[13] Preparation of regulations and manuals by PIU

When preparing regulations and manuals, DMTCL will consider the necessary regulations, consider the operation method, and the expert team will give guidance. On the other hand, since it is difficult to prepare a document system for regulations and manuals only with DMTCL, the essence of the document system of Osaka Metro will be lectured as a reference.

The document system of Osaka Metro consists of (1) the documents that show the basic procedures for building and improving the safety management system, (2) the documents that are required to be created by related laws and regulations, (3) the documents that the business operator deems necessary.

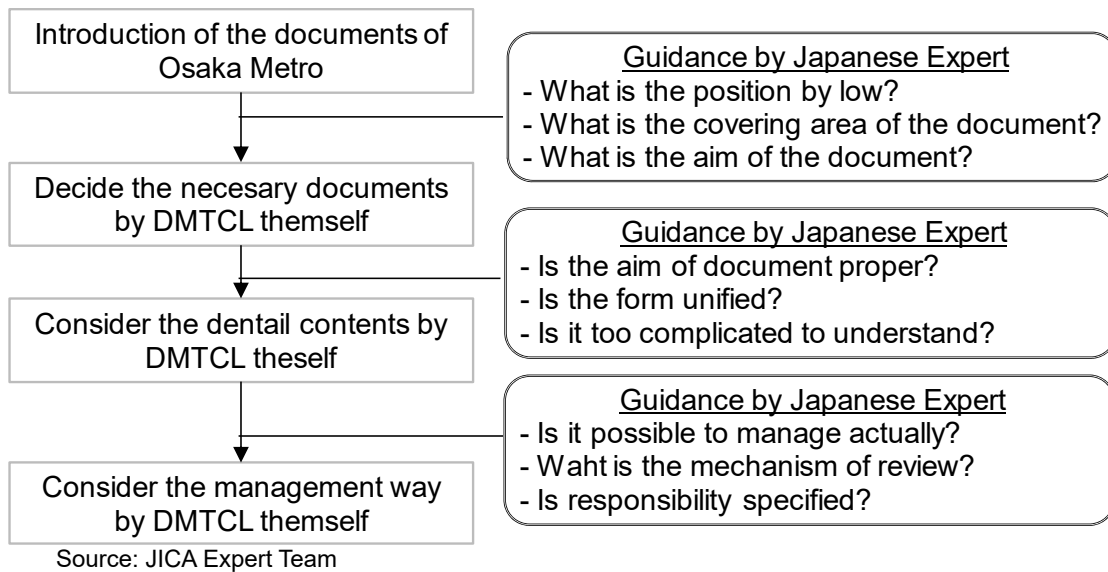


Figure 3-9 Process of Document Preparation

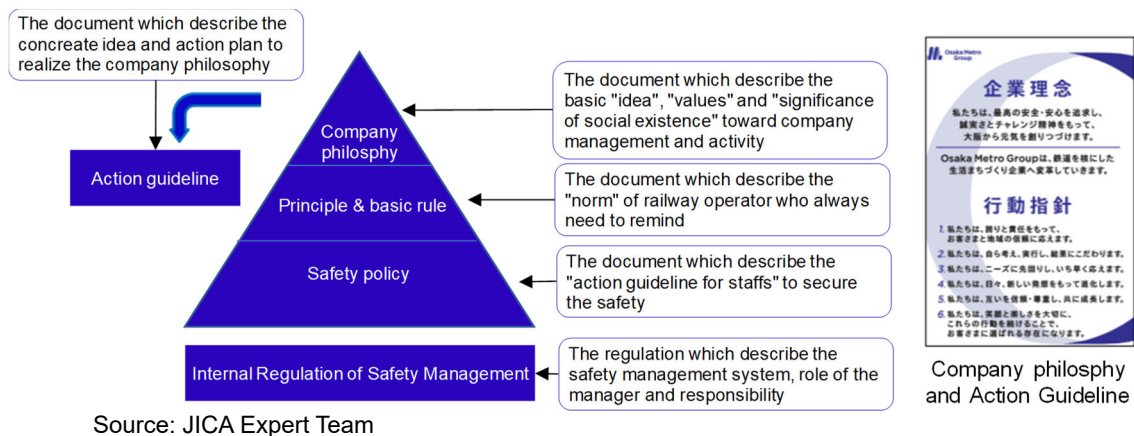


Figure 3-10 Document System for Safety Management in Osaka Metro

The purpose, scope, responsibilities, procedures, and remarks of each document will be explained together with the relationship, with an actual urban railway operation. Considering that DMTCL will operate an underground MRT in the near future, the know-how for operating the underground metro by Osaka Metro will also be covered.

This guidance will support the formulation of safety management documents in the training in Japan for A group. Since it is considered that all documents cannot be prepared by training only in Japan, a follow-up by expert team and its national expert will be conducted even after the training in Japan is completed.

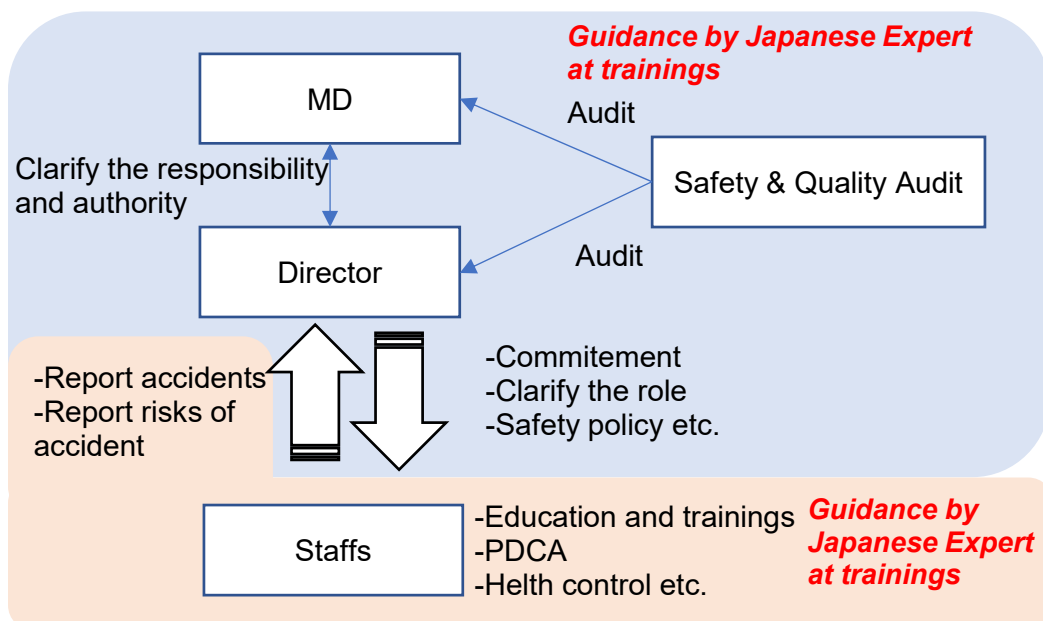
Regarding the created documents, the expert team will check the contents through regular web meetings and advise on improvement points. In addition, the expert team will give direct advice when traveling to Bangladesh for JCC.

[14] Establishment of safety management system

At present, the expert team is considering the outline shown in Figure 3-11 in addition to internal audits and internal controls to establish a safety management implementation system. In order to achieve these, it is important to work together with MD, Director, and Safety & Quality Audit (Internal Audit). Even in Bangladesh, where top-down organizational management is well established, top management must be able to clarify responsibilities and authorities in accordance with the audit contents of internal auditors.

As a support method for establishing these systems in the Work, the expert team will give lectures and guidance to the top management while showing an example of Osaka Metro by the training in Japan. Regarding the commitment of the top management, the expert team will give advice so that DMTCL can express their policy to make the same kind of commitment through the training in Japan.

For general employees of DMTCL, lectures and guidance will be given so that the roles of general employees can be clarified through the trainings in which all employees can participate.



Source: JICA Expert Team

Figure 3-11 Implementation Structure for Safety Management System and Guidance of the Expert Team

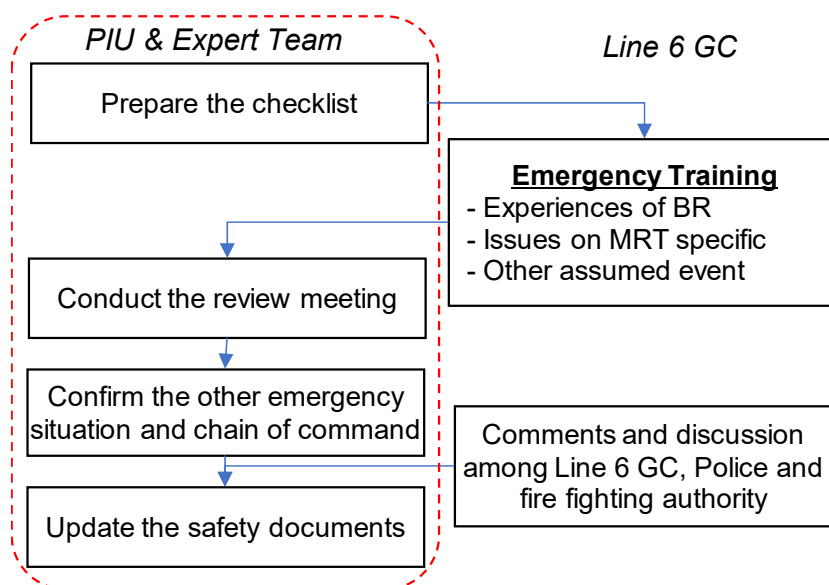
[15] Preparation and evaluation of safety management system through the training of emergency activity

The training of emergency activity will be implemented by GC in consideration of a variety of disasters and accidents in the MRT.

In the Work, a checklist will be prepared before training, and the expert team and PIU will jointly confirm if an appropriate safety management has been implemented or not. After the training is conducted and after the creation of records, a review meeting will be held with participants and related organizations. DMTCL will respond to the issues clarified in the training and review the instruction communication system, safety management documents, etc.

Osaka Metro is working to raise employee safety awareness and lessons learned from past accidents by formulating training procedure manuals and conducting trainings that assume serious accidents. In addition, based on the training outputs, Osaka Metro is reviewing their safety management and improving their emergency system.

The expert team will also guide such cases through training, etc., and consider reflecting them in the DMTCL plan.



Source: JICA Expert Team

Figure 3-12 Update Procedure of Safety Document Management through the Training of Emergency Activity

[16] Evaluation of safety management activity before full opening of MRT Line 6

Safety management activities will be evaluated within the whole DMTCL organization, and will be evaluated by the expert team based on the table below after considering the circumstances of DMTCL.

Table 3-12 Evaluation Items, Contents and Indicators

Items	Contents	Indicators
Positiveness of activity	Evaluate the participant of JCC, hybrid training, training in Japan, training in a third country, other meetings	Number of participants

Items	Contents	Indicators
Way of the achievement of benchmark and goals	Evaluate how much DMTCL considers and reflects in its actions the way of achievement of benchmark and goals	Qualitative evaluation by the expert team
Change of safety awareness	Evaluate how safety awareness has changed based on the baseline survey	Quantitative analysis
Safety management system after the Work	Evaluate how much DMTCL can operate without the advice and guidance of the expert team	Qualitative evaluation by the expert team

Source: JICA Expert Team

If problems of management system or event occur even considering the local circumstances, the expert team will point out and improve it along with the reason and case studies in Japan.

Those activities will be utilized as part of the evaluation. In addition, important points will be instructed so that DMTCL can independently review and improve its own organization after the completion of the Work.

[17] Public Relation Activity

The purpose of the public relations (PR) activities is to "get a correct understanding of the significance, activity contents, and results of the Work." Target for PR will be "(1) Bangladesh citizens," "(2) Japanese citizens," and "(3) Japanese and Bangladesh donor officials."

Since the aim of PR target differs depending on each target person, PR plan will be formulated and implemented based on the experiences of Osaka Metro regarding "target", "purpose", "contents to be communicated", "method of communication", "necessary tools", and "evaluation of PR effect". At present, the aim of PR and its means in each target are summarized in Table 3-13. The means of PR and the arrangement of the Work are assumed in Table 3-14. However, these will be decided after a close coordination with JICA and Line 6 GC.

Table 3-13 Aim of PR and its Means in Each Target

Target	Purpose of PR	Estimated PR Media
Bangladesh citizens	Make the public aware of the safety management activities and outputs of the Work and make them aware that MRT is a safe and secure means of transportation.	Local TV commercials, newspapers, animations, and advertisements in the trains and at the station
Japanese citizens	The activities of the Work will be publicized, and the details of Japan's international cooperation projects will be made known.	Online articles, journal publications, and animations
Japanese and Bangladesh donors	By making the significance, activity content, and outputs of the Work a common understanding among donor officials in both countries, it will be the result of the international cooperation project.	Safety report and animation

Source: JICA Expert Team

Table 3-14 Summary of the Contents, PR Media, Arrangement and Candidate of Sublet Company

PR Media	Contents	Target	Arrangement	Candidate of Sublet
TV CM	Broadcast on local television as commercial. Assuming 10 minutes and 30 days per month	Bangladesh citizens: Middle and elder people	Sublet to local company through advertising agency	-Rectangle -Soft Wind Tech
Newspaper	Conduct press release from DMTCL regarding the opening of metro, and op-ed on paper depending on the situation by quality papers	Bangladesh citizens: educated people	Coordinated by the Japanese expert and local expert and written by reporters	-The Daily star -Dhaka Tribune -The Finance Express -Prothom Alo
Animation movie	Assumed within 3 minutes. Uploaded to YouTube, SNS, DMTCL/expert team websites. Broadcast at DMTCL's PR facility (exhibition center). Videos can be distributed to related parties	Bangladesh citizens: Young age who use SNS and donor officials in Japan and Bangladesh	Sublet to a Japanese company to ensure quality	-Life Spice -Creating Office Caps -Planning Matsumoto -Kashiwara design office
Advertising in the train and/or at the station	Use the advertising space inside the train and/or at the station. If possible, do an "advertising jack" to create an impact	Bangladesh citizens: MRT users	Sublet to the local company about design work	-Soft Wind Tech 社
Online script and journal	Post online articles that specialize in transportation and railways, such as "Toyo Keizai Online" and "Response News"	Japanese citizens: Especially the person who are interested in railway and developing countries' cooperation	Coordinated by Japanese expert and written by reporters	-Toyo Keizai Online -Response news
Safety report	A4 spread 4 pages, English version and Bengali version are assumed. A total of 1000 copies will be printed, mainly distributed to donors. The data will be uploaded to DMTCL's HP and SNS.	Bangladesh citizens: Donor officials of Bangladesh and Japan	Sublet to Japanese company about design work to ensure quality, and sublet to the local company for printing	Design: Japan - Same as animation Printing: Bangladesh -Softwind Tech -Business system

Source: JICA Expert Team

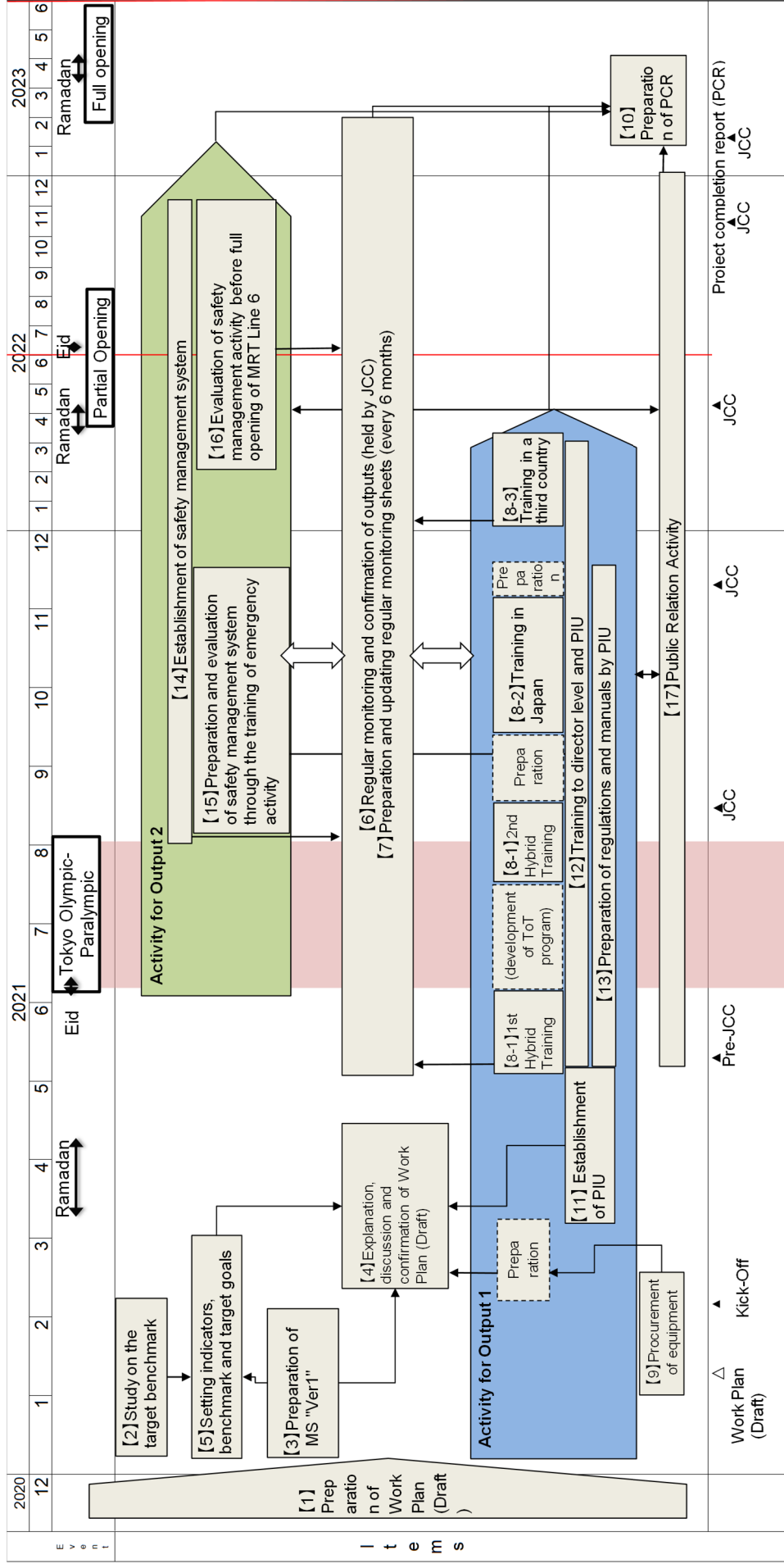
Advertisement design in the train and at the station, TV commercials, and report printing, which are expected to sublet to Bangladesh company, will be negotiated with the company who offered the lowest estimate by competition. The method of supervising the sublet work is arranged and supervised by Japanese experts and a local PR expert. At the same time, Osaka Metro Services is also a company of advertising agencies of Osaka Metro. Therefore, expert team will check with the PR department of Osaka Metro Services, as appropriate, to supervise the work and inspect the deliverables.

For the sublet work in Japan which are animation and safety report design production, the expert team will obtain quotations from three or more companies that have been

contracted by the expert team in the past and are known to guarantee quality. The company who will propose the lowest quotation will be the first negotiation company. It is managed by Japanese experts who are with "Public Relations" and the "Team Leader/Safety Management."

3.4.2 Workflow

Workflow is shown in the next page.



Source: JICA Expert Team

Figure 3-13 Workflow

3.5 Work Plan

3.5.1 Overall Plan

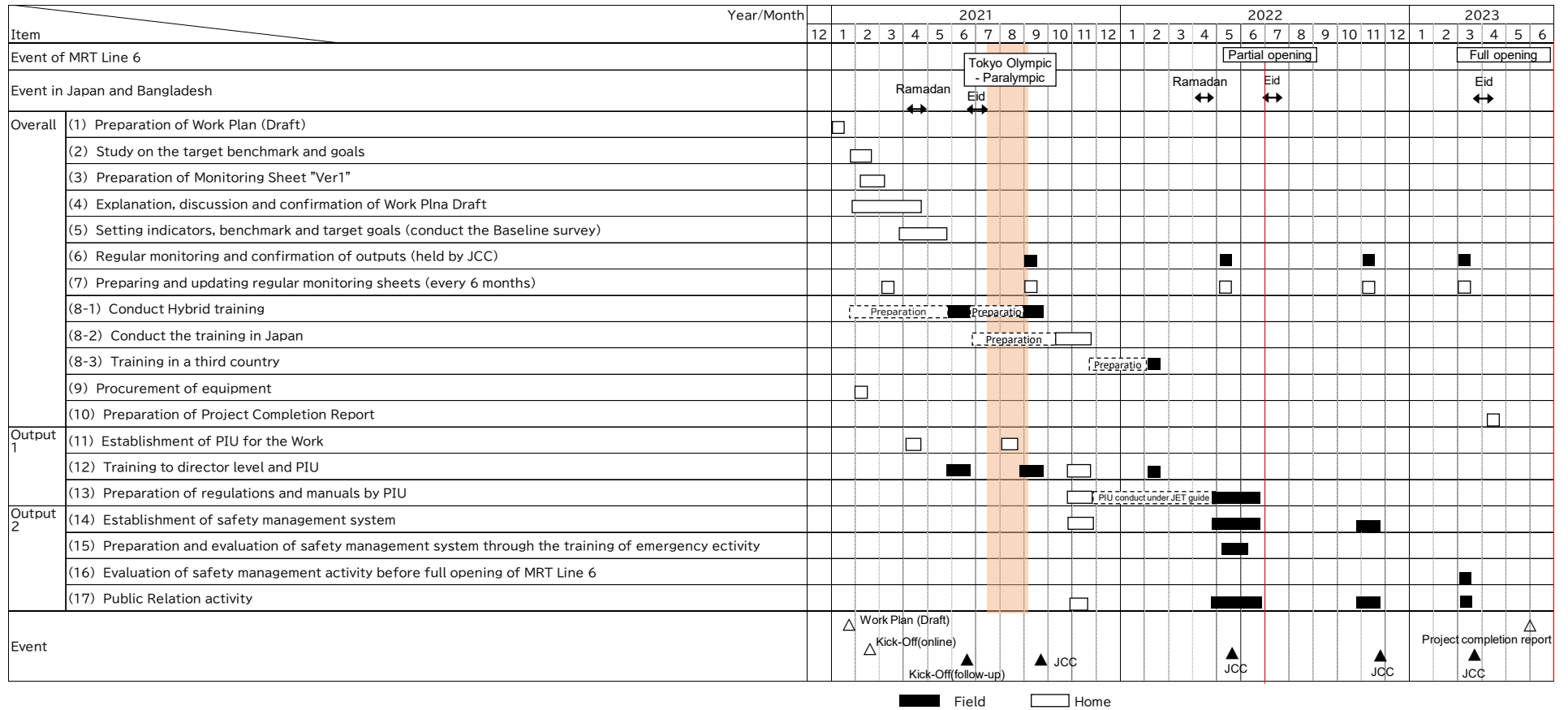
The work will start on January 2021 and end in June 2023. Since COVID-19 is expected to have a direct impact on the work due to delays in the opening of Line 6, updated information will be closely shared with JICA and Line GC team. In addition, the expert team will pay attention to events that have a large impact on the work schedule such as the Ramadan period, Eid holiday, and Tokyo Olympics and Paralympics game in Japan, and appropriately control the entire process.

At present, travel to Dhaka has resumed, but short-term travel is inefficient due to the two-week quarantine. In addition, the employment status of DMTCL is not going well. At the beginning of the Work, work plan draft, benchmark/goals setting, and preparation of the training material are carried out in home assignment (in Japan). The expert team will pay attention to maintaining an efficient work output even in the travel restricted situation.

In addition, with the cooperation of NKB, the expert team will hire local experts at an early stage of the Work. Kick-off meetings and JCC are scheduled to be held online at the beginning and make it a process that can carry out work efficiently through the local experts.

In the field assignment, the expert team will follow up on the contents confirmed the web meetings during the home assignment period and be careful not to miss any information. In the first trip, the expert team will share and finalize the outline of the specific contents and schedule of the training in Japan and proceed to make the training in Japan more efficient. For the training in Japan, the expert team will formulate a training plan while closely coordinating with JICA so that the expert team can manage the program within a limited time.

The Project on Technical Assistance for
Mass Rapid Transit Safety Management System of Line 6
Work Plan (Draft)



Source: JICA Expert Team

Figure 3-14 Work Plan

3.5.2 Deliverables

Table 3-15 summarizes the deadline and the number of sets of deliverables.

Table 3-15 Deadline and Number of Sets of Deliverables

Deliverables	Deadline	No. of Sets
Work Plan (Japanese)	Within 10 working days from the contract day	3
Work Plan (English)(Draft)	10 working days from the contract day	3
Work Plan (Final)	Approximately within one week from the first JCC	3 (English)
Monitoring Sheet Summary, Monitoring Sheet I & II "Ver.1"	1 month after the contract	1 (English) or electronic format
Monitoring Sheet Summary, Monitoring Sheet I & II "Ver.2" or more	Every 6 months after the submission of the Monitoring Sheet Summary, Monitoring Sheet I & II "Ver.1"	1 (English) or electronic format
Project Completion Report	31 st July 2023	5 Japanese (Summary) 10 English 3 CD-R

Source: JICA Expert Team

3.6 Staffing Schedule

3.6.1 Japanese Expert

The training plan and its appropriate implementation is the most important task for the Work. For the assignment of the Japanese expert team, the training plan and training implementation support system will be enhanced under the supervision of the Team Leader.

For training plans and safety management lecture, experts who have long been involved in the operation experience in Osaka Metro have been assigned.

Especially, experts who have engaged in MRT operation, and in charge of safety training within Osaka Metro are assigned.

In addition, since it is required to build a close relationship with DMTCL from the beginning of business, experts who have experiences with MRT projects will be assigned.

Since each position requires a high degree of specialization, the staffing will be a combination of people with experience and expertise as a consultant of Nippon Koei and experience as a railway operator of Osaka Metro.

Figure 3-15 shows the staffing schedule for the Japanese expert team.

The Project on Technical Assistance for
 Mass Rapid Transit Safety Management System of Line 6
 Work Plan (Draft)

						2021												2022												2023						Total day	Field MM	Home MM									
Position	Name	Firm	Rank	Trip		12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6											
Assignment in Field																																															
1	Team Leader/ Safety Management	Atsushi Mochizuki	NK	2	6							■		■					■																	■							150.0	5.00			
2	Training Planning (Management Level)/Safety Document Management Plan 1	Yasuji Ogino	OMS	3	0																																							0.0	0.00		
3	Training Planning(Safety Staff Level)	Nobuo Nakai	OMS	3	4																																							45.0	1.50		
4	Safety Management (Organization Management)	Keiji Matsuoka	OMS	3	4																																							45.0	1.50		
5	Safety Management (Implementation)	Naoki Yamaguchi	OMS	3	4																																							45.0	1.50		
6	Safety Management (Document Management)	Tokuji Sakai	OMS	3	0																																							0.0	0.00		
7	Safety Document Management Plan2	Yoshiyuki Tajima	NK	4	6							■		■					■																		■							165.0	5.50		
8	Training Implementation	Ryohei Hashimoto	NK	6	6							■		■					■																		■							165.0	5.50		
9	Public Relation Activity/ Training Implementation Support	Hayami Saso	NK	6	4							■		■					■																		■							135.0	4.50		
Assignment in Japan																																															
1	Team Leader/ Safety Management	Atsushi Mochizuki	NK	2	-		□	□	□	□		□		□		□	□	□												□								□					20.0		1.00		
2	Training Planning (Management Level)/Safety Document Management Plan 1	Yasuji Ogino	OMS	3	-		□	□	□	□	□	□	□	□	□	□	□	□	□	□										□			□	□											100.0		5.00
3	Training Planning(Safety Staff Level)	Nobuo Nakai	OMS	3	-		□	□	□	□	□	□	□	□	□	□	□	□																										70.0		3.50	
4	Safety Management (Organization Management)	Keiji Matsuoka	OMS	3	-		□	□	□	□	□	□	□	□	□	□	□	□																										70.0		3.50	
5	Safety Management (Implementation)	Naoki Yamaguchi	OMS	3	-		□	□	□	□	□	□	□	□	□	□	□	□																										40.0		2.00	
6	Safety Management (Document Management)	Tokuji Sakai	OMS	3	-		□	□	□	□	□	□	□	□	□	□	□	□																										70.0		3.50	
7	Safety Document Management Plan2	Yoshiyuki Tajima	NK	4	-																																							40.0		2.00	
8	Training Implementation	Ryohei Hashimoto	NK	6	-																																							40.0		2.00	
9	Public Relation Activity/ Training Implementation Support	Hayami Saso	NK	6	-																																							10.0		0.50	
																														460.0		23.00															
Event						Work Plan	△ Kick-off(online)	△ Hybrid Training	▲ JCC Hybrid Training	▲ JCC Training in Japan	■ Training in Jakarta	▲ JCC	▲ JCC	▲ JCC Project Completion report	Total		25.00	23.00	48.0																												

Source: JICA Expert Team

Figure 3-15 Staffing Schedule

Figure 3-17 shows the schematic figure of the management system between the Japanese and local experts. Note that the figure described here only shows tasks for local experts. Other tasks shall be covered by the Japanese experts.

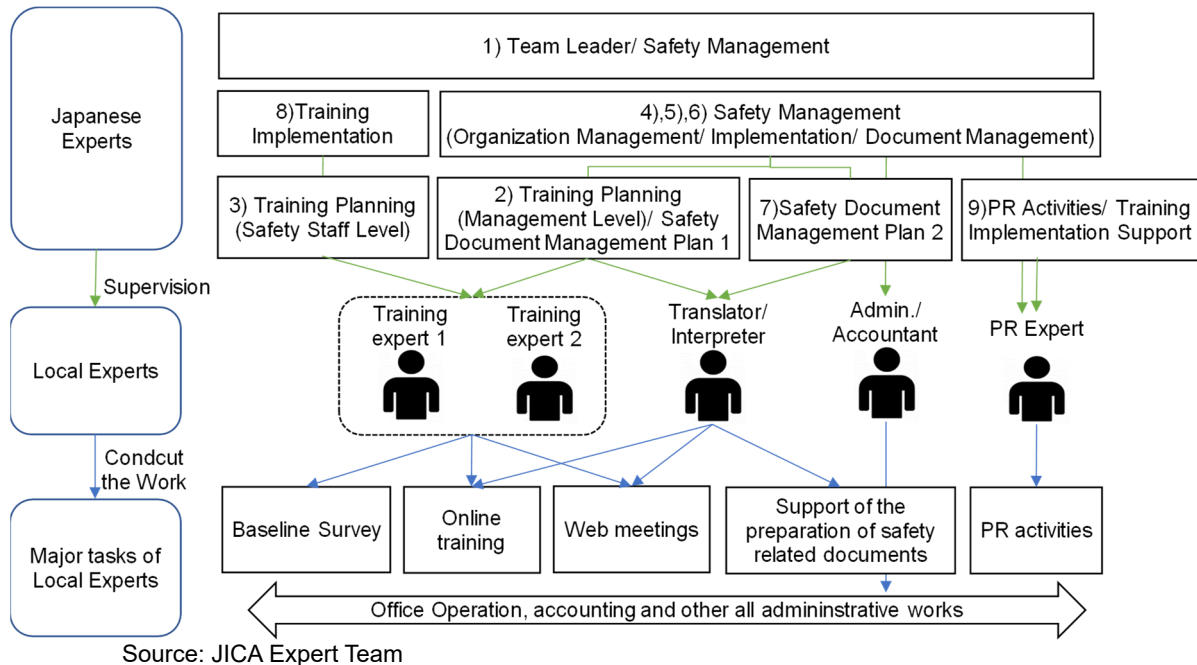


Figure 3-17 Schematic Figure of Management System between the Japanese and Local Experts

3.7 Provision of Convenience

Logistic support such as provision of office space, printer/copier multifunction devices, the connection to the internet, and other minimum office equipment are expected from the Bangladeshi side.

Especially, from the viewpoint of preventing the spread of COVID-19, the office space shall secure provisions for physical distance (approximately 2 m) so that people are not crowded in the DMTCL office building.

Annex 3: Baseline Report

Annex 3: Baseline Survey

1st Baseline Survey Report

SUMMARY OF 1ST BASELINE SURVEY

April 2022

JICA Expert Team

Nippon Koei Co. Ltd
Osaka Metro Service Co., Ltd

1. Outline of the Survey Summary

1.1. Background of the Baseline Survey

Japanese railway operation has over 150 year's history, and they have abundant experiences toward safety through many accidents and those lessons learned.

This project is a technical assistance of MRT safety management system for DMTCL based on the Japanese experiences. Our main purpose of the project is a technical assistant to achieve a safe and reliable operation and maintenance of MRT by DMTCL.

In order to measure the current safety awareness of DMTCL's employee, Baseline Survey has been conducted. The same type of survey will be conducted 3 times during our contract period. Each survey result will be summarized to grasp their mind change toward safety awareness by our trainings and workshops etc.

1.2. Purpose of the Survey

Baseline survey has been conducted for measuring the DMTCL's safety awareness which is one of the outputs of the project. The survey will be conducted three times as follows: (1) early stage of the project (this summary), (2) after the series of the trainings by JICA Expert Team (JET) and (3) after the opening of MRT Line 6. We will measure the awareness change among the three surveys.

1.3. Duration of the 1st Survey and Collection Method

1st baseline survey was conducted between 31 March 2021 and 21 September 2021. The samples were collected by a national staff of JICA Expert Team by visiting DMTCL headquarters and each site office until the strict lockdown in July 2021 due to the COVID-19. During the lockdown, the samples were collected by E-mail from applicable DMTCL employees.

1.4. Number of Collected Samples

67 samples were collected in total. The survey has been conducted to DMTCL employees who are in charge of Line-6 between Additional Project Director class and assistance engineer class (young employees), and Project Implementation Unit (PIU) on Safety Management System Project of DMTCL.

Detail allocation of each position is summarized in section 2 below.

1.5. Participants of the Survey

This survey has collected 67 samples as remarked above chapter. The following list (Participant list of 1st Baseline Survey) shows name, gender, age and department of participant.

Table 1.1 Participant list

No.	Name	Age	Depert	Position1	Position2
1	A.Amedul Hasan	28	3.O&M	5.Asst. Manager	
2	Ali Mohammad Saleh	29	3.O&M	5.Asst. Manager	
3	Anik Adhikary	33	3.O&M	5.Asst. Manager	
4	Dewan Golam Morshed	28	2.Planning & Dev.	6.Others	Assistant Engineer
5	Horipoda Roy	31	2.Planning & Dev.	6.Others	Assistant Engineer
6	Kamrun Nahar	31	2.Planning & Dev.	6.Others	Assistant Engineer
7	khalid Saifullah Sardar	34	2.Planning & Dev.	6.Others	Deputy Project Manager
8	Krishna Kanta Brswas	56	4.Other	6.Others	Addl Project Director
9	M. Rahat Ahmed	26	3.O&M	6.Others	Sub Asstt. Engineer
10	Mahfuzur Rahman	58	2.Planning & Dev.	4.Manager	DPM
11	Mahmudun Nayeem	27	3.O&M	6.Others	Sub Asstt. Engineer
12	Maushumi Habib	44	4.Other	3.DGM	
13	Md Saiful Islam Rashed	25	2.Planning & Dev.	6.Others	Sub Asstt. Engineer
14	Md. Abu Sufian Sarkar	28	2.Planning & Dev.	6.Others	Sub Asstt. Engineer
15	Md. AbuBakor Siddique	30	3.O&M	5.Asst. Manager	
16	Md. Adibul Islam	28	3.O&M	6.Others	Assistant Engineer
17	Md. Al-Amin Mollik	29	2.Planning & Dev.	6.Others	Assistant Engineer
18	Md. Apel Mahmud	24	2.Planning & Dev.	6.Others	Sub Asstt. Engineer
19	Md. Arafat Hossain	30	3.O&M	6.Others	Sub Asstt. Engineer
20	Md. Arifur Rahman	30	2.Planning & Dev.	6.Others	Assistant Engineer
21	Md. Asif Uddin	26	2.Planning & Dev.	5.Asst. Manager	
22	Md. Hasibul Hasan	30	3.O&M	5.Asst. Manager	
23	Md. Issa	29	3.O&M	5.Asst. Manager	
24	Md. Kamruzzaman Talukder	28	3.O&M	6.Others	Sub Asstt. Engineer
25	Md. Mehedi Hasan	27	3.O&M	6.Others	Sub Asstt. Engineer
26	Md. Milon Al-Mamun	27	3.O&M	5.Asst. Manager	
27	Md. Mizanur Rahman	30	3.O&M	6.Others	Sub Asstt. Engineer
28	Md. Mohiuddin Hasan	27	2.Planning & Dev.	5.Asst. Manager	
29	Md. Nazmul Alam	28	2.Planning & Dev.	6.Others	Assistant Engineer
30	Md. Nazmul Alam	30	2.Planning & Dev.	6.Others	Assistant Engineer
31	Md. Nazmul Hasan	28	3.O&M	5.Asst. Manager	
32	Md. Nazrul Islam	28	2.Planning & Dev.	6.Others	Sub Asstt. Engineer
33	Md. Rakibul Islam	26	3.O&M	5.Asst. Manager	
34	Md. Rasidul Hassan	29	3.O&M	5.Asst. Manager	
35	Md. Rayhan Sobhan Rana	27	2.Planning & Dev.	6.Others	Sub Asstt. Engineer
36	Md. Ridwan Hossain	27	2.Planning & Dev.	6.Others	Assistant Engineer
37	Md. Sabuz Mia	29	3.O&M	6.Others	Assistant Engineer
38	Md. Saidur Rahman	63	4.Other	6.Others	APD (E&M System and Rolling Stock)
39	Md. Saifur Rahman	28	2.Planning & Dev.	6.Others	Sub Asstt. Engineer
40	Md. Samiul Kadir	26	3.O&M	6.Others	Assistant Engineer
41	Md. Sarwar Uddin Khan	52	2.Planning & Dev.	4.Manager	Project Manager
42	Md. Shah Ali Hayder	27	3.O&M	6.Others	Sub Asstt. Engineer
43	Md. Shahidul Islam	27	3.O&M	6.Others	Sub Asstt. Engineer
44	Md. Sohel Rana	27	3.O&M	6.Others	Sub Asstt. Engineer
45	MD. Zakaria	55	3.O&M	6.Others	Joint Secretary, Additional Project
46	MD. Zubayer Bin Sharif	27	3.O&M	6.Others	Assitant Engineer (Electrical)
47	Md.Nazmul Islam	27	3.O&M	6.Others	Assistant Engineer
48	MD.Sajid Hasan	30	3.O&M	5.Asst. Manager	
49	Md.Shahriar Kabir	25	2.Planning & Dev.	6.Others	Assistant Engineer
50	Mohammad Raihan Farvqe	34	3.O&M	5.Asst. Manager	
51	Mohammed Moniruzzaman	46	2.Planning & Dev.	4.Manager	Project Manager
52	Mohd. Abdus Salam	29	3.O&M	5.Asst. Manager	
53	Mossa. Farhana Jesmin	29	2.Planning & Dev.	6.Others	Assistant Engineer
54	Muhammad Monoar Hossen.	26	3.O&M	6.Others	Sub Asstt. Engineer
55	Muhammad Saddam Hosain Sabbir.	28	3.O&M	6.Others	Sub Asstt. Engineer
56	Muhammad Shahjahan	46	2.Planning & Dev.	3.DGM	Project Manager
57	Nahiduzzaman	27	3.O&M	6.Others	Sub Asstt. Engineer
58	Nasir	31	3.O&M	6.Others	Section engineer
59	Nasir Uddin Ahmed	-	3.O&M	1.Director	
60	Raid Al Rahman	30	3.O&M	5.Asst. Manager	
61	Raihan Khalil	27	3.O&M	5.Asst. Manager	
62	Rajib Barua	28	3.O&M	5.Asst. Manager	
63	Sakibul Hasan	28	3.O&M	5.Asst. Manager	
64	Shamim Ahmed	24	3.O&M	6.Others	Sub Asstt. Engineer
65	Sohel Ahmed	34	1.Finance & Admin	6.Others	Accounts Officer
66	Sree Rocky kumar Das	30	3.O&M	5.Asst. Manager	
67	Swarno Kanti Sarker	28	3.O&M	5.Asst. Manager	
68	Uzzal Hossain	27	3.O&M	6.Others	Assistant Engineer

*Alphabetical order

1.6. Questionnaire Items

JICA Expert Team (JET) has prepared 5 items and 33 questions for all employees. In addition, 1 item and 7 questions have been prepared for Manager and above level staffs as additional questions. 1st baseline survey questionnaire is shown below (Base Line Survey Form).

(For all employees)

Base Line Survey Form

Date: ____ / ____ / ____

“The Project on Technical Assistance for Mass Rapid Transit System Management System of Line 6” is being implemented since January 2021 under the contract with JICA and Japanese Expert Team (the Consultant).

In order to measure the outputs of the Project, Base Line Survey will be conducted three times which are (1) early stage of the Project (now), (2) before partial opening (around Dec. 2021) and (3) after full opening (around Jun. 2022). We would like you to answer the following questions honestly. We will analyze your answer and will never disclose these responses. Your answer shall not have any effect on your personnel evaluation, salary, etc.

For All Regular Staffs

■ Q1: Basic Information

Q1-1 Name	
Q1-2 Department	Director: <input type="checkbox"/> Finance & Admin. <input type="checkbox"/> Planning & Dev. <input type="checkbox"/> O&M GM: DGM: _____
Q1-3 Position	<input type="checkbox"/> Director <input type="checkbox"/> GM <input type="checkbox"/> DGM <input type="checkbox"/> Manager <input type="checkbox"/> Asst. Manager <input type="checkbox"/> Others (Specify: _____)
Q1-4 Gender	<input type="checkbox"/> Men <input type="checkbox"/> Woman
Q1-5 Age	_____ years old

■ Q2: Your Awareness and Attitude

Q2-1: Do you think Bangladeshi citizens have serious awareness regarding following traffic rules?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q2-2: Do you always follow the traffic rule?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q2-3: Do you have confidence not to make errors in your work?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q2-4: Do you think you need to continue working even if your health condition is a little bit bad?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q2-5: Do you take interest in the work related activities of your colleagues?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q2-6: Do you think you need to share the information with all departments

when troubles occur in your team?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q2-7: Are you proud of working for DMTCL?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q2-8: Please feel free to describe your awareness and attitude for working.

■ Q3: Organizational Management

Q3-1: Do you think organizations in Bangladesh has tolerance for the person who make mistakes?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q3-2: Do you think you must obey the top manager's instruction?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q3-3: Do you think superior should ask subordinate's opinion?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q3-4: Do you feel free to give your opinions regarding work related activities to your superior?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q3-5: Do you think superior need to be informed even if it is a minor trouble?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q3-6: Do you always report/inform your superior even if it is a minor trouble?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q3-7: Do you think superior must grasp all work contents of subordinate?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q3-8: Please feel free to describe the current organization management system in DMTCL.

■ Q4: Reliability of Railway System

Q4-1: Do you think any accidents can be certainly prevented by the brand-new railway system which will be installed in DMTCL operation?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Reason:
Q4-2: Do you think the safety education is necessary to non-system operation staffs even if the brand-new system is installed?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No

Reason:
Q4-3: Do you think the information of accidents of BR and other countries' operators which have different railway system are useful for DMTCL?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Reason:

■ Q5: Safety Awareness toward Railway Transport

Q5-1: Do you think DMTCL needs to establish the safety related documents (safety related manuals) in order to operate the railway safely?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q5-2: Do you think internal trainings and education within DMTCL shall be required for the operation of safety management documents?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q5-3: Do you think the policy for measures taken need to be prepared even if accidents have not been occurred?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q5-4: Do you think all staffs need to collect and share information of all troubles including minor things?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q5-5: Do you think expertise staffs of DMTCL need to regularly investigate and confirm the safety activities?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q5-6: Do you think DMTCL needs to update the regulated safety management documents regularly?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q5-7: Do you think DMTCL needs to conduct PR activities of safety to customers for safety railway operation in addition to the DMTCL staff?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q5-7: Do you think it is necessary to increase DMTCL staff's awareness on the gender and vulnerable passengers (e.g. elderly, persons with disability etc.) perspectives?
<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No
Q5-8: Please feel free to describe what kind of preparations DMTCL needs in order to prevent accidents

Free answer

*Thank you very much for your answer
For manager class, please continue to answer.*

For Managers (MD/Director/GM/DGM)

■ Q5: Awareness as a Manager

Q5-1: Do you have any experiences related to the transportation business (BR, Bus, taxi, etc.)?

No Yes (if yes specify the work experiences concretely:

)

Q5-2: Do you think Bangladeshi citizens have a gap between the awareness of following traffic rules and actual behavior? Specify the reasons and ideal condition.

Exactly Yes Might be Yes Might be No Exactly No

Specify the reasons and ideal condition:

Q5-3: Do you think your subordinates have high safety awareness toward railway operation?

Exactly Yes Might be Yes Might be No Exactly No

Specify the concrete examples:

Q5-4: Each reliability from Bangladesh citizens toward BR operation.

(1)	Safety	<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No Reason:
(2)	Accuracy of work implementation	<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No Reason:
(3)	Comfortability	<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No Reason:
(4)	Punctuality	<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No Reason:
(5)	Cleanliness and Tidiness	<input type="checkbox"/> Exactly Yes <input type="checkbox"/> Might be Yes <input type="checkbox"/> Might be No <input type="checkbox"/> Exactly No Reason: _____
Q5-5: What kind of resources do you think are necessary for ensuring safety of railway operation? Check all the items you think are necessary and please specify the reasons.		
	<input type="checkbox"/> Human Resource	Reasons: _____
	<input type="checkbox"/> Equipment	Reasons: _____
	<input type="checkbox"/> Budget	Reasons: _____
	<input type="checkbox"/> Technical assistance	Reasons: _____
	<input type="checkbox"/> Others	Specify in detail: _____ Reasons: _____
Q5-6: What kind of human resources does DMTCL need?		
Free to answer:		
Q5-7: What is your role and responsibility in DMTCL?		

Free to answer:

Thank you very much for your answer

2. Summary of the Responses

The survey responses (simple tabulation and cross tabulation) are summarized in this section. Due to less than a valid size of samples in each age class, position and other attributes, there might be large bias among attributes. Therefore, no statistical analysis has been conducted and simple tabulation and cross tabulation with high related attributes are summarized.

Brief assessments on the summary are (1) Younger employees may have a wider variety of ideas than elder employees, (2) High confidents in their work and brand-new system, (3) Self-awareness on the necessity of human resources, trainings regular safety activities.

2.1. Basic Information (Item Q1)

Table 2.1 Summary of Q1-2

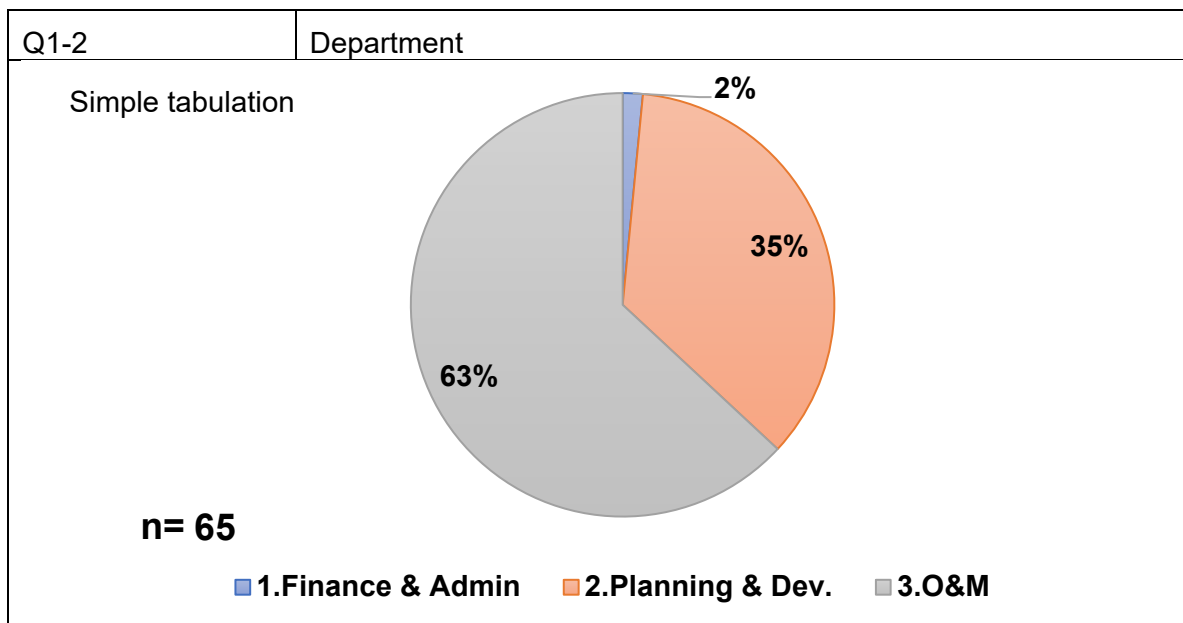


Table 2.2 Summary of Q1-3

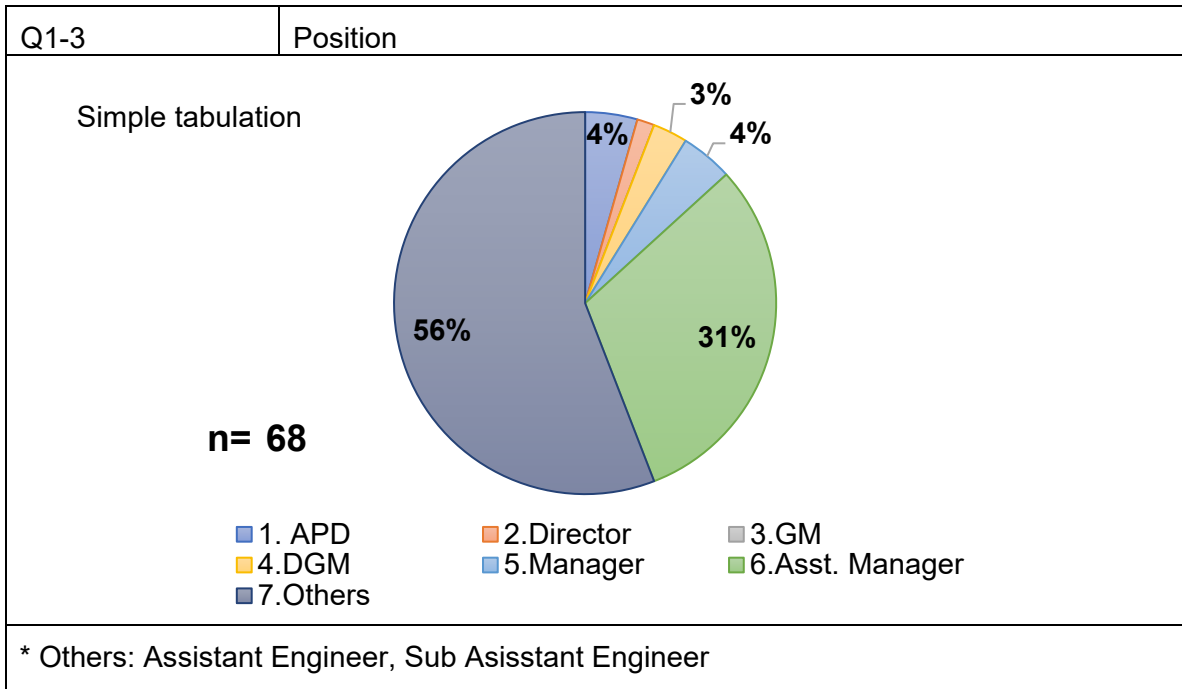


Table 2.3 Summary of Q1-4

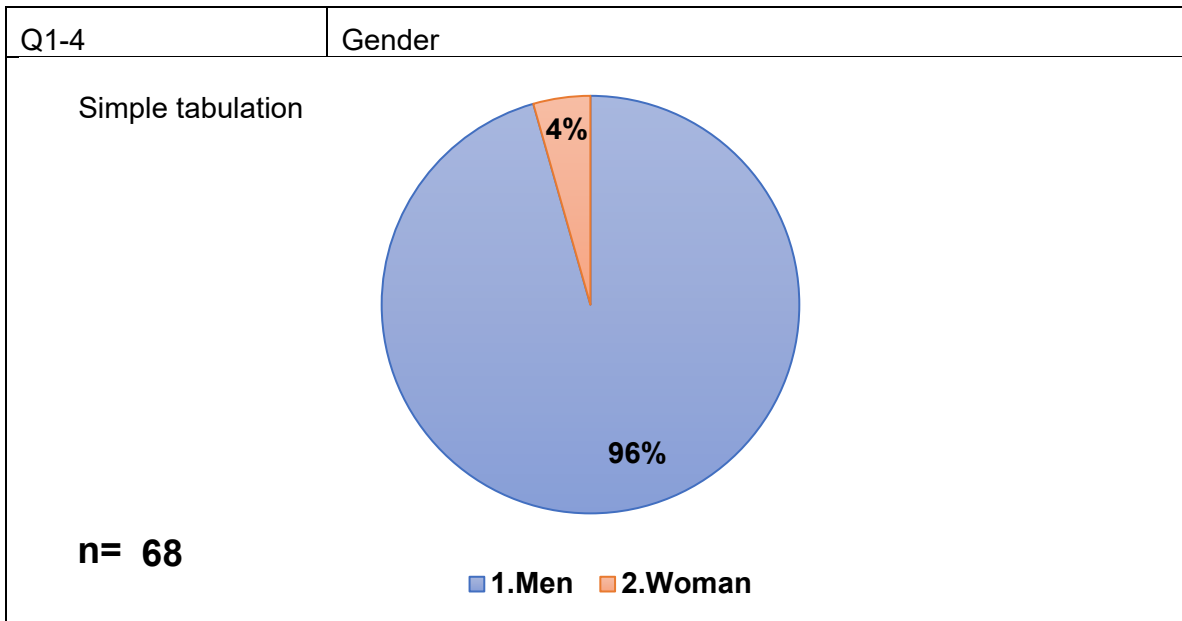
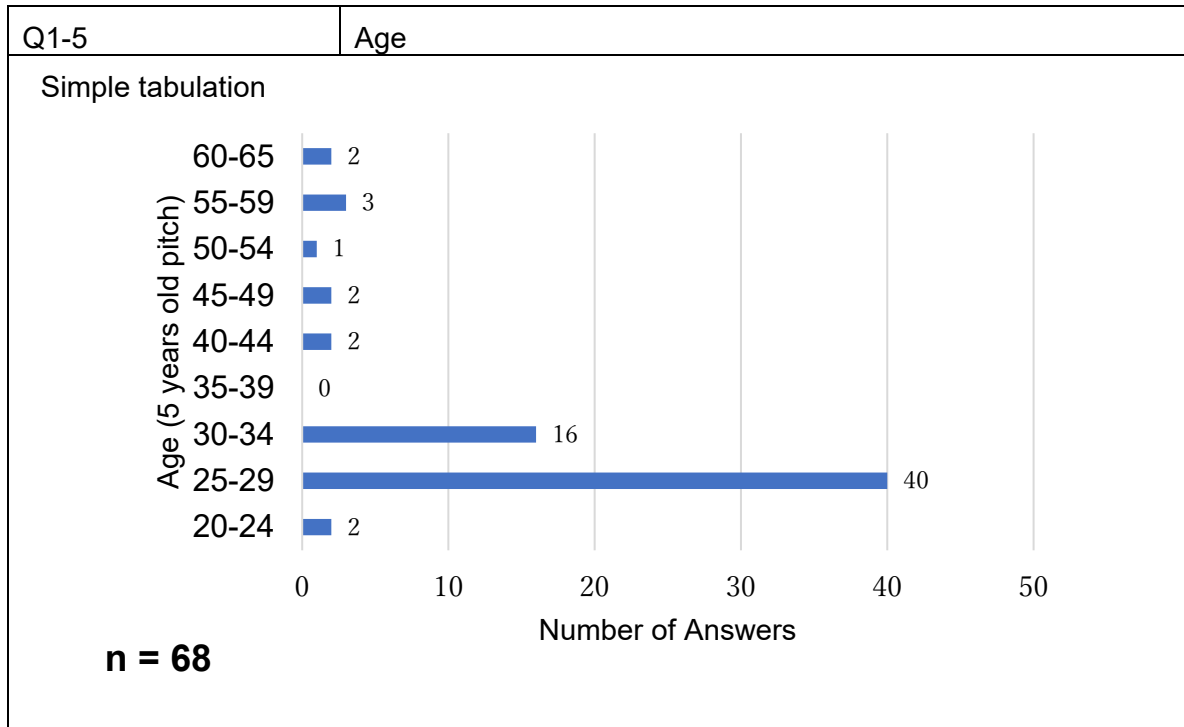
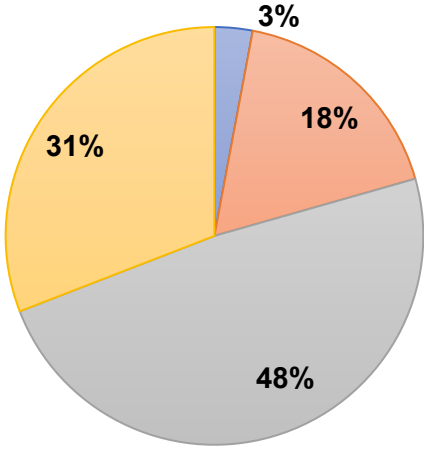
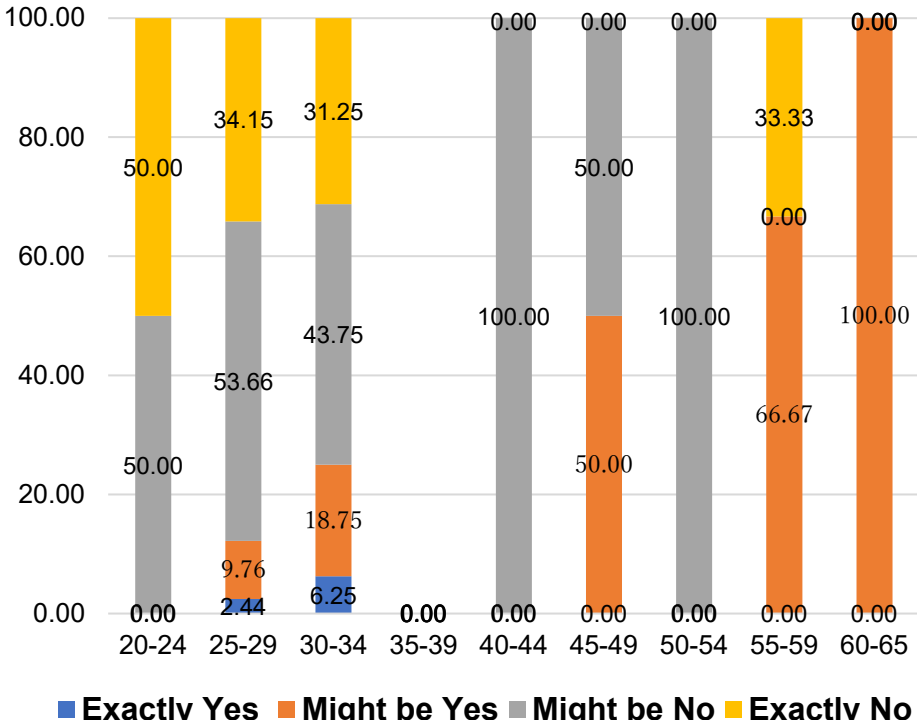


Table 2.4 Summary of Q1-5



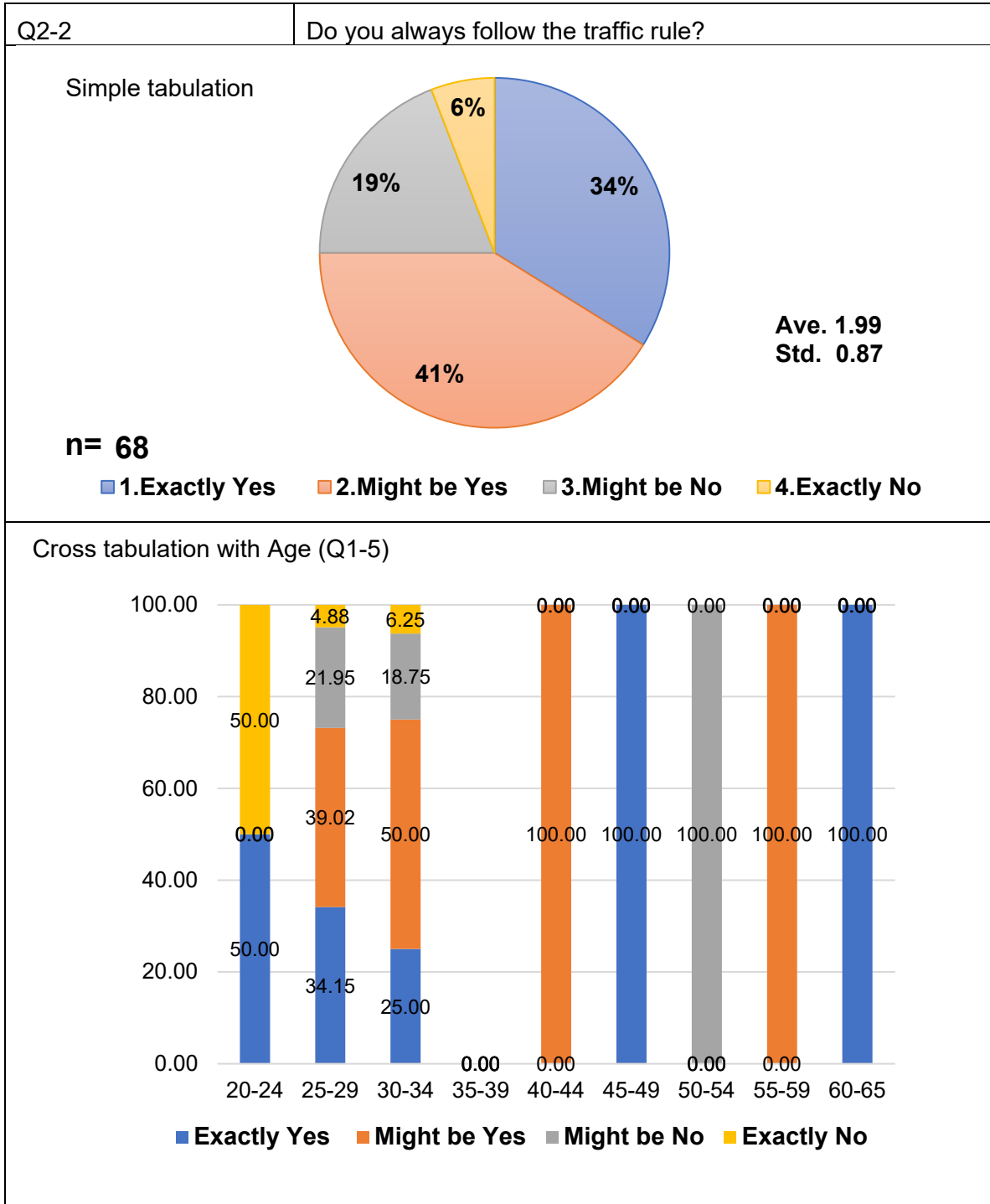
2.2. Your awareness and its attributes (Item Q2)

Table 2.5 Summary of Q2-1

Q2-1	Do you think Bangladeshi citizens have serious awareness regarding following traffic rules?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 3.09 Std. 0.77</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>Cross tabulation with Age (Q1-5)</p>  <p>■ Exactly Yes ■ Might be Yes ■ Might be No ■ Exactly No</p>	
<p>[Comment]</p> <p>A simple tabulation result shows that about 80% of all respondents answered negative choices (Might be No or Exactry No) about the traffic rule awareness of Bangladeshi citizens. Although there is a bias among the age group, cross tabulation result shows</p>	

that younger employees may have a stricter opinion toward citizen's traffic behavior than elder employees.

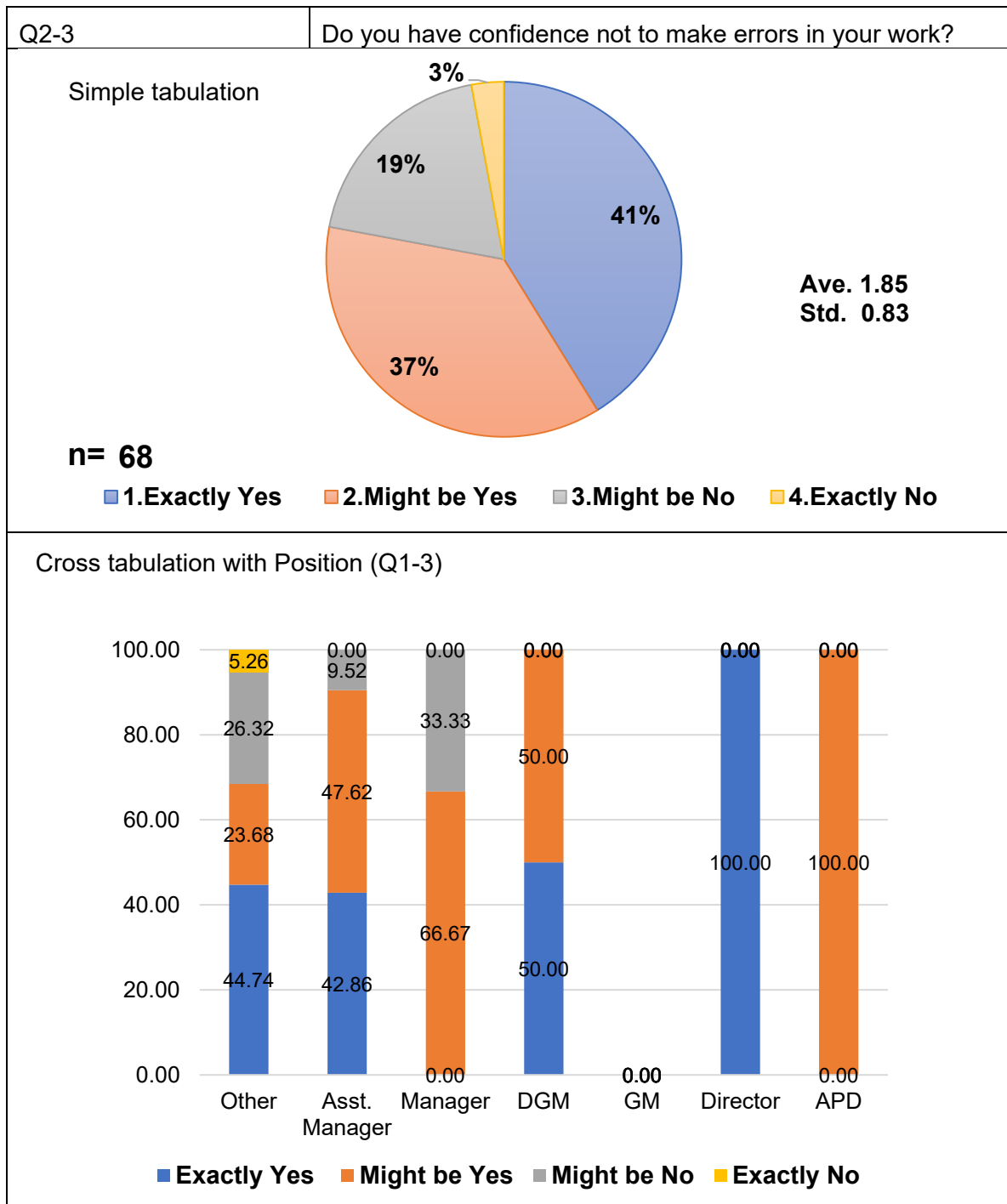
Table 2.6 Summary of Q2-2



[Comment]

A simple tabulation result shows that about 75% of all respondents are almost or always strictly following traffic rules. Those positive responses are seen among many age groups on cross tabulation chart. However, It can be seen in standard deviation that there is a large variation in the responses. Many responders obey the traffic rules, but there are some responders who fail to do so.

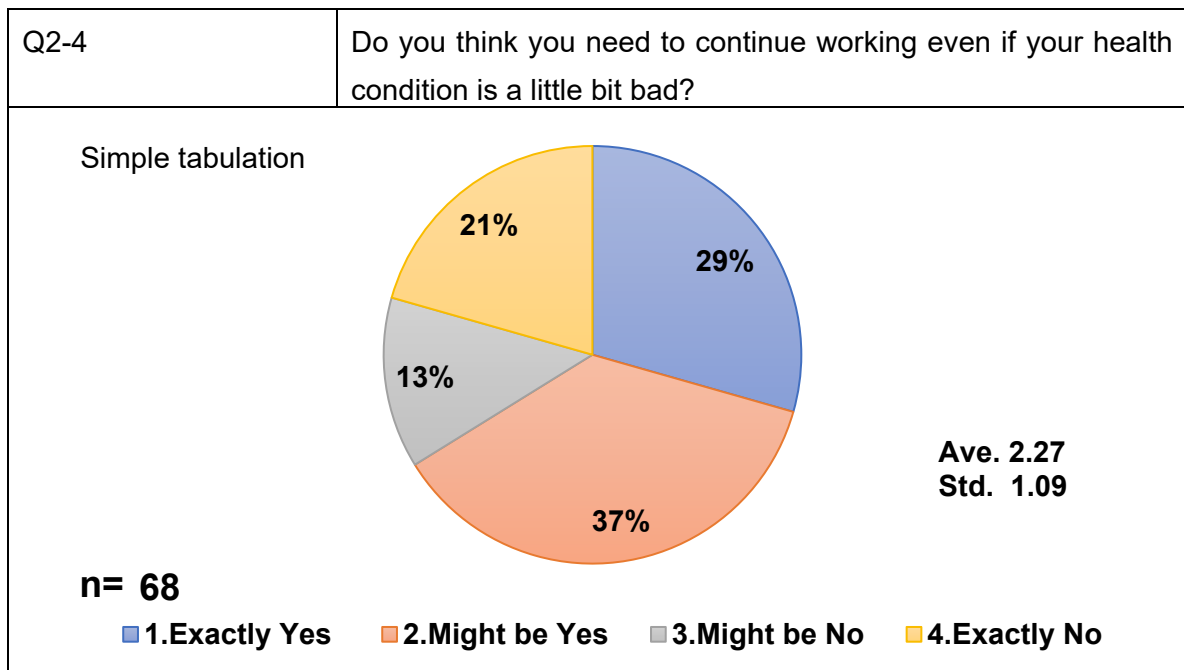
Table 2.7 Summary of Q2-3



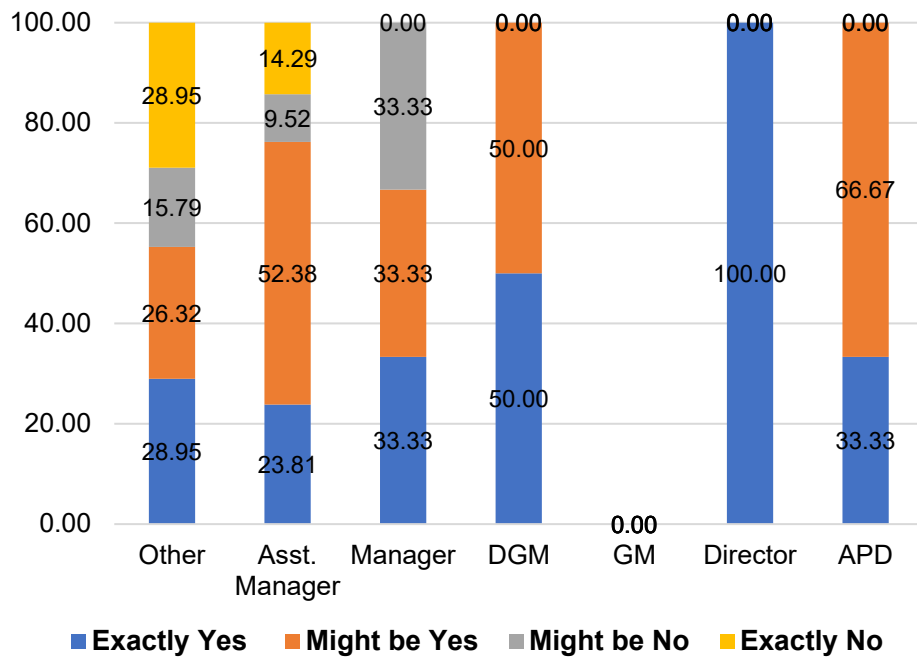
[Comment]

A simple tabulation result shows that about 77% of all respondents never or almost never make mistakes in their work. This result can be confirmed on various positions in DMTCL, as shown in cross tabulation figure. Confidence for own work is very important to achieve their working purpose. However, sometimes confidence connects to an unexpected accident led by a human error. DMTCL should adopt checking system like a Shisa-Kanko to prevent human errors.

Table 2.8 Summary of Q2-4



Cross tabulation with Position (Q1-3)

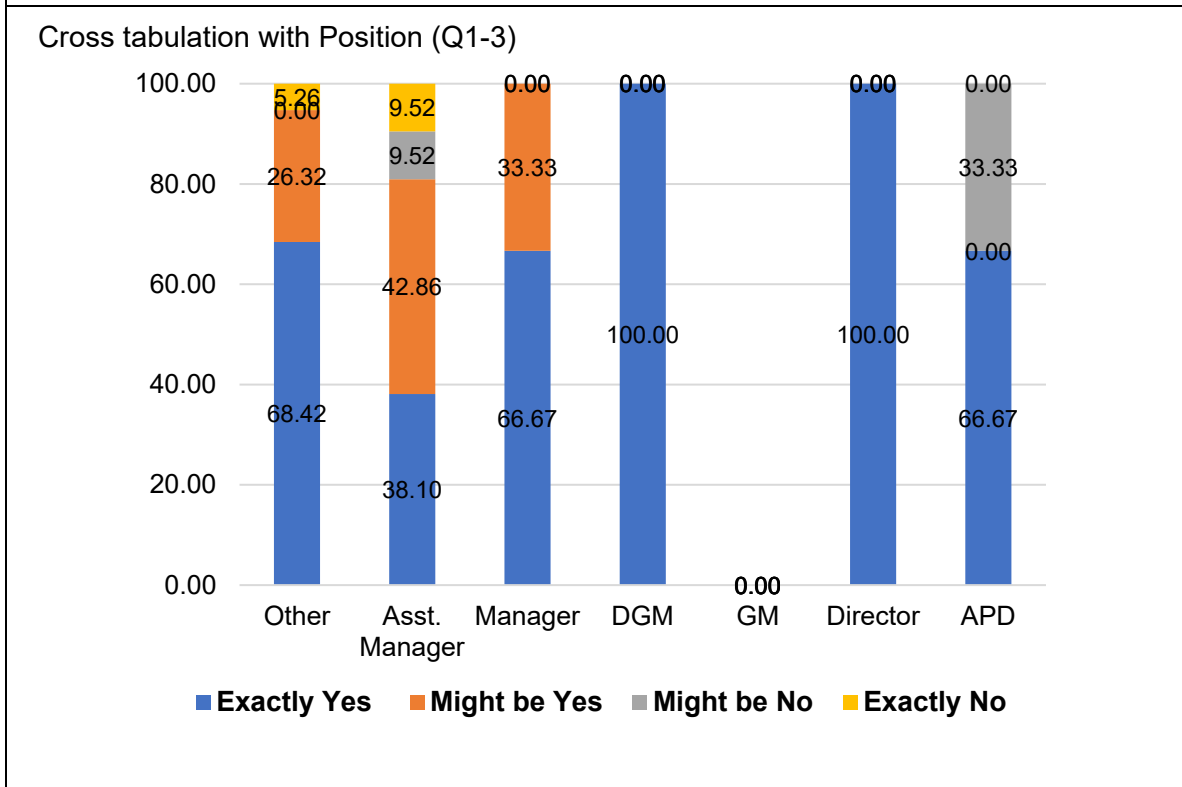
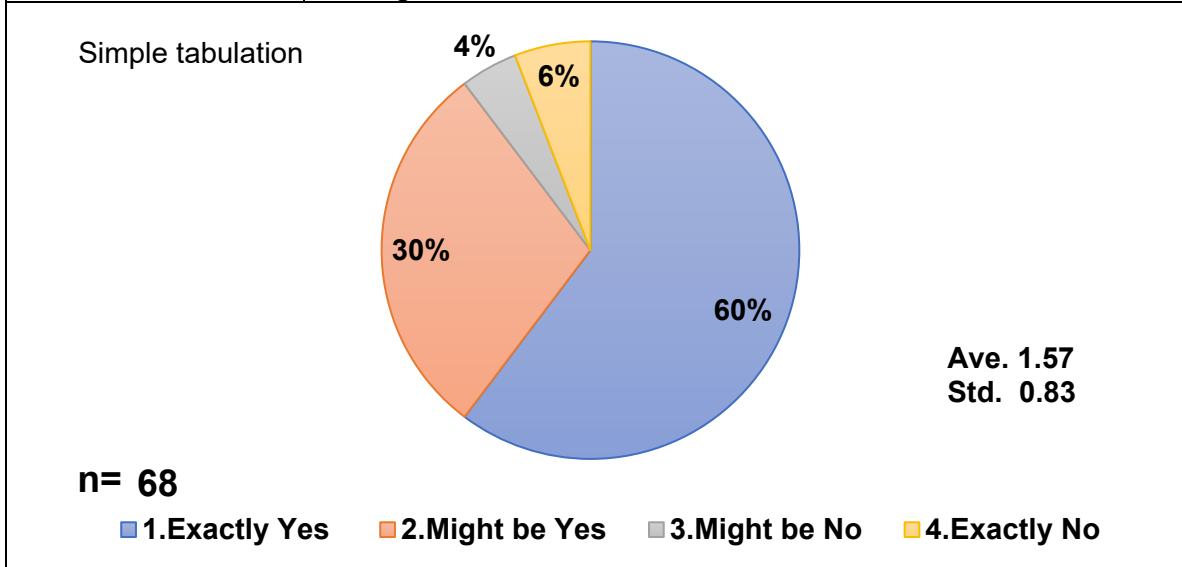


[Comment]

A simple tabulation result shows that about 65% (chose Excatly yes or Might be yes) of all respondents think that they need to work even if their health condition is a little bit bad. According to the standard deviation, there might be differences toword work attitude under the bad health condition. According to the cross tabulation, especcially DGM or above positions have opinions that need to continue working even in a bad condition. Health management is important for safety railway operation so DMTCL should manage employees' helth condition. If the employees are feeling bad, need to take a leave.

Table 2.9 Result of Q2-5

Q2-5	Do you take interest in the work-related activities of your colleagues?
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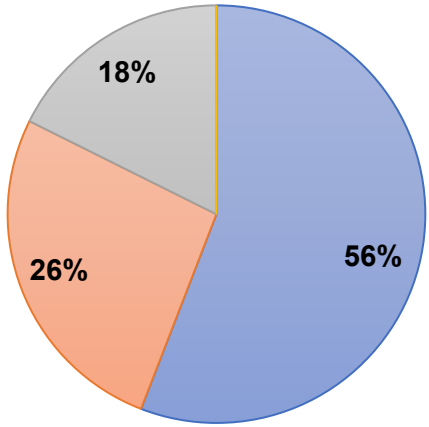
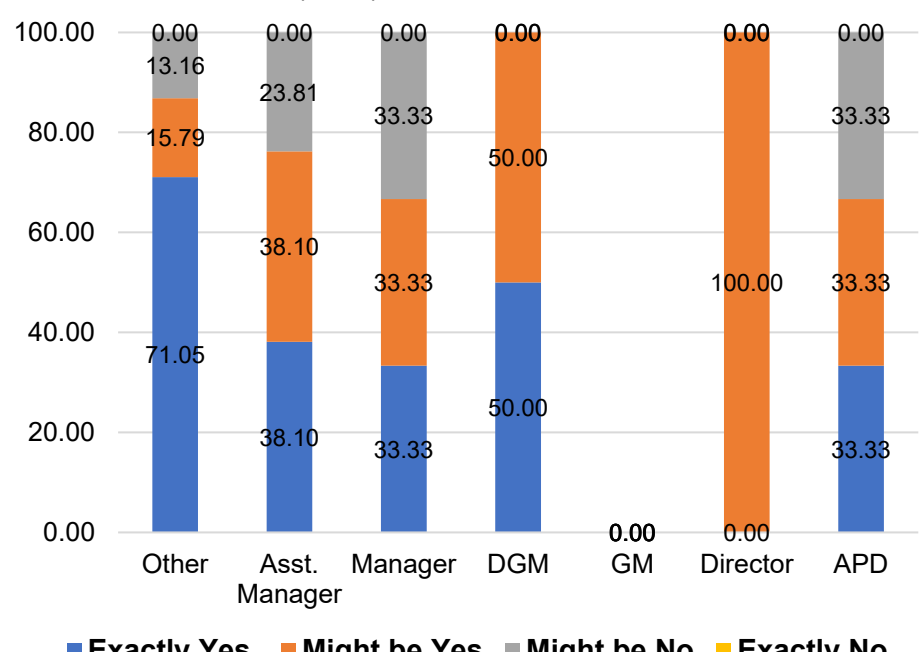


[Comment]

A simple tabulation result shows about 90% (chose Exactly yes or Might be yes) of all respondents interested in the activity of their colleagues. Almost all staffs in each position have a positive answer, as shown in cross tabulation result.

Railway operation has a lot of work fields such as train driver, maintenance staff, etc. It is important to take an interest in other types of work in DMTCL for mutual relationships with another department.

Table 2.10 Summary of Q2-6

Q2-6	Do you think you need to share the information with all departments when troubles occur in your team?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.61 Std. 0.77</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>Cross tabulation with Position (Q1-3)</p>  <p>■ Exactly Yes ■ Might be Yes ■ Might be No ■ Exactly No</p>	
<p>[Comment]</p> <p>A simple tabulation result shows about 82% (chose Exactly yes or Might be yes) of all responders answered that sharing information with all department when troubles occurs in their team is necessary. However other 18% responders have a negative answers to inform trouble information with another department. This negative answer are shown in APD and Manager or below as shown in cross tabulation. Sharing information with another</p>	

department in DMTCL is very important when accident happen. DMTCL's main task is to provide a safety railway system to customer so DMTCL staff should always consider how to reduce dangerous situations.

Table 2.11 Summary of Q2-7

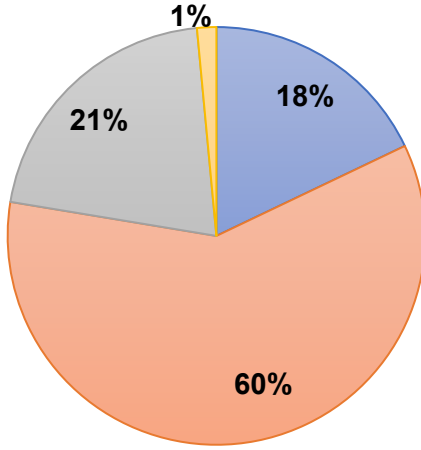
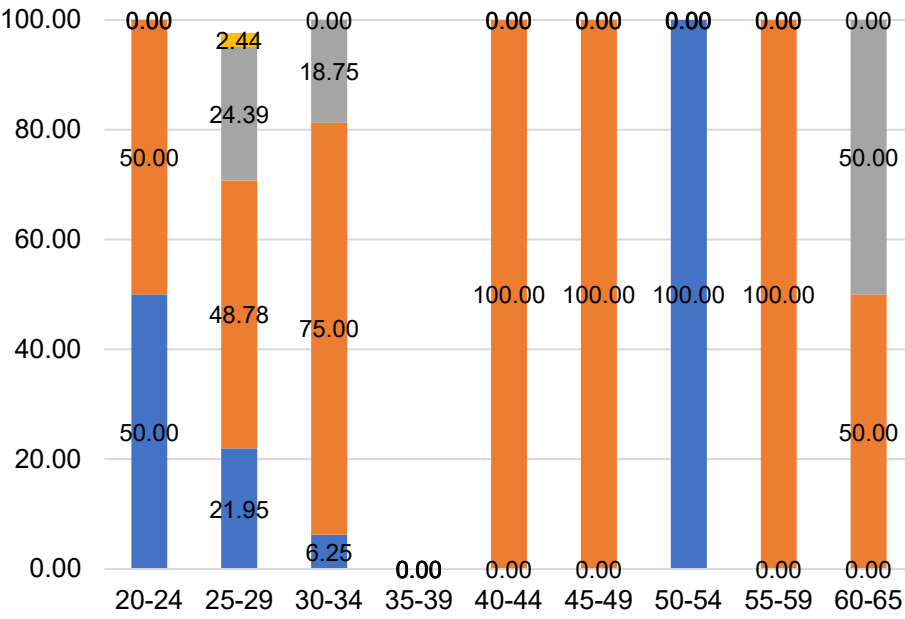
Q2-7	Are you proud of working for DMTCL?
Simple tabulation	<p>Ave. 1.10 Std. 0.31</p> <p>n= 67</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>
[Comment]	A simple tabulation result shows that all staff of responders have pride to be working in DMTCL. It is the best state as railway operator.

Table 2.12 Summary of Q2-8

Q2-8	Please feel free to describe your awareness and attitude for working. (Free answer)
[Comment]	In DMTCL under metro railway construction phase currently. Many responders described safety awareness at the construction site. Among them, many responders described that safety is the most important matter. In addition, there are opinions about the prevention of human error, such as preparing in advance and being aware of how to avoid making mistakes.

2.3. Organizational Management (Item Q3)

Table 2.13 Summary of Q3-1

Q3-1	Do you think organizations in Bangladesh has tolerance for the person who make mistakes?
<p>Simple tabulation</p>  <p style="text-align: right;">Ave. 2.05 Std. 0.66</p> <p>n= 68</p> <p> ■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No </p>	
<p>Cross tabulation with Age (Q1-5)</p>  <p> ■ Exactly Yes ■ Might be Yes ■ Might be No ■ Exactly No </p>	
<p>[Comment]</p> <p>A simple tabulation result shows that about 79% (chosed Exactly Yes or Might be Yes) of all responders feel bad when they make a mistake in their work. On the other hand, 21% of responders don't feel bad when they make a mistake in their work. Especially, this trend</p>	

can be seen in the young staff group under 35 years old as shown in the cross tabulation. A serious derailment accident occurred in Fukuchiyama line in Japan in 2005. One of the reasons of the accident was strict punishment and no tolerance from his superior. Some strictness is essential in DMTCL as well not to hide risks from younger level to manager level.

Table 2.14 Summary of Q3-2

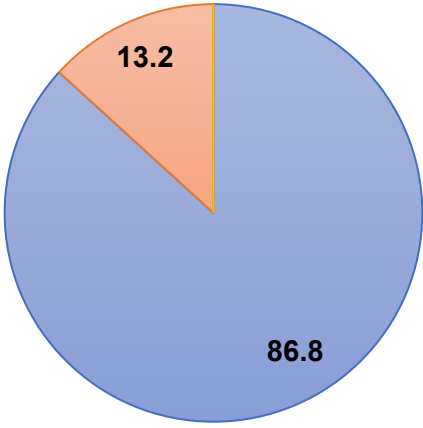
Q3-2	Do you think you must obey the top manager's instruction?
<p>Simple tabulation</p> <p>n= 68</p>	 <p>Ave. 1.13 Std. 0.34</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>
<p>[Comment]</p> <p>A simple tabulation result shows that all responders feel that top manager's instruction is important.</p>	

Table 2.15 Summary of Q3-3

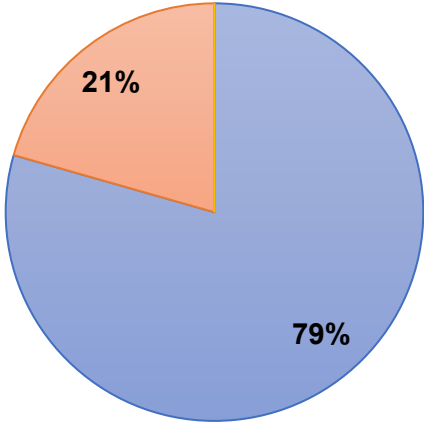
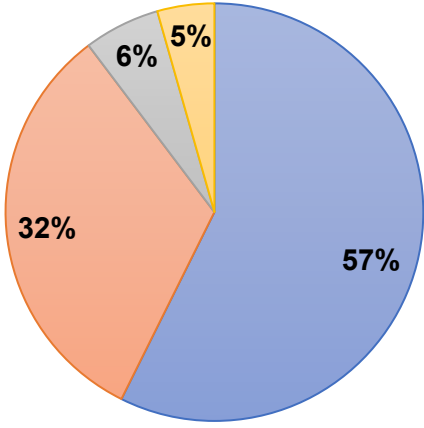
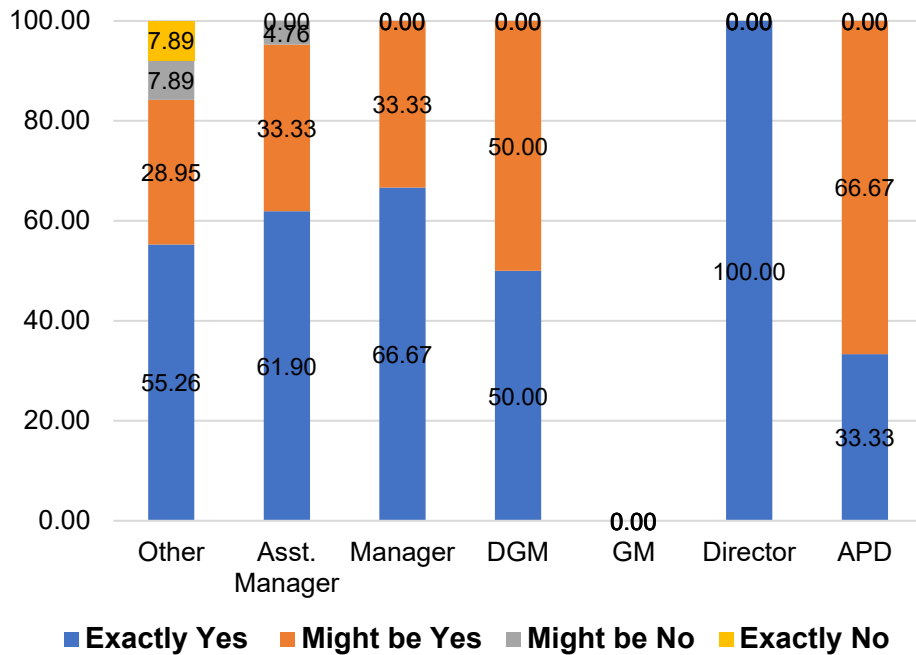
Q3-3	Do you think superior should ask subordinate's opinion?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.21 Std. 0.41</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>[Comment]</p> <p>A simple tabulation result shows that all responders feel that superior should ask subordinate's opinion.</p> <p>Two-- way communication regarding work between supervisor and subordinate is important to succeed in their task.</p>	

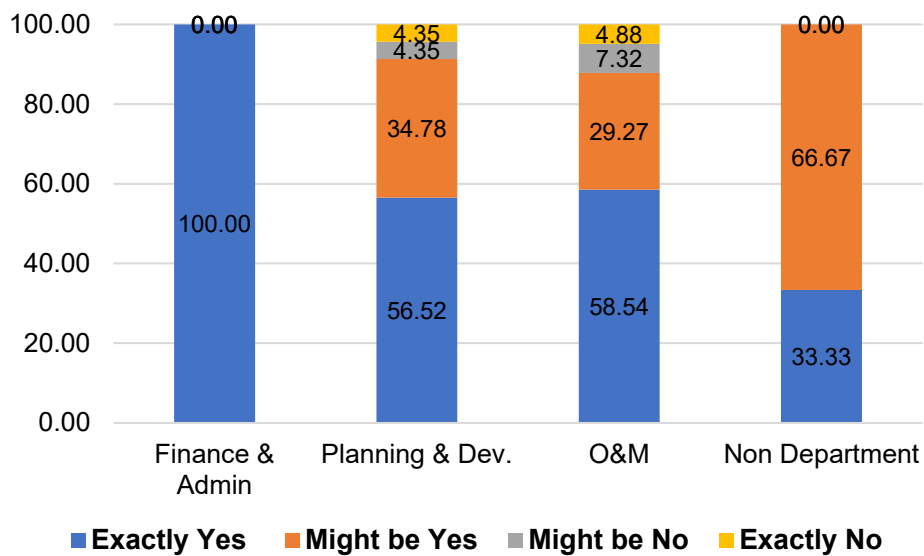
Table 2.16 Summary of Q3-4

Q3-4	Do you feel free to give your opinions regarding work related activities to your superior?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.58 Std. 0.79</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	

Cross tabulation with Position (Q1-3)



Cross tabulation with Department (Q1-2)

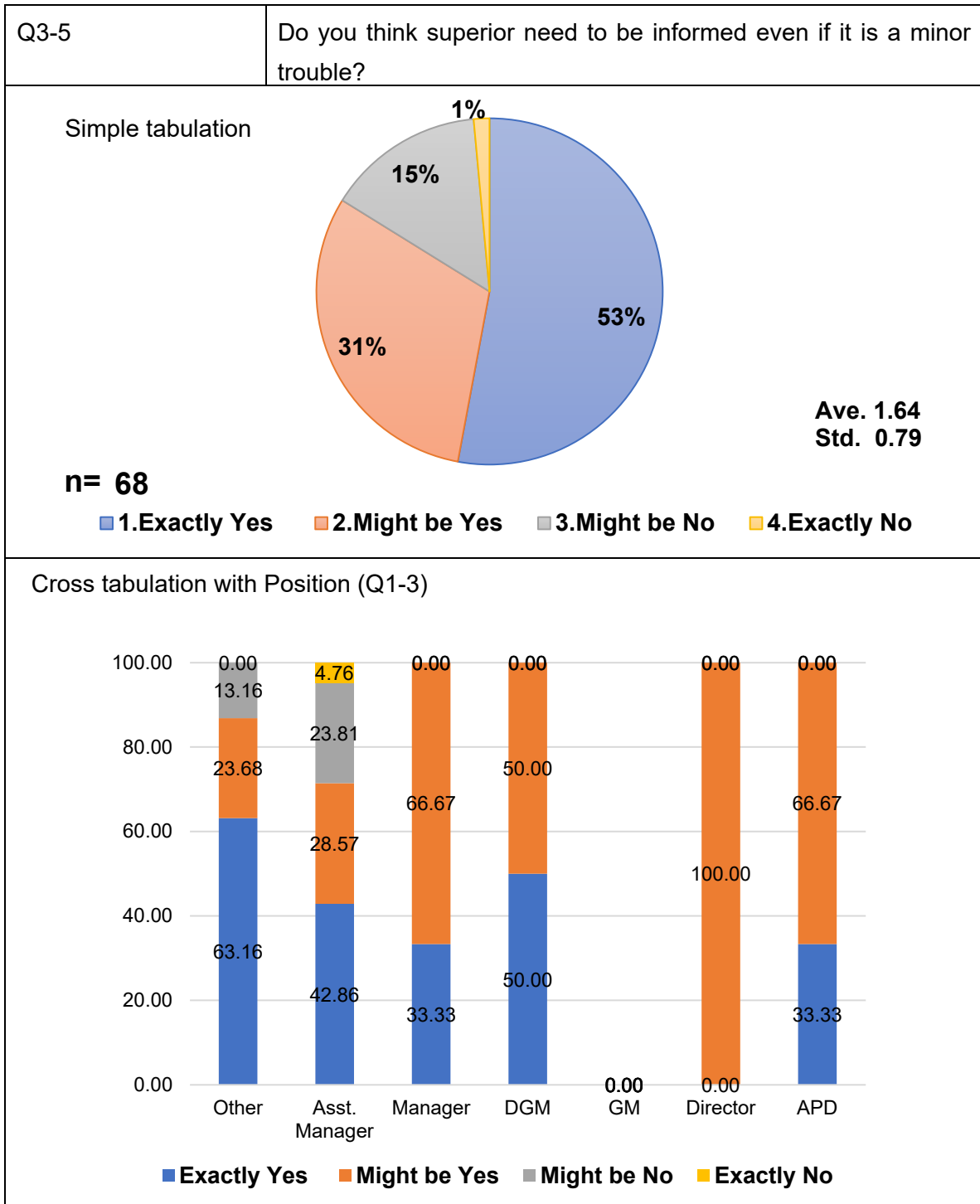


[Comment]

A simple tabulation result shows that about 90% (chose Exactry yes or Might be yes) of all responders feel that DMTCL has a working environment accepting them to give their opinion regarding work related activities to superior. However, the other 10% has negative opinions. It can be seen in director and assistant manager and below as shown in the cross tabulation with Department. Negative opinions can be seen in Planning & Development department and O&M department, as shown in the cross tabulation with Department. Especially, O&M department employees will work on the front line of

operation after starting the commercial operation, so it is important to create an environment where opinions can be exchanged between superior and subordinate. Osaka Metro is conducting a “Jikonome” activity which is gathering risks from site staffs. To succeed in this activity, it is important for superiors to listen to the opinions from their subordinates and to create two-way communication system.

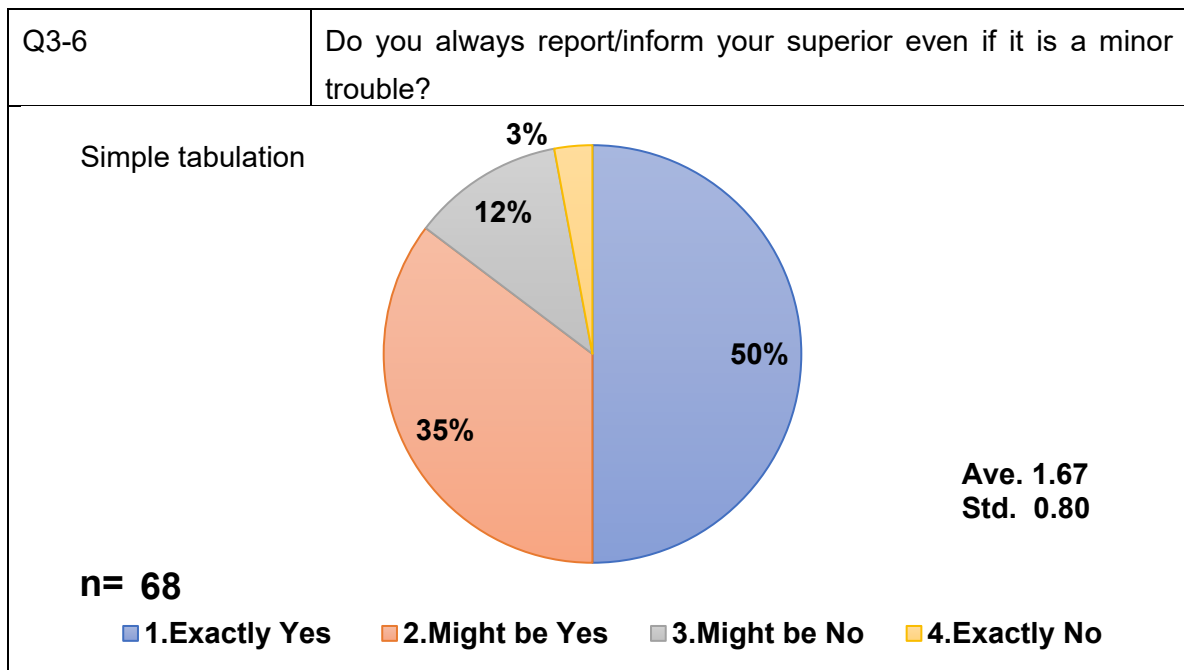
Table 2.17 Summary of Q3-5



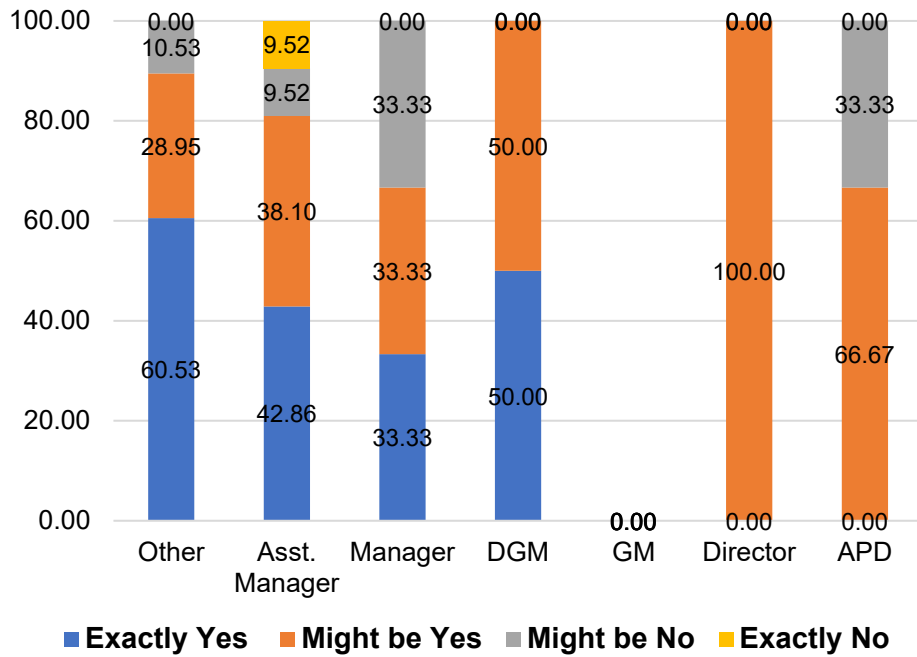
[Comment]

A simple tabulation result shows that about 84% (chose Exactly yes or Might be yes) of all responders think that superior should be informed even if it is a minor trouble. Cross tabulation shows that some of employees in asisstant manager or below think that a minor trouble doesn't have to be informed to superior. Young staffs will work on the front line of railway operation after starting the commercial operation, so it is important to know why informing to superior is important before starting the operation.

Table 2.18 Summary of Q3-6



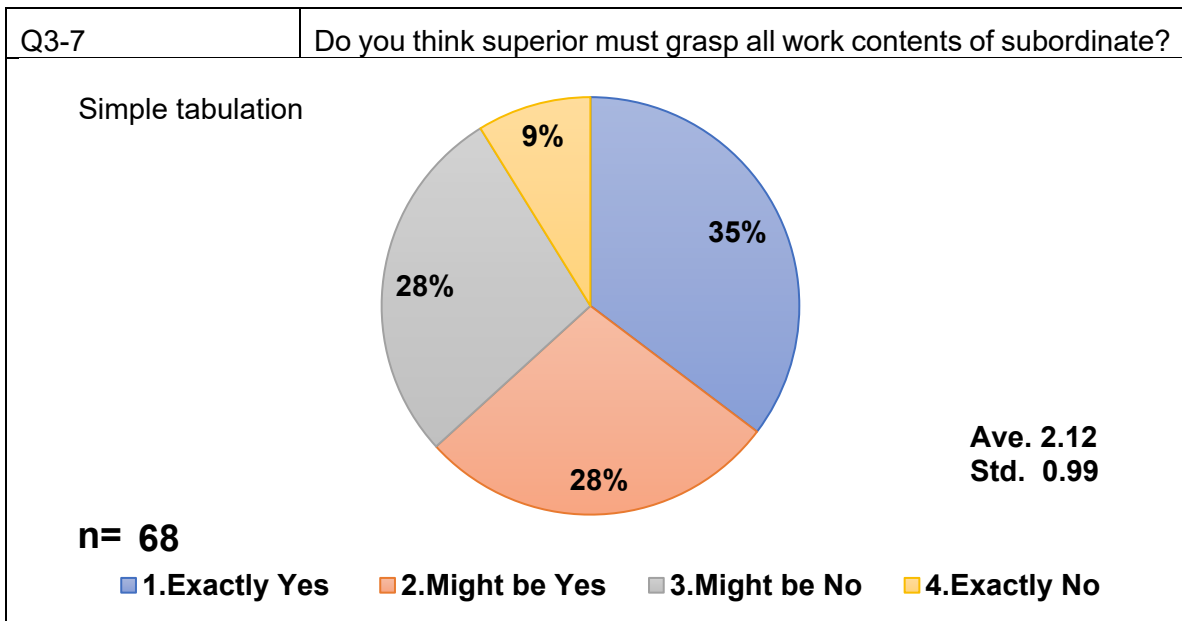
Cross tabulation with Position (Q1-3)



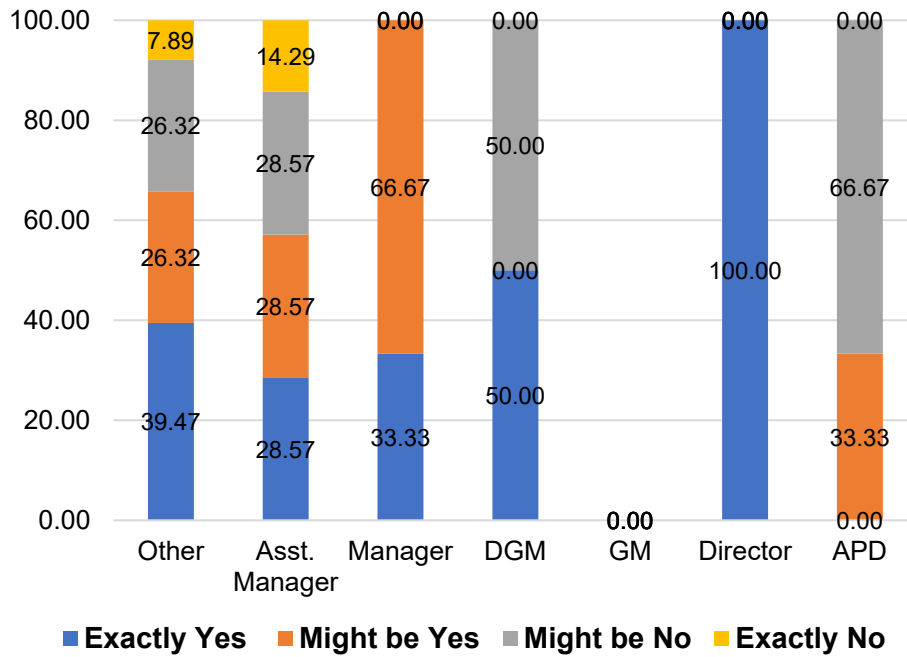
[Comment]

A simple tabulation result shows that about 85% (chose Exactly yes or Might be yes) of all responders think that they will inform a trouble even if it is a minor one. Other 15% has negative opinions and it can be seen in manager or below and APD. DMTCL needs a report/inform system to share with supervisor.

Table 2.19 Summary of Q3-7



Cross tabulation with Position (Q1-3)



[Comment]

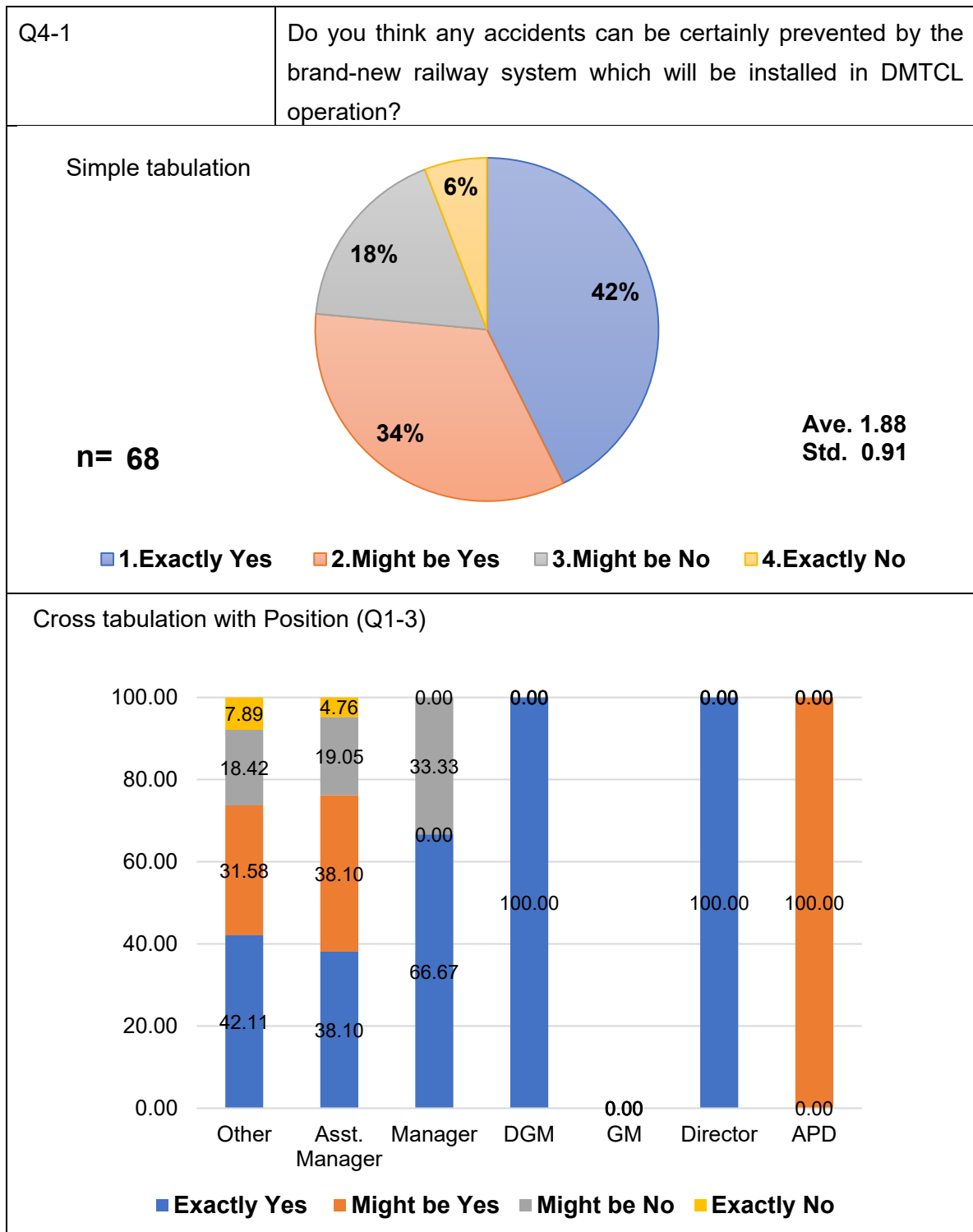
A simple tabulation result shows that about 63% (chose Exactly yes or Might be yes) of all responders think that superior should grasp all work contents of subordinate. On the other hand, about 37% of all responders have a negative opinion. This negative opinion can be seen in various positions between assistant engineer to APD. There might be various answers among positions according to the standard deviation.

Table 2.20 Summary of Q3-8

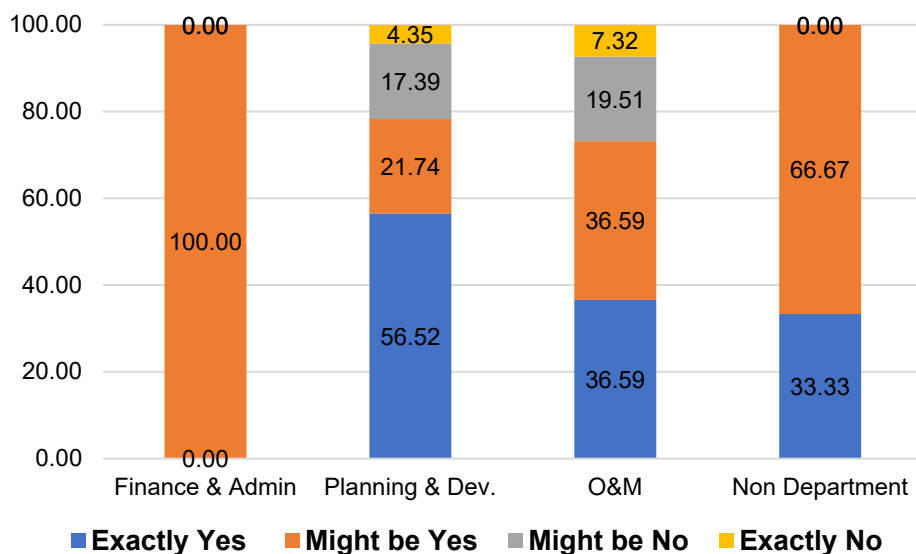
Q3-8	Please feel free to describe the current organization management system in DMTCL.
There are many comments for railway operation stage as follows. 1. Early employment , 2. Systematic internal trainings, 3. Establishment of regulations and safety rules for the operation, etc.	

2.4. Reliability and System (Item Q4)

Table 2.21 Summary of Q4-1



Cross tabulation with Department (Q1-2)



[Comment]

A simple tabulation result shows that about 76% (chose Exactly yes or Might be yes) of all responders think that the brand-new railway system which will be installed in DMTCL can prevent the accidents. This opinion can be seen in many positions between assistant engineer to APD as shown in the cross tabulation with position. Some O&M and Planning & Development employees has negative opinions about reliability of the brand new system. This is a good awareness toward the prevention of serious accidents.

However a lot of employees in DMTCL trust a brand new system absolutely, so DMTCL must aware the risks of system defect. According to free answers, many responders said that the brand-new system can prevent accidents because many probable accidents are considered by new system, latest reliable system and CBTC system are installed,etc. On the other hand, some responders said that an accident will happen even if brand new system is installed because the system is not perfect and operated by human, therefore appropriate training of system operation for employees and fail-safe system are needed in DMTCL.

Table 2.22 Summary of Q4-2

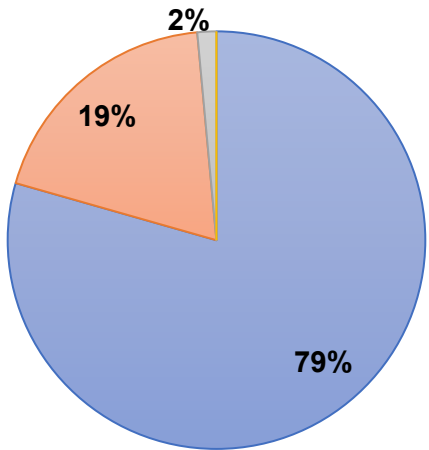
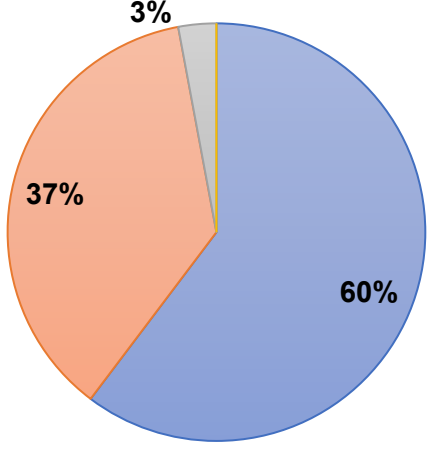
Q4-2	Do you think the safety education is necessary to non-system operation staffs even if the brand-new system is installed?
<p>Simple tabulation</p>  <p style="text-align: right;">Ave. 1.21 Std. 0.44</p> <p>n= 68</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>[Comment]</p> <p>A simple tabulation result shows that almost all responders think that safety education is necessary to non-system operation staff even if the brand-new system is installed. It is important to establish the safety culture not only for system operation staff but also non-system operation staff in DMTCL by conducting safety education.</p> <p>According to free answers, safety education for non-system operation employees is also necessary because non-system operation employees need to be in charge of rescue and train protection when they face accidents.</p>	

Table 2.23 Summary of Q4-3

Q4-3	Do you think the information of accidents of BR and other countries' operators which have different railway system are useful for DMTCL?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.42 Std. 0.55</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>[Comment]</p> <p>A simple tabulation shows that almost all responders think that accident information of BR and other countries operator are useful for DMTCL even if railway operation system is different with DMTCL.</p> <p>There are many factors which cause railway accidents including human error, criminals, and natural disaster and system defect factors. Since DMTCL has no experiences of accidents, DMTCL should collect the information from outside and consider the lessons learned of DMTCL. According to free answers, almost all responders said that previous accident information and countermeasure of accidents, etc are useful for developing skill and knowledge in DMTCL. On the other hand, a few responders said that BR and DMTCL railway operation types are different. For example, BR is operated by diesel locomotive and manual signal system, and DMTCL will be operated by electrified rolling stock and automatic signal system. Therefore some responders have a negative opinion to utilize BR experiences to DMTCL.</p>	

2.5. Safety Awareness toward Railway Transport (Item Q5)

Table 2.24 Summary of Q5-1

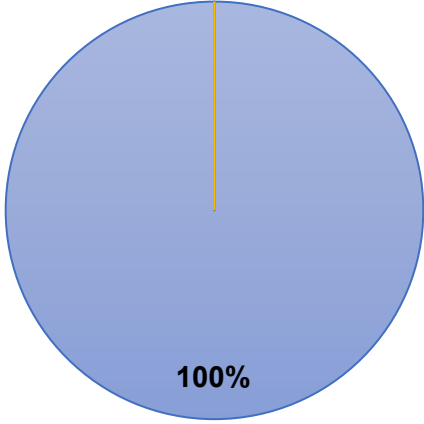
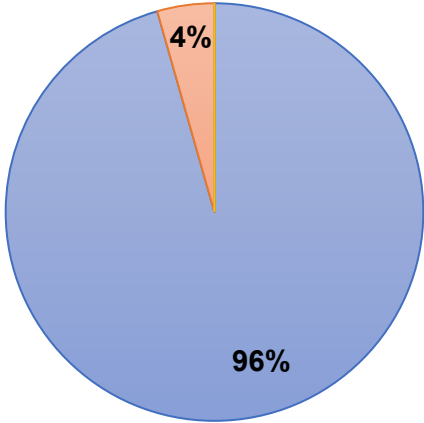
Q5-1	Do you think DMTCL needs to establish the safety related documents (safety related manuals) in order to operate the railway safely?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.000 Std. 0.000</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>[Comment]</p> <p>A simple tabulation result shows that all responders think that safety related documents (safety related manuals) are necessary for railway operation.</p>	

Table 2.25 Summary of Q5-2

Q5-2	Do you think internal trainings and education within DMTCL shall be required for the operation of safety management documents?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.04 Std. 0.21</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	

[Comment]

A simple tabulation result shows that all responders have positive opinions to implement the training regarding operation of safety management documents.

The training and education within DMTCL should have been conducted before commercial operation.

Table 2.26 Summary of Q5-3

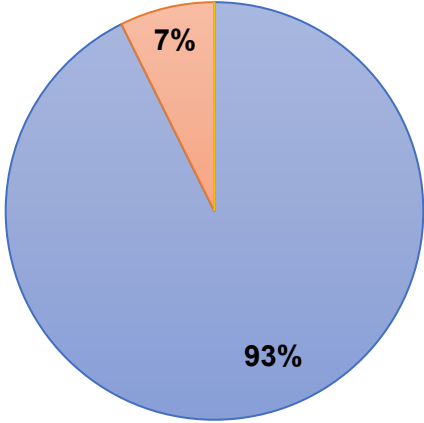
Q5-3	Do you think the policy for measures taken need to be prepared even if accidents have not been occurred?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.07 Std. 0.26</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>[Comment]</p> <p>A simple tabulation result shows that all responders have a positive opinion to prepare the policy for measures. As a next step, DMTCL should understand why policies for the measure are needed in railway operation through training by JET.</p>	

Table 2.27 Summary of Q5-4

Q5-4	Do you think all staffs need to collect and share information of all troubles including minor things?																																								
<p>Simple tabulation</p>  <p style="text-align: right;">Ave. 1.45 Std. 0.68</p> <p>n= 68</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>																																									
<p>Cross tabulation with Position (Q1-3)</p>  <table border="1" style="display: none;"> <caption>Cross-tabulation Data</caption> <thead> <tr> <th>Position</th> <th>Exactly Yes (%)</th> <th>Might be Yes (%)</th> <th>Might be No (%)</th> <th>Exactly No (%)</th> </tr> </thead> <tbody> <tr> <td>Other</td> <td>71.05</td> <td>18.42</td> <td>10.53</td> <td>0.00</td> </tr> <tr> <td>Asst. Manager</td> <td>57.14</td> <td>33.33</td> <td>9.52</td> <td>0.00</td> </tr> <tr> <td>Manager</td> <td>66.67</td> <td>33.33</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>DGM</td> <td>100.00</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>GM</td> <td>0.00</td> <td>0.00</td> <td>100.00</td> <td>0.00</td> </tr> <tr> <td>Director</td> <td>0.00</td> <td>0.00</td> <td>100.00</td> <td>0.00</td> </tr> <tr> <td>APD</td> <td>33.33</td> <td>33.33</td> <td>33.33</td> <td>0.00</td> </tr> </tbody> </table> <p>■ Exactly Yes ■ Might be Yes ■ Might be No ■ Exactly No</p>		Position	Exactly Yes (%)	Might be Yes (%)	Might be No (%)	Exactly No (%)	Other	71.05	18.42	10.53	0.00	Asst. Manager	57.14	33.33	9.52	0.00	Manager	66.67	33.33	0.00	0.00	DGM	100.00	0.00	0.00	0.00	GM	0.00	0.00	100.00	0.00	Director	0.00	0.00	100.00	0.00	APD	33.33	33.33	33.33	0.00
Position	Exactly Yes (%)	Might be Yes (%)	Might be No (%)	Exactly No (%)																																					
Other	71.05	18.42	10.53	0.00																																					
Asst. Manager	57.14	33.33	9.52	0.00																																					
Manager	66.67	33.33	0.00	0.00																																					
DGM	100.00	0.00	0.00	0.00																																					
GM	0.00	0.00	100.00	0.00																																					
Director	0.00	0.00	100.00	0.00																																					
APD	33.33	33.33	33.33	0.00																																					
<p>[Comment]</p> <p>A simple tabulation result shows that 90% (chose Exactly yes or Might be yes) of all responders think that all employees need to collect and share information of all troubles including minor troubles. The other 10% has a negative opinion. The trend of negative answers as shown in the cross tabulation are similar to negative answers of the cross tabulation on Q3-6. Both items ask whether they report minor troubles to their superior or not. There may be variations among the staff in the way they handle minor troubles.</p>																																									

Table 2.28 Summary of Q5-5

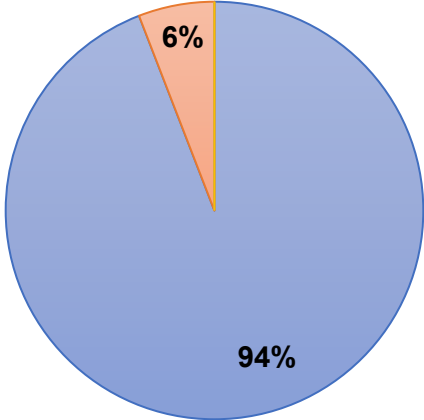
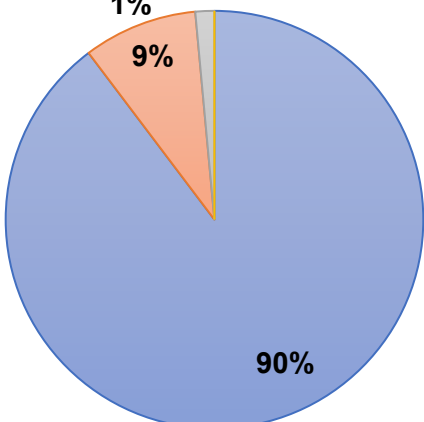
Q5-5	Do you think expertise staffs of DMTCL need to regularly investigate and confirm the safety activities?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.06 Std. 0.24</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>[Comment]</p> <p>A simple tabulation result shows that all responders think that regular investigation and confirmation of the safety activities by experted employees is needed in DMTCL. Regular check by experts is important to confirm and find the potential risks in daily work.</p>	

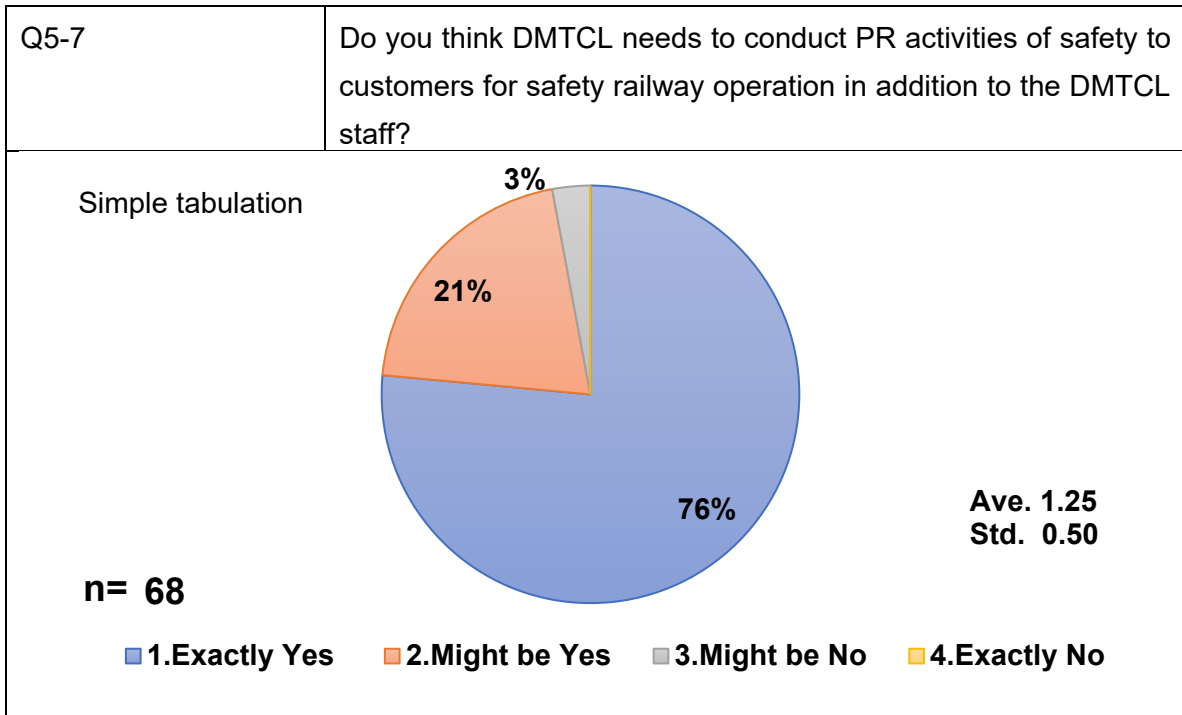
Table 2.29 Summary of Q5-6

Q5-6	Do you think DMTCL needs to update the regulated safety management documents regularly?
<p>Simple tabulation</p>  <p>n= 68</p> <p>Ave. 1.12 Std. 0.37</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	

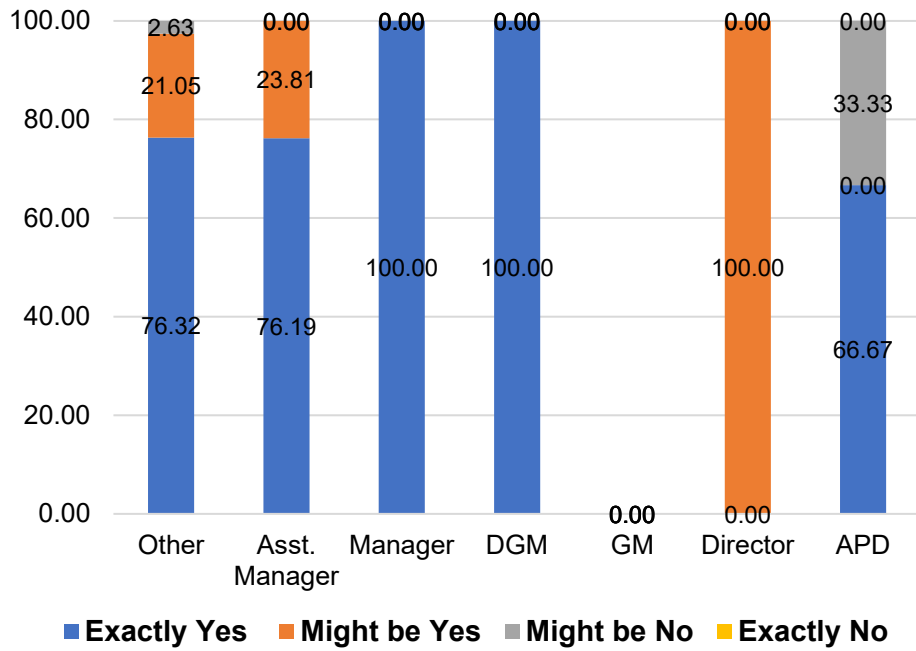
[Comment]

A simple tabulation result shows that almost all responders (chose Exactly yes or Might be yes) think that regulated safety management documents should be updated regularly in DMTCL. The other 1% have a negative opinion. DMTCL may face a new type of accident and trouble which are not mentioned in documents, so these should be updated properly to deal with such accidents.

Table 2.30 Summary of Q5-7



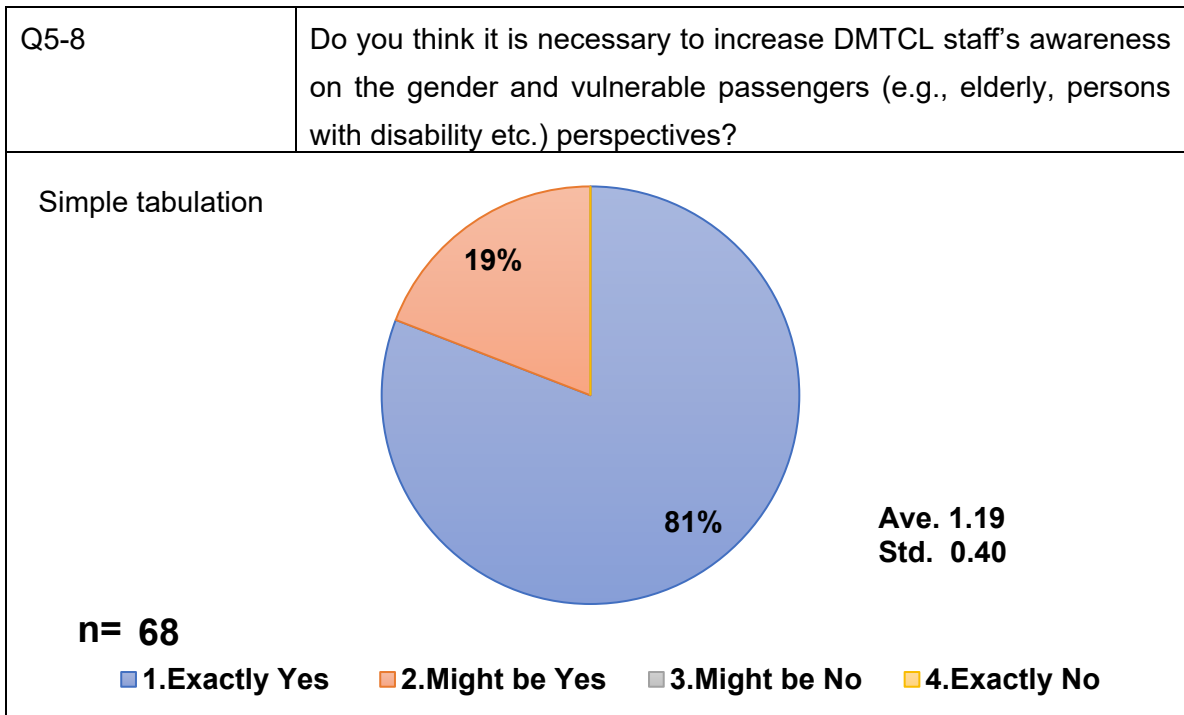
Cross tabulation with Position (Q1-3)



[Comment]

A simple tabulation result shows that about 97% of all responders think that DMTCL needs to conduct PR activities of safety to customers for railway operation. Japanese railway operators have a lot of experiences of PR activities toward passenger's safety, so those ideas might be applicable to DMTCL.

Table 2.31 Summary of Q5-8



[Comment]

A simple tabulation result shows that all responders (chose Exactly yes or Might be yes) think that DMTCL staff's awareness of gender and vulnerable passenger perspectives is necessary.

DMTCL aims for a railway operation that is easy for all people to ride.

Table 2.32 Summary of Q5-9

Q5-9	Please feel free to describe what kind of preparations DMTCL needs in order to prevent accidents
[Comment] Many responders hope to take appropriate trainings before commercial operation. Responders having a lot of ideas for trainings to get a knowledge and skill for railway operation. Among them, many of them hope to take trainings for safety rules and policy.	

2.6. Awareness as a manager (Item Q6)

Questionnaire survey of item Q6 has been conducted to manager and above level to confirm the safety awareness as a manager in DMTCL. The number of respondents was only nine.

Table 2.33 Summary of Q6-1

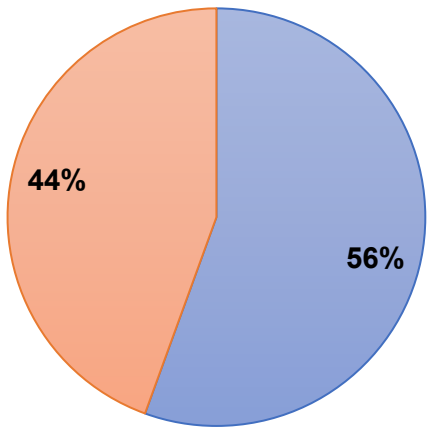
Q6-1	Do you have any experiences related to the transportation business (BR, Bus, taxi, etc.)?						
Simple tabulation							
 <table border="1"><thead><tr><th>Response</th><th>Percentage</th></tr></thead><tbody><tr><td>1.No</td><td>56%</td></tr><tr><td>2.Yes</td><td>44%</td></tr></tbody></table> <p>n= 9</p> <p>■ 1.No ■ 2.Yes</p>		Response	Percentage	1.No	56%	2.Yes	44%
Response	Percentage						
1.No	56%						
2.Yes	44%						
[Comment] Some managers have working experiences in transportation business. Two responders have experiences to work as a railway operator in Bangladesh Railway.							

Table 2.34 Summary of Q6-2

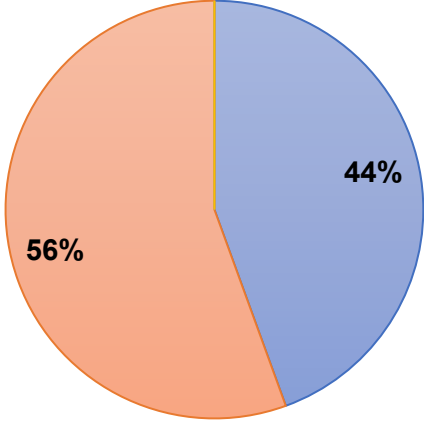
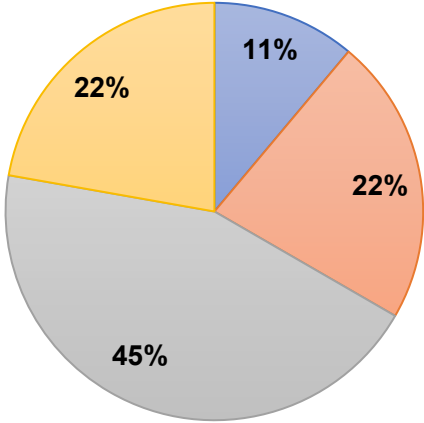
Q6-2	Do you think Bangladesh citizens have a gap between the awareness of following traffic rules and actual behavior? Specify the reasons and ideal condition.
<p>Simple tabulation</p>  <p>n= 9</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	
<p>[Summary of free answer]</p> <p>According to the free answer, Bangladesh citizens don't have high literacy rate, therefore, many people can not understand Bengali and traffic rules. In another opinion, a lot of Bangladesh people know the traffic rules actually but they don't follow them usually.</p>	

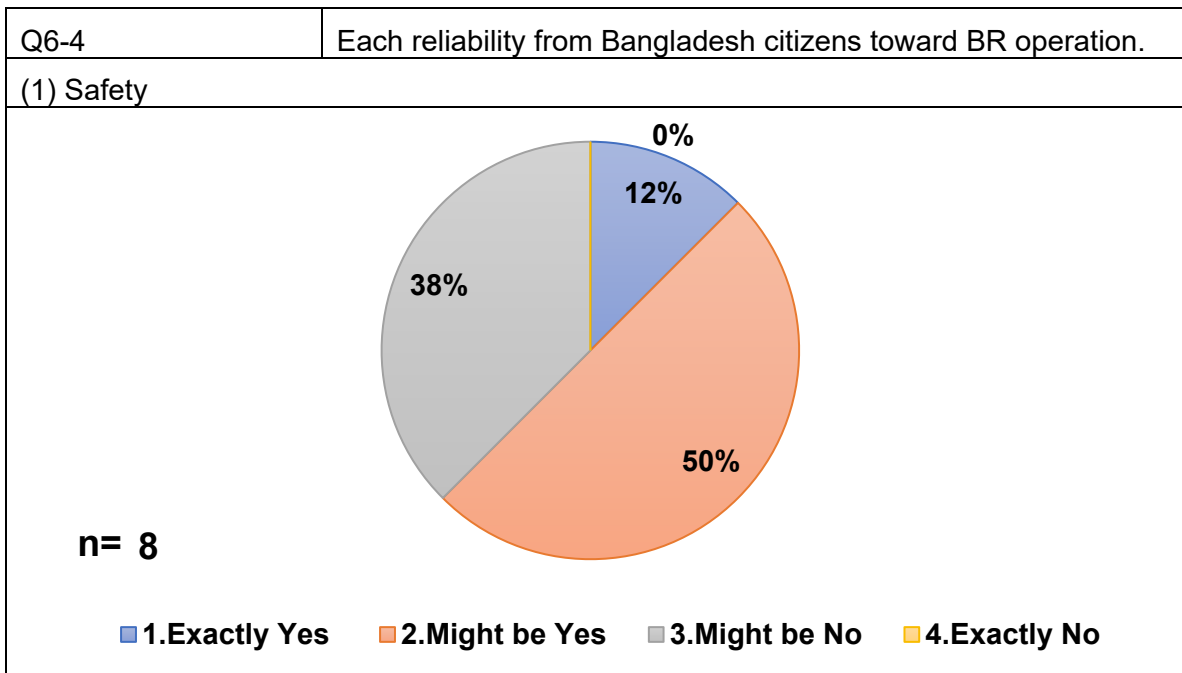
Table 2.35 Summary of Q6-3

Q6-3	Do you think your subordinates have high safety awareness toward railway operation?
<p>Simple tabulation</p>  <p>n= 9</p> <p>■ 1.Exactly Yes ■ 2.Might be Yes ■ 3.Might be No ■ 4.Exactly No</p>	

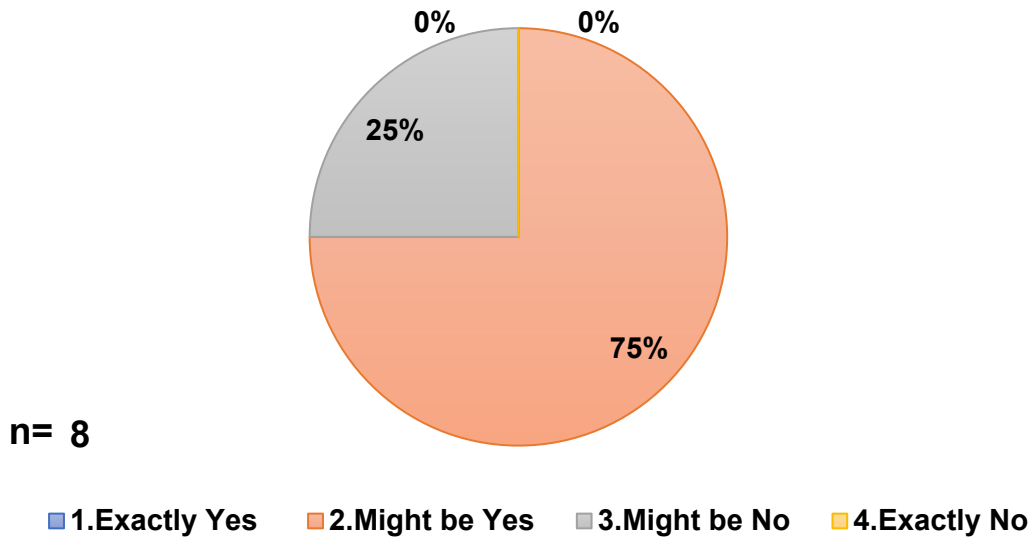
[Summary of free answer]

Line 6 is underconstruction and no experiences of operation, so manager level think that their subordinate is less aware toward safety as a railway operator currently. Therefore manager level should conduct proper trainings about safety before operation.

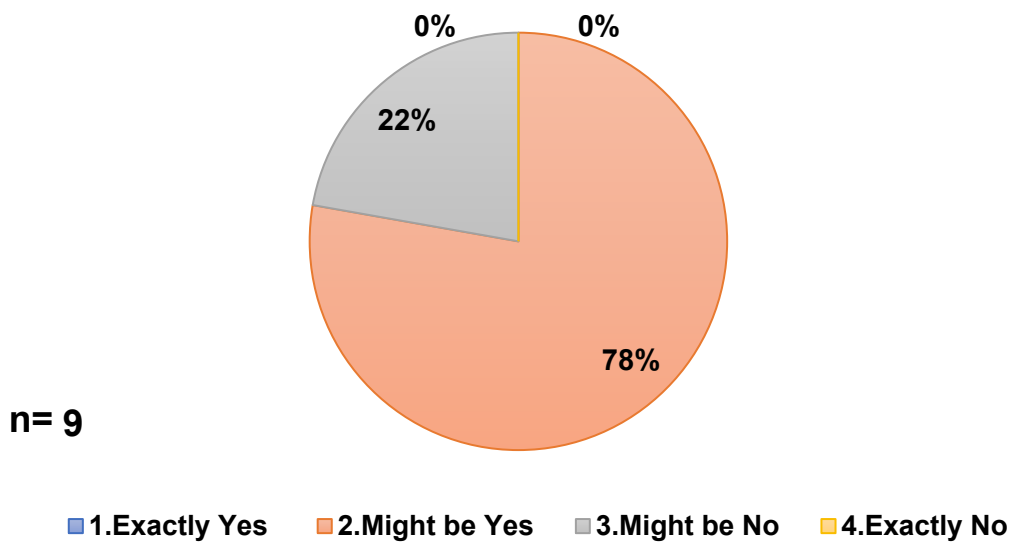
Table 2.36 Summary of Q6-4



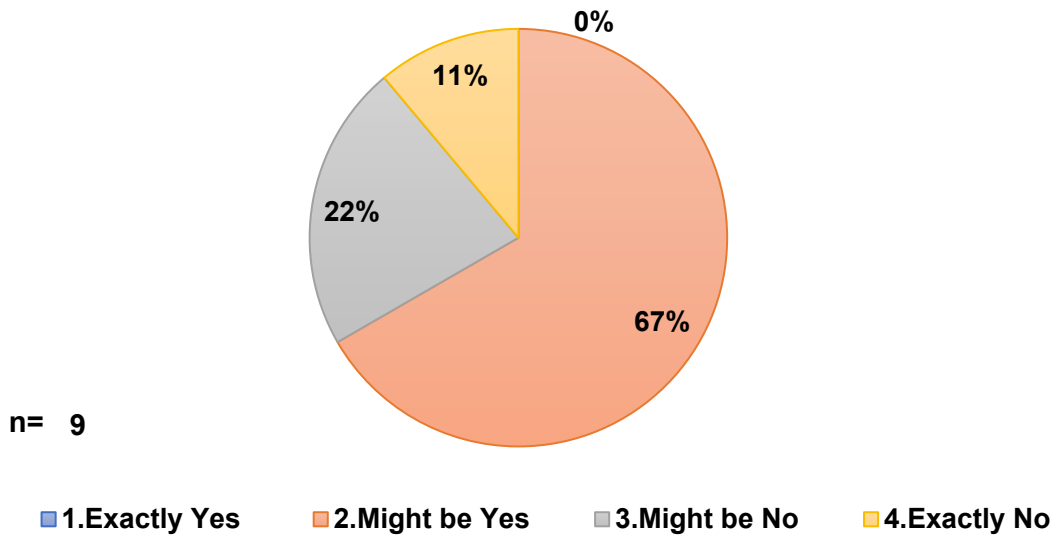
(2) Accuracy of work implementation



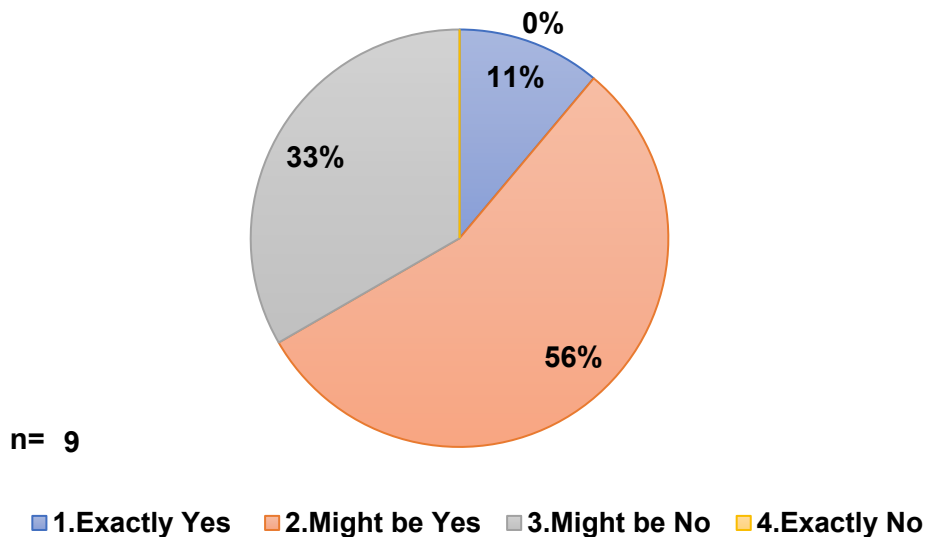
(3) Comfortability



(4) Punctuality



(5) Cleanliness and Tindiness

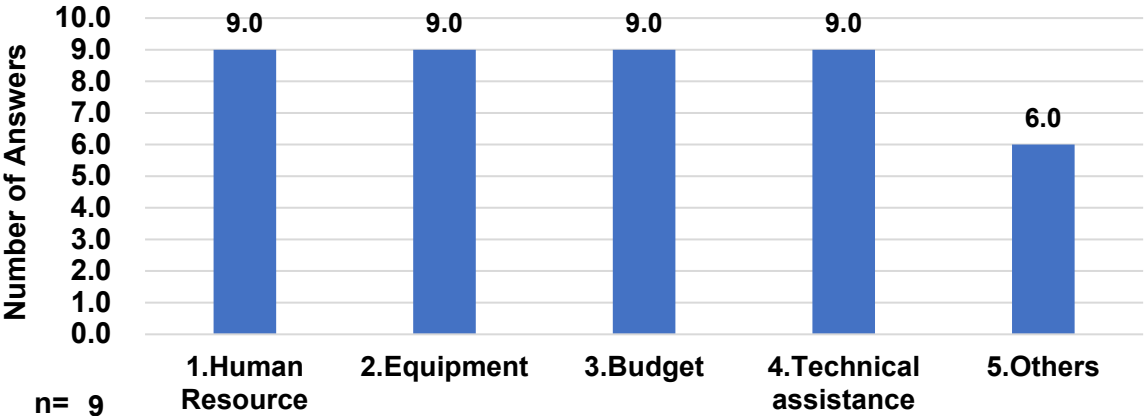


[Summry of free answers]

- **Safety:** BR is operated manually which is an old system. Therefore some responders think that it has a risk of human error. Other responders think that BR has a lack of safety compliance.
- **Accuracy of work implementation:** The reasons of lack of accuracy in BR are: Shortage of manpower, lack of knowledge, lack of discipline in management, absence of strict quality controller.
- **Comfortability:** BR is comfortable when it compared with another public transportation system in Bangladesh. On the other hand, there is an answer that BR lacks of enough budget for comfortability.
- **Punctuality:** BR is using a same targets with freight train and passengers, however BR usually emphasizes punctuality of high profit intercity corridor.

- **Cleanliness and Tidiness:** BR has not so much cleanliness and tidiness. It is one of responsibility of railway operator, but they don't have proper human resources to conduct it.

Table 2.37 Summary of Q6-5

Q6-5	What kind of resources do you think are necessary for ensuring safety of railway operation? Check all the items you think are necessary and please specify the reasons.												
 <table border="1"> <thead> <tr> <th>Category</th> <th>Number of Answers</th> </tr> </thead> <tbody> <tr> <td>1.Human Resource</td> <td>9.0</td> </tr> <tr> <td>2.Equipment</td> <td>9.0</td> </tr> <tr> <td>3.Budget</td> <td>9.0</td> </tr> <tr> <td>4.Technical assistance</td> <td>9.0</td> </tr> <tr> <td>5.Others</td> <td>6.0</td> </tr> </tbody> </table>		Category	Number of Answers	1.Human Resource	9.0	2.Equipment	9.0	3.Budget	9.0	4.Technical assistance	9.0	5.Others	6.0
Category	Number of Answers												
1.Human Resource	9.0												
2.Equipment	9.0												
3.Budget	9.0												
4.Technical assistance	9.0												
5.Others	6.0												
<p>[Summary of comment]</p> <ul style="list-style-type: none"> • Human Resources: Many responders answered that proper trainings and manpower are necessary to prevent accidents. • Equipment: Many responders answered that trainings and maintenance equipment are necessary in DMTL. • Budget: Without enough budget, proper maintenance is not possible. If it is not possible to conduct the maintenance work due to the lack of budget, it is difficult to maintain accuracy. • Technical assistance: DMTCL is the first metro operator in Bangladesh, therefore a technical assistant is required. From the Project (technical assistance by JICA), DMTCL needs to learn technical knowledge, level of international standard of operation and maintenance. 													

Q6-6	What kind of human resources does DMTCL need? (Free answer)
<p>[Summary of answer]</p> <p>A lot of responders answered that DMTCL needs a person who knows railway. In another opinion, DMTCL needs a security person in the station to check passenger body and bags before entering the station.</p>	

Q6-7

What is your role and responsibility in DMTCL (Free answer)

[Summary of answer and comment]

Each responder answered a current each duty in the construction phase.

We couldn't find any answers related to the operation stage.

3. Summary of the Survey

Basically, many of answerers have high awareness and attitude toward safety. On the other hand, there are some inappropriate answers in specific questions. In Q2-3, for example, majority of answerers have high confidence not to make errors in their work. However, everyone makes errors even if they have high concentration in any works. In 1st SMS training conducted by JET, JET explained the basic understanding and cause of human error which are inappropriate way of thinking. In addition, in Q4-1, many of answerers think brand-new railway system can prevent any accidents. In 1st and 2nd SMS training, JET explained that not only hard component such as railway system, but also soft component such as education and safety awareness of system operators are essential to assure the safety. Those both awareness is expected to be improved in the next survey.

In general, there are age gap (and/or position level gap) between senior group and younger group. Senior group tends to think strict or stereotype answers, on the other hand, young group has some trends to have flexible ideas. Relevant questions are Q2-4, Q2-5, Q3-4, Q3-5, Q3-6, Q3-7 and Q4-1, for example.

The number of samples is not enough because of the less employment at that time, and there is a bias of cross tabulation. Next baseline survey is expected to be implemented to the greater number of employees and collect more samples.

END

Annex 3: Baseline Survey

2nd Baseline Survey Report

**SUMMARY OF 2nd BASELINE SURVEY
OF SAFETY AWARENESS FOR DHAKA
MRT**

February 2023

JICA Expert Team

Nippon Koei Co. Ltd
Osaka Metro Service Co., Ltd

1. Outline of the Survey Summary

1.1. Background of the Baseline Survey

This project is technical assistance of MRT safety management system for DMTCL using Japanese experiences. The main purpose of this project is to provide technical assistance to achieve safe and reliable operation and maintenance of MRT by DMTCL.

To monitor the current safety awareness of DMTCL's employees, baseline surveys have been conducted. The same type of survey was made three times for observing the safety awareness of DMTCL's employees. The first survey was done between 31 March 2021 and 21 September 2022, and it collected 67 answers from DMTCL (Please refer to 1st baseline survey report submitted in April 2022). The 2nd survey (this report) and the 3rd survey were conducted in the middle term of the project after finishing the series of SMS training and SMS workshop in Bangladesh and the final term of the project respectively. Each survey result is used to identify their current safety awareness and compare the safety awareness level between the three surveys.

1.2. Purpose of the Survey

The baseline survey has been conducted for measuring the DMTCL's safety awareness level which is one of the project's outputs. The survey will be conducted three times as follows: (1) early stage of the project (this summary), after the series of the trainings by JICA Expert Team (JET), and after the opening of MRT Line 6. We will measure the awareness change among the three surveys.

1.3. Duration of the 2nd Survey and Response Collection

2nd baseline survey was conducted between 20 June 2022 and 30 November 2022. Questioner form was prepared by google form and it was distributed to all employees who work in DMTCL except the office boys and cleaners, etc. via the intranet system of DMTCL.

1.4. Number of responses and Information of responders

JET received 107 responses for this survey from DMTCL. Responders' identification information like name, designation, and age are shown in Table 1-1.

Table 1-1 Information of Responder

Name	Age	Gender	Department	Position
A. B. M. Arifur Rahman	50	Male	Line 6	Project Manager
A. K. M. Najmul Hoque	35	Male	Line 6	Station Controller
A. K. M. Najmul Hoque	35	Male	Line 6	Station Controller
Adibul Islam	29	Male	Line 6	Assistant Engineer
Ahmedul Hasan	29	Male	Operation & Maintenance	
Ala Uddin	29	Male	Finance & Admin.	
Ali Mohammad Saleh	29	Male	Operation & Maintenance	
Ali Mohammad Saleh	30	Male	Operation & Maintenance	
Anik Adhikary	33	Male	Operation & Maintenance	
Apurbo Kumar Biswas	31	Male	Operation & Maintenance	
Arif Choudhury	32	Male	Operation & Maintenance	
Arif Choudhury	32	Male	Operation & Maintenance	
Asma Akther	30	Female	Operation & Maintenance	
Asma Akther	30	Female	Operation & Maintenance	
Belal Ahmed	32	Male	Operation & Maintenance	
Dewan Golam Morshed	30	Male	Line 6	Assistant Engineer
Horypoda Roy	33	Male	Line 6	Assistant Engineer
Ibrahim Khalil	28	Male	Line 6	Station controller
Ibrahim Khalil	28	Male	Line 6	Station Controller
Imtiaz Ahmed	40	Male	Line 5 Southun route	Deputy Project Director
Kazi Mohammad Omar Faruque	47	Male	Line 5 Southun route	Deputy Project Director
Khondaker Ehteshamul Kabir	47	Male	Line 6	Additional Project Director
M Rahat Ahmed	26	Male	Line 6	Sub-Assistant Engineer
Md Abdur Rahman	38	Male	Finance & Admin.	
Md Ahsan Ullah Sharifi	41	Male	Line 5 Northern route	Assistant Project Director
Md Arefin Reza	31	Male	Line 1	Audit & Accounts Officer
Md Enamul Huque	48	Male	Line 5 Northern route	Deputy Project Director
Md Mehedi Morshed	28	Male	Operation & Maintenance	
Md Rashedul Hasan	30	Male	Operation & Maintenance	

Md Ridwan Hossain	28	Male	Line 6	Assistant Engineer
Md. A. Alim Khan	46	Male	Line 1	Project Manager
Md. Abdullah-Al-Rashed	29	Male	Operation & Maintenance	
Md. Abu Bakor Siddique	32	Male	Operation & Maintenance	
Md. Al-Amin Mollik	29	Male	Line 6	Assistant Engineer
Md. Apel Mahmud	26	Male	Line 6	Sub-Assistant Engineer
Md. Arifur Rahman	31	Male	Line 6	Assistant Engineer
Md. Asaduzzaman	40	Male	Line 5 Northern route	Assistant Project Director
Md. Asif Uddin	28	Male	Line 6	Assistant Engineer
Md. Aslam Hossain	33	Male	Operation & Maintenance	
MD. ELIAS UDDIN	28	Male	Operation & Maintenance	
Md. Humayun Kabir	32	Male	Operation & Maintenance	
Md. Iftikhar Hossain	64	Male	Operation & Maintenance	
Md. Kamrul Hasan Sagor	30	Male	Operation & Maintenance	
Md. Kamrul Hasan Sagor	31	Male	Operation & Maintenance	
Md. Khairul Islam	35	Male	Operation & Maintenance	
Md. Matiul Islam	50	Male	Line 5 Northern route	Deputy Project Director
Md. Mehedi Hasan	28	Male	Line 6	Sub-Assistant Engineer
MD. MILON AL-MAMUN	28	Male	Operation & Maintenance	
Md. Mizanur Rahaman	25	Male	Operation & Maintenance	
Md. Mizanur Rahman	26	Male	Operation & Maintenance	
Md. Moudud Ahmmed	30	Male	Operation & Maintenance	
Md. Mustafizur Rahman	25	Male	Operation & Maintenance	
Md. Nazmul Alam	32	Male	Line 6	Assistant Engineer
Md. Nazmul Alam	30	Male	Line 6	Assistant Engineer
Md. Raihan Faruque	35	Male	Operation & Maintenance	
Md. Rakib Hasan Sarker	32	Male	Line 1	Assistant Project Manager
Md. Rakibul Islam	27	Male	Operation & Maintenance	Assistant Manager (Sub-Station & Switchgear)
MD. RAKIB-UL ISLAM	28	Male	Line 6	Sub-Assistant Engineer

Md. Rashedul Hasan	30	Male	Operation & Maintenance	
Md. Rejaul Karim Sumon	30	Male	Operation & Maintenance	
MD. SABUZ MIA	31	Male	Line 6	Assistant Engineer
Md. Saddam Hossain	29	Male	Operation & Maintenance	
MD. SAIFUR RAHMAN	29	Male	Line 6	Sub-Assistant Engineer
Md. Sajid Hasan	31	Male	Operation & Maintenance	
Md. Sajid Hasan	32	Male	Operation & Maintenance	
Md. Sajid Khan	26	Male	Operation & Maintenance	
Md. Shahjamal Mondol	30	Male	Operation & Maintenance	
Md. Sohel Rana	29	Male	Line 6	Sub-Assistant Engineer
Md. Sohel Rana	40	Male	Line 5 Southun route	Deputy Project Director
Md. Uzzal Hossain	28	Male	Line 6	Assistant Engineer
Md. Zakaria	56	Male	Line 6	Additional Project Director
Md.Golam Rasul	31	Male	Line 6	Station controller
Md.Jahangir Alom	30	Male	Operation & Maintenance	
Md.Kamruzzaman Talukder	28	Male	Operation & Maintenance	
Md.Mosharaf hossain	26	Male	Operation & Maintenance	
MD.Rasidul Hassan	30	Male	Operation & Maintenance	
Md.Shahjamal Mondol	30	Male	Operation & Maintenance	
MISHUK KUMAR DEY	29	Male	Operation & Maintenance	
Mohammad Abdur Rouf	54	Male	Line 5 Northern route	Additional Project Director
Mohammad Arshad Kabir	55	Male	Operation & Maintenance	
Mohammad Momenul Islam Mridha	44	Male	Line 1	Deputy Project Director
Mohammad Moniruzzaman	46	Male	Line 6	Project Manager
Mohammad Rashed Wasif	43	Male	Line 5 Northern route	Deputy Project Director
Mohammad Zahidul Islam	25	Male	Operation & Maintenance	
Mohammed	53	Male	Under MD	
Mohd. Abdus Salam	31	Male	Operation & Maintenance	
Mostafizur Rahman	31	Male	Operation & Maintenance	
Mrinal Kanti Banik , GM (RS)	59	Male	Operation & Maintenance	
MUHAMMAD RAEK ZAMAN	29	Male	Operation & Maintenance	

MUHAMMAD RAEK ZAMAN	29	Male	Operation & Maintenance	
Muhammad Saddam Hosain Sabbir	29	Male	Line 6	Sub-Assistant Engineer
Muhammad shahjahan	47	Male	Line 6	Project Manager
Nasir	32	Male	Operation & Maintenance	
Nityananda Bhowmik	27	Male	Operation & Maintenance	
Raihan Khalil	28	Male	Operation & Maintenance	
Rajib Barua	29	Male	Operation & Maintenance	
Sakibul Hasan	29	Male	Operation & Maintenance	
Shahriyar Kabir	27	Male	Line 6	Assistant Engineer
Shaikh Khalilur Rahman	53	Male	Line 5 Southun route	Additional Project Director
Shamim Ahmed	26	Male	Line 6	Sub-Assistant Engineer
Shanti Moni Chakma	45	Male	Line 6	Deputy Project Director
Swarno Kanti Sarker	29	Male	Operation & Maintenance	
Syed Abdul Hafiz	46	Male	Line 5 Northern route	Deputy Project Director
Syed Abdul Hafiz	46	Male	Line 5 Northern route	Deputy Project Director
Tapos Kumar Bromho	31	Male	Operation & Maintenance	
Tapos Kumar Bromho	31	Male	Operation & Maintenance	

Source: JICA Expert Team

*Alphabetical order

1.5. Questionnaire Items

JET prepared 5 items and 47 questions for 2nd baseline survey. Questions were prepared based on the 1st baseline survey and some new questions were added from it to grasp their awareness of the safety operation and our previous SMS training and SMS workshop in Bangladesh. 2nd baseline survey questionnaire is shown below (Base Line Survey Form).

Table 1-2 Questioner form

Q1: Information	
Q1-1	Name (Free Answer)
Q1-2	Department (if you have an additional charge, please select the position in which you are currently working)
	<input type="radio"/> Finance & Admin <input type="radio"/> Planning & Department
	<input type="radio"/> Operation & Maintenance <input type="radio"/> Under MD
	<input type="radio"/> Line 6 <input type="radio"/> Line 1
	<input type="radio"/> Line 5 Northern route <input type="radio"/> Line 5 Southern route
	<input type="radio"/> Other Lines
	Designation under MD
	<input type="radio"/> Company Secretary <input type="radio"/> Internal Audit
	<input type="radio"/> Safety & Quality Audit <input type="radio"/> Public Relation
	<input type="radio"/> Others
	Designation under Finance & Admin
	<input type="radio"/> Director Finance & Admin <input type="radio"/> Admin
	<input type="radio"/> HR <input type="radio"/> Finance & Accounts
	<input type="radio"/> Designation under Planning & Development
	<input type="radio"/> Director Planning & Development <input type="radio"/> Planning
	<input type="radio"/> Civil & P-Way <input type="radio"/> E&M
	Designation under O&M
	<input type="radio"/> Director O&M <input type="radio"/> Operation
	<input type="radio"/> Signaling & Telecom <input type="radio"/> Rolling Stock
	<input type="radio"/> P-Way & Civil <input type="radio"/> Electrical
<input type="radio"/> Stores and Procurement	
Designation of each Line	
<input type="radio"/> Project Director <input type="radio"/> Additional Project Director	
<input type="radio"/> Deputy Project Director <input type="radio"/> Project Manager	
<input type="radio"/> Deputy Project Manager <input type="radio"/> Assistant Engineer	
<input type="radio"/> Sub-Assistant Engineer <input type="radio"/> Others	
Q1-3	Position
	<input type="radio"/> Director <input type="radio"/> General Manager
	<input type="radio"/> Deputy General Manager <input type="radio"/> Manager
	<input type="radio"/> Assistant Manager <input type="radio"/> Others
Q1-4	Gender
	<input type="radio"/> Male <input type="radio"/> Female
	Other
Q1-5	Age (Free Answer)
Q2: Your awareness and Attitude	
Q2-1	Do you think Bangladesh citizens have serious awareness to follow the traffic rules?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q2-2	Do you always follow the traffic rule?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q2-3	Are you confident not to make errors in your work?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>

Q2-4	Do you think you need to continue working even if your health condition is a little bit bad?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q2-5	Do you take interest in the work-related activities of your colleagues?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q2-6	Do you think you need to share the information with all departments when troubles occur in your team?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q2-7	When you face an accident that threatens the lives of passengers without any description in manuals, what do you do?
	<input type="radio"/> Consult with your boss even if it takes some time
	<input type="radio"/> Consult with your close colleagues even if it takes minimum time
	<input type="radio"/> Decide and act by yourself without delay in accordance with manuals
Q2-8	Please feel free to describe your awareness and attitude for working.
	(Free Answer)
Q2-9	What are the most important matters for MRT operation by DMTCL? Feel free to describe.
	(Free Answer)
Q3: Organization Management	
Q3-1	Do you think organizations in Bangladesh have tolerance for the person who makes mistakes?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q3-2	Do you think all matters including small activities are decided by MD?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q3-3	Do you clearly understand your role and responsibility in DMTCL?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q3-4	Superior (boss) should ask subordinate (junior) for opinion even if it is small matters, how much important is that for your daily communication for safety?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q3-5	Do you feel free to give your opinions regarding work-related activities to your superior(boss)?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q3-6 (1)	Do you think the superior (boss) needs to be informed even if it is a minor trouble?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q3-6 (2)	Please describe the reasons. In addition, what level of minor trouble do you think in your answer?
	(Free Answer)
Q3-7 (1)	Do you always report/inform your superior (boss) even if it is minor trouble?
	(Exactly Yes) 1 2 3 4 (Exactly No) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
Q3-7 (2)	Please describe the reasons. In addition, what level of minor trouble do you think in your answer?
	(Free Answer)

Q3-8 (1)	Do you think the superior (boss) must grasp all work contents of the subordinate(junior)?			
	(Exactly Yes) 1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 (Exactly No) <input type="radio"/>
Q3-8 (2)	Please describe the reasons.			
	(Free Answer)			
Q3-9	Please feel free to describe the current organization management system in DMTCL.			
	(Free Answer)			
Q3-10	Have you ever discussed the potential accidents and emergency response during operation within DMTCL? (not construction issues)			
	<input type="radio"/> Yes		<input type="radio"/> No	
Q3-11	What kind of topics have you discussed? (For the person who selected "Yes" in Q3-10)			
	(Free Answer)			
Q3-12	Why have you did not discuss this yet? (For the person who selected "No" in Q3-10)			
	<input type="radio"/> No interest		<input type="radio"/> No topic to discuss	
	<input type="radio"/> No time		<input type="radio"/> No colleague to discuss	
	<input type="radio"/> Others			
Q4: Reliability of Railway System				
Q4-1 (1)	Do you think any accidents can be certainly prevented by the brand-new railway system which will be installed in DMTCL operation?			
	(Exactly Yes) 1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 (Exactly No) <input type="radio"/>
Q4-1 (2)	Reason for your answer			
	(Free Answer)			
Q4-2 (1)	Do you think safety education is necessary for non-system operation staff (i.e. admin.) even if it is costly and time-consuming?			
	(Exactly Yes) 1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 (Exactly No) <input type="radio"/>
Q4-2 (2)	Reason for your answer			
	(Free Answer)			
Q4-3 (1)	Do you think the information on accidents of BR and other countries' operators which have different railway systems are useful for DMTCL?			
	(Exactly Yes) 1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 (Exactly No) <input type="radio"/>
Q4-3 (2)	Reason for your answer			
	(Free Answer)			
Q5: Safety Awareness toward Railway Transport				
Q5-1	What kind of internal training and education within DMTCL will be required before the operation? Choose one highest priority answer.			
	<input type="radio"/> Risk finding for operation		<input type="radio"/> Understanding of documents (policy, regulation, manual, etc.)	
	<input type="radio"/> Practical exercise (Emergency drill, etc.)		<input type="radio"/> Communication between boss and junior	
	<input type="radio"/> Communication between top manager and all employees		<input type="radio"/> Communication among different departments	
Q5-2	Do you think the policy for measures taken needs to be prepared even if accidents have not occurred?			
	(Exactly Yes) 1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 (Exactly No) <input type="radio"/>

Q5-3	Do you think all staffs need to collect and share information about all troubles including minor things?			
	(Exactly Yes) 1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 (Exactly No) <input type="radio"/>
Q5-4	How often do you think the expert staff of DMTCL needs to regularly investigate and confirm the safety activities? Please note that investigation takes many efforts to do.			
	<input type="radio"/> Every month <input type="radio"/> Every year <input type="radio"/> No need to conduct		<input type="radio"/> Every half-year <input type="radio"/> Every two year	
Q5-5	How often do you think DMTCL needs to update the safety management documents and by whom?			
	<input type="radio"/> Every year with a selected committee members <input type="radio"/> At least every five years with selected committee members <input type="radio"/> As required by the selected committee members		<input type="radio"/> Every year with open discussion <input type="radio"/> At least every five years with open discussion <input type="radio"/> As required with open discussion	
Q5-6	What kind of PR activities of safety can DMTCL do for passengers? Choose the top three activities.			
	1. TV commercial with high cost	<input type="radio"/> 1st	<input type="radio"/> 2nd	<input type="radio"/> 3rd
	2. Station display with medium cost	<input type="radio"/> 1st	<input type="radio"/> 2nd	<input type="radio"/> 3rd
	3. School education with medium cost and long term perspective	<input type="radio"/> 1st	<input type="radio"/> 2nd	<input type="radio"/> 3rd
	4. Issuance of safety report with low cost	<input type="radio"/> 1st	<input type="radio"/> 2nd	<input type="radio"/> 3rd
	5. SNS with no cost	<input type="radio"/> 1st	<input type="radio"/> 2nd	<input type="radio"/> 3rd
Q5-7	Do you think DMTCL should keep the human resources of education and cost of facility for gender issues, sexual harassment, elderly person, disabled persons, pregnant, etc.?			
	(Exactly Yes) 1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 (Exactly No) <input type="radio"/>
Q5-8	Please feel free to describe what kind of preparations DMTCL needs in order to prevent accidents.			
	(Free Answer)			
Q5-9	Regarding the "Vision" and "Mission" of DMTCL			
	<input type="radio"/> I know all the content and I am capable to Explain to others <input type="radio"/> I have never heard of the "Safety Policy"		<input type="radio"/> I know, but the contents are not clear <input type="radio"/> Others	
Q5-10	What kind of resources do you think DMTCL is necessary for ensuring the safety of railway operations? Check the most important items from your point of view.			
	<input type="radio"/> Human resource <input type="radio"/> Budget <input type="radio"/> Others		<input type="radio"/> Equipment <input type="radio"/> Technical assistance	
Q6: Training from JET				
Q6-1	Have you ever taken the training from JICA Expert Team (JET)?			
	<input type="radio"/> Yes		<input type="radio"/> No	
Q6-2	Which training/workshop did you attend?			
	<input type="radio"/> 1st Training (July 2021) by Online <input type="radio"/> 3rd Training (April 2022)		<input type="radio"/> 2nd Training (October 2021) <input type="radio"/> 1st Workshop (October 2021)	

	○ 2nd Workshop (February 2022)	
Q6-3	<i>What kind of topics do you clearly understand and not understand?</i>	
	(Free Answer)	
Q6-4	<i>Please describe what kind of awareness have you changed based on JET Training. If your awareness has not changed, please describe so with reason.</i>	
	(Free Answer)	

2. Summary of the Responses

JET got 107 responses for 2nd baseline survey from DMTCL employees. The number of responses increased by 158% from 1st baseline survey. The background for increasing the responses, we consider is due to the following 3 things. 1) Increasing the number of employees in DMTCL. As shown in summary, half of the responses were from the Operation and Maintenance (O&M) division. At the time when we conducted 1st baseline survey, that division was under recruitment. Therefore, we consider that the increase in the number of employees contributed to the number of responses. 2) Change of collection method. As explained methodology in chapter 1.3, the method of response collection was changed between 1st baseline survey and 2nd baseline survey. The method of response collection in 1st baseline survey was an on-site survey by our national staff. On the other hand, 2nd baseline survey was conducted online with the help of DMTCL's intranet system. Therefore, DMTCL employees could answer it more easily than 1st previous survey. 3) Raising recognition of our project in DMTCL. The previous survey was conducted in the initial phase of this project. Also, this survey was started after finishing the series of training (3 times) and 3 times workshop in Dhaka. Therefore, most of DMTCL's employees have recognition of our activities and shared their awareness.

As an evaluation of this survey, simple tabulation and cross-tabulation were used. Simple tabulation was used for grasping the overall trend in DMTCL. Cross tabulation was used for grasping the trend by items to be compared such as differences by age group, experience of training, division, etc. As a combination of the cross-tabulation, some of the questions related to training held by JET were used to grasp training experience to assess the effective training and understanding level. And several other questions that may change awareness with age, division, etc. were used in appropriate items as a combination of cross-tabulation.

2.1. Basic Information (Item Q1-1 to Q1-5)

2.1.1. Department of responders (Q1-1)

Q1-2 Department (if you have an additional job, please select the position in which you are currently working)

As shown in Figure 2-1, we got 106 responses from DMTCL, and half of the total responses (52%) were from O&M Department. The next most frequent responses were construction department of Line-6 (29%), the construction department of Line-5 Northern route (7.5%), both the construction department of Line-1 and Line 5 Southam rote (3.7%), Finance & Admin (1.8%) and Under MD (0.9%). The breakdown of positions in each department is shown in Figure 2-2 to Figure 2-3. From these results, it is understood that this survey was answered by upper-level employees such as Directors, Additional Directors as well as young employees.

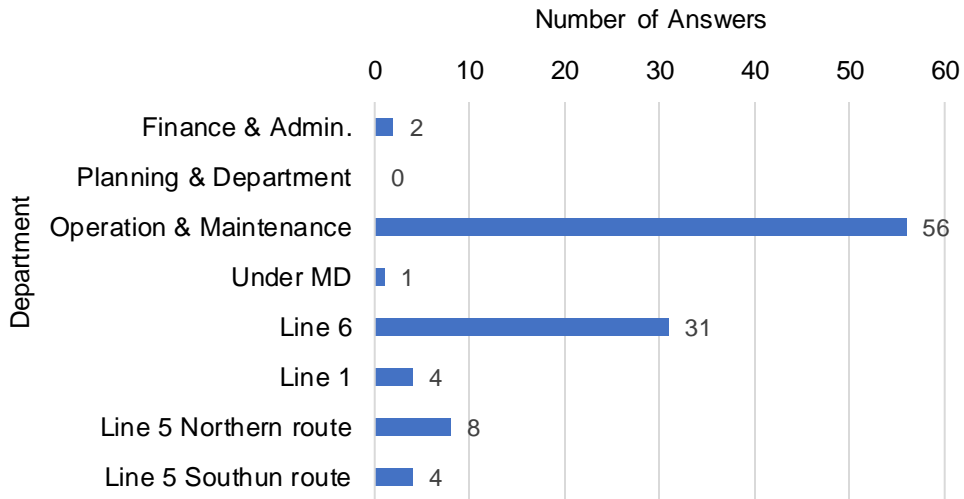


Figure 2-1 Department of responders

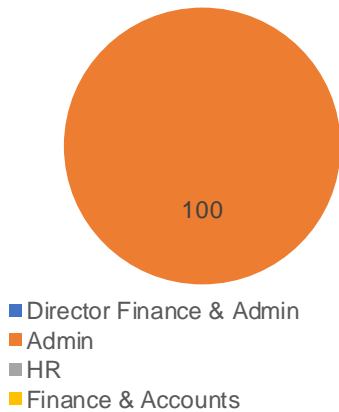


Figure 2-2 Breakdown of Finance and Admin



Figure 2-3 Breakdown of Under MD

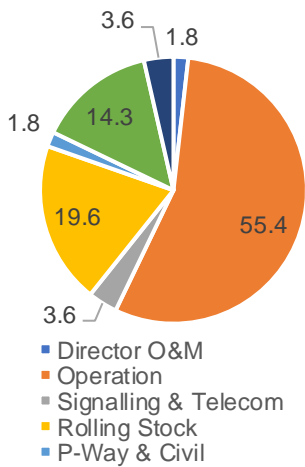


Figure 2-4 Breakdown of Operation & Maintenance

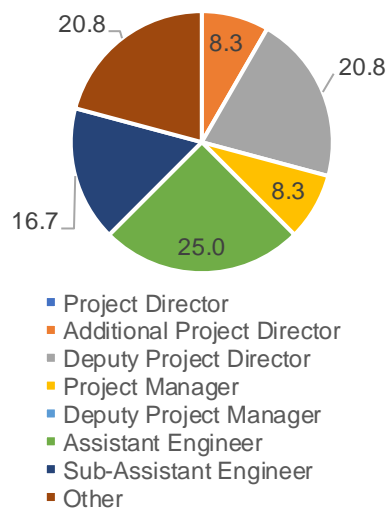


Figure 2-5 Breakdown of construction division (Lin-6,1,5N,5S)

2.1.2. Gender and Age

Q1-4 Gender

Gender balance in DMTCL, male employees occupy a high ratio in the total number of employees. As a background, DMTCL started from the construction phase of Line-6, and currently the construction and the design phase for Line-6, Line-1, Line-5N and Line-5S continue. Therefore, the ratio of male employees is higher than females. As shown in Figure 2-6, 97% of responders were male and the rest of the 3% were female.

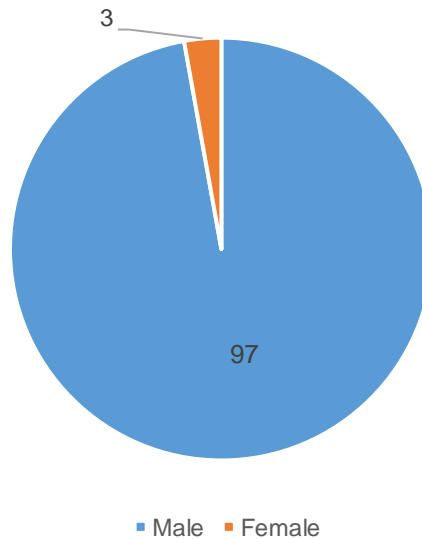


Figure 2-6 Gender balance

Q1-5 Age

As shown in Figure 2-7, the age balance of this survey, Twenties (20's) and Thirties (30's) responses were higher than other age groups. The reason for this result, DMTCL is a new organization, and DMTCL is currently promoting to hire young employees as on-site staff in the O&M division. So many of the responses came from young employees. On the other hand, it is shown that over 40 year old employees also shared their awareness actively.

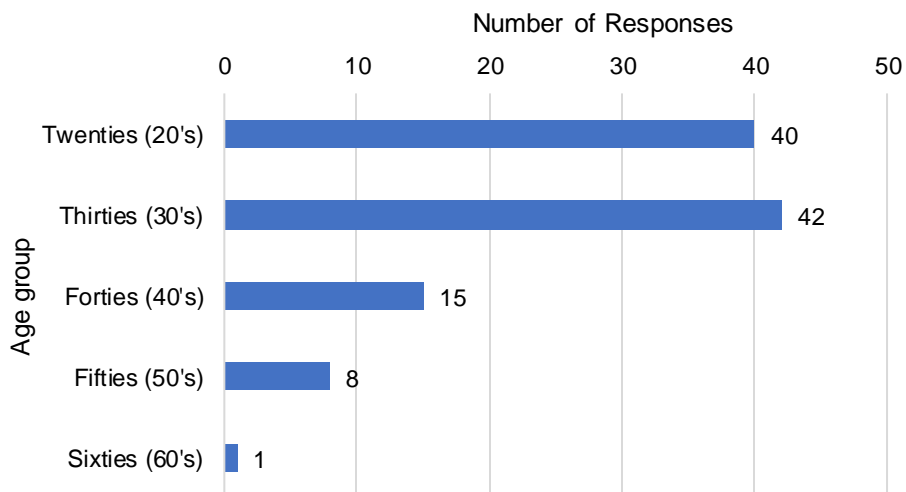


Figure 2-7 Age of responders

2.2. Your awareness and attitude

2.2.1. Concerning daily traffic rules

These questions were performed to analyze the awareness of compliance in daily life.

Q2-1 Do you think Bangladesh citizens have serious awareness to follow the traffic rules? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

To establish a safety culture in DMTCL, it is important that it work according to the rule which has been established in DMTCL, Bangladesh law, etc. In Figure 2-8 shown below, around 70% of responders thought that the situation of obeying the traffic rule in Bangladesh has a problem. The rest of the 30% doesn't have a problem with Bangladeshi traffic. As a transportation business operator, DMTCL should assess Bangladeshi traffic rules properly and then apply their awareness to DMTCL's safety measures.

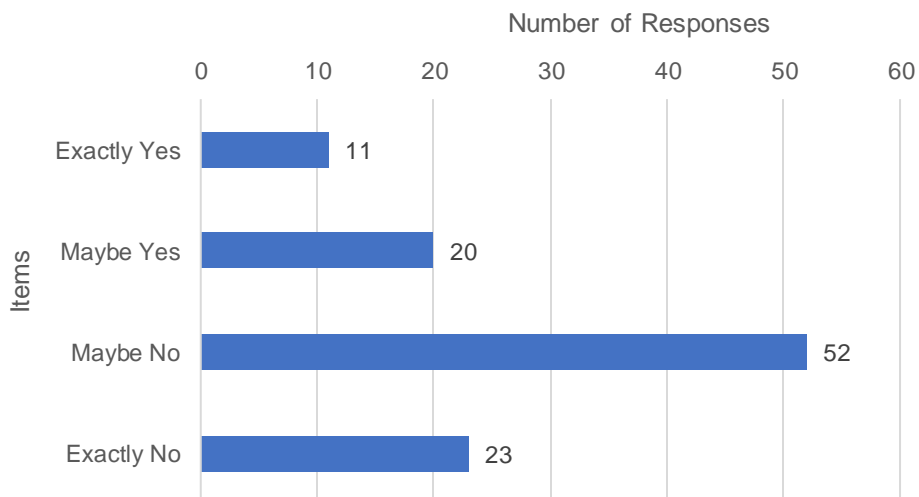


Figure 2-8 Bangladeshi compliance with traffic rules

Q2-2 Do you always follow the traffic rule? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

Train operation is required to follow the company regulations, code of conduct, raw, etc. every time in their work. As shown in Figure 2-9, 88% of responders answered, “Exactly Yes” or “Maybe Yes”. From this result, it is understood that DMTCL employees tend to be strict about adhering to rules regularly. However, 22% of the responders don't comply with traffic rules regularly. DMTCL must implement education to follow the rules.

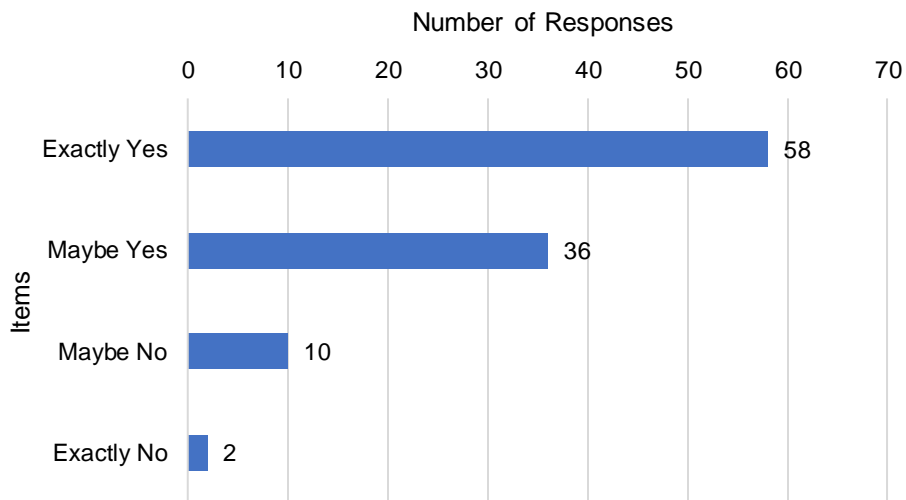


Figure 2-9 Following traffic rules in daily life

2.2.2. Attitude for their work

These questions were prepared to identify their awareness of the safe operation of their daily duty.

Q2-3 Are you confident not to make errors in your work? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

This is a very important question to assess their understanding level of the safety management system. Because the safety management system culture in Japan was developed for the prevention of accidents from human error, machine error, etc. in accordance with the PDCA circle. As shown in Figure 2-10, it's shown that around 90% of the responders answered, “Exactly Yes”, or “Maybe Yes”. To work scaring human error is not good for staff's mind but they have to understand many types of railway accidents were occurred caused by human errors in the world. In the first (1st) training provided by JET was lectured that the Fukuchiyama line in Japan occurred a big fatal accident (2005) by a train driver's human error, and it lost 106 passengers' (+1 driver) lives by this accident. Furthermore, the fire accident at Sakuragicho station in Japan (1951) occurred by a maintenance staff's human error, and 106 passengers' life was lost. Human error is a potential risk to humans, and this error could happen at any time. Looking at the trainee of the first training answers and another responder's shown in Figure 2-11, the trend of trainee of 1st training think that they can't certainly declare making human errors by themselves than another responder. So, they probably selected medium positive sensitive (Maybe yes). But trainees also have been having the confidence not to make human error yet.

Japanese railway operator installs the “Shisa-Kanko” system for decreasing human error by

double checking their eyes and insisting on calling and pointing in daily work. It is an effective count measure for preventing human error. DMTCL should install this system following Japanese railway operators.

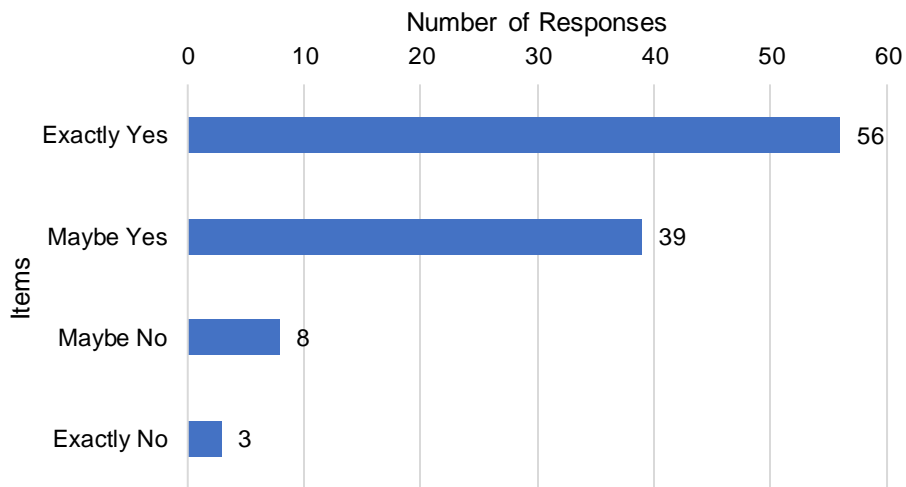


Figure 2-10 (Simple tabulation) Awareness of human error

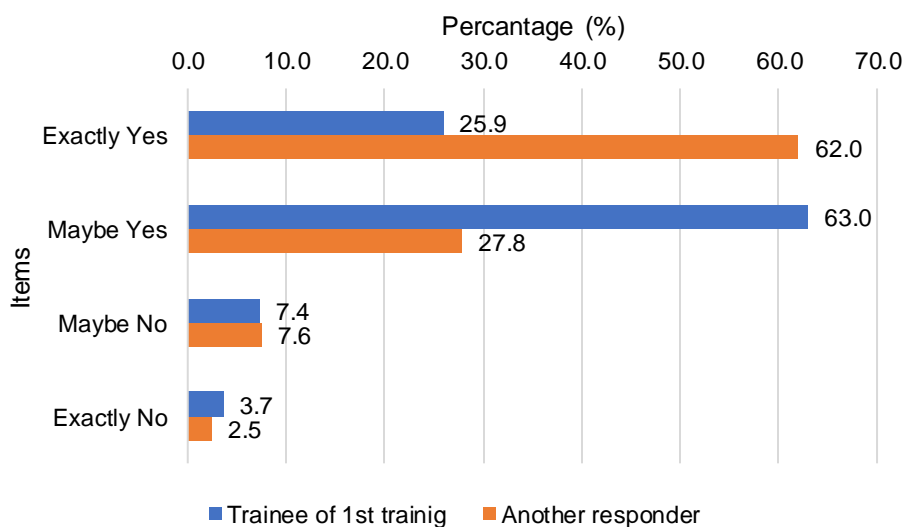


Figure 2-11 (Cross tabulation with training experience) Difference in awareness between trainees of SMS training and non-trainee

Q2-4 Do you think you need to continue working even if your health condition is a little bit bad?

(* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

As shown in Figure 2-12, this result was split by responders and each response ratio was almost the same. The Importance of this question is the difference between departments.

Because if a train driver or the person who works related to train operation directly has a minor health condition, it might be connected to serious issues in the railway operation. On the other hand, if a non-operation sector person has a minor health issue, the probability to be an accident during the railway operation is very low. Therefore, Operation & Maintenance division's answer is a key result to assess the DMTCL awareness for safety. Figure 2-13 is the result per division. Looking at the result from Operation & Maintenance division, it can be inferred that the responder's awareness is split, and the ratio of those answers is almost the same. From this result, JET can say that DMTCL should install health check systems and education at least for train operators and persons who work in related train operations.

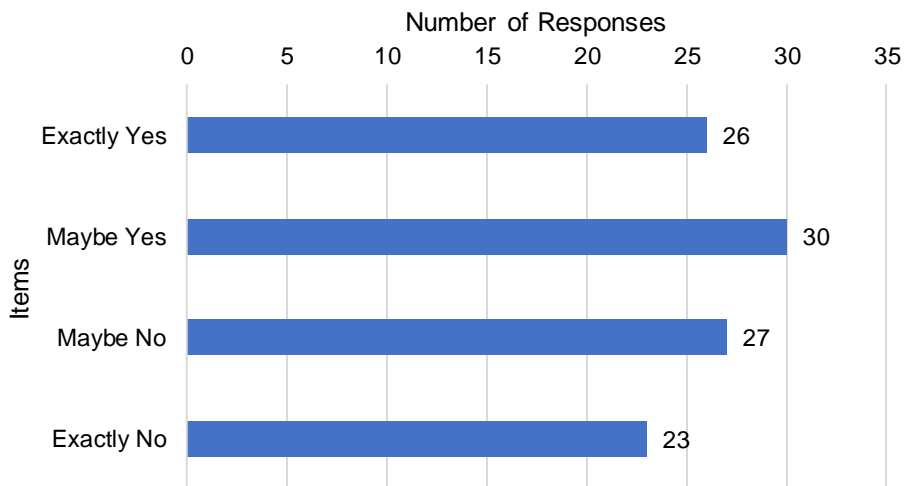


Figure 2-12 (Simple tabulation) Awareness toward work when having a minor health issue

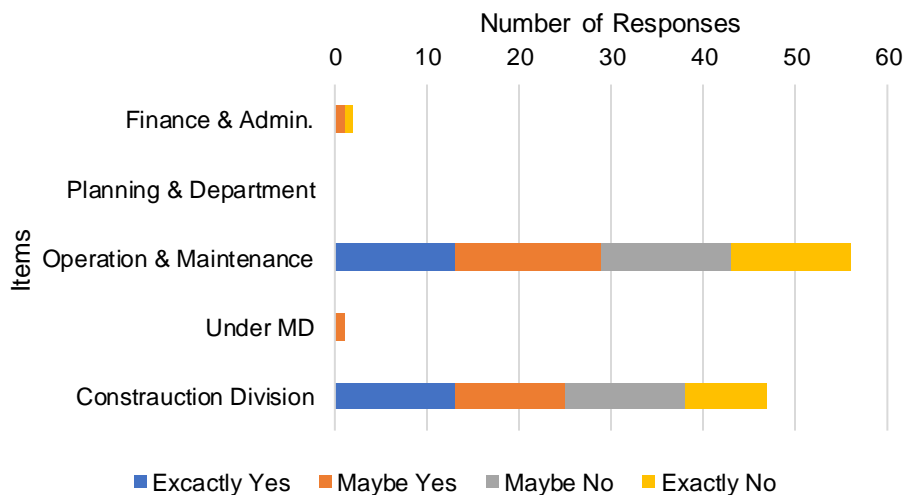


Figure 2-13 (Cross tabulation with division) Awareness toward work when having a minor health issue

Q2-5 Do you take interest in the work-related activities of your colleagues? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

As shown in Figure 2-14, about 90% of responders selected “Exactly Yes” or “Maybe Yes”. Railway operation has a lot of work fields such as train driver, maintenance staff, etc. It is important to take an interest in other types of work in DMTCL for mutual relationships with other departments.

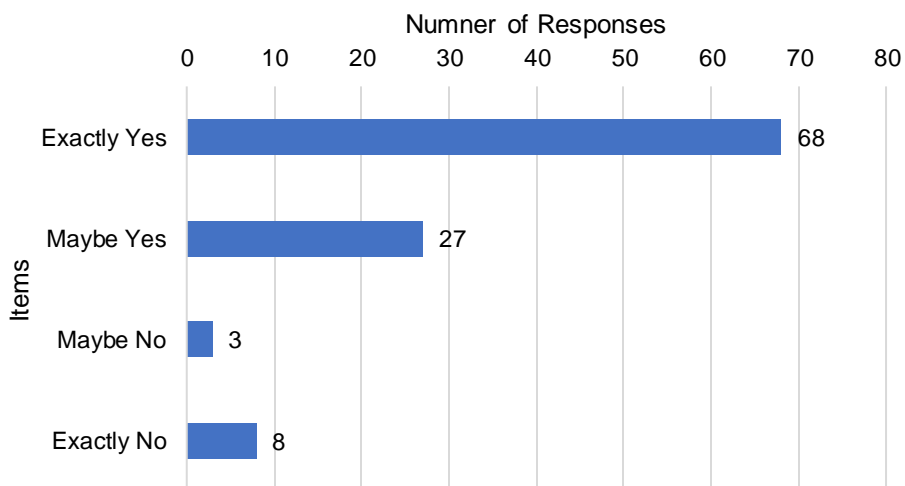


Figure 2-14 Interest in other divisions' activity

Q2-6 Do you think you need to share the information with all departments when troubles occur in your team? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

This is an important question for assessing the JET activity because we worked for establishing the system for sharing information in case of emergency in DMTCL. As shown in Figure 2-15, about 80% of responders answered, “Exactly Yes” or “Maybe Yes”. From this result, it can be inferred that the importance of sharing information for any trouble in the organization is gradually spreading in DMTCL. Regarding the contact in the organization, it was lectured in 2nd training provided by JET. Looking at the result from the trainee of the 2nd training and another responder, another responder’s selected ratio of positive items was higher than the 2nd trainee one. This is an unfortunate result for JET. If its trouble is related to the operation, it should be shared with all departments.

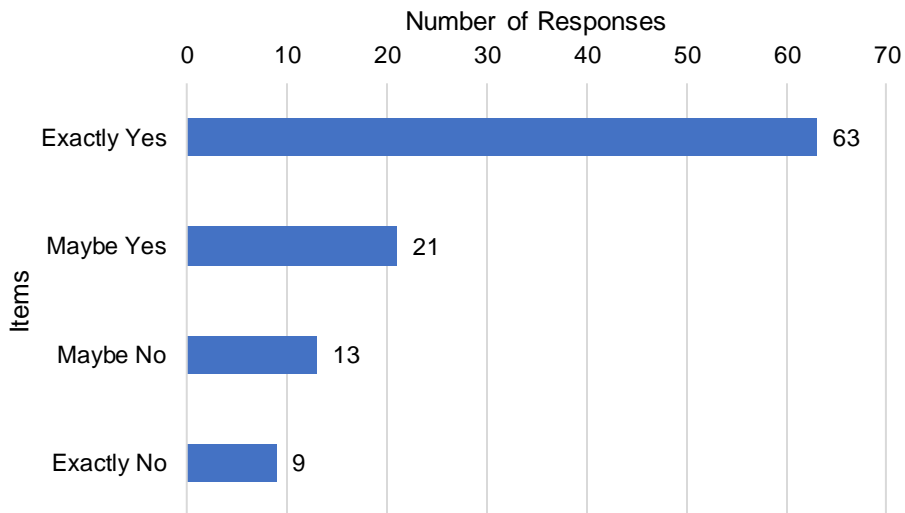


Figure 2-15 (Simple tabulation) Importance of information sharing in the organization

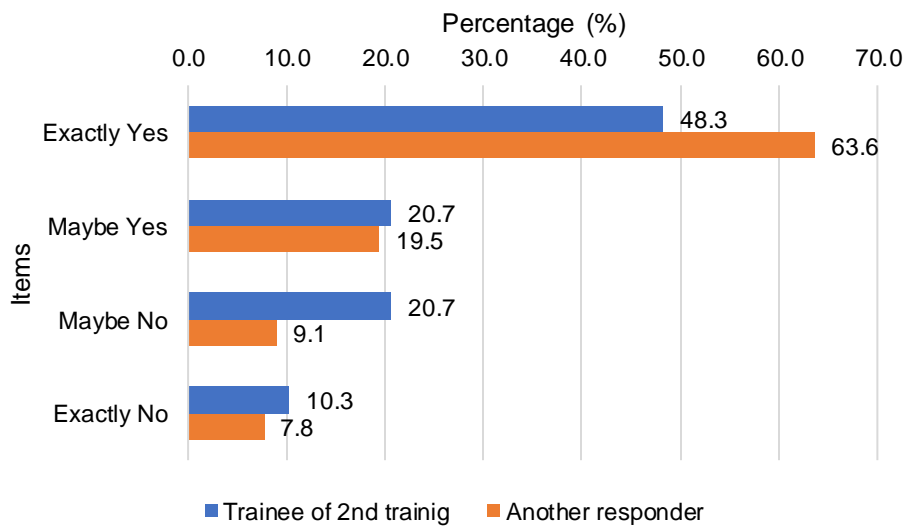


Figure 2-16 (Cross tabulation with training experience) Importance of information sharing in the organization

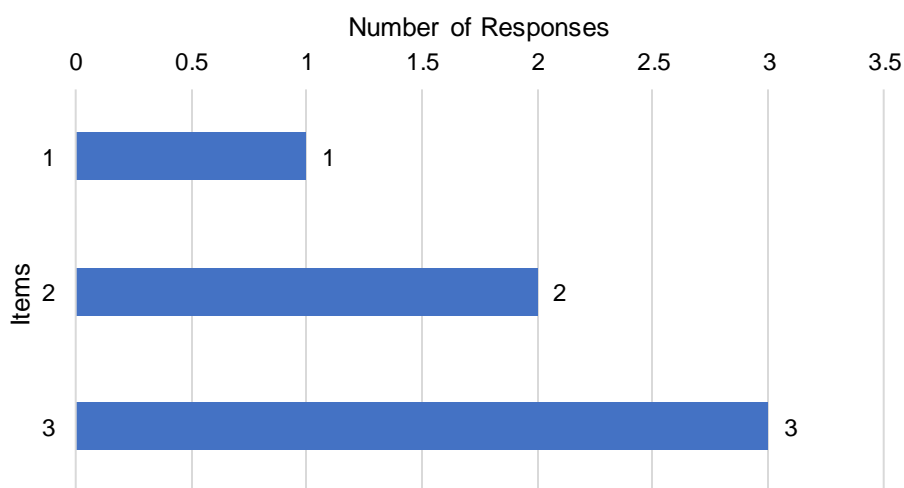
Q2-7 When you face an accident that threatens the lives of passengers without any description in manuals, what do you do?

DMTCL has an “ACCIDENT, INCIDENT & DISASTER MANAGEMENT MANUAL” for response to emergency cases. This manual was established for identifying some accidents and abnormal cases. Managers who assign Operation & Maintenance division rely in this manual. However, JET thinks that the above manual can’t cover all types of accidents because accidents and abnormal cases happen by many trigger such as human error, machine error, weather conditions, etc. So, DMTCL should consider the appropriate response for accidents

which are not written in the above manual.

Figure 2-17 is shown that about half of the responders selected item 3 (Decide and act by yourself without delay in accordance with manuals). On the other hand, the rest of persons selected Item 1 (Consult with your boss even if it takes some time) and 2 (Consult with your close colleagues even if it takes minimum time) even if they understand it takes time to respond. In the daily operation, employees should follow each rule decided by DMTCL and the government. However, if the passenger's life is threatened, JET thinks that DMTCL's staff should act immediately for saving a passenger's life by following the appropriate manual. From this result, it can be inferred that the action by staff in abnormal (emergency) cases is not unify in DMTCL currently. It is a fundamental issue and should be unified according to the manual.

When comparing this result by responder's age group, it can be inferred that many over 50 year old staff are wishing to act under the staff's decision in case of abnormal cases. On the other hand, many under 40 year old staffs think that consultation with superiors is necessary for those actions.

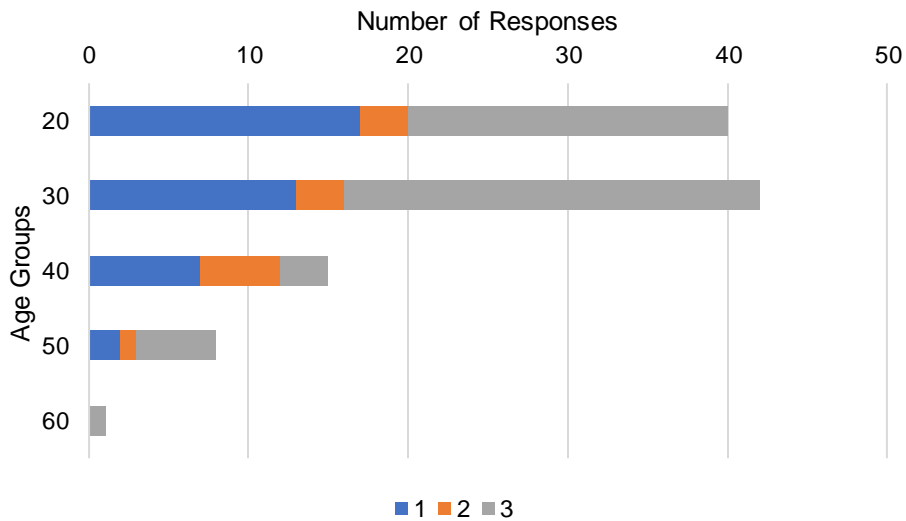


Item 1: Consult with your boss even if it takes some time

Item 2: Consult with your close colleagues even if it takes minimum time

Item 3: Decide and act by yourself without delay in accordance with manuals

Figure 2-17 (Simple tabulation) Measures to be taken in case of the abnormal situation



- Item 1: Consult with your boss even if it takes some time
- Item 2: Consult with your close colleagues even if it takes minimum time
- Item 3: Decide and act by yourself without delay in accordance with manuals

Figure 2-18 (Cross tabulation with age group) Measures to be taken in case of the abnormal situation

Q2-8 Please feel free to describe your awareness and attitude for working.

Many staff are proud of their work and have safety awareness in their work. Some of the responders start to think about punctual operation. It is important to have pride in their work. This is the concerns point to DMTCL, a lot of employees have pride in their work but the highest of reason was “First MRT in Bangladesh”. This motivation may continue for the first few months of operation. If Metro operations then become routine, their motivation might change and their enthusiasm for their work might decrease. Table 2-1 Sample of answers Table 2-1 is a sample of answers.

Table 2-1 Sample of answers

Always aware of passenger safety
I have been suffering from Bangladesh traffic jam since my childhood. Metrorail is modern public transport which will solve most of these problems. I am happy and proud to work in public transport.
Safety first. So, I always try to work for the safety and betterment of the customer ei service receiver.
I think I am a very lucky person because I am a part of the first metro of Bangladesh. I am eagerly awaiting when the revenue service of metro rail will start to serve the people who are facing traffic jam since many years and facing lots of problem when going to their work place mostly the women.
It is very important in workplace
I think following the manuals related to the respective work can help to run the operation smoothly, so follow the rules, be safe and keep others safe.
Work should be done in time without delay

Metro Operation is not a rocket science that I have to improvise in every aspects. There are certain rules and regulations like Metro Rail General Rules (MRGR) and Safety Circulars. I think if the employees are bound to abide by all these sincerely, the operation of the train will be smooth and be passenger friendly. Another thing must also be kept into mind that metro operation is time bound. No delay is acceptable. So, time management is also a very big issue to be taken care off.

Q2-9 What are the most important matters for MRT operation by DMTCL? Feel free to describe.

Many responders understand safety is the highest priority thing for railway operation. This thing is written at the top on the regulation of railway operation in Japan. Another point, many of the responders requested DMTCL to take the necessary training using real manuals, facilities, etc. Furthermore, some of the responders suggested the importance of training in Japan.

From the result, it is understood that many staffs expect to take appropriate training before the operation. However, no one who answered about training wrote detail of the training contents. From this, it is possible that many staffs have not received any appropriate training about the safe operation at this point.

DMTCL prepares the “ACCIDENT, INCIDENT & DISASTER MANAGEMENT MANUAL” right now and it is under review by DTCA. And some of the manuals are also under preparation. DMTCL should educate the contents of manuals to all staff as soon as possible.

able 2-2 Sample of answers

All operation and maintenance people take more and more training
Training in japan is important for dmtcl to conduct mrt operation. Because dmtcl will run on japan technology. There are not maintaining national and international code for training.service rules not yet finalization.Huge salary discrimination between excutive and non excutive.
1. Safety manual 2. Service rules 3. It's beneficial for general people and worker in DMTCL.
Safety first is the motto.Safety related training should be given highest priority.Perosns involved in MRT operations should be aware of safety measures.
Operations staff need to basic training and safety training properly for MRT operations
Recruitment of manpower
Recruit right persons, train them rightly, invove them with work is the most important thing after being completed the system

2.3. Organizational Management

2.3.1. Management culture in Bangladesh/DMTCL

These questions were prepared for understanding the organizational culture in Bangladesh and DMTCL.

Q3-1 Do you think organizations in Bangladesh have tolerance for the person who makes mistakes? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two

items for convenience in the middle of sensitives.)

As shown in Figure 2-19, organizations in Bangladesh tend to be a little bit severe for people who make mistakes. Therefore, many responders selected the middle sensitive i.e., “Maybe Yes” and “Maybe No”. If focusing on the age group of the responder, many responders who belong to 20 to 30 year old groups have negative opinions of organization tolerance. On the other hand, over the 40 year old group, many responders think that Bangladesh’s organization is tolerant of people who make mistakes. Severe education from superior to subordinate might be connected to big issues like the Fukuchiyama accident in Japan. DMTCL should be careful about treating young staff when they make mistakes at work.

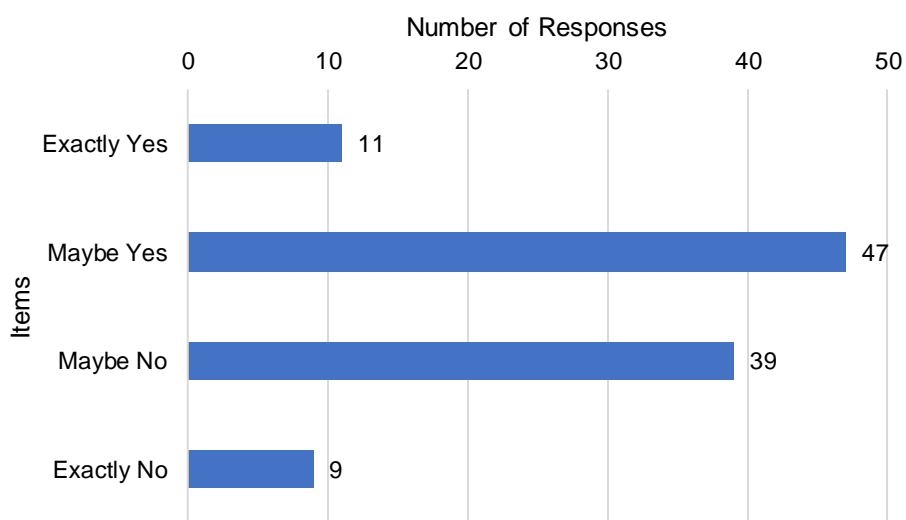


Figure 2-19 (Simple tabulation) Attitude of those around you when you mistake

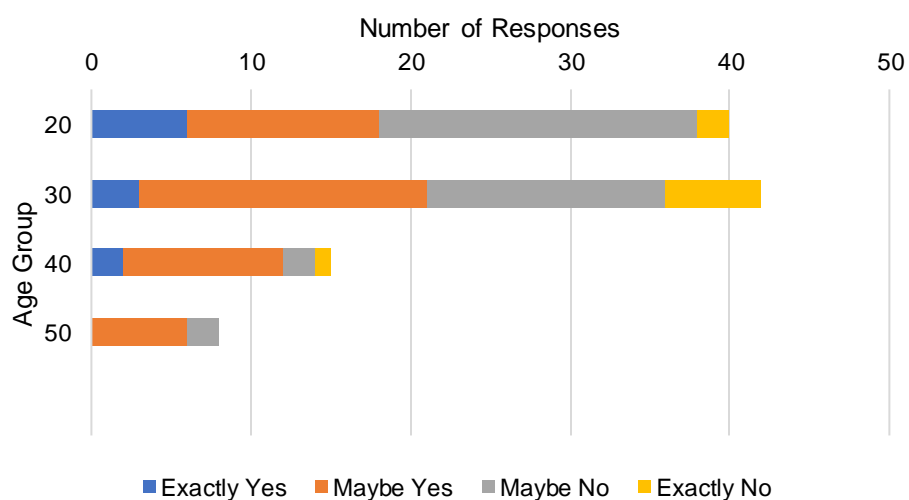


Figure 2-20 (Cross tabulation with age group) Attitude of those around you when you mistake

Q3-2 Do you think all matters including small activities are decided by MD? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

This is a newly added question from 2nd baseline survey. Whenever introducing new activities in DMTCL, Managing Director’s (MD) decision is required immediately. Therefore, the ability for the decision of each staff and promptness for decisions as an organization is the problem in DMTCL.

Figure 2-21 is shown that more than half of the responders answered “Exactly Yes” or “Maybe Yes” for MD’s authority even if deciding small matters in DMTCL. Regarding role and responsibilities was lectured in the 2nd training. Looking at the result from the trainee of the 2nd training and another responder’s result shown in Figure 2-22, the trainee of the 2nd training has a negative result (“Maybe No” or “Exactly No”) than another one. Many of the trainees of the 2nd training have an awareness that small matters should not be decided by MD. On the other hand, more than half of all responders rely on MD’s decision light now. This is a bad culture in Bangladesh. DMTCL should determine the specific roles that will make decisions on each matter and the MD should approve them immediately. In railway operations, a lot of potential risks are there, so emergency decisions are also needed sometimes. If MD has absolute authority over DMTCL, they might fall into big fatal accidents.

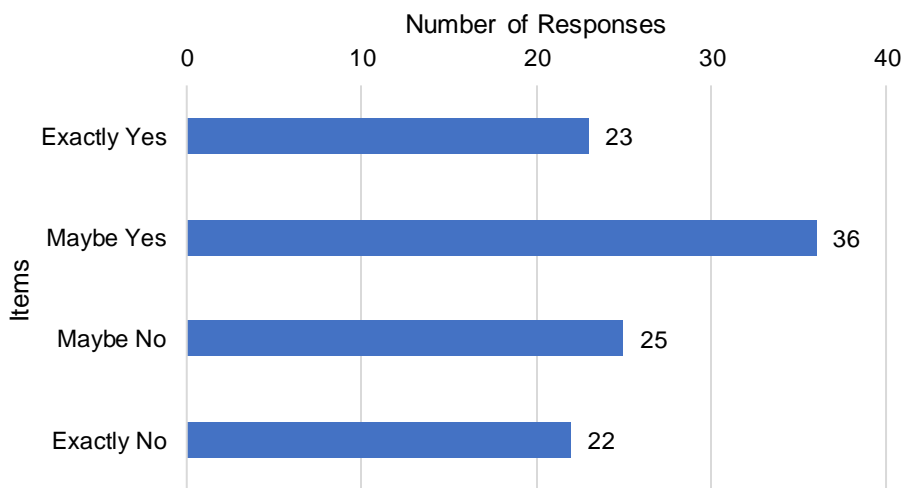


Figure 2-21 (Simple tabulation) Authority of MD

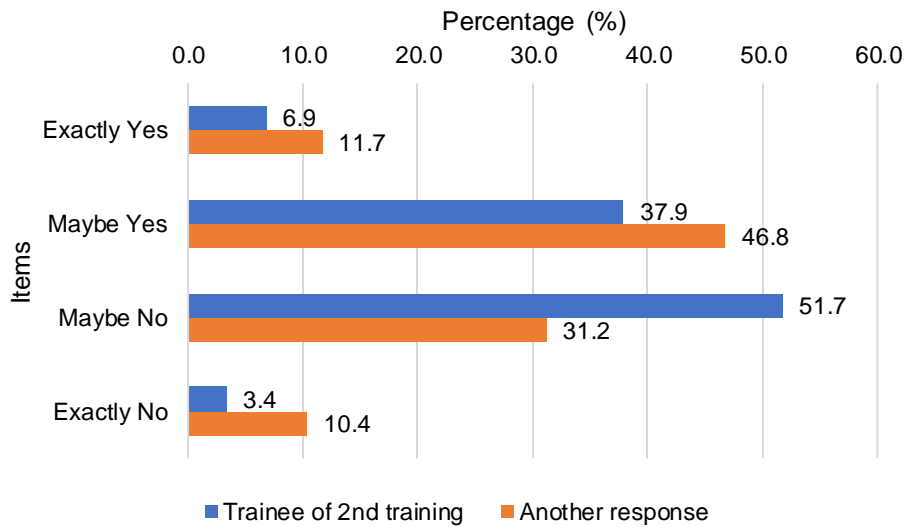


Figure 2-22 (Cross tabulation with training experience) Authority of MD

2.3.2. Your role and responsibility in DMTCL

This question was prepared to confirm the understanding level of their work role and responsibility.

Q3-3 Do you clearly understand your role and responsibility in DMTCL? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

From the result shown in Figure 2-23, it can be inferred that almost all responders understand their role and responsibility in DMTCL. On the other hand, some responders answered, “Maybe No” or “Exactly No”. This case is seen in young employees such as 20 year old and 30 year old age groups as shown in Figure 2-23. Superiors should have an opportunity to communicate with their subordinate to solve this issue.

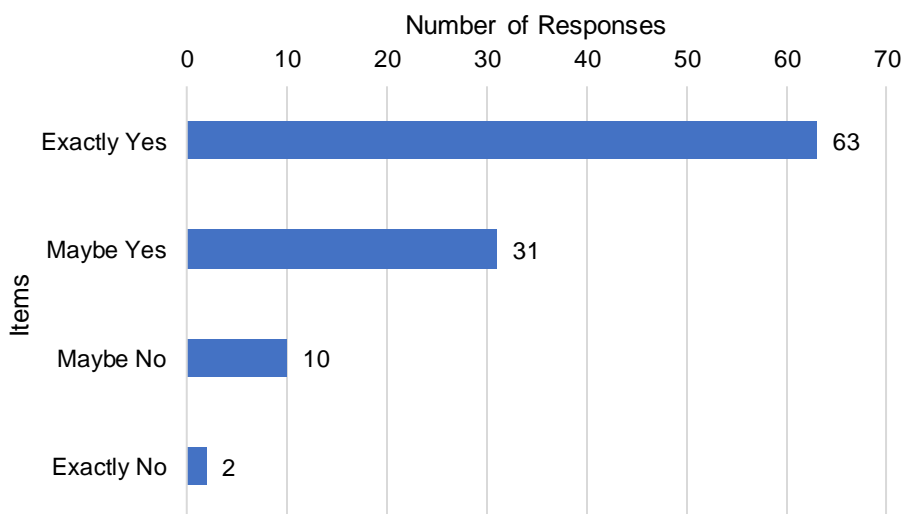


Figure 2-23 (Simple tabulation) Level of understanding of their roles and responsibilities

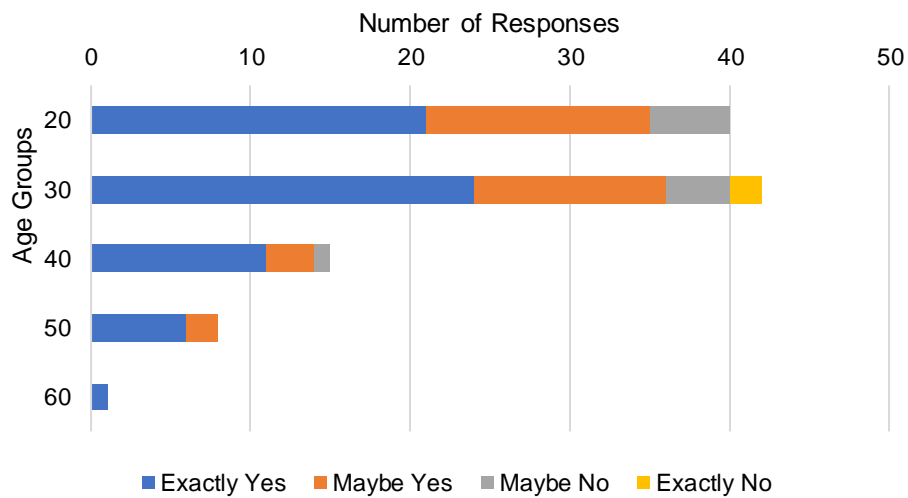


Figure 2-24 (Cross tabulation with age group) Level of understanding of their roles and responsibilities

2.3.3. Reporting/informing awareness in DMTCL

These questions were prepared for confirming the awareness of reporting/ informing in trouble. **Q3-4 Superior (boss) should ask subordinate (junior) for opinion even if it is small matters, how much important is that for your daily communication for safety?** (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

As shown in Figure 2-25, many responders (88%) selected “Exactly Yes” and “Maybe Yes”. It is a good opinion for the safety management system because both contacts between superior and subordinate are required to maintain the safety railway operation. If subordinate has any opinions, they should deliver it to their superiors without hesitation. And superiors should ask their opinion then it should be addressed properly. In the Osaka Metro case, they have a “Jikono-me” system which is a kind of reporting system when staff finds any precaution point for railway operation. DMTCL, currently, doesn’t have a reporting system, JET thinks that they should prepare this kind of system to be reported properly from subordinate to superior. The importance of 2-way communication between subordinates and their superiors was lectured in the 2nd training. The 2-way communication is an effect to inform safety issues on the site to superiors. Looking at the result from the trainee of 2nd training and the result from another responder shown in Figure 2-26 the ratio selected positive results (“Maybe Yes”, “Exactly Yes”) by another responder is higher than the trainee of 2nd training. This is an unfortunate result for JET. Even if small matter, superiors should ask for information from subordinates, and then if it may connect to accidents, their superior should inform his boss and take necessary action.

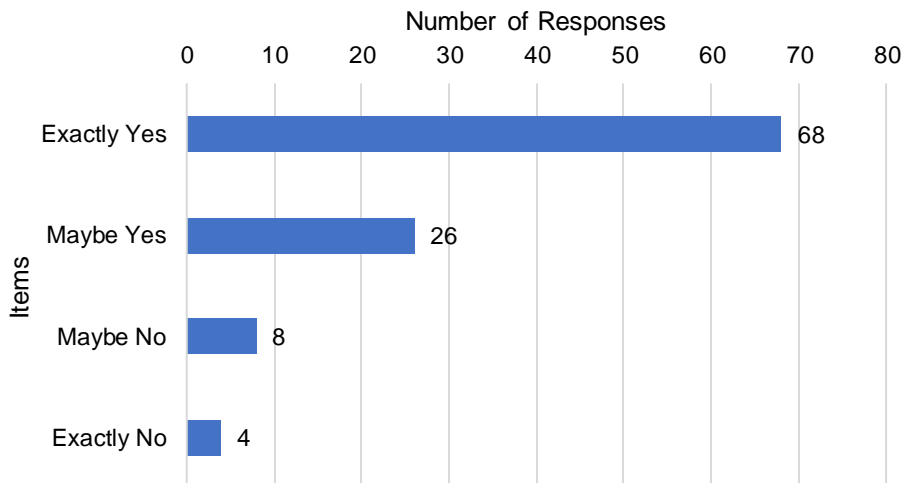


Figure 2-25 (Simple tabulation) Awareness of reporting to their superiors

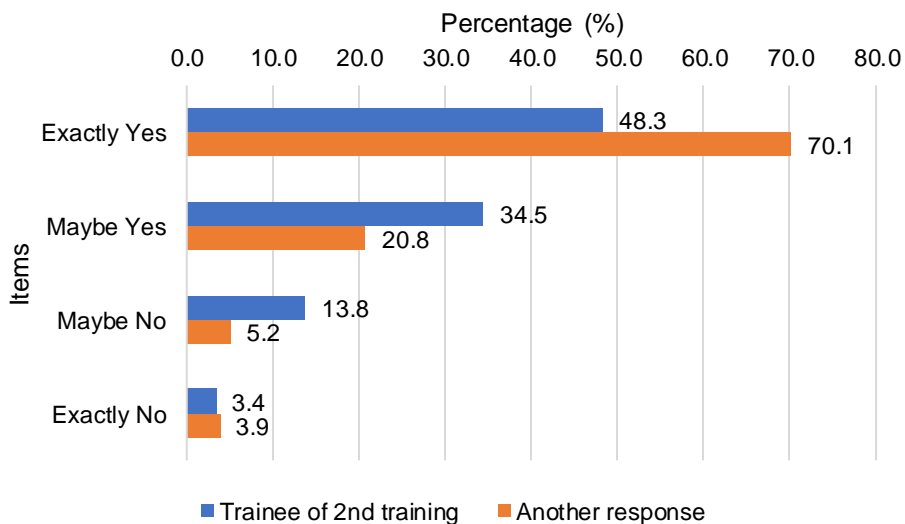


Figure 2-26 (Cross tabulation with training experience) Awareness of reporting to their superiors

Q3-5 Do you feel free to give your opinions regarding work related activities to your superior(boss)? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

As shown in Figure 2-27, many responders (89%) gave positive answers i.e., “Exactly Yes” or “Maybe Yes”. On the other hand, looking at this result (shown in Figure 2-28) by age group, some of the young employees have negative opinions about this question. It seems that awareness of this question has a gap by age group. Differences in awareness by age will be connected to communication errors, so DMTCL should install a communication system between superiors and subordinates.

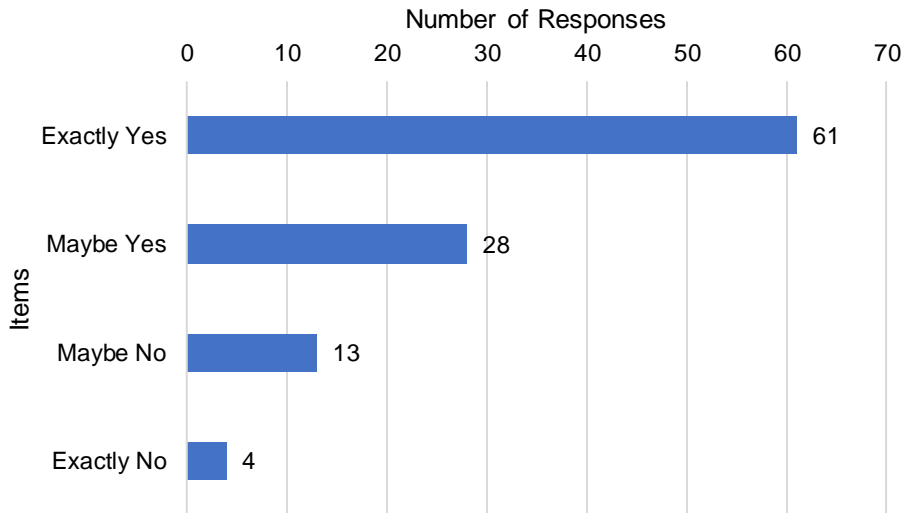


Figure 2-27(Simple tabulation with age group) Relationship with superior and subordinate

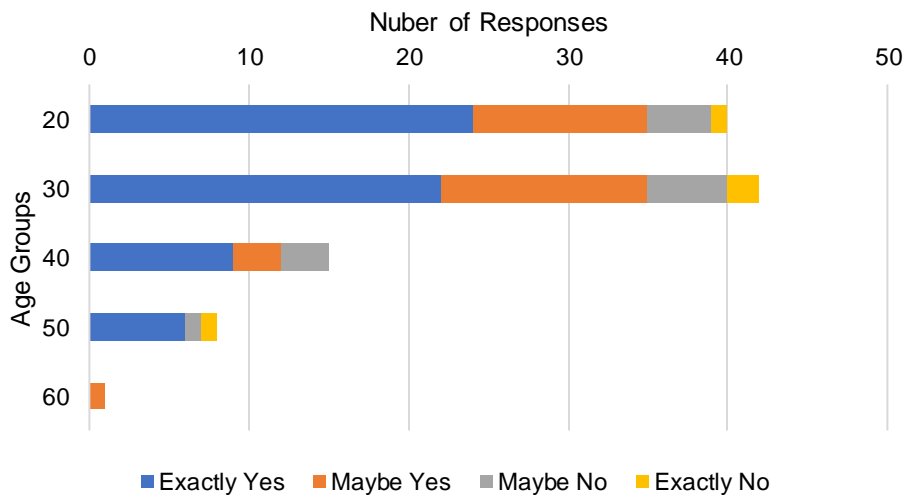


Figure 2-28 (Cross tabulation with age group) Relationship with superior and subordinate

Q3-6 (1) Do you think superior (boss) need to be informed even if it is a minor trouble? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

As shown in Figure 2-29, many responders (82%) gave positive answers i.e., “Exactly Yes” or “Maybe Yes”. If errors are related to railway operations, these should be shared to subordinate immediately. Osaka Metro case, they have a reporting system to share information found by staff. DMTCL will hire a lot of staff finally, so they should install sharing system like Osaka Metro to help with internal communication.

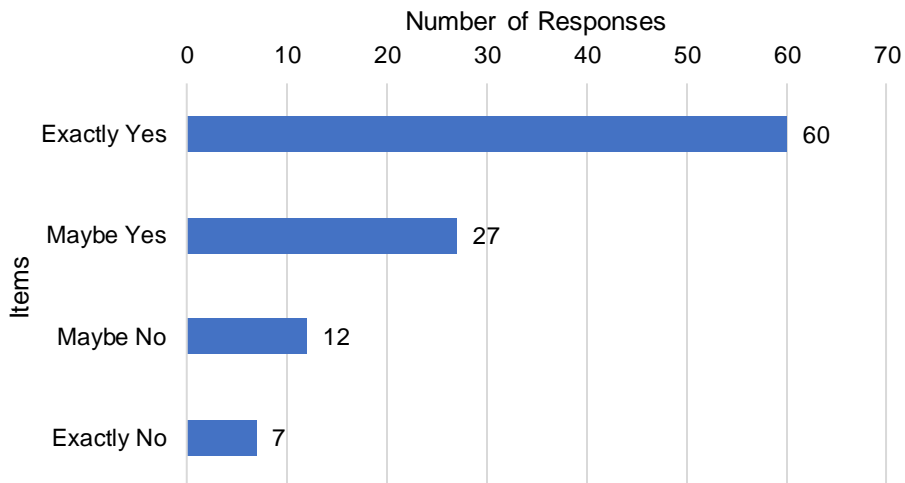


Figure 2-29 Importance of information from superior in minor error case

Q3-6 (2) Please describe the reasons. In addition, what level of minor trouble do you think in your answer?

This question was prepared in addition to the above question (Q3-6 (1)) to ask what respondents consider to be minor problems. Table 2-3 is sample results from responders. Many responders understand that minor trouble has the potential to be big trouble, so they answered subordinate should inform their superiors of troubles even if these are very small. In addition, some responders answered that this information will be a good opportunity to develop DMTCL. On the other hand, some responders separated what types of errors need to be reported to their superiors. In addition to this answer, someone wrote that the superior's time should not be wasted for minor trouble such as hygiene, arrangement error for sale, etc. 2-way communication between superior and subordinate is very important to improve the organization and prevent a serious accident. As someone answered, accumulated trouble information is available for developing the service of DMTCL. As explained above, Osaka Metro has a reporting system as shown in Figure 2-30. All staff can easily post their awareness on the site and inform their superiors and colleagues. As far as JET knows, DMTCL does not have similar systems for 2-way communication right now. DMTCL should install a reporting system that can easily check and post reports to everyone.

Table 2-3 Sample of answers

As an Assistant Manager (Store & Procurement) I think that; It would not be right to waste time discussing small issues with my superior sir For example, there is a lot of dirt in the store room, the goods are not arranged properly, the goods are not tagged or any employee arrives late.
it needs to inform superiors because MRT is a communicated-based operation system. if any minor mistake happened it will hamper the whole MRT operation system.

Small small problems can make a big disorder. As early as possible it need to be rectified. If it is in my jurisdiction I may handle it but need to be known by the boss as in future it may help him to make some decision. Minor problems like escaletor/ lift issue, problem in housekeeping etc.
Because minor trouble may lead to a major trouble. For example, all types of safety violation.
i) The minor troubles may create severe troubles. ii) If it is not informed and minor problem is not managed properly then the junior may get blamed or punished. iii) Uncommon minor troubles must be informed. Minor troubles with common natures and having common solutions are not required to inform.
Minor trouble should resolve on the floor level
Experience does matter for any small incident, so it is wise to share the info though it is minor.
To share the actual fact and to get the proper decision, Crack in the track

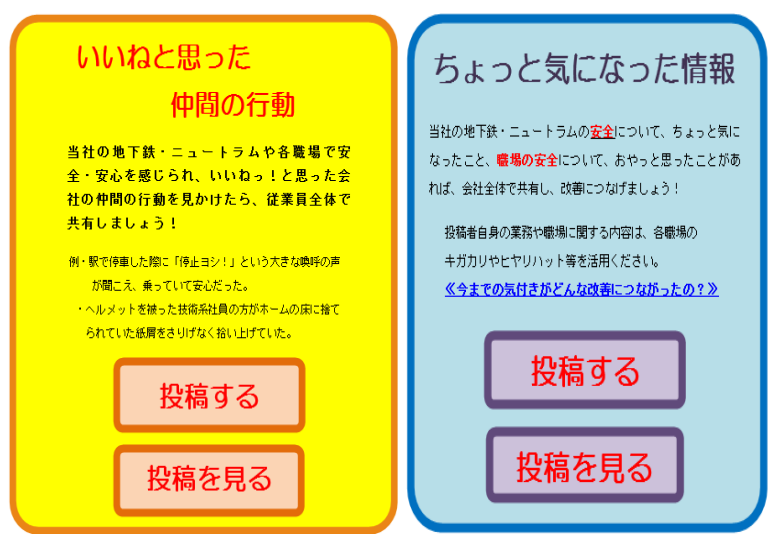


Figure 2-30 Internal Portal posing website

Q3-7 (1) Do you always report/inform your superior (boss) even if it is minor trouble?

(* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

As shown in Figure 2-31, many responders (85%) gave positive answers i.e., “Exactly Yes” or “Maybe Yes”. As explained above, the 2-way communication between superiors and subordinates were lectured in the 2nd training. Looking at the result from trainee of 2nd training and result from another responder, about 80% of both types of responders selected positive items (“Exactly Yes” or “Might be Yes”).

Even if small matters but it’s related to railway operation, subordinates should not determine whether it is necessary to inform superiors or not by themselves. DMTCL should educate the method and importance of 2-way communication to all staffs before the operation.

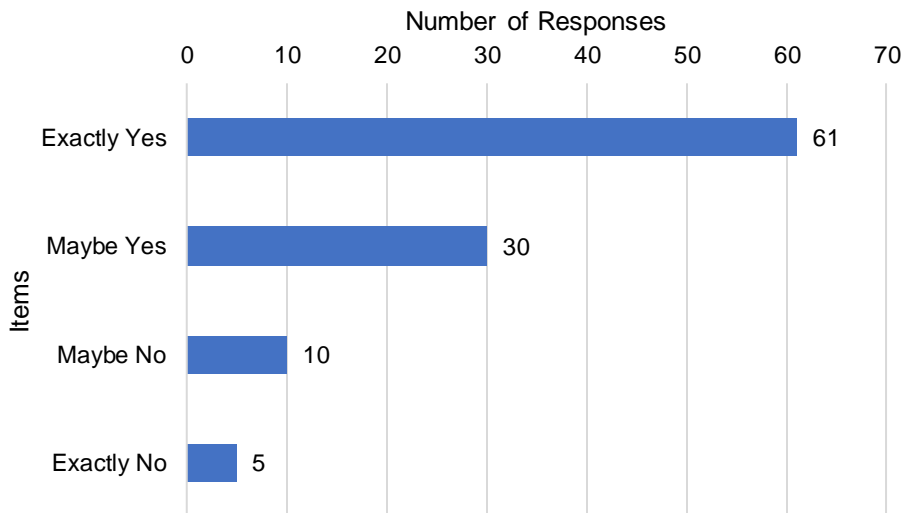


Figure 2-31 (Simple tabulation) Importance sharing information to subordinate

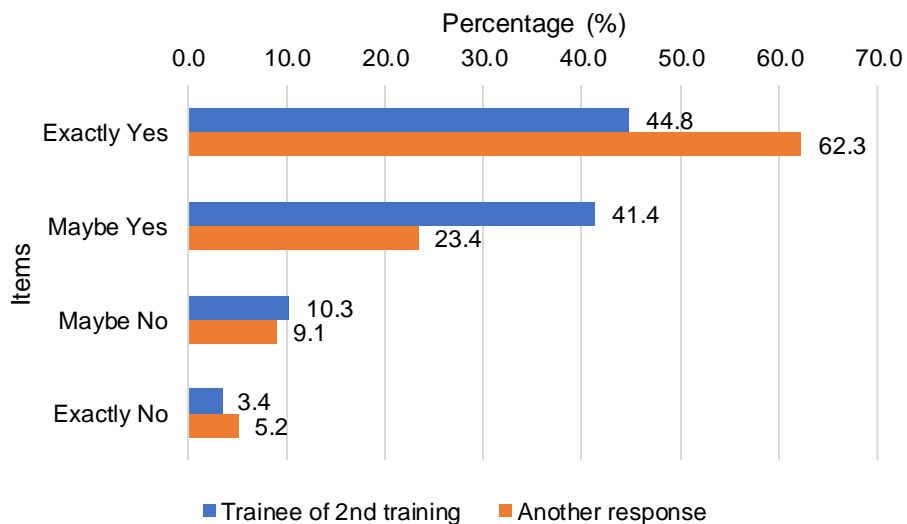


Figure 2-32 (Cross tabulation with age group) Importance sharing information to subordinate

Q3-7 (2) Please describe the reasons. In addition, what level of minor trouble do you think in your answer?

This question was prepared in addition to the above question (Q3-7 (1)) to ask what respondents consider to be minor problems. Many of responders understand that accidents should be properly informed to superior not limited to size of accident. On the other hand, some responders thought that report to superior is not required always in case subordinate can solve it enough. And some responders were concerned that information sharing might interfere with his supervisor.

When subordinate respond to solve the accident, JET think that they must properly inform it to their superior after measures are implemented.

Table 2-4 Sample of answers

Some minor problems that may not cause further issue that need not to know by the boss cause it may irritate him and may increase further workload for him. Problems like dispute between workers etc.
Minor troubles lead to majors. By minor troubles I understand things those don't hamper safety and punctuality.
For well managed solution, minor trouble like staff norms etc. should be informed to my boss.
If the minor trouble is not involved the safety of passengers and organisation, that can handle by myself without time consuming
I don't want to bother him and tritium resolve the issues myself.
Superior should be well informed about all the matters otherwise there might have been a gap of information which could cause a greater issue later
To maintain the timed and homogenous working environment. Technical issue that I am confident to solve.
I always do my work under my boss. So it need to confirm any minor trouble to my boss. Some of steps it need to be done on my common senses.

Q3-8 (1) Do you think superior (boss) must grasp all work contents of the subordinate(junior)? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

As shown in Figure 2-33, this result was sprit positive result (51%) i.e., Exactly Yes and Maybe Yes) and negative result (49%) i.e., Maybe No and Exactly No. Grasping all work contents of subordinates. Grasping all work contents having their subordinate is difficult, but railway operation is operated by pert-time rotation so grasping outline of the work schedule subordinates is important as a superior task.

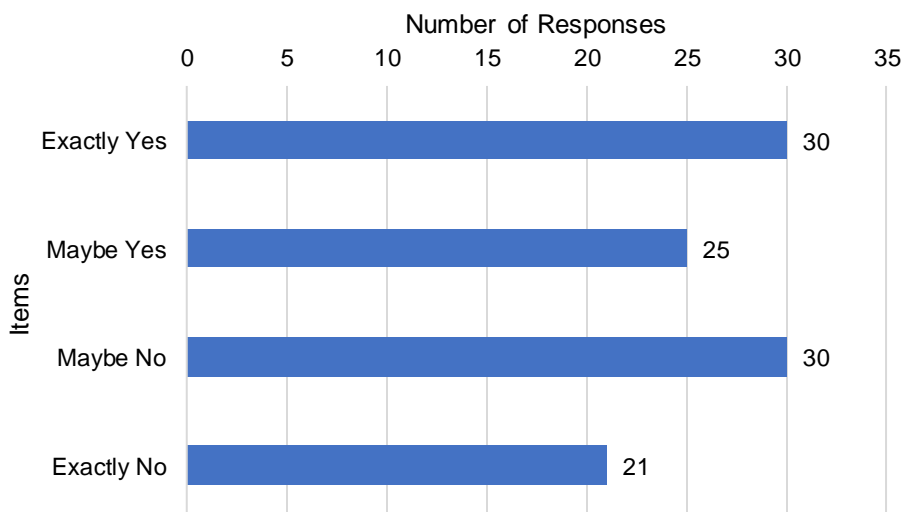


Figure 2-33 Importance of grasping subordinate's work content

Q3-8 (2) Please describe the reasons.

This question was prepared to ask the reason for the necessity of grasping all work contents

of the subordinates. As explained above question (Q3-8 (1)), almost of items were selected equally. As a reason for the selection of negative items, someone was concerned about increasing task volumes of superior, ability as a superior, and decline the ability of responsibility of subordinate. Meanwhile, as a reason for the selection of positive items, the necessity of leading their subordinate as a superior, responsibility in the event of an accident, etc.

Table 2-5 Sample of answers

if superiors are unknown about subordinate work, they can not be monitoring any work properly. if a subordinate made a mistake superior can not identify the mistake and can not solve the problem.
Boss would be overburdened
The supervisor must know the activities what his subordinates are doing because he delegates his authorities to him.
Superior should always guide his Junior
Without knowing the subordinate work contents the boss will not be able to guide him. So, he must have idea about it.
Superior must know the contents of of subordinate as he will guide him to achieve the common target
For the updating of working condition, it is required.
Boss should know what needs to be done only not details
If junior faulted of his work, how can senior identify.
My duty is my own responsibility. I will do it well.

Q3-9 Please feel free to describe the current organization management system in DMTCL.

As a management system of DMTCL, many responders indicated the salary issue and the issue of delay of the establishment of rules for operation. Salary is a motivation for labor so DMTCL should solve it immediately. Regarding the establishment of rules for operation are under the preparation by the PIU members. PIU members should expedite this issue and then start the training to apply them in the operation. Another thing, one responder indicated the authority issue. Nowadays, DMTCL senior member has no authority to make decisions, and only MD has it. MD should transfer the authority to the staff assigned to appropriate positions.

Table 2-6 Sample of answers

Current system is not so good due to service rule not yet finalization. Here have a salary discrimination between executive and non executive level. Executive level officers are taken salary 2.3 times compared on GOV scale and non executive level officers are taken 2 times salary compared on GOV scale. This is directly contradictory of our Constitution. On the other hand it is very suitable for lower grade officers should be taken more facilities to maintain there family life because their salary basic is lower than executive officers.
There are not maintaining national and international code for training.service rules not yet finalization.Huge salary discrimination between excutive and non excutive.
DMTCL is now at the initial stage in the operation and maintenance section. So the organization Management system is now not in complete scale.

Disciplined and have corporate environment but PD needs to have more authority to lead the projects.

Q3-10 Have you ever discussed the potential accidents and emergency response during operation within DMTCL? (not construction issues)

As shown in Figure 2-34, about half of the responders have experience talking about potential accidents and emergency response in railway operations with colleagues. On the other hand, the other half responders haven't experienced talking about those things. Looking at the breakdown by division shown in Figure 2-35, it is understood that many of the no experience responded belonging in "operation & maintenance" and "construction (Line-6, Line-1, Line-5N&S)" divisions. The construction division is no relationships with the emergency case on the operation, so it is not a special requirement for discussing emergency cases on the operation. However, the operation & maintenance division is the most important division for the operation because they have to work at the front line of the railway operation after starting it. And on the operation, they might come across some irregular cases such as accidents. Therefore, they must discuss those kinds of cases and responses before the operation. Training provided by JET, some the accident cases and response for those accidents are treated as contents of training. JET would like DMTCL to progress staff training using our training materials.

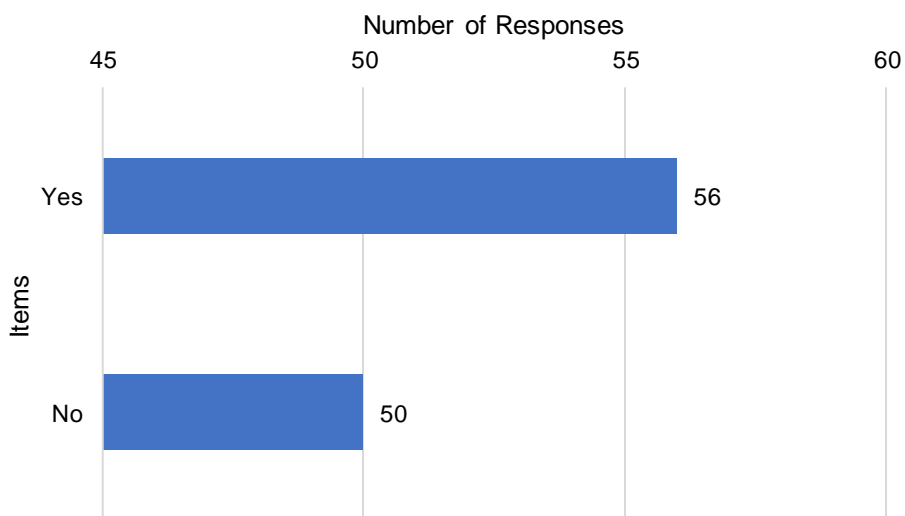


Figure 2-34 (Simple tabulation) Experience of discussion regarding potential accidents and emergency responses

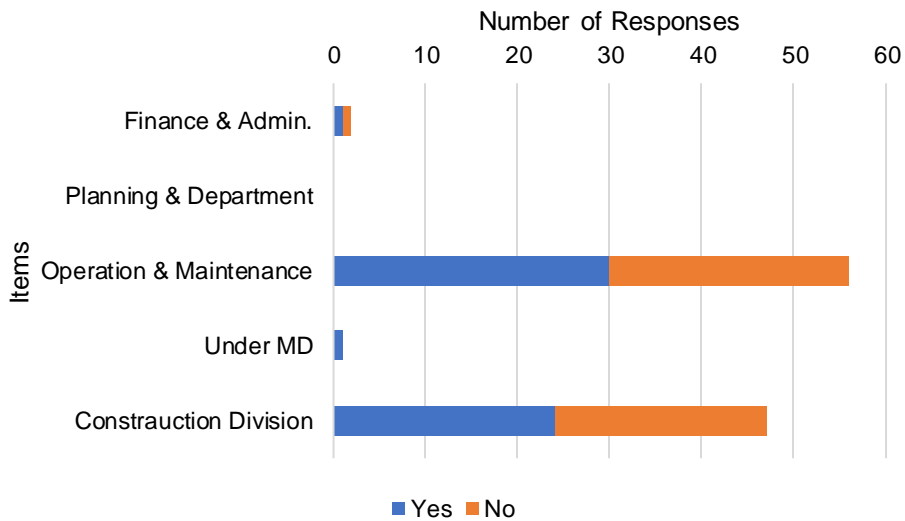


Figure 2-35 (Cross tabulation with division) Experience of discussion regarding potential accidents and emergency responses

Q3-11 What kind of topics have you discussed?

This question was prepared for asking the topics of discussion regarding the potential accidents and emergency responses. As explained in the above question (Q3-10), more than half of the responders have an experience of discussion about accidents and this response. From the answers, we can understand that many accident cases have been discussed already, and the content was related to their work position. Currently, DMTCL prepares the manual and response for abnormal cases. After the approval of this manual, JET would like DMTCL to start the discussion in accordance with this manual.

Table 2-7 Sample of answers

Power supply problem
If a train stuck between two station what we need to do, if earthquake or fire occurs, if terrorists attack what we need to do, if OCS fails, or if a passenger got sick in the premises of metro
Potential hazards and probable ways to act in those cases
i) Derailment of coaches ii) Signal and AFC gate malfunctioning iii) Throwing objects from roadside buildings
Operation and Maintenance related safety and risk
How hazards occurred.
Potential failure
Emergency exit
what we are do in accident and emergency situation?

Q3-12 Why you haven't discussed yet.

This question was prepared for asking reasons to those who selected “No” in Q3-10. Many

responders answered “no topics” for discussion. Railway operations in DMTCL have started yet currently so they can’t find topics for discussion by themselves. DMTCL should start education and training for all employees who are assigned to railway operations for teaching emergency responses using their manuals and JET training materials.

2.4. Reliability of railway system

2.4.1. Reliability of the brand-new system

DMTCL facilities and trains are installed with the Japanese latest technology for daily safety operations. This question was prepared to ask awareness of an accident under the brand-new system.

Q4-1 (1) Do you think any accidents can be certainly prevented by the brand-new railway system which will be installed in DMTCL operation? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

The latest Japanese systems are installed in Line-6 facilities and rolling stocks for safety operations. “CBTC system” (Signal system), “Firefighting system”, etc. are typical examples. A lot of Bangladeshi are “pro-Japan”, so they believe in strong reliability of Japanese items. This affection sometimes leads to the misconception that introducing something Japanese will absolutely ensure safety.

As shown in Figure 2-36, about 66% of responders selected “Exactly Yes” or “Maybe Yes”, the rest of the 44% of responders selected “Maybe No” or “Exactly No”. Regarding the railway accident, it was lectured on in first (1st) training by us. In the training JET gave knowledge to trainees that even if a system is new, accidents will occur by a lot of triggers. Safety operation can’t be ensured by brand-new systems only. Human efforts for operation must be required even if installed brand-new systems. Therefore, daily appropriate maintenance for facilities by humans and proper protection activities for passengers are very important things to ensure the safety railway operation. And all final decisions for safety should be done by humans every time.

Looking at responses from the 1st training trainee and another responder shown in Figure 2-37, the percentage selected for each answer by both positions (trainee and non-trainee) is not big difference. However, focusing on the percentage of negative results i.e., “Maybe No” or “Exactly No”, the ratio selected from 1st training trainees is slightly higher than another responder. From this trend, we can infer that some of the responders taken 1st training could clearly understand our training contents. However, a lot of staff in DMTCL certainly are misunderstanding that the brand-new system is an absolute system for ensuring safety. DMTCL should clearly understand that safety systems are supporting systems for railway operators for decreasing accidents. And also, have responsibilities for safety within the covered area by systems also.

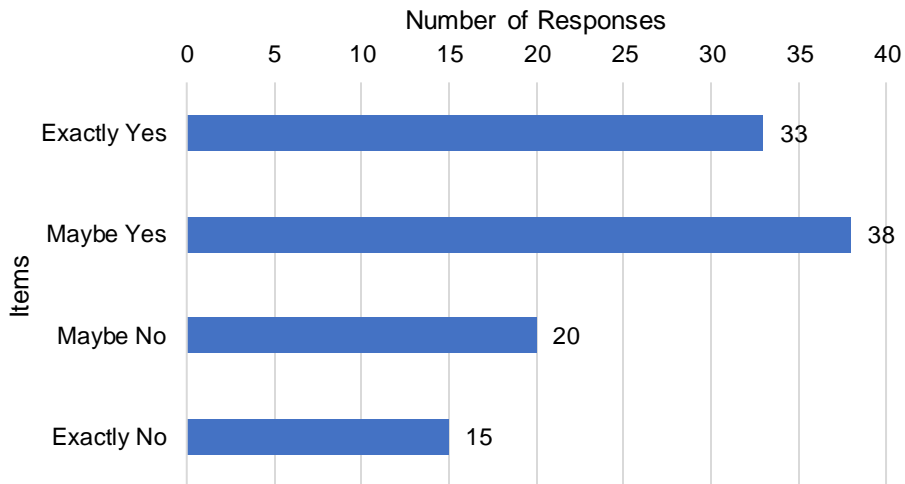


Figure 2-36 (Simple tabulation) Reliability for brand-new systems

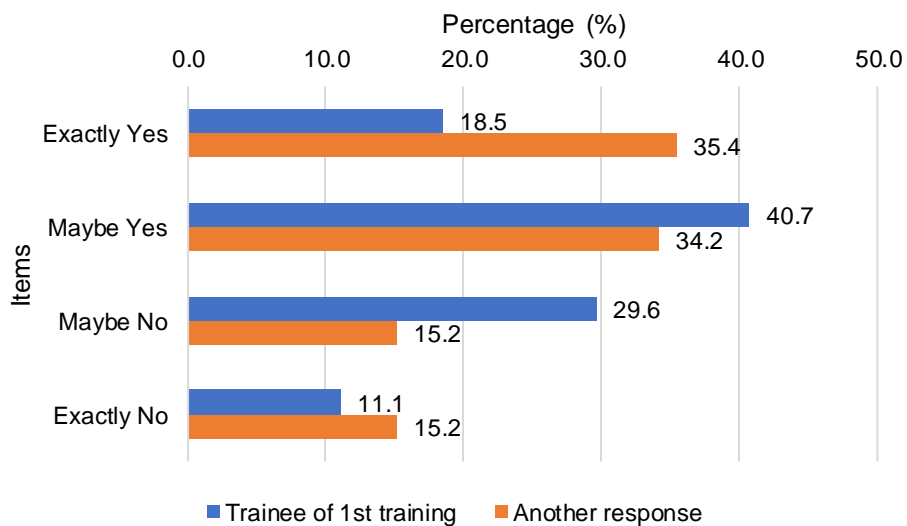


Figure 2-37 (Cross tabulation with training experience) Reliability for brand-new systems

Q4-1 (2) Reason of your answer

This question was prepared for asking the reason for the above question (Q4-1 (1)). Table 2-8 is a result of responders who selected positive items in Q4-1 (1) and Table 2-9 is from responders who selected negative ones in Q4-1 (1). Comparing the result from responders who selected positive selection in Q4-1 (1) and the opposite one, the person who selected the negative item predicts other cases not only machine problems and they know machines are not perfect. On the other hand, the person who selected positive items in Q4-1 (1), their machine knowledge is maybe less than the person who selected opposite items.

Table 2-8 Sample of answers from responders who selected positive items in Q4-1 (1)

All system are signalized
because of automitted system.
Emergency break system
train quality is good
Latest technology has been incorporated.
This system uses very latest fail safe signalling system.
DMTCL used highly fail safe technology
No system can gurantee 100% accident free operation. We can reduce the probability of accident. But 100% accident free system can not be guranteed

Table 2-9 Sample of answeres from responders who selected negative items in Q4-1 (1)

Here Japanese technology is used. Which is more durable and reliablereliable So accident less than other transportation.
Accidents can be occur at any time no matter how advance the system is
Because, new system can not prevent all accidents until it is operated properly.
Human error can occur
To ensure the operational safety and preventive maintenance is important.

2.4.2. Awareness for safety education to non-system

This question was prepared for asking the importance of safety education for non-system staff.

Q4-2 (1) Do you think the safety education is necessary for non-system operation staffs (i.e. admin.) even if it is costly and time consuming? (* This question was a sensitive analysis so

medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

DMTCL has system staff (operation and maintenance department, etc.) and non-system staff (administration and accountant, personnel department. etc.). On the daily operation, non-system staff directly has no relationships with railway operation. Therefore, the safety education is never important for them. However, as shown in Figure 2-38, 84% of responders selected “Maybe Yes” or “Exactly Yes”. If non-system staff has knowledge of safety, they can help on-site job in emergency cases. In case DMTCL afford for money to give safety education to non-system staff, it should be actively implemented.

Q4-2 (2) Reason of your answer

This question was prepared for asking the reason for the above question (Q4-2 (1)). Table 2-10 is an answer from the person who selected positive items in Q4-2 (1) and Table 2-11 is an answer from the opposite one. Looking at the answer from the person who selected positive items indicates. Many responders have no reason, but one responder answered the necessity of the knowledge of safety in an emergency case. If the non-system person can apply their knowledge in accident cases, it will be better for operation. On the other hand, the result from the person who selected negative items in Q4-2 (1), the reason why safety training is not necessary for non-system staff is not found in their answers.

Table 2-10 Sample of answers from responders who selected positive items in Q4-2(1)

In case of an accident so that they can take appropriate action
Everyone need to aware of safety
Because by participating the safety training, they realize about the importance of safety, importance of periodic and regular safety training and they can play their role according to that.
Everyone has some knowledge about safety
It should know because they are the part of management. They should know the real scenario , they can support indirectly to the operating men.

Table 2-11 Sample of answers from responders who selected negative items in Q4-2(1)

They are not related to operation.
No need

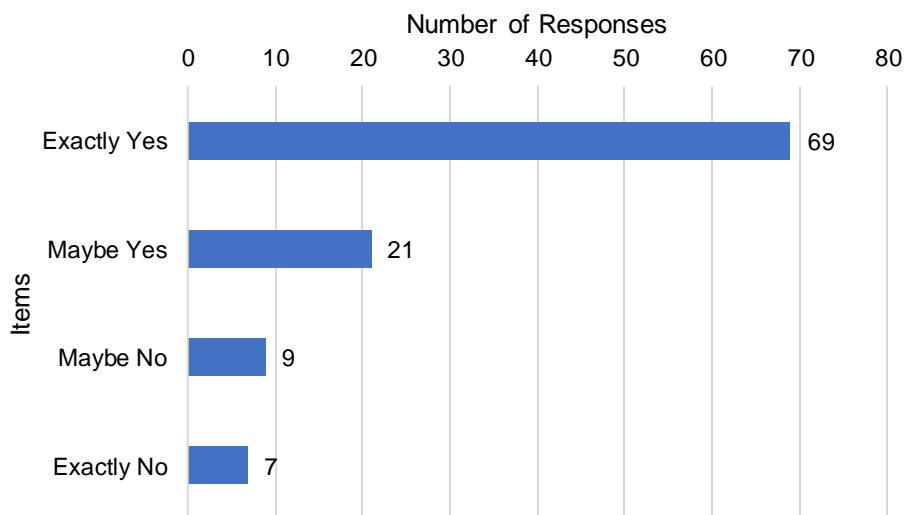


Figure 2-38 Importance of safety education to non-system staff

2.4.3. Use of accident case study in Bangladesh Railway and other countries' railway for safety education

This question was prepared for asking about the possibility of using Bangladesh Railway (BR) and other countries' railway accident cases for safety education in DMTCL.

Q4-3(1) Do you think the information on accidents of BR and other countries' operators which have different railway systems are useful for DMTCL? (* This question was a sensitive analysis so medium sensitive i.e. "Maybe yes" and "Maybe No" were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

DMTCL is in the before operation phase, so they don't have accident cases (operation). However, they can get a lot of accident information from BR and other countries' railways if

they don't consider the system difference. These will be helpful to learn about many kinds of accident cases and those responses.

Looking at the result shown in Figure 2-39, about 90% of responders selected positive items i.e., "Maybe Yes" or "Exactly Yes". Accidents occur by a lot of triggers such as weather condition, system error, human error, etc. and some of other railway accident information are useful for DMTCL operations. JET would like DMTCL to start collecting accident information from BR and other countries' railways and then analyzing each accident to learn about potential risks and methods of response.

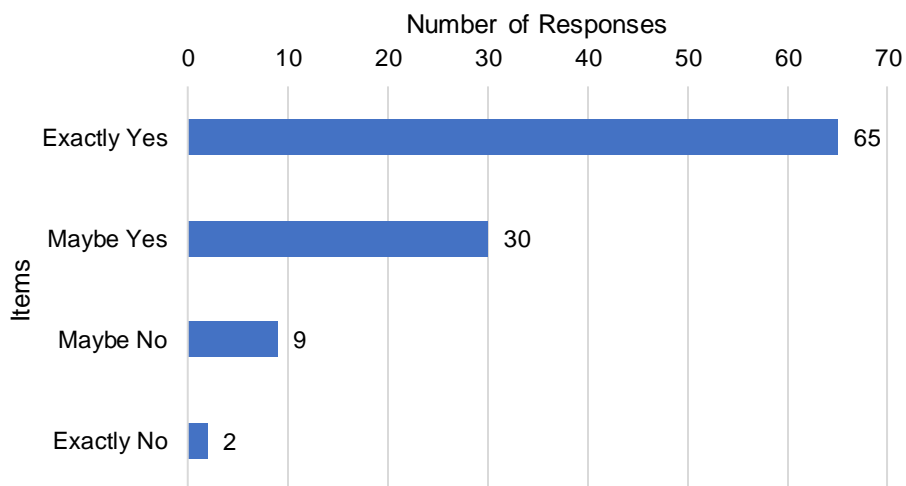


Figure 2-39 Use of other railways accident information in DMTCL

Q4-3(2) Reason of your answer

This question was prepared for asking the reason for the above question (Q4-2 (1)). Table 2-12 is the answer from the person who selected positive ("Exactly Yes" or "Maybe Yes") in the Q4-3 (1). Table 2-13 is the answer from responders who selected negative ("Exactly No" or "Maybe No") items in the Q4-3 (1). Looking at the result which is responded to positive items, someone could imagine the cause of accidents not only considering the system. On the other hand, looking at the result, which responded to negative items, we can understand that they only consider the accident which occurred by the system. They should consider the cause of the accident which occurred outside the system.

Table 2-12 Sample of answers from responders who selected positive items in Q4-3 (1)

Accident management is most probably similar
If similar accidents happen, then we should be able to take better prevention measures than they are taking.
Learning from case studies
It will increase our awareness
As the system and human behaviors are same it will be helpful for assessing the accidents

Table 2-13 Sample of answers from responders who selected negative items in Q4-3 (1)

Old system
Because, a few number of accidents may be of same nature. Besides, accident nature and consequences in other operators are different.
Bangladesh Railway has lot of difference than MRT system. Shouldn't compare both. It may give wrong message and arise confusion regarding safety matters

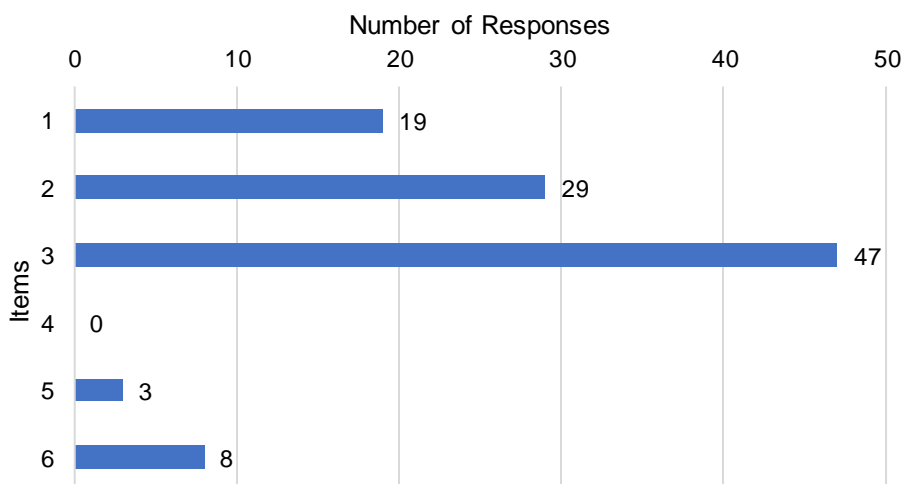
2.5. Safety awareness toward safety operation

2.5.1. Required safety education before operation

This question was prepared for asking required safety operation for staff before the operation.

Q5-1 What kind of internal training and education within DMTCL will be required before operation? Choose one highest priority answer.

As shown in Figure 2-40, items 3, item 2, item 1, item 6 and item 5 were selected in order. Practical training and understanding of documents are the most fundamental training for the railway operator. Therefore, that training must be taken before the operation. And the third most common response (item 1) is an important thing in Bangladesh. Japanese railway operator has a strong relationship with the police and fire service in response to emergency cases. Sometimes railway operator holds training with those institutions to get new information and knowledge. DMTCL is a fresh rail operator, so they don't have enough knowledge. Therefore, they should hold training with third-party institutions to get new information and knowledge.



Item 1: Risk finding for operation

Item 2: Understanding of documents (policy, regulation, manual, etc.)

Item 3: Practical exercise (Emergency drill, etc.)

Item 4: Communication between boss and junior

Item 5: Communication between top manager and all employees

Figure 2-40 Required safety training before operation

2.5.2. Necessity of policy for measures

This question was prepared for asking necessity of preparation of policy for measures in DMTCL.

Q5-2 Do you think the policy for measures taken needs to be prepared even if accidents have not occurred? (* This question was a sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questionnaire form. To clarify each meaning of the item, JET gave the above two items for convenience in the middle of sensitives.)

As shown in Figure 2-41, 97% of responders selected positive results (“Exactly Yes” or “Maybe Yes”). Policy for measure should be prepared properly because emergency cases can happen at any time. DMTCL has an “ACCIDENT, INCIDENT & DISASTER MANAGEMENT MANUAL” and it is written with many types of policies for the measure in emergency cases. DMTCL staff should follow this manual and update its contents properly if finding discrepancies in the manual.

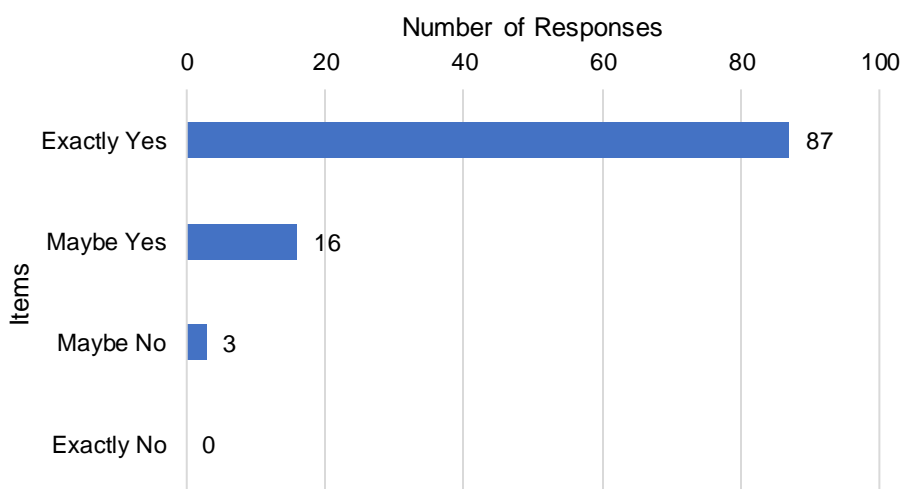


Figure 2-41 Necessity of policy for measure

2.5.3. Regular safety activities

These questions were prepared for asking awareness about regular safety activities in DMTCL.

Q5-3 Do you think all staffs need to collect and share information about all troubles including minor things? (* This question was sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questioner form. To clarify the each meaning of item, JET gave above two items for convenience in the middle of sensitives.)

As shown in Figure 2-42, about 84% responders think that sharing information regarding trouble including minor things is important in the operation. Even if small trouble, it has a potential to be accident, so that appropriate sharing is required in railway operation. Therefore, this case is “Exactly Yes” or “Maybe Yes” are proper answers. Regarding sharing the information about trouble in the operation, it was taught on the 2nd SMS training. In case focusing on 2nd training attendees and another responder’s awareness, the percentage of correct answers selected is high in another responder group than 2nd training attendees as shown in Figure 2-43. This is unfortunate outcome for trainee of 2nd training should go over the training materials again and teach their subordinates appropriately.

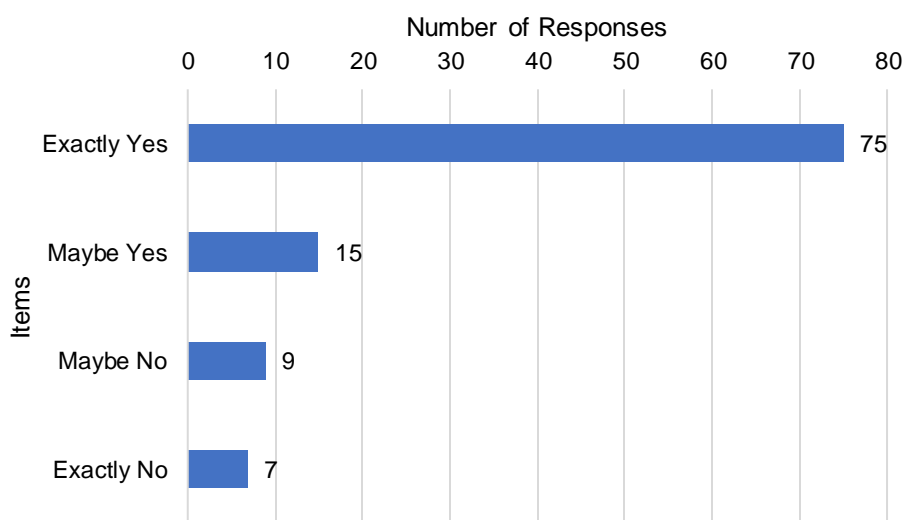


Figure 2-42 (Simple tabulation) Sharing information to all staff in trouble cases

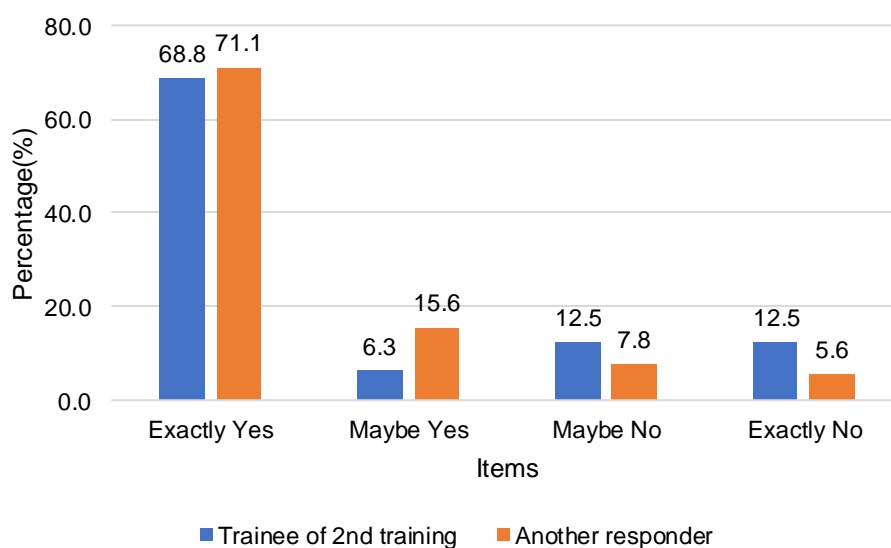


Figure 2-43 (Cross tabulation with 2nd training experience) Sharing information to all staff in trouble cases

Q5-4 How often do you think the expertise staff of DMTCL need to regularly investigate and confirm the safety activities? Please note that investigation takes many effort to do.

This question was prepared for asking the timing of the safety audit indirectly. The safety audit should confirm a lot of things like documents, activities, etc. and confirming points are deference by divisions, and audited persons, so the safety audit is taking time and money.

Looking at result shown in Figure 2-44, 73% of responders are answered that regularly investigation should be conducted every month even if a lot of expenses, effort and time are taken. And 16% of responders selected “half month”. In case of Japanese railway operator, they conduct safety audits once a year. Regarding this Japanese audit system was lectured be JET in 2nd training. We think that once a year is just the right time to implement it. In case comparing attendees of “2nd training” and another responder. As shown in Figure 2-45, from both cases didn’t find big deference but the person who selected appropriate item (Every Year) is a little higher ration than 2nd trainee. It is also unfortunate result for JET. In the 3rd workshop held in July 2022, frequency of the safety audit was decided, and many participants said annual safety audit was better in DMTCL. And in the monthly project implementation unit (PIU) meeting held in November 2022, frequency of the safety audit in DMTCL would be conduct once a year. From this question’s result, we understood that almost of responders were misunderstanding of frequency of internal safety investigation. PIU members have to spread their decisions to their subordinate with explanation of safety audit system as soon as possible.

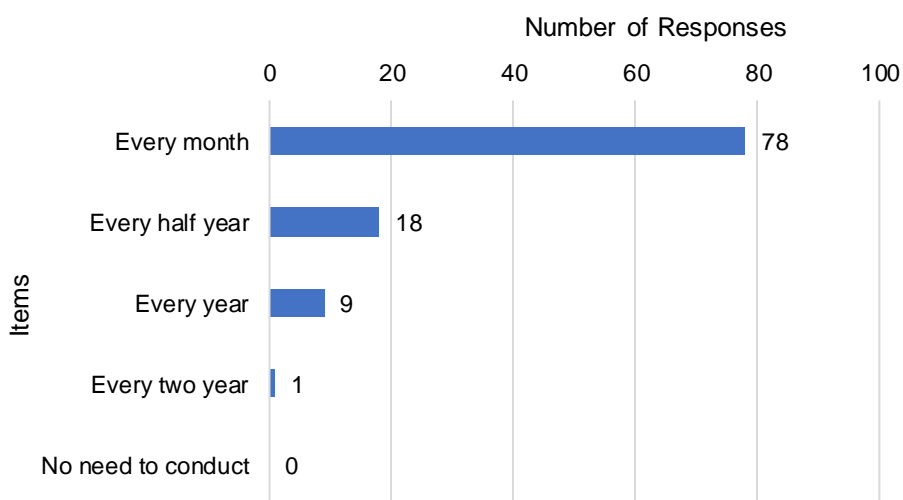


Figure 2-44 (Simple tabulation) Frequency of safety audit

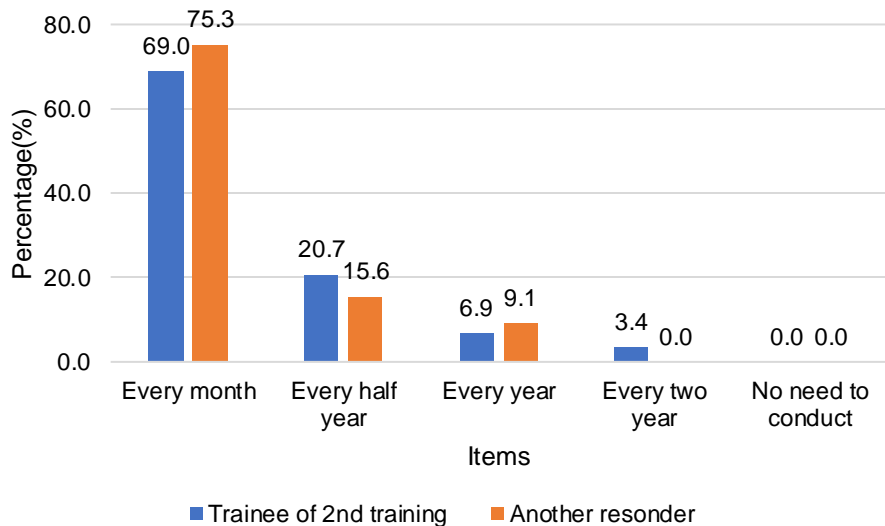
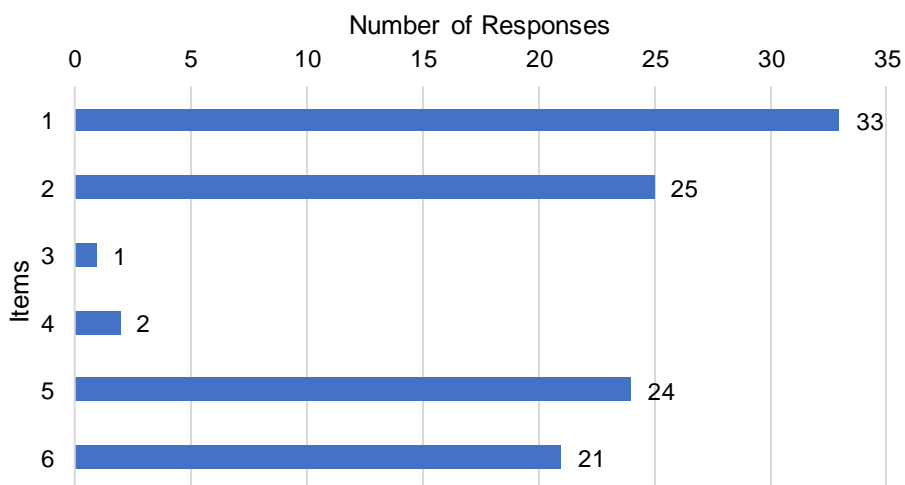


Figure 2-45 (Cross tabulation) Frequency of safety audit

Q5-5 How often do you think DMTCL needs to update the safety management documents and by whom?

Many of these results was split into two frequency types shown in Figure 2-46. One is “every year” basis and taken by the selected committee or open discussion, another one is “as require” basis taken by same as above implementation method. In Osaka Metro case, they conduct an annal safety audit and documents related to safety are updated by auditors in accordance with PDCA cycle. Many of safety manuals are used by site staff, so we think DMTCL collect opinions from them regarding manuals required modification and then it should be modified in safety audit team or other special teams in accordance with PDCA cycle. Concerning frequency, JET think that it is better to update manuals at least once a year for required modification manuals. However, if manuals need to be modified quickly as the reason of accidents, etc., update of manuals should be conducted immediately.



Item 1: Every year with selected committee members

-
- Item 2: Every year with open discussion
 - Item 3: At least every five years with selected committee members
 - Item 4: At least every five years with open discussion
 - Item 5: As required with selected committee members
 - Item 6: As required with open discussion

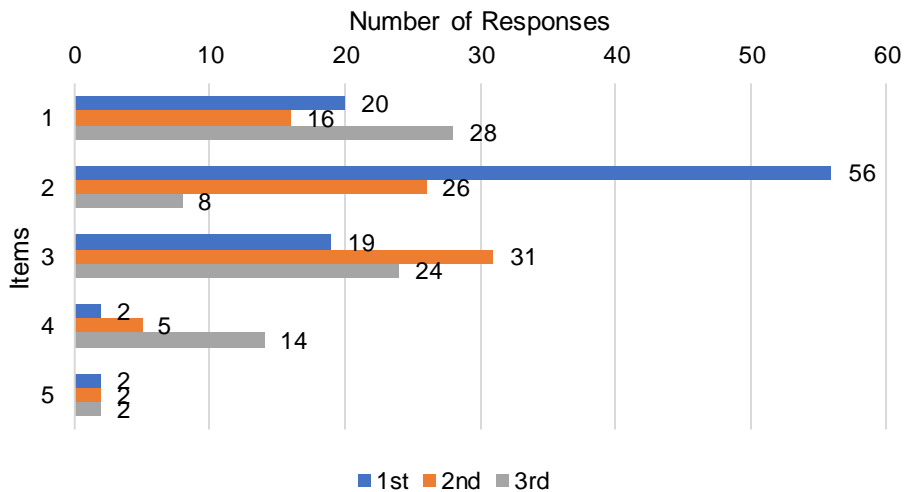
Figure 2-46 Required frequency and implementation organization for update of manuals

2.5.4. PR Activities for the Safety Operation

This question was prepared for asking suitable PR method for the safety operation in Bangladesh.

Q5-6 What kind of PR activities of safety can DMTCL do for passengers? Choose top three activities.

To ensure the safe and comfortable ride on railway, DMTCL should promote their safety activities to Dhaka citizens. These kinds of activities are conducted by Japanese railway operator also by flyer like annual safety report, message display in stations and rolling stock, SNS, etc. Each method is used according to the age group, content of PR, etc. DMTCL is a first metro railway in Bangladesh, so citizens have an expectation to DMTCL, on the other hand they might have anxiety for safety. Therefore safety PR using appropriate methods are required for DMTCL. From the result shown in Figure 2-47, using “station display” was most popular answer, and TV commercial, school education was next most popular answers. Station display is DMTCL facilities, so they can easily use it and passengers also might check it appropriately than others. Regarding a TV commercial, as a one of report to Dhaka citizens from JET side, we will broadcast the TV commercial regarding our support activities to enhance safety culture in DMTCL before commercial operation. DMTCL should confirm this TV commercial assessment and expectation from citizens and then if it is high affect for passengers(citizens), DMTCL should try safety PR activity using TV commercial for themselves. Items which were less popular (Issue of safety report and SNS), JET think these are also effective method for PR activities. Especially, safety report will be published once a year, it is a good opinion to review DMTCL’s safety effort.



- Item 1: TV commercial with high cost
- Item 2: Station display with medium cost
- Item 3: School education with medium cost and long term perspective
- Item 4: Issuance of safety report with low cost
- Item 5: SNS with no cost

Figure 2-47 Method of Safety PR Activities

2.5.5. Response to Vulnerable Groups in Society

This question was prepared for asking the awareness of response to vulnerable groups in society as a railway company.

Q5-7 Do you think DMTCL should keep human resource of education and cost of facility for gender issue, sexual harassment, elderly person, disable person, pregnant, etc.? (*

This question was sensitive analysis so medium sensitive i.e. “Maybe yes” and “Maybe No” were not prepared on the questioner form. To clarify the each meaning of item, JET gave above two items for convenience in the middle of sensitives.)

DMTCL has facilities for disabled passengers such as escalators, elevators, first aid rooms, barrier-free toilets, dot tiles for Blind passengers, etc. in stations. If there is enough facility, sometimes it is not enough for passengers because someone required help from on-site staff in the station. In Japanese case, on-site staff has some of the qualifications to assist handicapped passengers. As a representative qualification, there are “sign language”, “professional assistance”, etc.

From the result shown in Figure 2-48, about 93% of responders selected positive (“Exactly Yes” or “Maybe Yes”) items. It is a good trend for railway operation. Even if taking time and expense to maintain services for vulnerable groups in society, JET would like DMTCL to address this matter to develop their services.

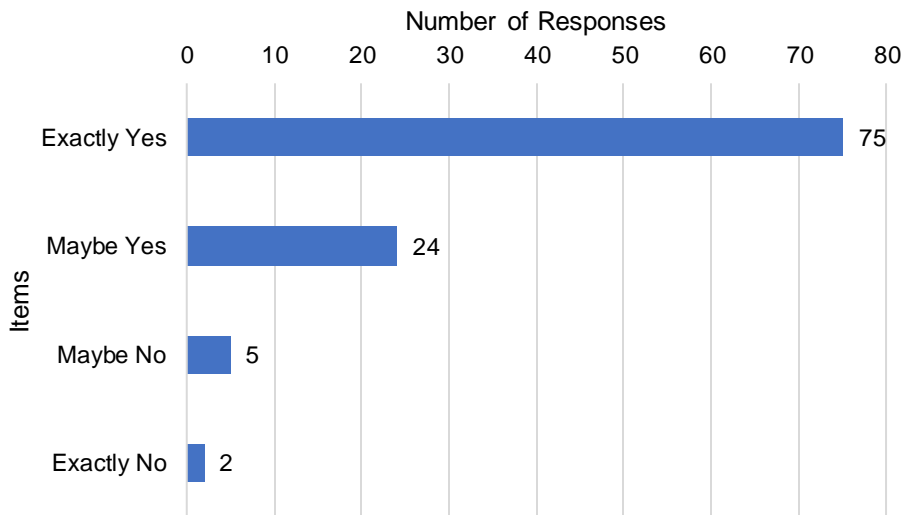


Figure 2-48 Importance of Response to Vulnerable Groups in Society

2.5.6. Preparation toward railway operation

These questions were prepared for asking required preparation toward railway operation in DMTCL.

Q5-8 Please feel free to describe what kind of preparations DMTCL needs in order to prevent accidents.

Many responders emphasized conducting the appropriate training for proper timing, establishment, and updating of manuals, sharing information, etc. Their answers are very important to maintain the safety operation. So DMTCL should try to do those activities properly. In addition to their answers, JET would like DMTCL to progress in recording accident/near-miss accidents and analyze them.

Table 2-14 Sample of answers

regular training. knowledge sharing information passing
Proper training of all class of employees
Regarding the operation and maintenance manual.
Training all personnel, holding meetings, sharing information, updating policies, reviewing regularly
Up to date safety policies, strict adherence to the policies, regular drills/workshops
Conduct regular safety training. Emergency drill, broadcasting the safety related issue to the public etc.
Creating safety policy and include in service rule.

Q5-9 Regarding "Vision" and "Mission" of DMTCL

DMTCL has a vision and Mission for its activities as shown in Figure 2-49. This vision is very simple, but it's a very important things for Dhaka city. The current traffic situation in Dhaka area, citizens can't estimate travel times due to heavy traffic congestion on the road. So, it is

difficult to live their life on time. If MRT gives citizens a punctual operation, the value of time of citizens might be changed with economic growth. And, it is mentioned in the mission, environment-friendly is one of the expected effects to MRT. Air pollution level in Dhaka area is a serious problem currently due to increasing private traffic volumes and upgrading of lifestyles. DMTCL has a big mission as well as moving passengers so understanding their vision and mission is an essential matter to achieve high-quality metro service.

From the result shown in Figure 2-50, it is understood that many responders knows DMTCL's vision and mission and most responders can explain one to others. To achieve their mission and vision, JET would like DMTCL to implement education of company philosophy to all staff.

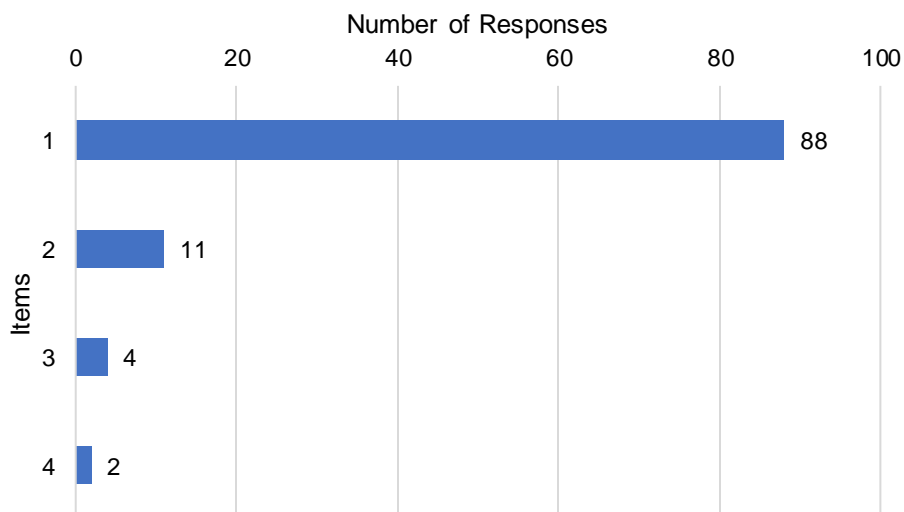
Vision and Mission

Vision
 Moving People
 Saving Time and Environment

Mission
 Introduction of a fast, safe, reliable, air-conditioned, time saving, electrically operated and environment-friendly modern public transport system to reduce the traffic congestion of Dhaka city and its adjoining areas.

Source: Official homepage of DMTCL

Figure 2-49 Vision and Mission of DMTCL



Item 1: I know all contents and able to explain them to others

Item 2: I know, but contents are not clear

Item 3: I have never heard the "Safety Policy"

Item 4: Others

Figure 2-50 Understanding Level of Vision and Mission of DMTCL

Q5-10 What kind of resources do you think DMTCL is necessary for ensuring safety of railway operation? Check the most important items in your point of view.

As shown in Figure 2-51, “Human resource” and “Technical assistance” were popular answers. To operate the railway, the appropriate number of staff are required. However, the recruitment of staff in DMTCL has not been completed yet (as of 15 DEC. 2022). DMTCL should complete employment as soon as possible and then start further training to the employees for ensuring the safety operation.

Regarding technical assistance, it is an ongoing matter from JET. We provided a lot of knowledge to develop the safety culture of DMTCL. Before receiving further technical assistance from third institutions, JET would like DMTCL to install safety activities introduced by us.

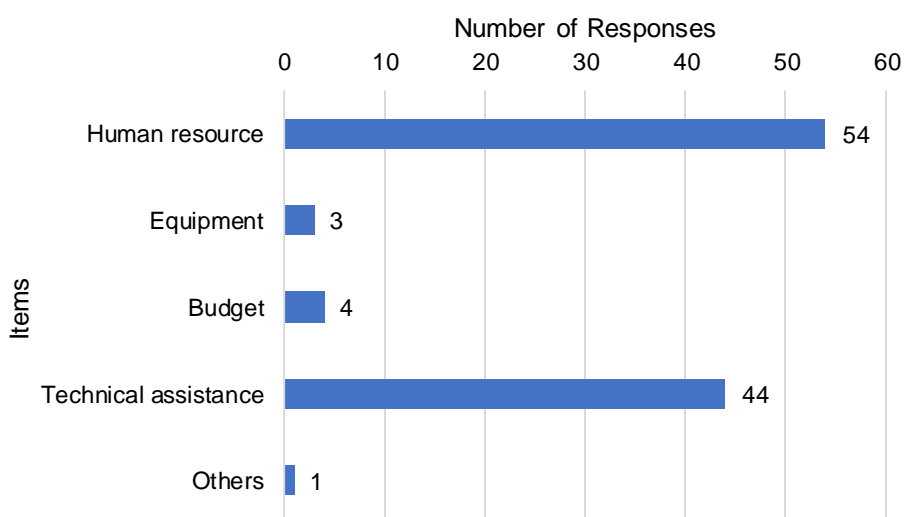


Figure 2-51 Required resources for the safety operation

2.6. Training from JET

2.6.1. Experience of SMS Training and SMS Workshop

These questions were prepared for asking about experience in participating in our training.

Q6-1 Have you ever taken the training from JICA Expert Team (JET)?

Q6-2 Which training/workshop did you attend?

These results were used for comparing the results of each question for training attendees and non-trainees. We collected 106 answers from DMTCL staff. About 37% of responders had experience to attend training from JET. Regarding the experience of workshops, only 11% of responders had experience to attend it. In case of comparing trainee results and non-trainee results, we couldn't find enough differences (effectiveness of trainees). Training and workshop

attendees also have no experience with the real metro operation so they sometime clearly didn't understand our training contents. We hope that the person who attends our trainings and workshops goes over the training and workshop materials JET handed over again to reconfirm. And then progress the internal training to non-experienced staff using our materials.

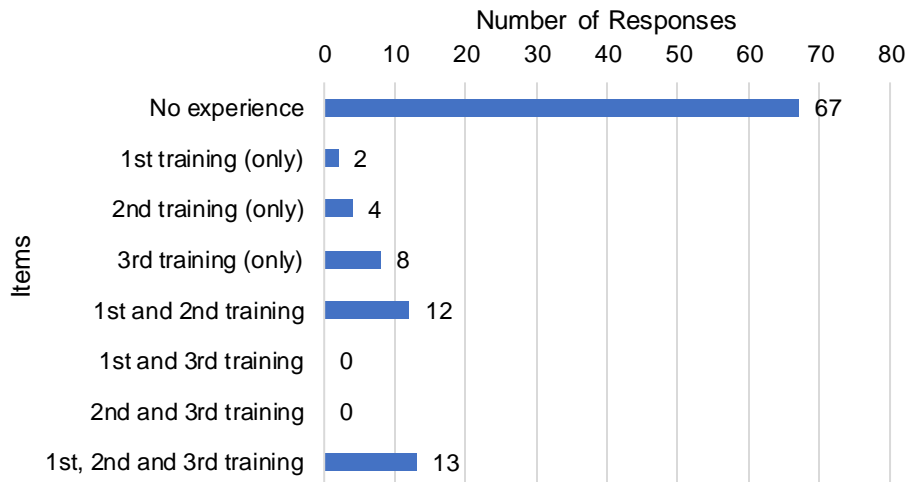


Figure 2-52 Training Experience

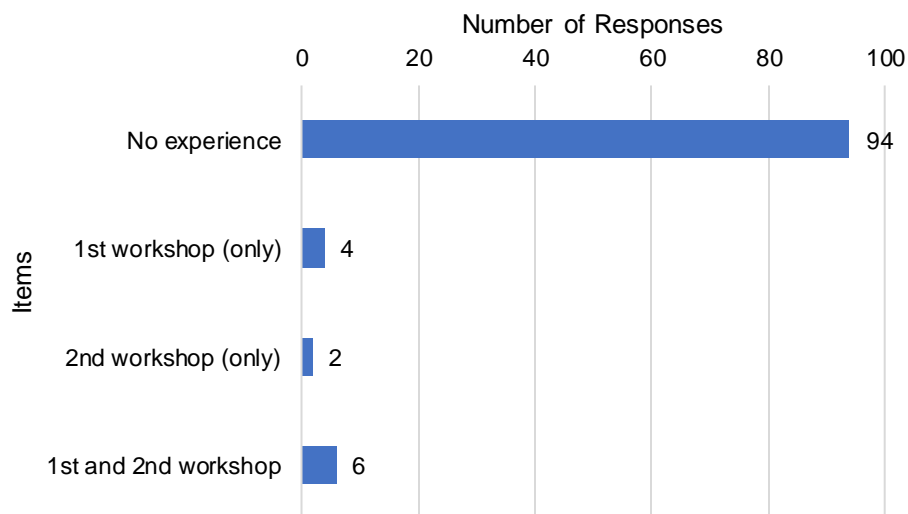


Figure 2-53 Workshop Experience

Q6-4 Please describe what kind of awareness have you changed based on JET Training? If your awareness have not been change, please describe so with reason.

Table 2-15 is the result of attendees of a series of training and workshop. Throw this survey, we could understand that the attendees and non-attendees haven't big gaps in knowledge of safety. However, from their answers, many attendees' safety awareness might have been

changed through our training. If their mind regarding safety improved, JET thought that the series of training and workshops were valuable opportunities for DMTCL.

From the end of December 2022, Line-6 operation will be started by DMTCL's hands. Safety is a very simple word, but it is a very difficult thing when trying to keep safe. The number of railway accident cases in Japan is gradually decreasing nowadays, however, it can't be achieving zero accidents. Even if holding skilled systems and skilled persons, accidents happen. Safety is a goal so DMTCL should continue the development of the safety operation forever.

Table 2-15 Answers from attendees of training/workshops

Checking for SHISA KANKO was learnt from the training.
Approach to look into safety related issues/incidents
By participating JET training, i learned that ignoring of minor issue can turn into disaster. So from the training, i realize about the importance of awareness and its implementation.
Obeying rules and alertness with positive attitude. Rest of the others could be forecasted when DMTCL would be on operation.
Change our behavior
Safety rules have to be followed for all cases.
Based on JET training, I have understood the importance of PDCA cycle and I am trying to implement PDCA cycle for everyday decision making.
Safety awareness.
We need to follow the safety rules.
Changed. Communication and attitude related to safety
Safety awareness. Employee training, accidents, operational.
I know how emergency situation can handle.
Experiences from the OSAKA Metro by their good practices. We need good preparation to ensure all Safety requirements
Safety is first. Completion of work is important but safety can not be compromised.
To take safety measurement before starting any work
For any works to be executed, before execution I think of the potential risk associated with it and whether all the safety guidelines are maintained or not.
Should follow the safety rules, regulations, guidelines, instructions instead of self judgment.
I gained awareness about safety flaws and their remedies in office and metro environment
About emergency drill on any accidents
Safety management system has changed based on JET training
Sisha kangko
Fire accident awareness is increased.

3. Summary of the Survey

From this survey, we understood that those who take a series of training and non-trainees didn't have many gaps in safety awareness.

DMTCL is a new railway operator in Bangladesh, and they don't have operation experience now. So, some misunderstandings about safety were visible through this survey.

Especially, related information sharing among organizations are most important things for

ensuring the safety of the operation. However, some of the responders didn't understand the importance of communication for sharing information now. Another point, regarding the reliability of brand-new systems, many responders think that it is available for protecting the accidents anytime. It is a very serious thing, the machine is not every time perfect, and accidents will happen by any triggers not only in the covered area of the machine. Those misunderstandings might connect serious issues.

As mentioned above, DMTCL is a very fresh company and has no experience in operation now. So, manuals, company regulations and the ability of staff are not proficient. Through appropriate training, and appropriate communication, DMTCL has to gradually develop the safety Management System.

From these results, JET think that the following activities should be supported for DMTCL to enhance the safety culture.

1. Support an internal education

The series of training was given to future's internal trainer of DMTCL (ToT: Trainer of training). However internal education using our training materials has not been started yet. To implement the training, JET should support DMTCL. And also, safety training should be conducted periodically as well as newcomer training to enhance and review their safety awareness. The training content should be established in accordance with DMTCL current situation and other metro trend such as accident cases that may happen in DMTCL also. To lecture on appropriate content on review training, JET should support DMTCL.

2. Risk management and these response

Osaka metro has activities to collect accidents and near miss accident to develop safety. Especially, near miss accidents are potentially latent and difficult to find, requiring operation experience. To develop a collecting system and making these responses systematically in DMTCL, JET support is essential.

3. Updating manuals and regulations

Most of the initial manuals and regulations were prepared by Line-6 GC using the experience in Delhi metro. After starting the operation, some of manuals and regulations which does not match in DMTCL should be revised and updated appropriately. At least the initial timing of revision and update, JET support is required.

4. Installing a Shisa-Kanko

Shisa-Kanko is effective to avoid a simple human error in operation. When they taken this system, JET should support to decide the objectives for Shisa-Kanko with DMTCL.

4. 3rd Baseline Survey

The opening ceremony was held in end of December in 2022 and after that 3-month soft operation will be started to prepare the commercial operation. JET may implement the 3rd baseline survey in March during the soft operation to check how much awareness is changed

by the soft operation. Their awareness will be changed day by day during the initial stage of operation. So, JET will try short-duration (1 or 2 months) surveys to check their awareness in the initial stage.

END

Annex 4: Public Awareness Survey Report

The summary of safety awareness survey for Dhaka citizen

November 2021

1. Outline of Survey

1.1. Purpose of Survey

This survey has been done for measuring the Dhaka citizen's safety awareness on the transportation for publishing the safety documents for MRT operation by DMTCL. These answers will help DMTCL when they determine the contents (Safety rules etc.) for safety documents and planning and evaluating PR(Public Relation) activities for passengers and citizens.

1.2. Duration of Survey

The safety awareness survey for Dhaka citizens has been conducted online using google form. It was conducted 18 days during 6th September and 23rd September.

1.3. Number of collected Answers

545 responses were collected in total while 18 days survey. The number of responses for each attribute are shown in Table 1.1. Number 1 in Table 1.1 is answers from DMTCL personnel, number 2 is answers from consultant staff (Line 6, Line 1, Line 5 North) for developing Dhaka MRT, number 3 is answers from ordinarily Dhaka citizen who has not relationship with MRT development (Except for MRT personnel and consultant staff) and number 4 is answers from resident of other cities.

Table 1.1 Number of Collections for Each Attribute

No.	Attribute	Number of collections
1	DMTCL Personnel	93
2	Consultant Staffs for Developing MRT	242
3	Dhaka Citizens (Except for 1 and 2)	173
4	Outside of Dhaka Citizens	37
Total		545

1.4. Question Items

JICA Expert Team has prepared 27 question items for the survey with DMTCL. Question items are shown in Table 1.2.

Table 1.2 Question Items and Option for Each Item

Number	Question	Option
Q1	Age Group	below 18

		18 - 24
		25 - 29
		30 - 34
		35 - 39
		40 - 44
		45 - 49
		50 - 54
		55 - 59
		above 60
Q2	Gender	Man
		Woman
		Other
Q3	Occupation	Student
		Worker
		Private Service
		Government Service
		Professionals
		Non-Government Service (Private company)
		Unemployed citizens / housewife
		Other
Q4	How much is your own yearly income	below 1,00,000 Tk.
		1,00,001 - 3,00,000 Tk.
		3,00,001 - 5,00,000 Tk.
		5,00,001 - 7,00,000 Tk.
		7,00,001 - 10,00,000 Tk.
		10,00,001 - 15,00,000 Tk.
		15,00,001 - 20,00,000 Tk.
		20,00,001 - 30,00,000 Tk.
		Above 30,00,001 TK.
		Don't want to answer
Q5	How much do you know about MRT/metro rail system?	(Don't know at all) 1 – 10 (Know very well)
Q6	If you live along with MRT line, do you want to use MRT? If yes, please answer the purpose of MRT usage.	No
		Yes, for commuting
		Yes, for schooling
		Yes, for shopping

		Yes, for leisure activities
		Yes, for religious and social activities
		Yes, for business purpose
		Other
Q7	What is your expectation to MRT/metro rail transportation? Please select the most important item.	Punctuality
		Cleanliness
		Safety
		Comfortability
		Rapidness
		Other
Q8	Dhaka MRT(Line6, Line1, and 5 North) has been developed by Japanese technology and its financing, and technical assistance of Safety Management System (SMS) development project has been conducted by JICA (Japan International Cooperation Agency) Expert Team. Do you know such situation?	Yes, I know all.
		Yes, I know the assistance of MRT infrastructure development by Japan.
		I don't know the both.
Q9	What is your expectation that DMTCL should prevent metro accidents? Choose top 2 priorities	Collision
		Derailment
		Injure inside the station and trains
		Fire
Q10	What kind of disasters and incidents do you want not to happen during using MRT? Choose top 2 priorities.	Crime
		Terrorism
		Natural disaster
		Pickpocket
		Social harassment
		other
Q11	Platform Screen Door (PSD) will be installed at platform to secure the passengers' safety. If you override PSD, what kind of	I have no idea about platform screen door.
		I will be hit by a train and died or seriously injured.
		I will be hit by a train, and injured.
		No injured, and if a train is not approaching, it is

	accidents or incidents may happen to you and other passengers? Please check all necessary items.	<p>easy to across the track</p> <p>No injured but all trains will be stopped, even if a train is not approaching.</p> <p>If accidents happened and train stopped, it will be bothersome to other passengers.</p> <p>Other</p>
Q12	What is your expectation from DMTCL to conduct the safety activities? Choose top 3 priorities.	<p>Strict safety rules, regulation and manner formulation and abide by the passengers</p> <p>Publishing of safety activities to citizens</p> <p>Some relaxed safety rule for passengers</p> <p>Special care for disable persons</p> <p>Prevention of social harassment</p> <p>Investment for modern technology for safety</p> <p>Proper miniatous activities</p> <p>Proper safety education within DMTCL staff members</p> <p>Proper safety measures at stations and in trains</p> <p>Other</p>
Q13	What kind of transportation modes do you mainly use in your daily movement?	<p>Bus</p> <p>Mini Bus</p> <p>Private car</p> <p>CNG</p> <p>Taxi cab</p> <p>Rickshaw</p> <p>Auto Tempo/ Laguna</p> <p>Motorcycle</p> <p>Bangladesh Railway</p> <p>Other</p>
Q14	Do you always follow the traffic rule strictly?	(Not follow) 1 – 5 (Follow)
Q15	What is your traffic safety awareness level?	(Low) 1 – 5 (High)
Q16	When you will use MRT, do you wish to strictly follow the rules and manners which is to be formulated by DMTCL?	(Not follow) 1 – 5 (Follow)
Q17	How do you feel	Not dangerous

	Bangladesh Railway (BR) operating with people who ride on roof of the trains?	Dangerous, but passengers' own responsibility
		Dangerous, and BR's responsibility
		Dangerous, and no one has responsibility
		Dangerous, and both passengers and BR has responsibility
		other
Q18	No food is allowed to eat inside the train of MRT. What do you think regarding it?	(Bad) 1 – 5 (Good)
Q19	Do you feel DMTCL should provide priority seats and/or a dedicated coach for senior, women, disable people?	Yes, should provide priority seats and a dedicated coach.
		Yes, should provide priority seats in all coaches, but not a dedicated coach
		Yes, should provide a dedicated coach, but not priority seats in all coaches
		other
Q20	Many types of signage will be displayed in MRT stations and trains. What kind of information do you want? Please choose all appropriate answers.	Guideway for train boarding
		Guideway for transit to other transport modes
		Guideway Information to secured zone security phone around station
		Guideway for buying tickets and its fare information
		Information for social events
		Advertisement
		Public relation regarding the train boarding manners and rules
		other
Q21	In case the signage regarding the train boarding manners and rules are displayed, do you read and follow them?	Yes, always
		Yes, sometimes
		May read, but sometimes not follow if the instruction is strict one.
		May read, but not always follow any instructions
		May not read
		other
Q22	Do you think Hawkers (Street Vendors) should be allowed at the footpath of	Any Hawkers should be allowed at anytime
		Only licensed Hawkers shall be allowed at anytime

	Station areas?	Any Hawkers should be allowed at limited time duration
		Only licensed Hawkers shall be allowed at limited time duration
		Any Hawkers should not be allowed at anytime
		Other
Q23	Do you think floating people should be allowed to stay at night at the MRT station area footpath?	Yes, should allow
		Some may allow
		No, should not allow
Q24	Do you think CCTV camera to be set up surrounding and inside MRT station areas and coaches to prevent criminal and other nuisance activities?	Yes, should install anywhere as practically as possible
		Yes, should install at high-risk location
		No, should not install to keep personal privacy
Q25	What should be the base (initial) fare?	10 Tk.
		15 Tk.
		20 Tk.
		25 Tk.
		30 Tk.
		35 Tk.
		40 Tk.
		45 Tk.
		50 Tk.
Q26	How much are you willing to pay for a 20km travel by MRT?	Less than 100 Tk.
		100 Tk.
		120 Tk.
		130 Tk.
		140 Tk.
		150 Tk.
		Above 150 Tk.
Q27	Your attribute	DMTCL officials
		MRT development consultants
		No relation with MRT development and operation (Dhaka Citizen)
		No relation with MRT development and operation (Outside of Dhaka Citizen)

2. Results of survey

Survey results of each attribute in Table 1.2 are shown in this chapter.

Table 2.1 Result of Question 1

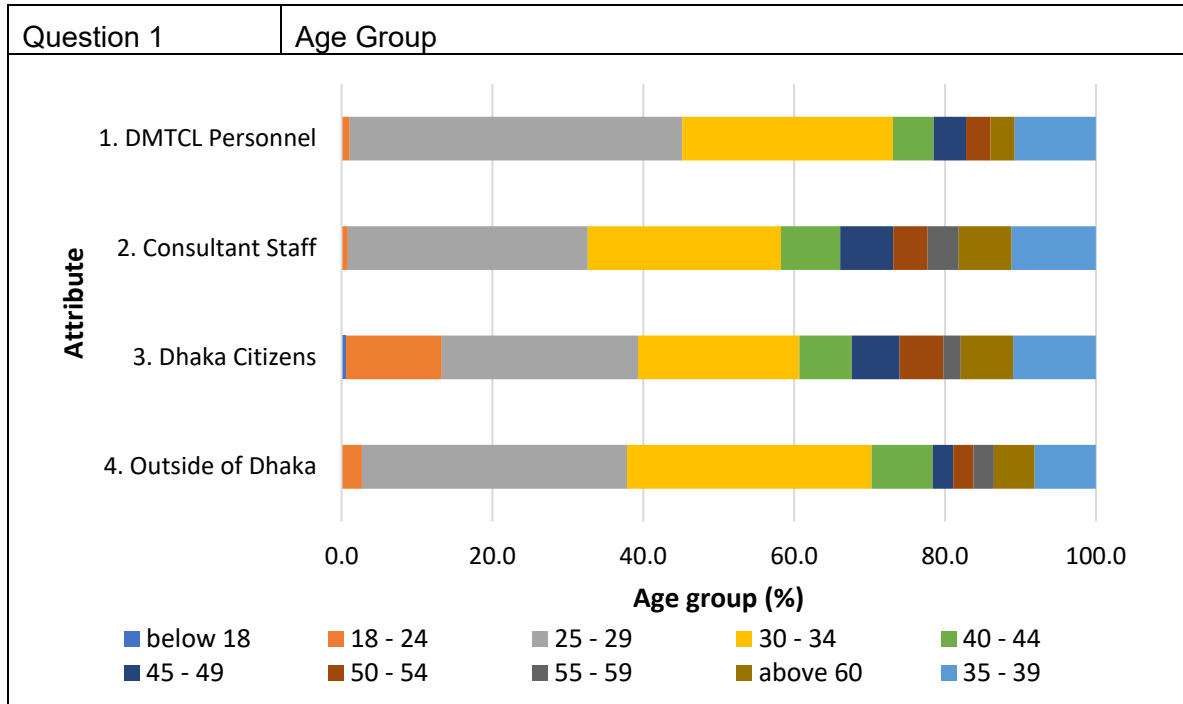


Table 2.2 Result of Question 2

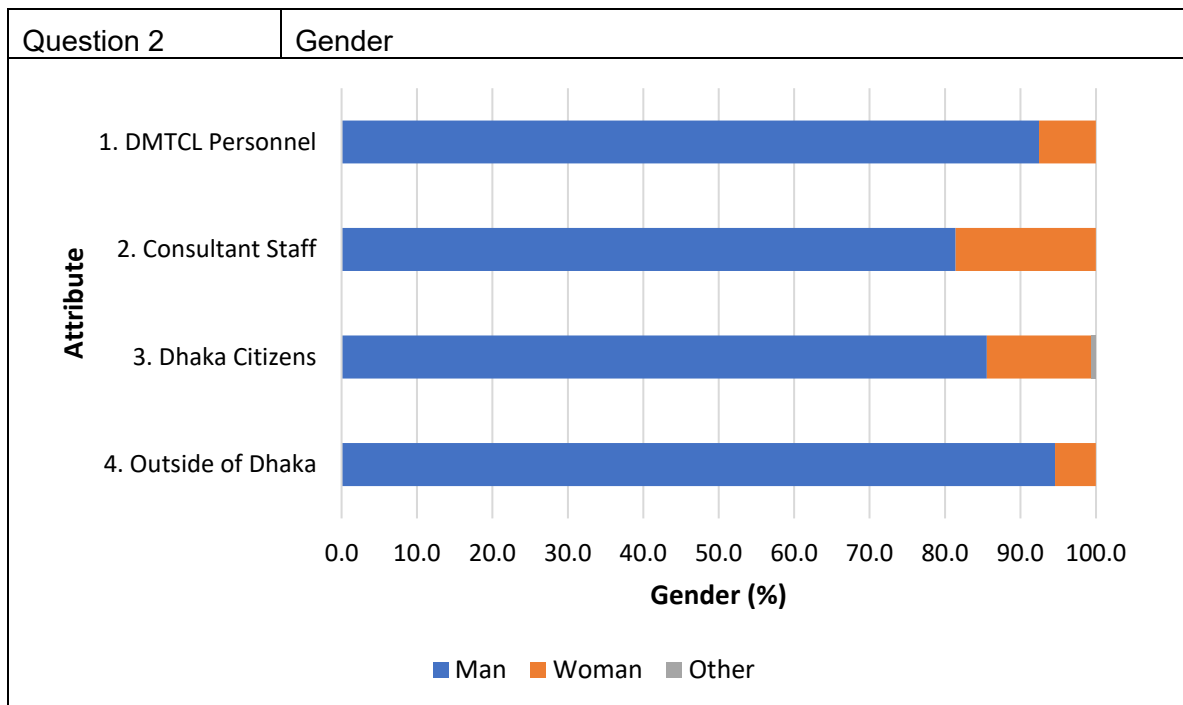


Table 2.3 Result of Question 3

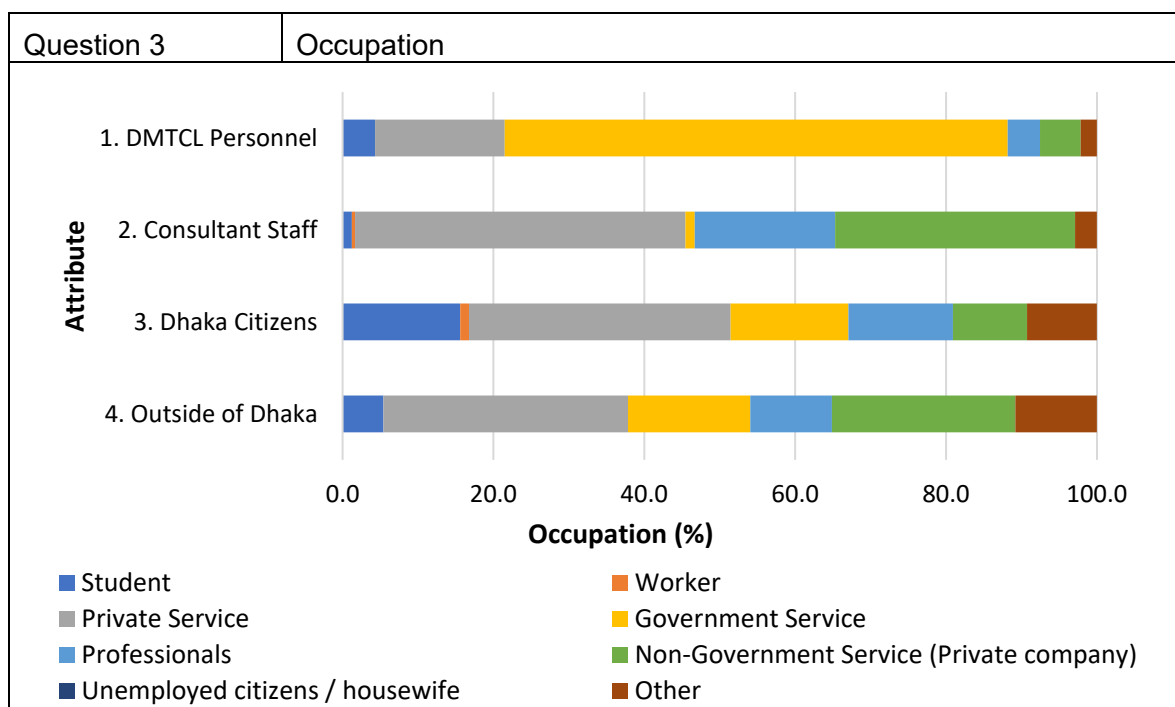


Table 2.4 Result of Question4

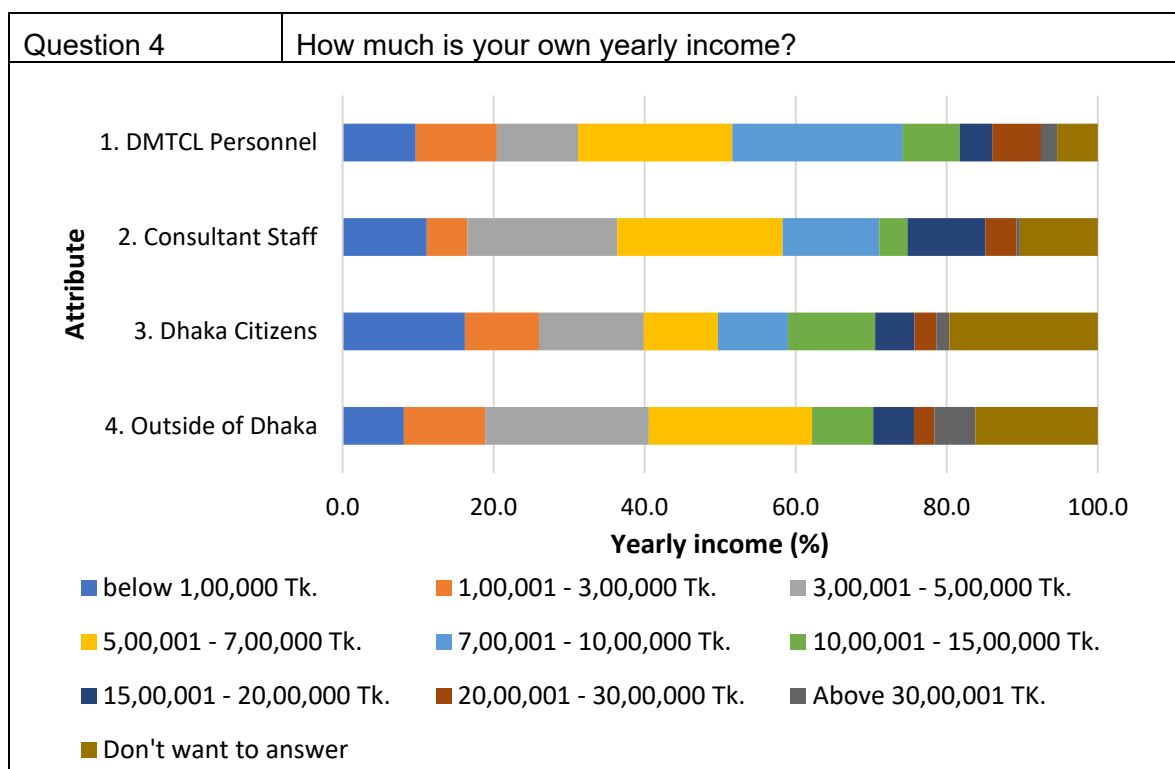


Table 2.5 Result of Question 5

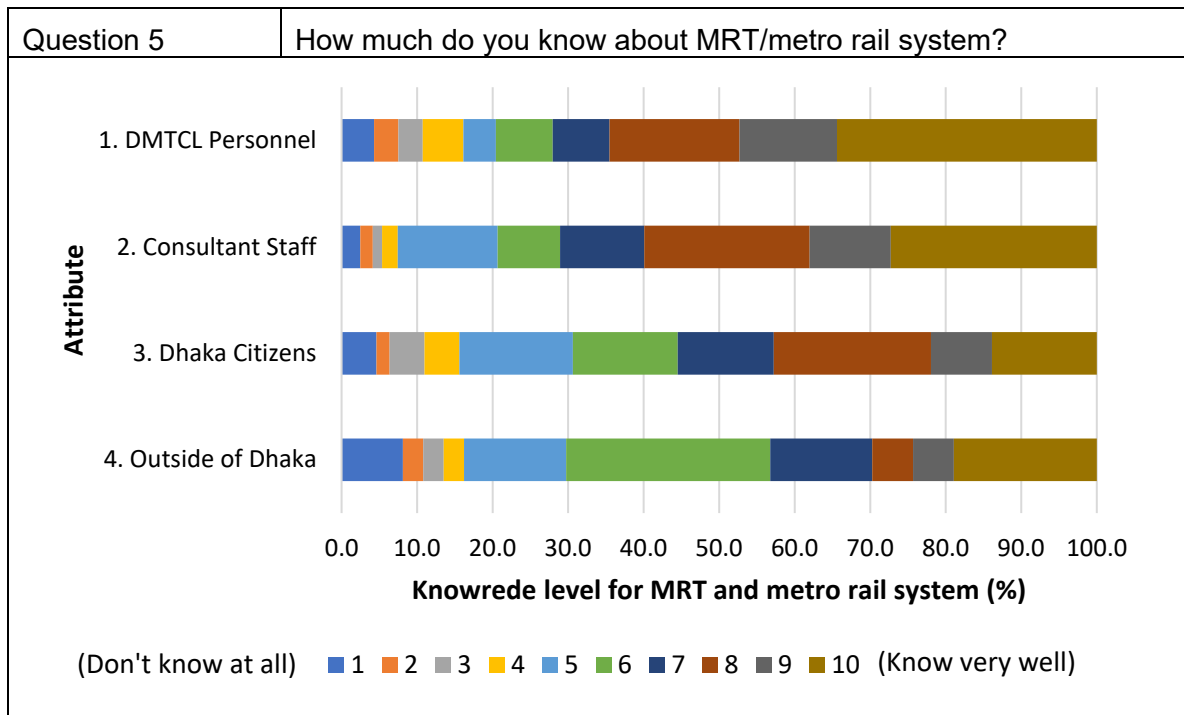


Table 2.6 Result of Question 6

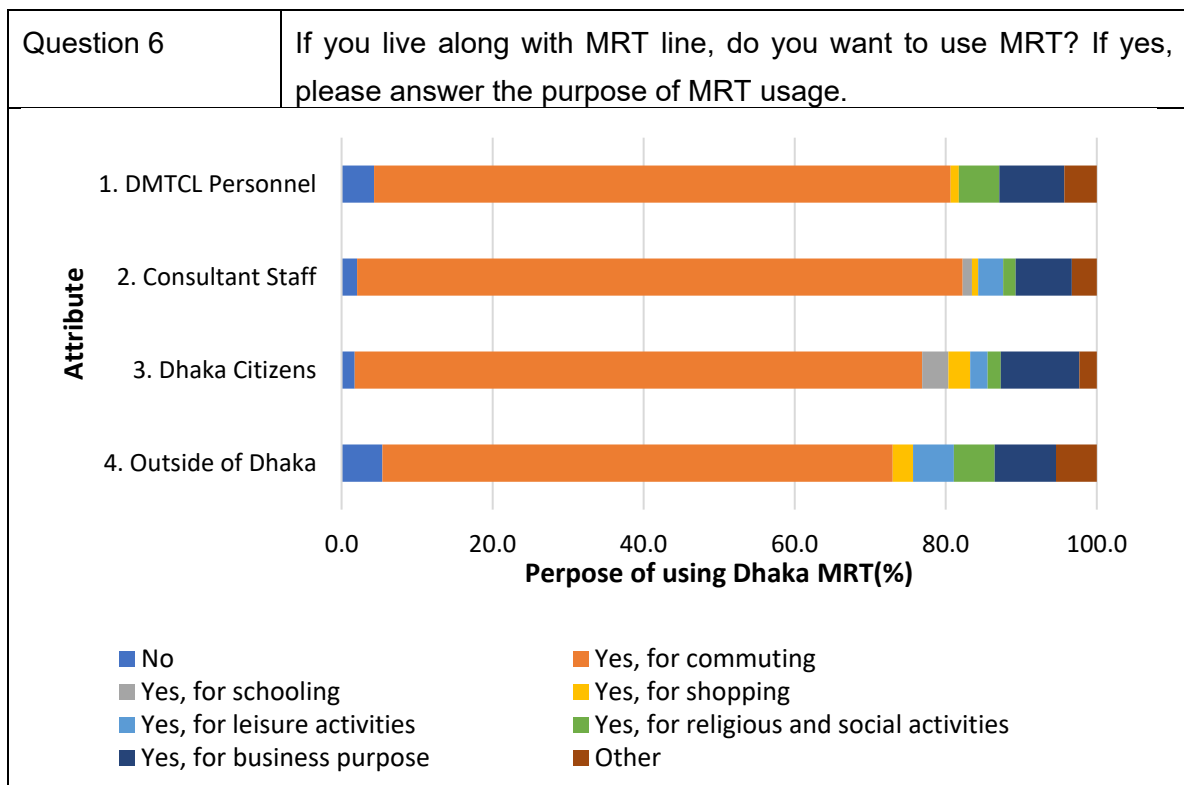


Table 2.7 Result of Question 7

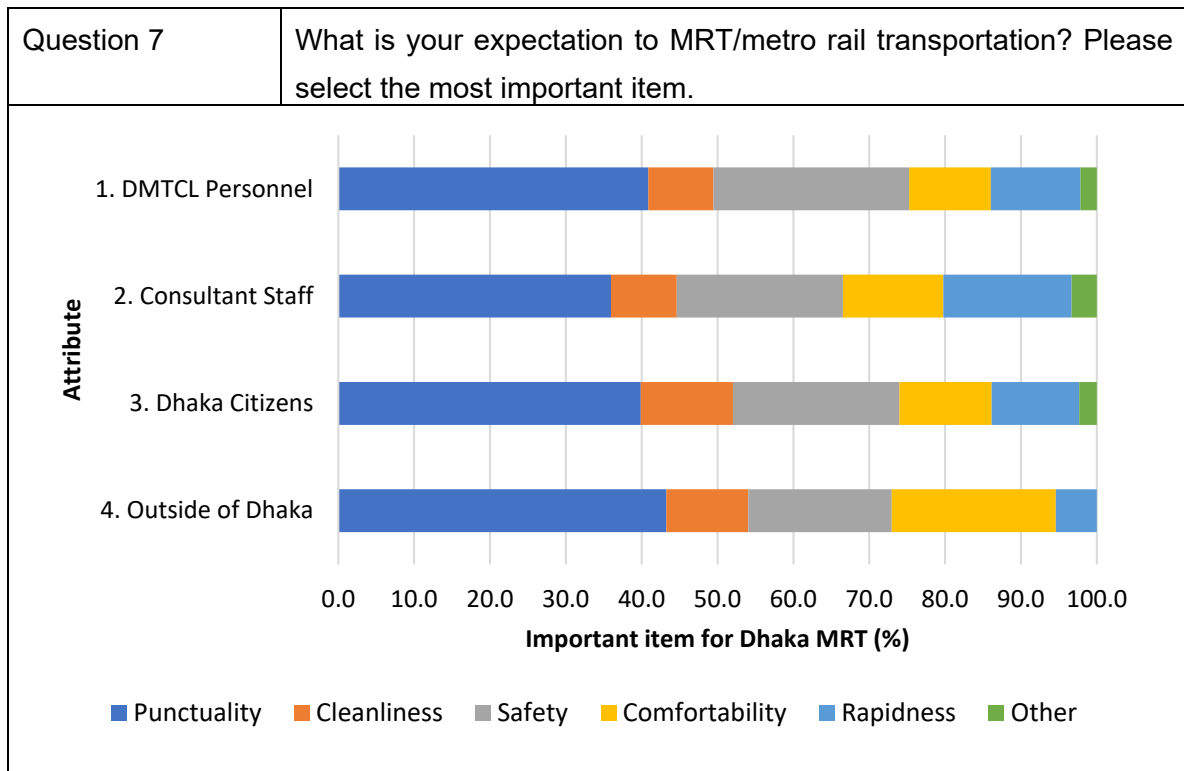


Table 2.8 Result of Question 8

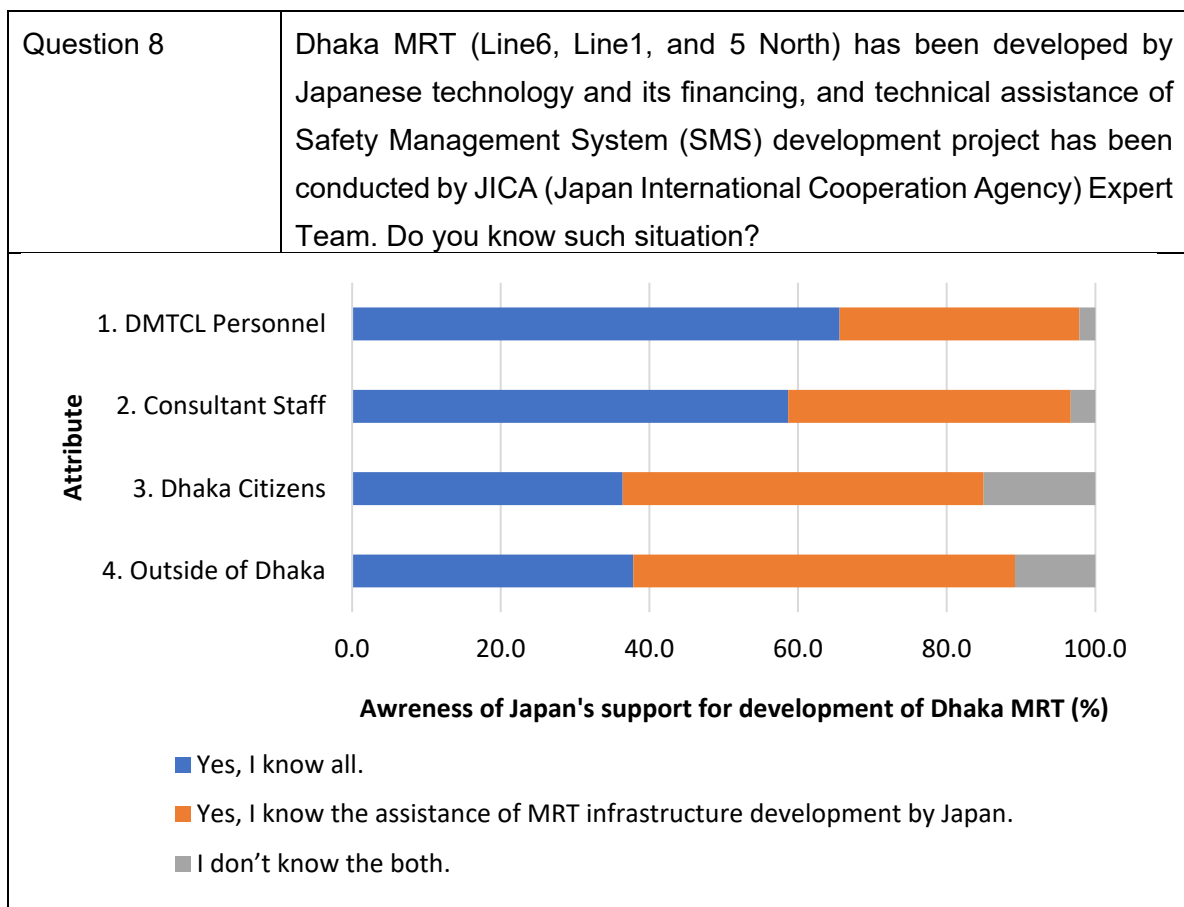


Table 2.9 Result of Question 9

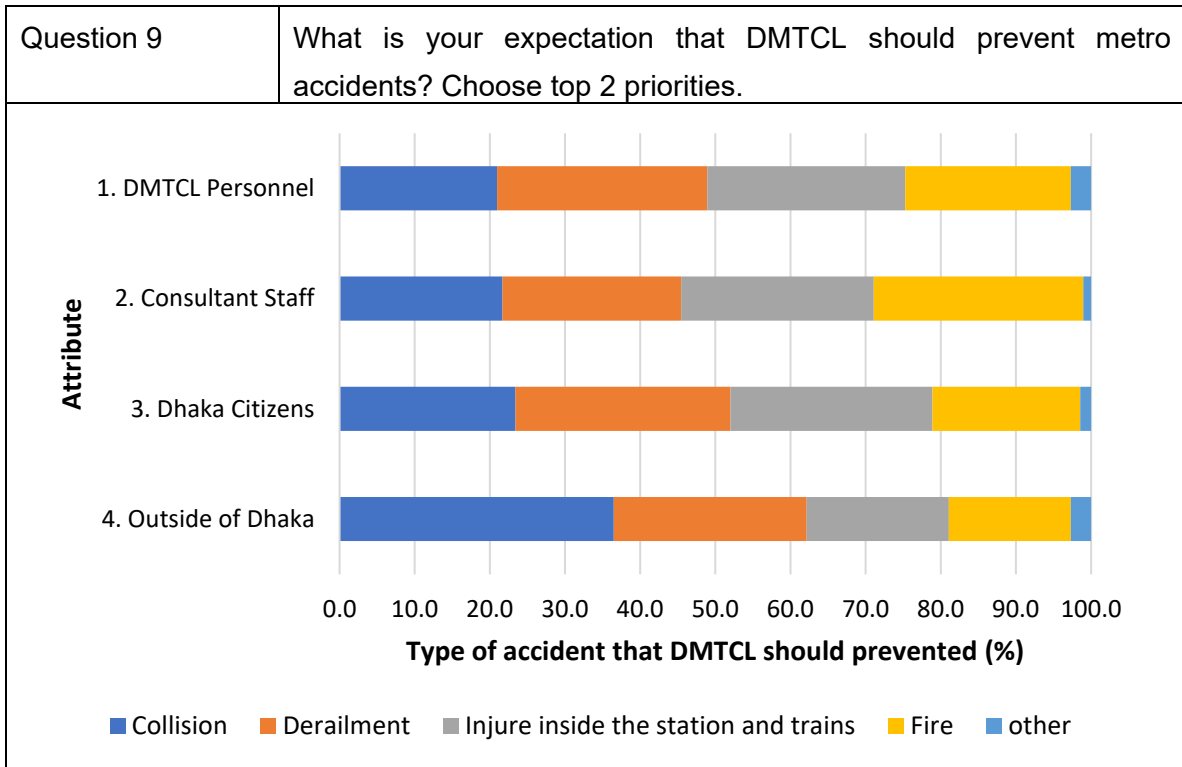


Table 2.10 Result of Question 10

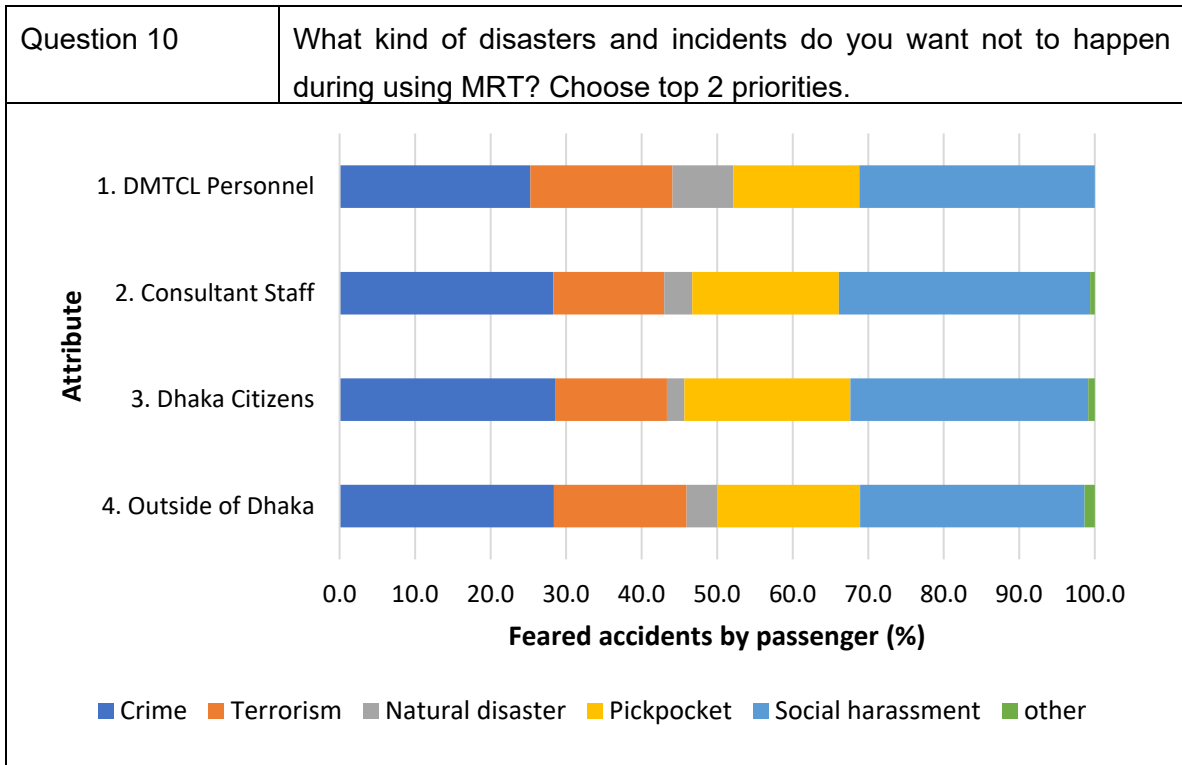


Table 2.11 Result of Question 11

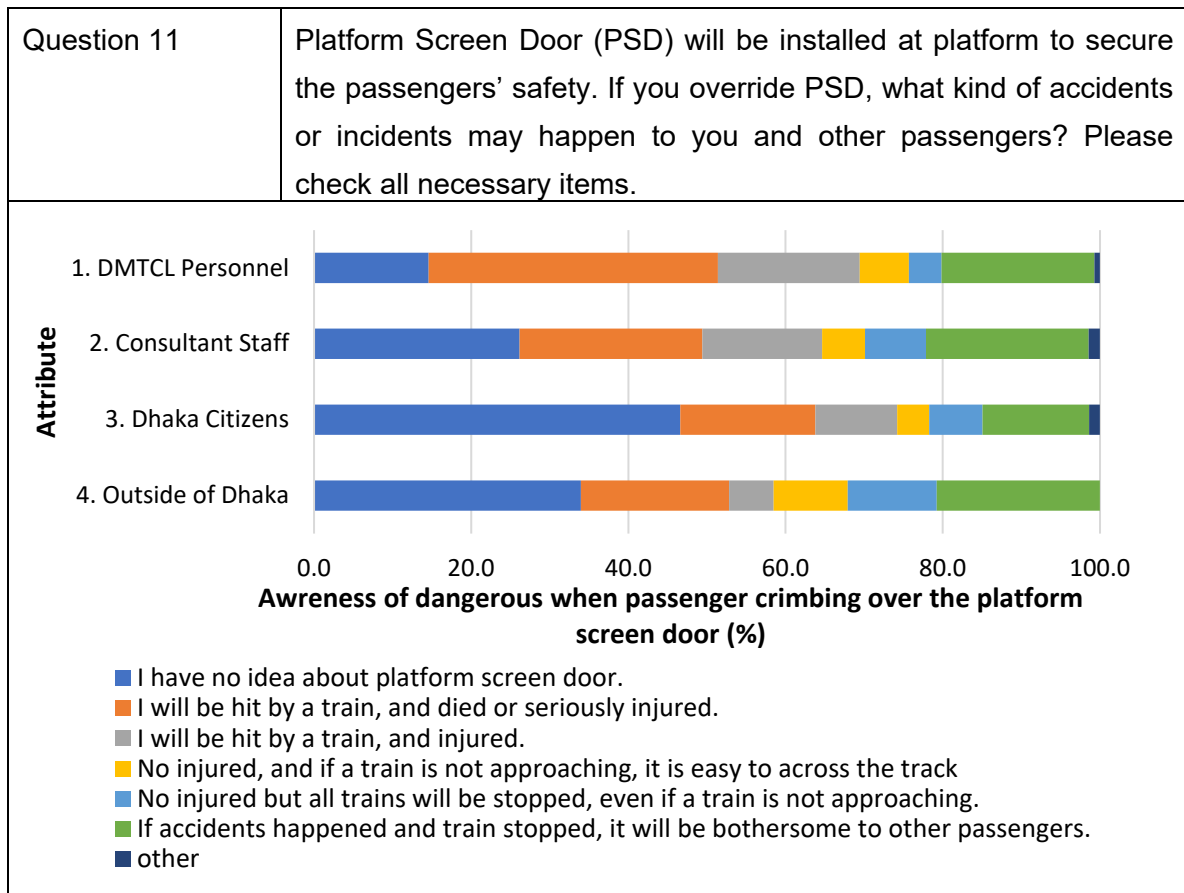


Table 2.12 Result of Question 12

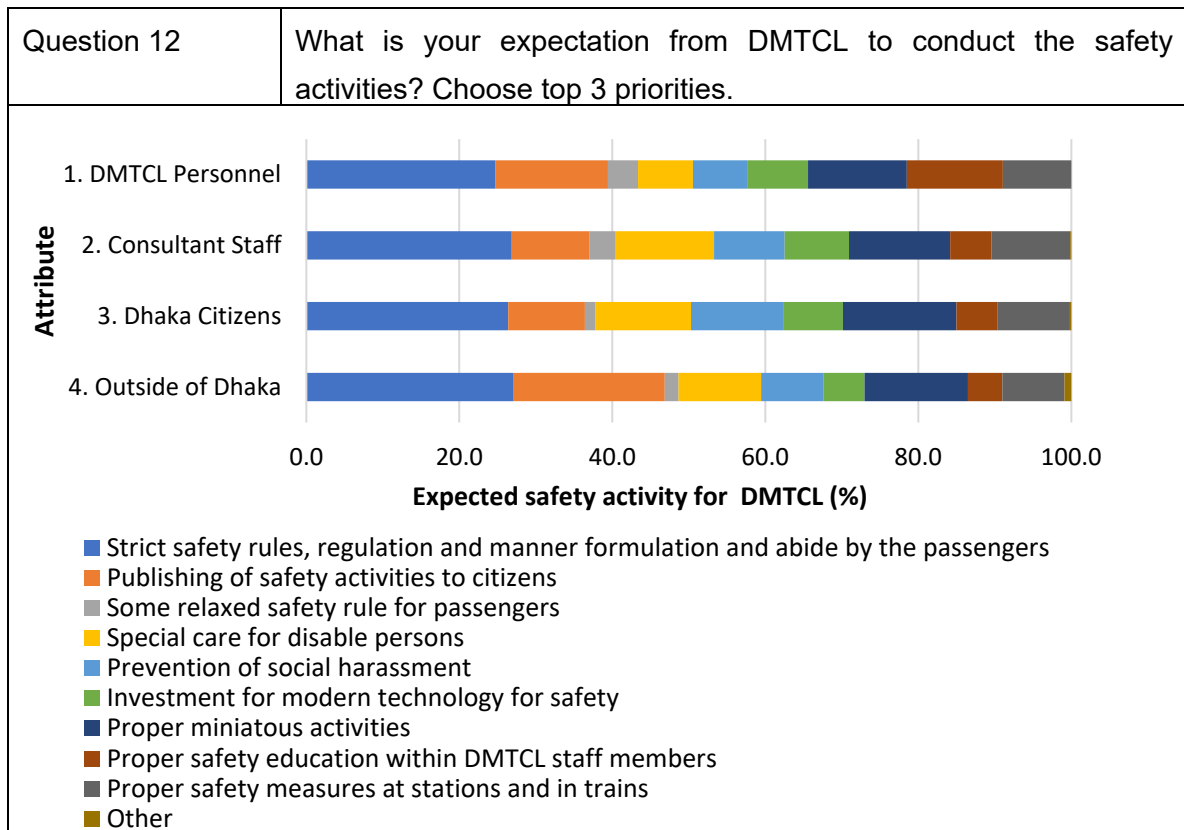


Table 2.13 Result of Question 13

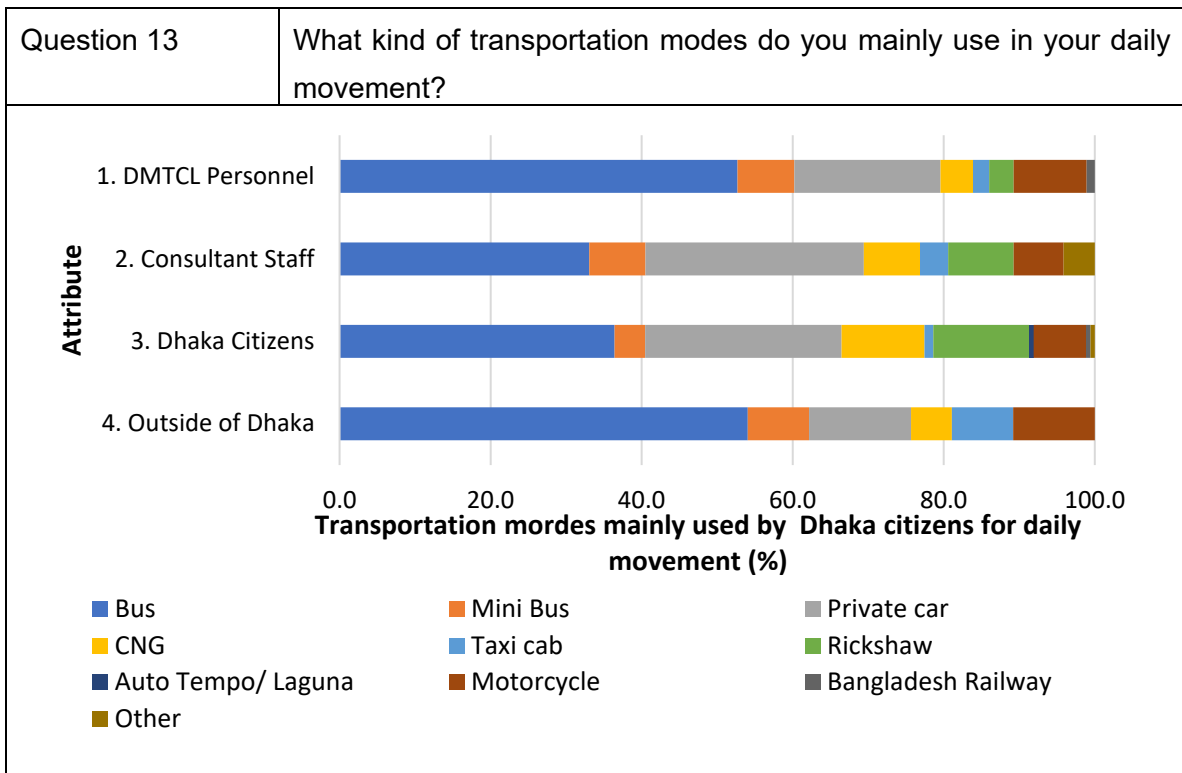


Table 2.14 Result of Question 14

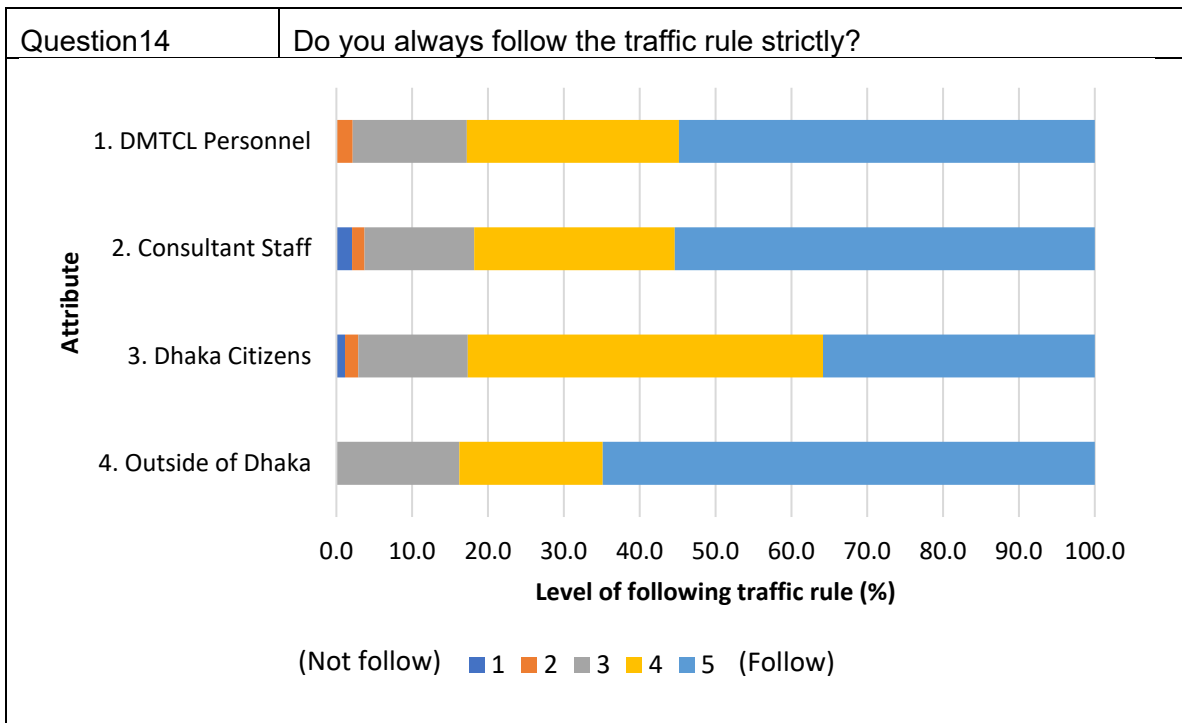


Table 2.15 Result of Question 15

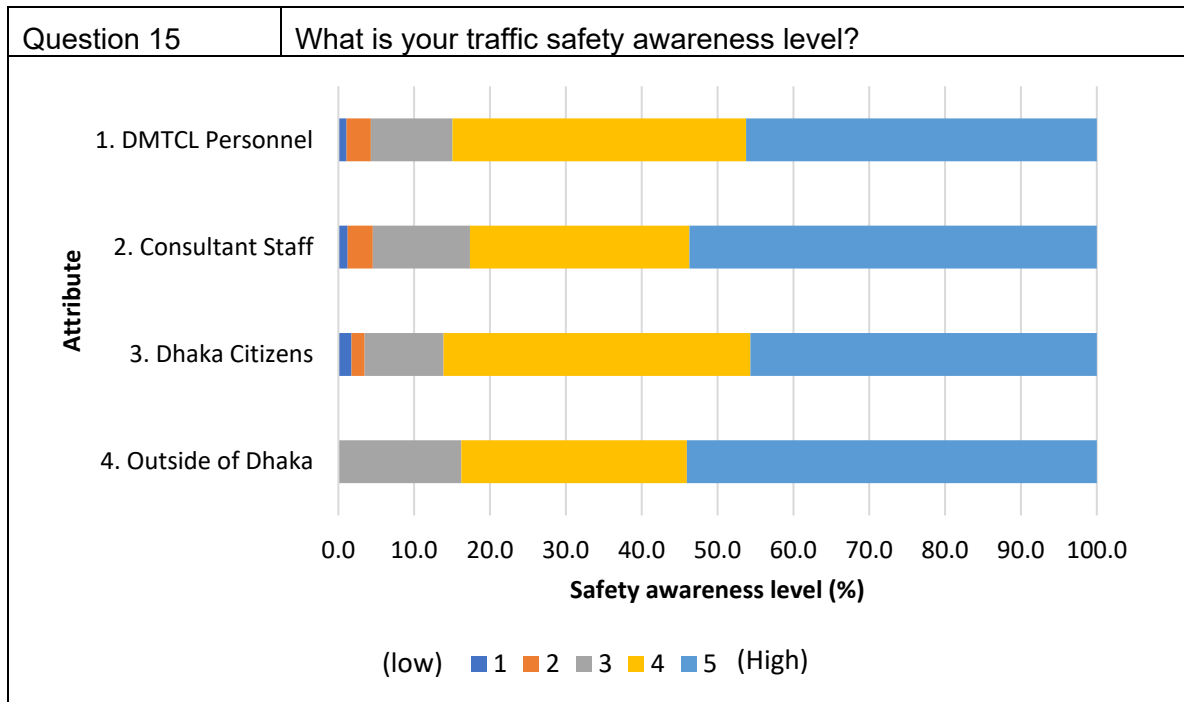


Table 2.16 Result of Question 16

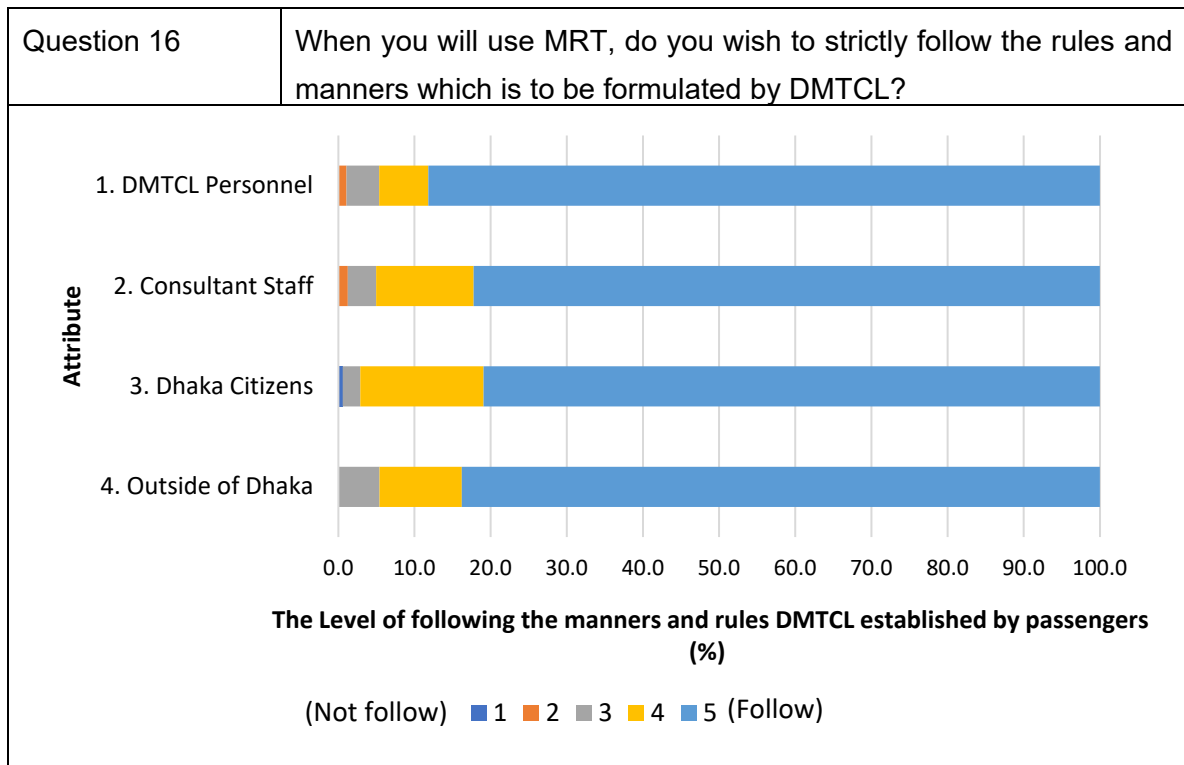


Table 2.17 Result of Question 17

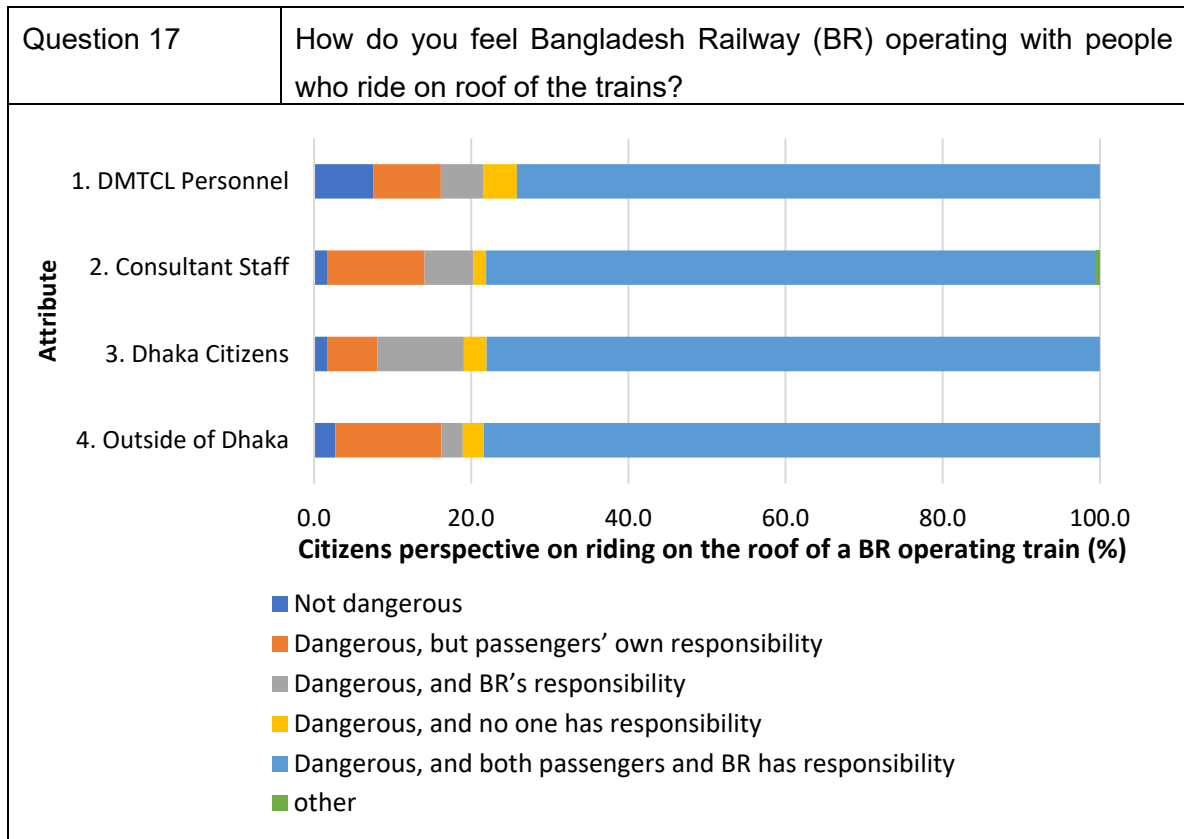


Table 2.18 Result of Question 18



Table 2.19 Result of Question 19

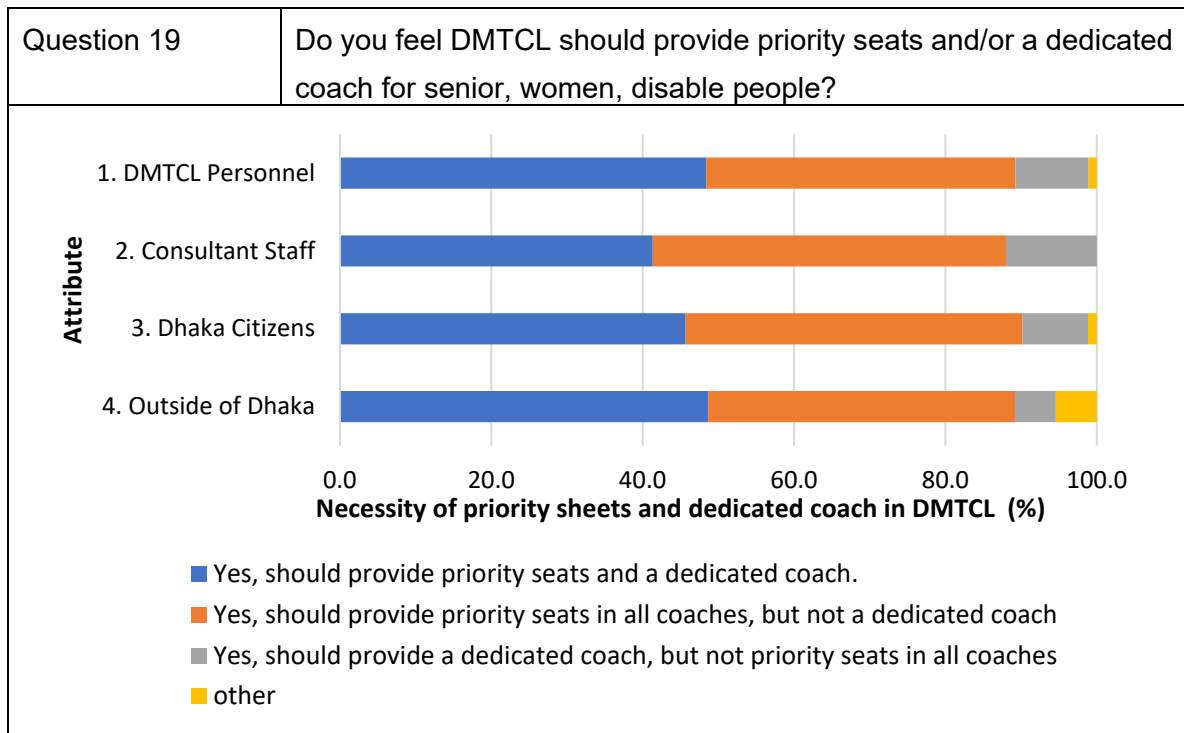


Table 2.20 Result of Question 20

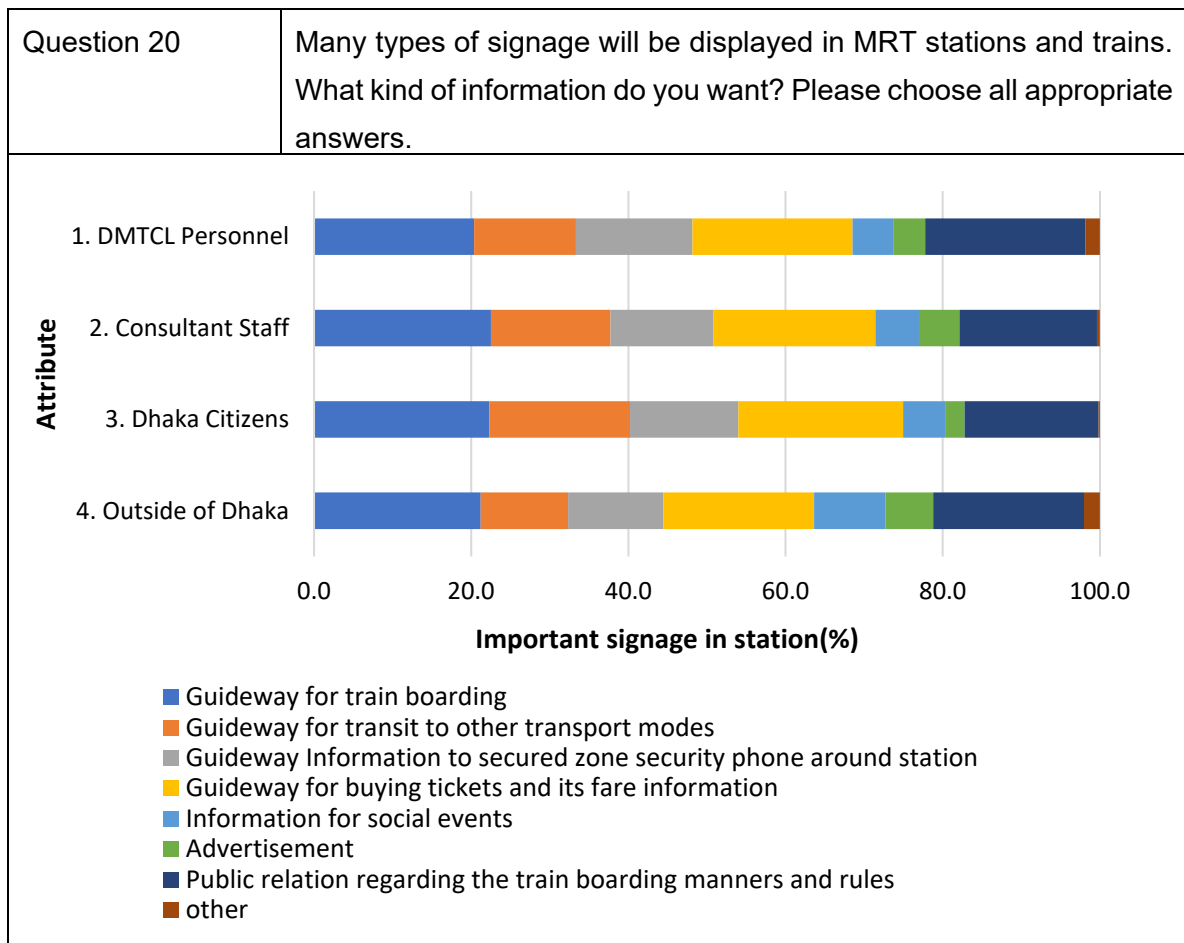


Table 2.21 Result of Question 21

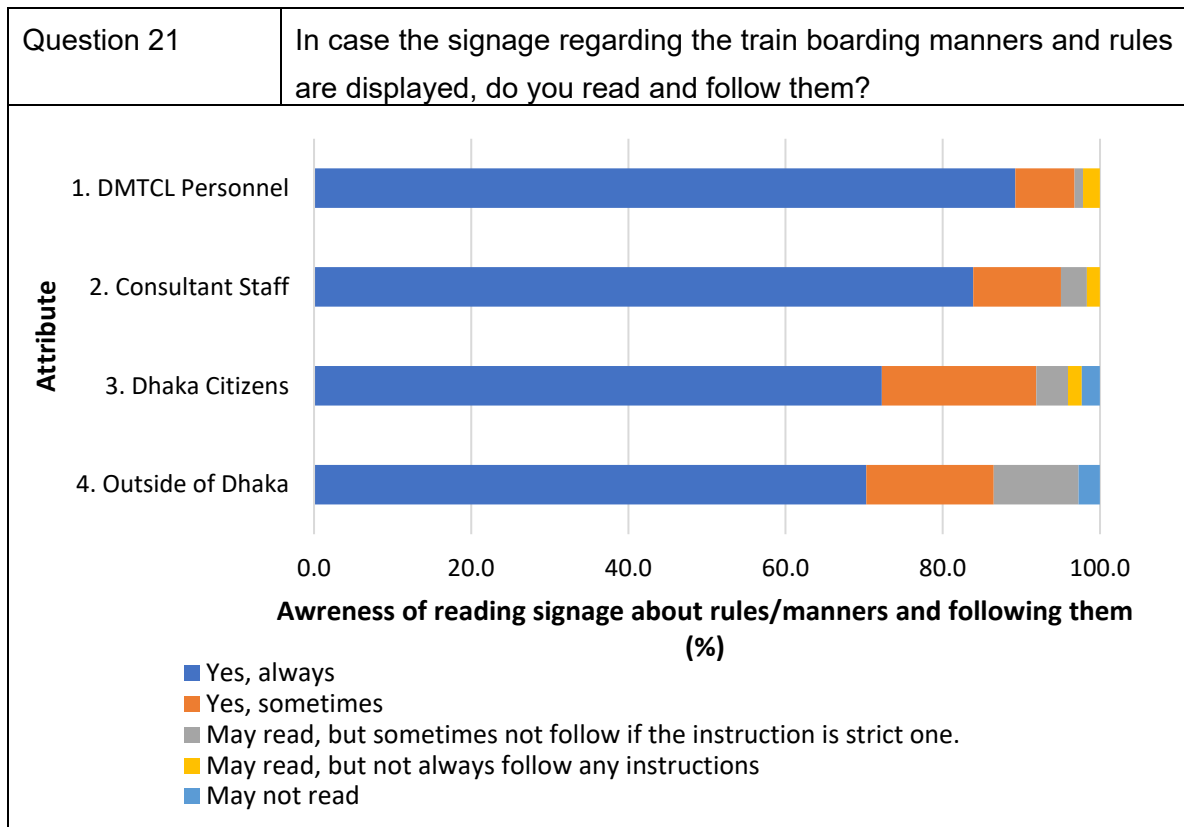


Table 2.22 Result of Question 22

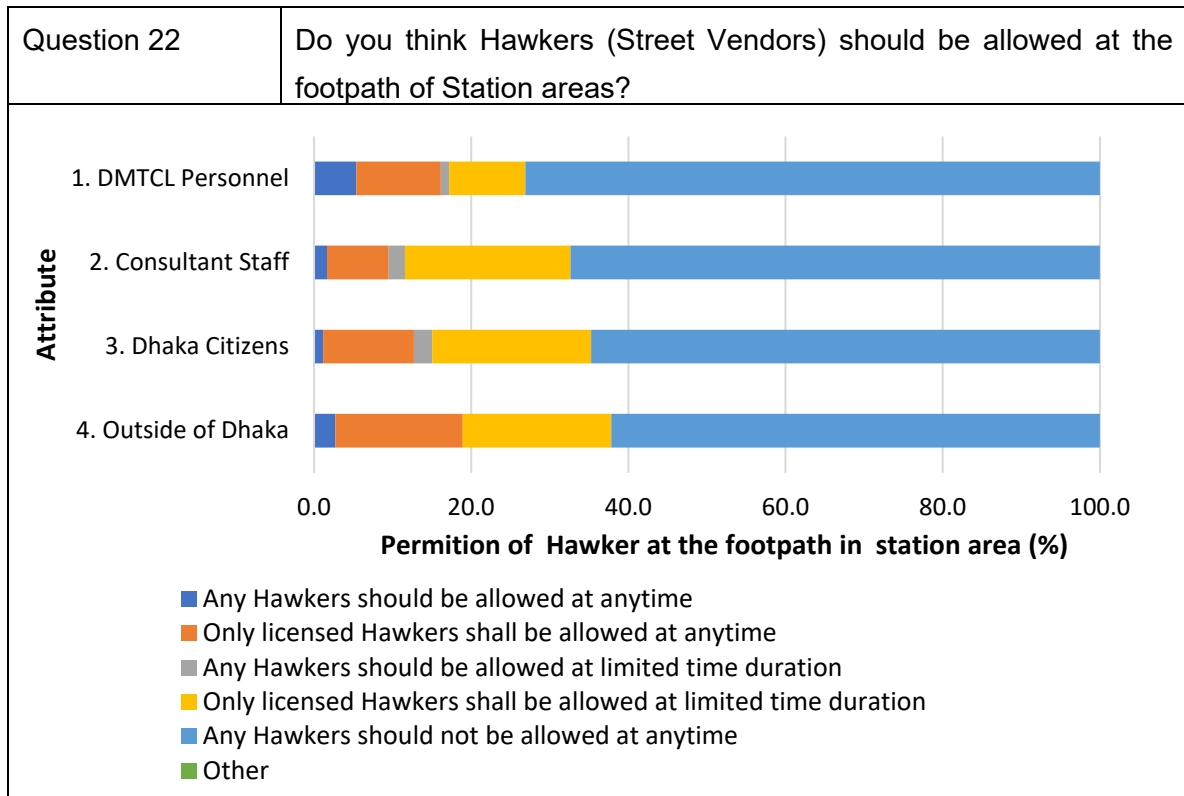


Table 2.23 Result of Question 23

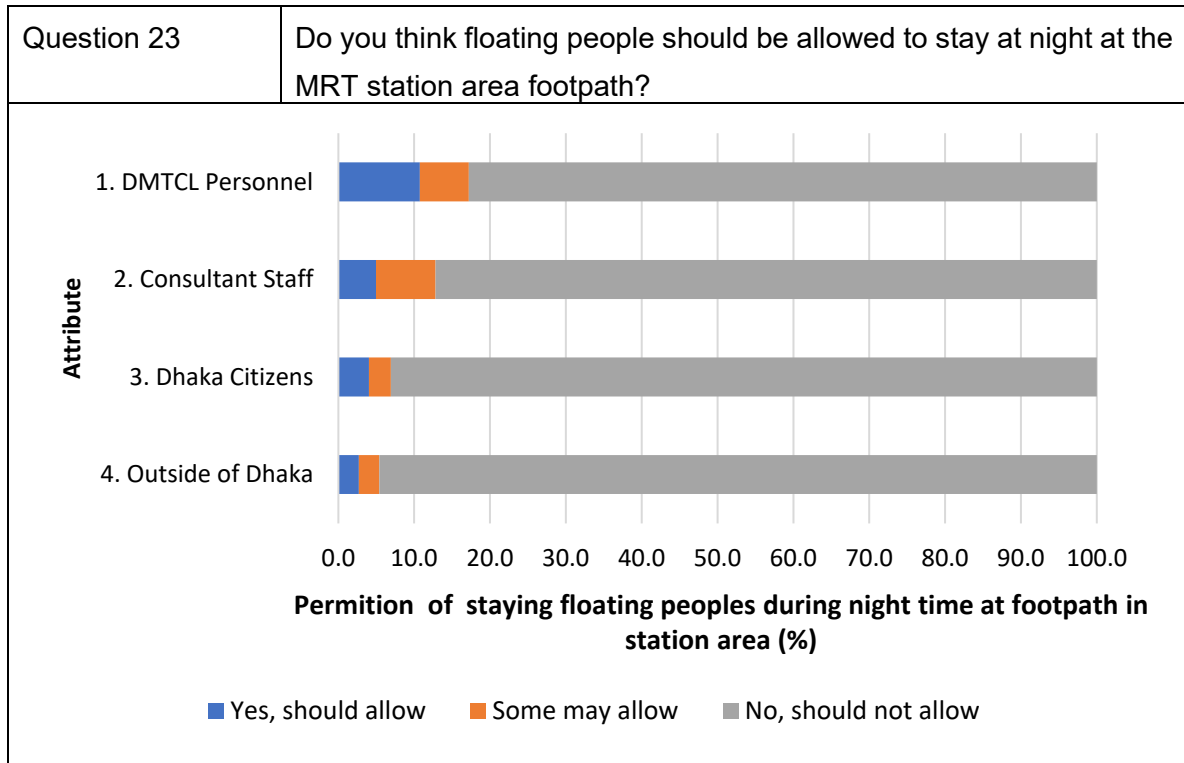


Table 2.24 Result of Question 24

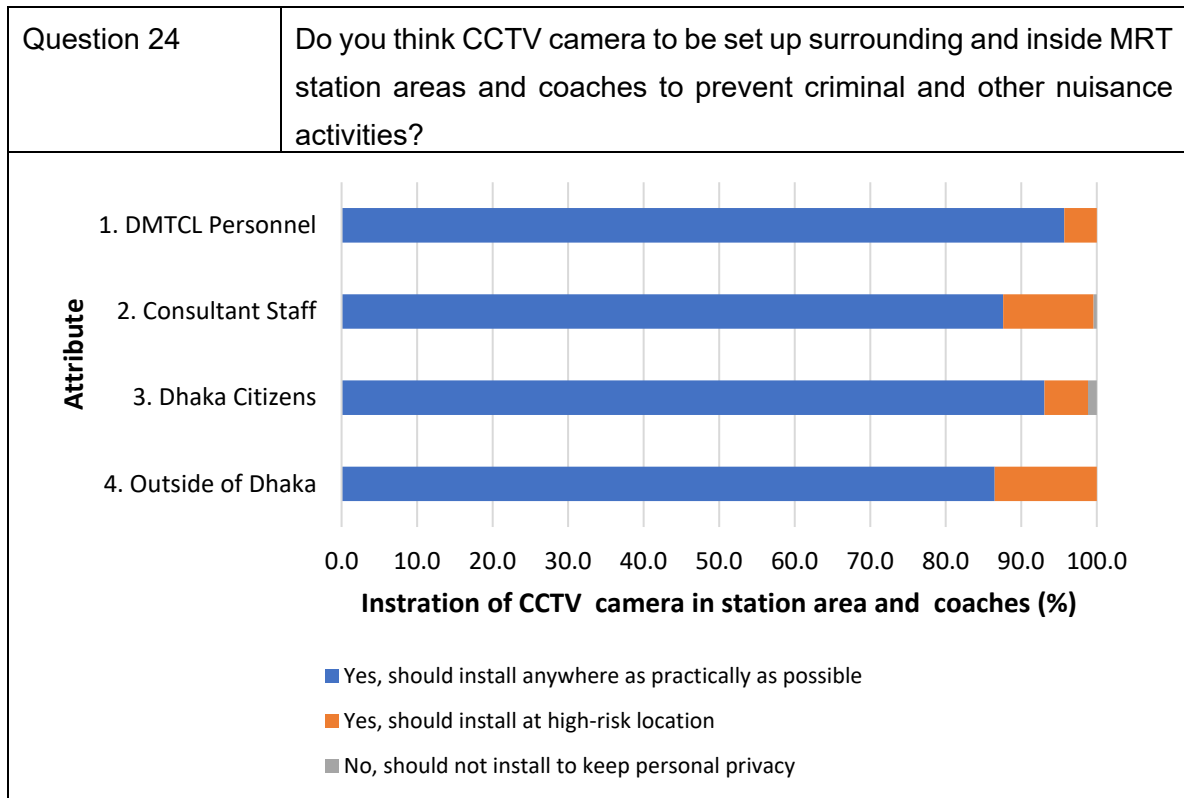


Table 2.25 Result of Question 25

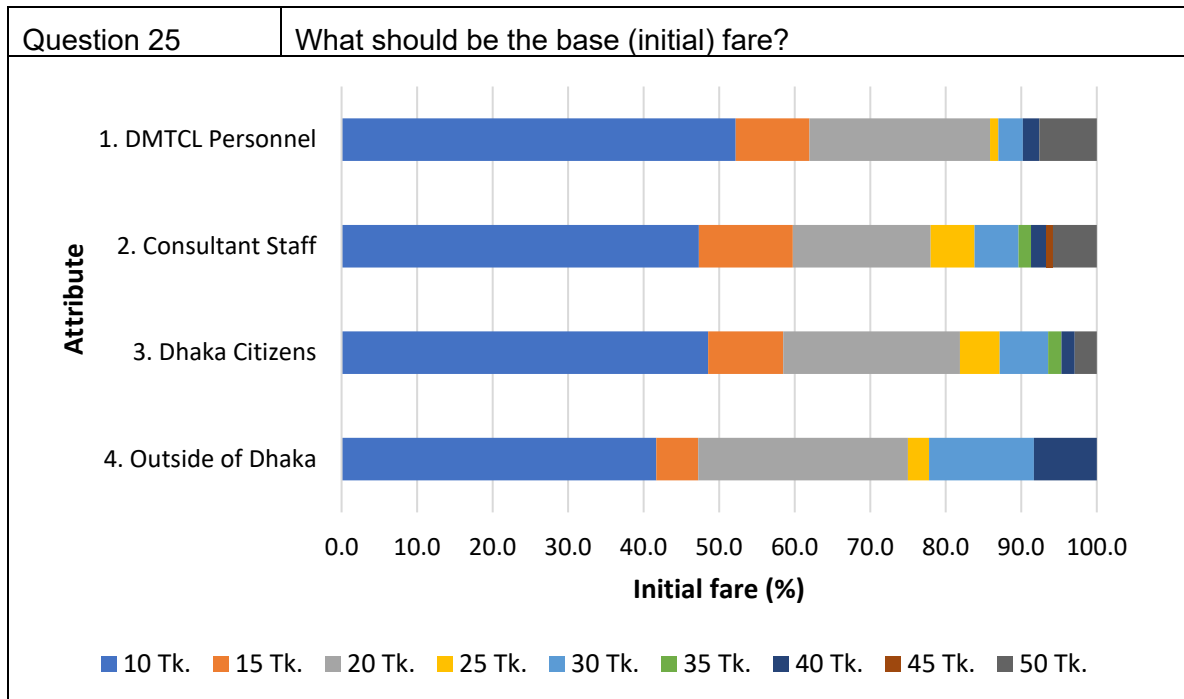
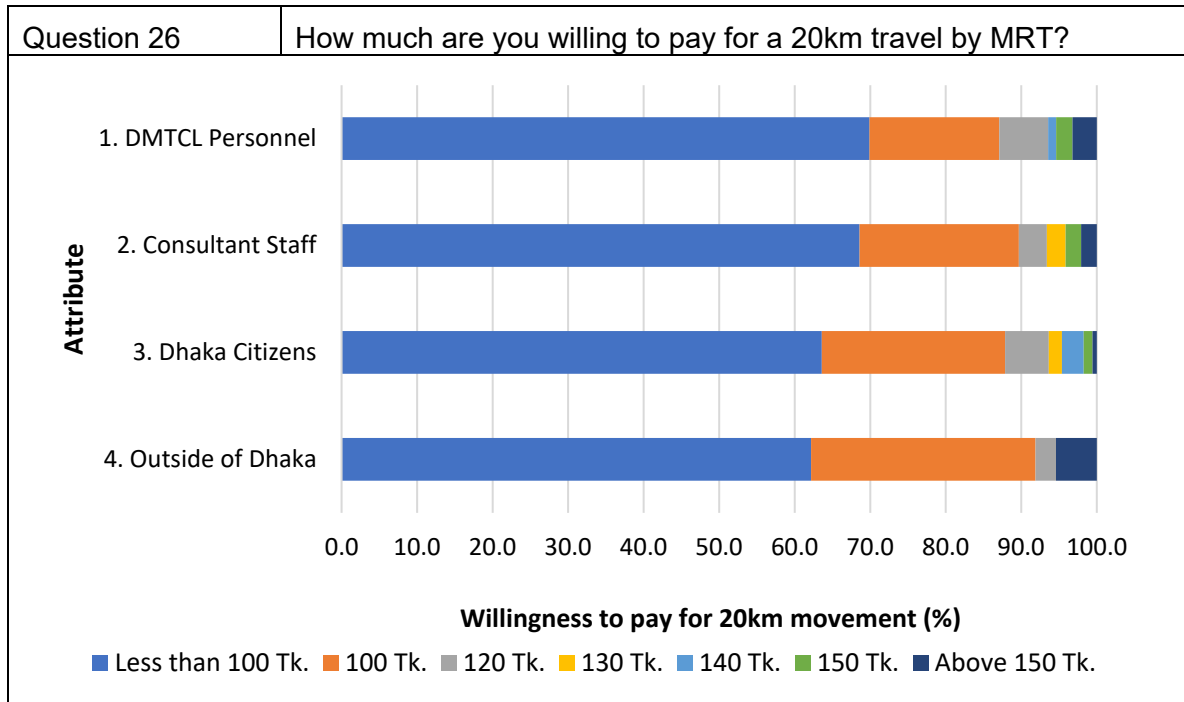


Table 2.26 Result of Question 26



Annex 5: JCC Materials

Annex 5: JCC Materials

1st JCC (9 November 2021)

Monitoring Sheet

TO JCC Members

Project Monitoring Sheet

Project Title :The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6

Version of the Sheet: Ver.2 (Term: February 2021 - October 2021)

Name: Atsushi Mochizuki

Title: Team Leader/ Safety Management

Submission Date: 1st November 2021

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I. Summary

1. Progress

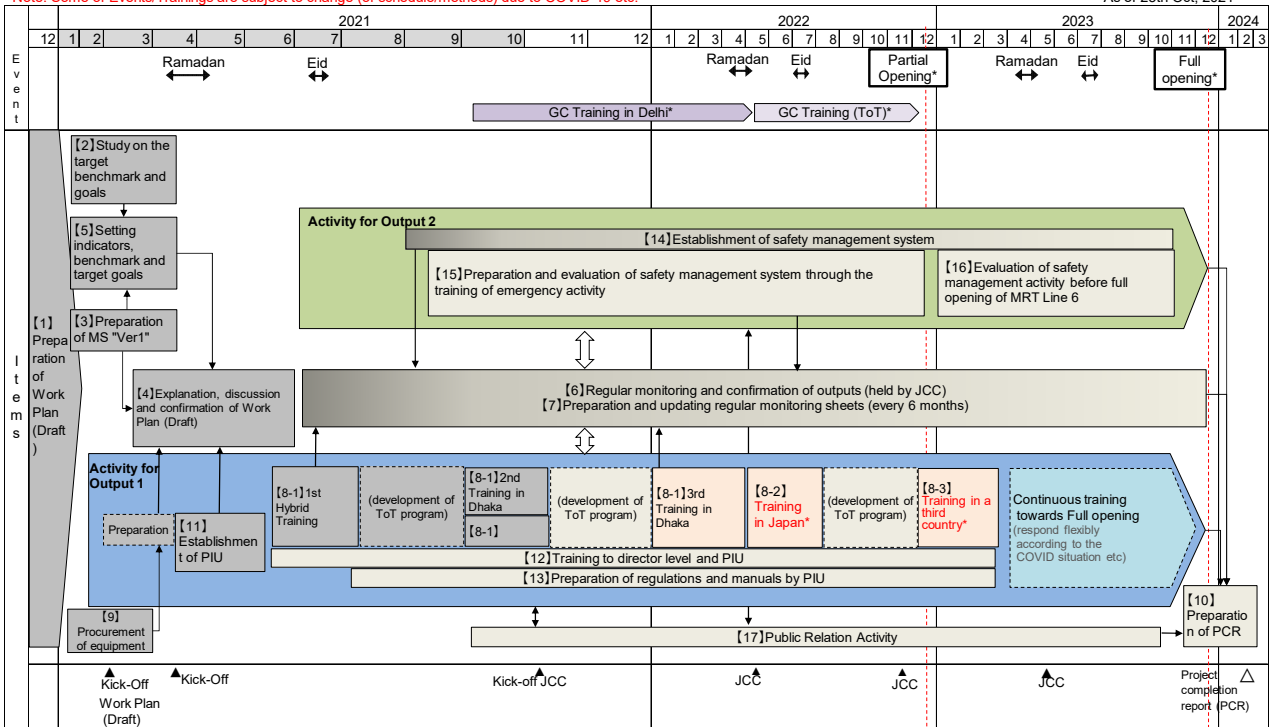
1-1 Progress of Inputs

The project has agreed on the Record of Discussions dated August 4, 2020 between Dhaka Mass Transit Company Limited (DMTCL) and Japan International Cooperation Agency (JICA). The Project has commenced since January 2021.

We held three types of training activities which are Online Training in July 2021, Face to Face training in October 2021, and Face to Face Workshop in October 2021.

*Note: Some of Events/Trainings are subject to change (of schedule/methods) due to COVID-19 etc.

As of 25th Oct, 2021



Source: JET

Figure 1 Project Flow as of October 2021

The inputs plan of Japanese Expert Team (JET) is summarized in the table below.

the end of December 2021.

【6】 Regular monitoring and confirmation of outputs (held by JCC)

To be held in November 2021.

【7】 Preparing and updating regular monitoring sheets (every six months)

To be confirmed on the JCC meeting in November 2021.

【8-1】 Implementation of Trainings (Online Training/ Face to Face in Dhaka)

JET held three types of trainings.

Training style	Date	Nos. of Participants	Contents
Online Training	[1st Batch] 2nd and 3rd July 2021 [2nd Batch] 9th and 10th July 2021 [3rd Batch] 16th and 17th July 2021	Total 55 persons	- Railway Characteristics and Safety Assurance Mechanism - Japanese Railway Accidents and Lessons Learned -Development of Safety-First Corporate Culture - Introduction of SMS in Japan
Face to Face Training (Hybrid: Osaka Metro lectured the training through online)	[1st Batch] 8th and 9th October 2021 [2nd Batch] 19th October 2021 [3rd Batch] 21th October 2021	Total ** persons	- Review of 1st training - Roles and responsibility of each position in SMS -The Necessity of Safety Related Documents and Those Examples
Face to Face Workshop (Hybrid: Osaka Metro lectured the training through online)	7th October and 11th October 2021	15 persons	- Outline of Safety Related Documents and Those Necessity -Discussion on the Necessary Documents in DMTCL and Those Priority - Discussion on Implementation

			of the Safety Policy
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【8-2】 Implementation of Training in Japan

Due to the JICA policy on COVID-19, implementation of training in Japan has been suspended until the end of March 2022 and it subject to COVID-19 situation.

【8-3】 Implementation of Training in a Third Country

Training in a third country (Jakarta) shall be implemented after the training in Japan.

【9】 Procurement of training/communication equipment

Done.

【10】 Preparation of Project Completion Report

To be done.

【11】 Establishment of PIU for the Work

Completed. (assigned by DMTCL)

【12】 Training to director level and PIU

JET conducted the Workshop in October 2021 to PIU and director level of DMTCL. The contents are shown in table above.

【13】 Preparation of regulations and manuals by PIU

To be done.

【14】 Establishment of safety management system

JET conducted the trainings regarding the fundamental of safety management system.

【15】 Preparation and evaluation of safety management system through the training of emergency activity

To be done.

【16】 Evaluation of safety management activity before full opening of MRT Line 6

To be done.

【17】 Public Relation Activity

To be done.

1-3 Achievement of Output

Output1 : 「High Priority Regulations and/or Manuals for Safety are Regulated」

1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL.

Safety policy was discussed in the Workshop in October in 2021. The Draft Safety Policy was formulated during the Workshop and shall be finalized and shall be approved within DMTCL shortly.

1-2: Project Implementation Unit (PIU) of the Project is assigned.

Completed.

1-3: PIU identifies the prioritized rules and manual for safety.

JET conducted the trainings including PIU members regarding the documentation on the safety related.

1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team.

JET conducted the trainings for PIU members regarding the safety related documents. In the next workshop or training, DMTCL will discuss the necessary safety document and formulate the contents.

1-5: Safety regulations and/or manuals are approved within DMTCL.

N/A

1-6: Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals.

N/A

1-7: Public relations (PR) activities related to safety enhancement are carried out.

N/A

Output 2: 「Safety activities will be implemented by DMTCL」

2-1: Approved regulations and/or manuals are shared within DMTCL.

N/A

2-2: A safety internal audit system is established.

The positions of Safety & Quality Audit was appointed. The management system within the team shall be discussed in the training or workshop later.

2-3: Training for emergency activities are conducted, and the safety management plan is reviewed based on the trainings.

N/A

2-4: Safety internal controls of DMTCL are established.

N/A

2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6

N/A

2-6: PR activities related to the established safety management system and operation are carried out.

N/A

1-4 Achievement of the Project Purpose

N/A

1-5 Changes of Risks and Actions for Mitigation

Due to the pandemic of COVID-19, JET assumes that the schedule of training in Japan, training in a third country and mobilization of JET will be unclear and need to be flexible.

1-6 Progress of Actions undertaken by JICA

Confirmation of the progress of DMTCL employment.

Confirmation of the possibility of the training in Japan and a third country with following JICA policy on COVID-19 and checking latest COVID-19 situation.

1-7 Progress of Actions undertaken by Gov. of Bangladesh

Approval of Safety Policy by DMTCL.

1-8 Progress of Environmental and Social Considerations (if applicable)

N/A

1-9 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

N/A

1-10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

N/A

2. Delay of Work Schedule and/or Problems (if any)

Revenue operation of Line 6 is planned to be started from December 2022. JET's original schedule regarding start of the revenue operation was December 2021, so the schedule of trainings and other activities shall be followed accordingly.

3. Modification of the Project Implementation Plan

3-1 PO

3-2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

N/A

4. Current Activities of Gov. of Bangladesh to Secure Project Sustainability after its Completion

Hiring the permanent staffs especially management level.

Appointment of PIU members and training participants.

II. Project Monitoring Sheet I & II

As attached.


Project Monitoring Sheet I (Project Design Matrix)

Project Title: The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6
Implementing Agency: Dhaka Mass Transit Company Limited (DMTCL)
Target Group: Management and all safety related staffs of DMTCL
Period of Project: February 2021 – October 2023
Project Site: Dhaka

Version 2
Dated November 2021

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal	DMTCL establishes and conducts necessary activities for safe MRT in reliable and immediate way, even in the case of emergency or accident.	1.Internal meetings related safety shall be held within DMTCL 2.Baseline survey for DMTCL Staffs	- Trainings shall be conducted properly in Dhaka, Japan and a third country.	1 st round Baseline survey has been conducted. Brief summary report shall be prepared by JET.	
Safe and reliable operation and maintenance of MRT is achieved by DMTCL					
Project Purpose (to be achieved within this project)	1.DMTCL establishes and authorizes safety related manuals and internal rules 2.Internal audit for safety management are established in DMTCL and desirable countermeasures and improvements are considered and implemented	- Number of safety related manuals established in comparison with its plan -Record of safety activities of DMTCL	- Trainings shall be conducted properly in Dhaka, Japan and a third country.	N/A	
Safety management process and activities in DMTCL are continuously implemented during operation					
Outputs	1-1: Safety policy and its management plan are established. 1-2: The safety management plan is implemented. 1-3: Trainings are conducted by Japanese expert team	-Record of trainings and/or meeting within DMTCL -Number of safety related documents -Report of the trainings by Japanese experts	-Discussion within DMTCL shall be required.	The draft Safety Policy has been prepared during the Workshop in October 2021.	Finalization of the Safety Policy by internal DMTCL meeting and its approval by MD must be required.
1.High priority regulations and/or manuals for safety are regulated					
2.Safety activities will be implemented by DMTCL	2-1 Organization structure for safety management are established and in operation.	-Number of safety related meeting within DMTCL. -Evaluation of the activities by JET	-Staff recruitment of DMTCL especially position of Safety & Quality Audit.	N/A	

Activities	Inputs		Important Assumption
	The Japanese Side	The Bangladesh Side	
0: Baseline Survey 1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL. 1-2: Project Implementation Unit (PIU) of the Project is assigned. 1-3: PIU identifies the prioritized rules and manual for safety. 1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team. 1-5: Safety regulations and/or manuals are approved within DMTCL. 1-6: Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals. 1-7: Public relations (PR) activities related to safety enhancement are carried out. 2-1: Approved regulations and/or manuals are shared within DMTCL. 2-2: A safety internal audit system is established. 2-3: Training for emergency activities are conducted, and the safety management plan is reviewed based on the trainings. 2-4: Safety internal controls of DMTCL are established. 2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6 2-6: PR activities related to the established safety management system and operation are carried out.	Dispatch of Japanese experts 1. Team Leader/ Safety Management 2. Training Planning (Management Level)/Safety Document Management Plan 1 3. Training Planning (Safety Staff Level) 4. Safety Management (Organization Management) 5. Safety Management (Implementation) 6. Safety Management (Document Management) 7. Safety Document Management Plan 2 8. Training Implementation 9. Public Relation Activity/ Training Implementation Support <u>Online/Hybrid Training</u> [Training target] 55 Candidates (ToT style) [Contents at 1 st time] -Railway Characteristics and Safety Assurance Mechanism -Japanese Railway Accidents and Lessons Learned -Development of Safety-First Corporate Culture -Introduction of Safety Management System in Japan [Contents at 2 nd time]	-Assignment of Counterpart and administrative staffs -Employment of safety related staffs -Provision of office space and office facilities -Permit of utilization of facilities of MRT and BR -Provision of safety related documents and records -Joint Coordination Committee (JCC) -Organization formulation and authority delegation regarding implementation of SMS -The trainings done by JET must be conducted within DMTCL since JET's trainings are ToT (Training of Trainer) style and expected to disseminate throughout DMTCL.	Pre-conditions -The opening date of MRT Line 6 (partially & full) shall be properly updated and shared with JET. -Staff recruitment and/or assignment of DMTCL progress according to the plan (especially management level and operation/safety related staff for PIU) - Appointed staffs of the Project must be permanent or long-term contract to keep sustainability in DMTCL. - There is no change for the operator of MRT -GC shall prepare the draft of "Internal

Activities	Inputs		Important Assumption
	The Japanese Side	The Bangladesh Side	
	<p>-Review of 1st Training (Safety Assurance Mechanism and Punishment)</p> <p>-Roles and Responsibility of each Position</p> <p>-Necessity of Safety Related Documents and Those Examples</p> <p><u>Workshop in Dhaka</u></p> <p>[Contents at 1st Workshop]</p> <p>-Outline of Safety Documents and Safety Policy</p> <p>-Discussion on the Contents to be included in the Safety Policy</p> <p>-Open Discussion on the Safety Policy</p> <p>-Discussion on Implementation of Safety Policy</p> <p>[Contents at 2nd Workshop]</p> <p>-Outline of Safety Related Documents and Those Necessity</p> <p>-Discussion on the Necessary Documents in DMTCL and Those Priority</p> <p>-Draft Formulation on the Top Priority Safety Document(s)</p> <p><u>Training in Japan</u></p> <p>[Training target]</p> <p>1.Top management</p> <p>2.Project Implementation Unit</p> <p>3.Manager</p> <p>4.Safety related officials and staffs</p> <p>[Contents]</p> <p>-Review of Trainings</p> <p>-Discussion on the safety management documents</p> <p>-Site visit on the safety activities</p> <p>-Site visit on the safety related facilities</p> <p>-Site visit on the maintenance activities</p> <p>Training in a third country (Indonesia)</p> <p>[Training target]</p> <p>1.Project Implementation Unit</p> <p>[Contents]</p> <p>-Hearing to MRTJ</p> <p>-Site visit</p> <p>-Discussion</p>		<p>Regulation of Safety Management" before the commencement of the Project and DMTCL pursue it.</p> <p>-DMTCL should conduct the same types of trainings within DMTCL to establish the safety management system and keep sustainability.</p> <p style="text-align: center;"></p> <p style="text-align: center;"><Issues and Countermeasures></p> <p>[Issues]</p> <p>Staff recruitment of DMTCL is significantly delay.</p> <p>Assigned staffs should be permanent or long-term contract basis.</p> <p>[Countermeasures]</p> <p>Hire the staffs especially manager level.</p>

Presentation Materials

1st Joint Coordinating Committee (JCC)
For
The Project for Technical Assistance for
Safety Management System(SMS)

Date: 9th Nov, 2021

Time: 10:00 – 12:00


Venue: DMTCL conference room

Agenda

1. Self-introduction (10 mins)
2. Opening Remarks by DMTCL (10 mins)
3. Welcome Remarks by Director of Team 3, Transportation Group, Infrastructure Management Department, JICA HQ (10 mins)
4. Presentation
 - 4.1 Outline of Technical Cooperation and the Project – JICA HQ (10 mins)
 - 4.2 Introduction and Progress on SMS activities – *Expert Team* (15 mins)
 - 4.3 Project Monitoring Sheet – *Expert Team* (15 mins)
5. Discussion (30 mins)
6. Closing Remarks by DMTCL (10 mins)

Attachment:

- Handout for Project outline, Project progress report, Monitoring Sheet



The 1st JCC
for
The Project on Technical Assistance for Mass Rapid
Transit Safety Management System of Line 6

9th Nov, 2021

Items from JICA HQ

1. Project Background
2. General Practice for implementation & monitoring of JICA Technical Cooperation Project

- JICA has conducted technical/funding assistance from planning to construction stage of MRT Line 6.
- MRT Line 6 is expected to be the first Urban Metro System which will be operated in high frequency and high speed.

“Ensuring of Safety”
will be the
“Top Priority”
in the operation
of MRT Line 6.



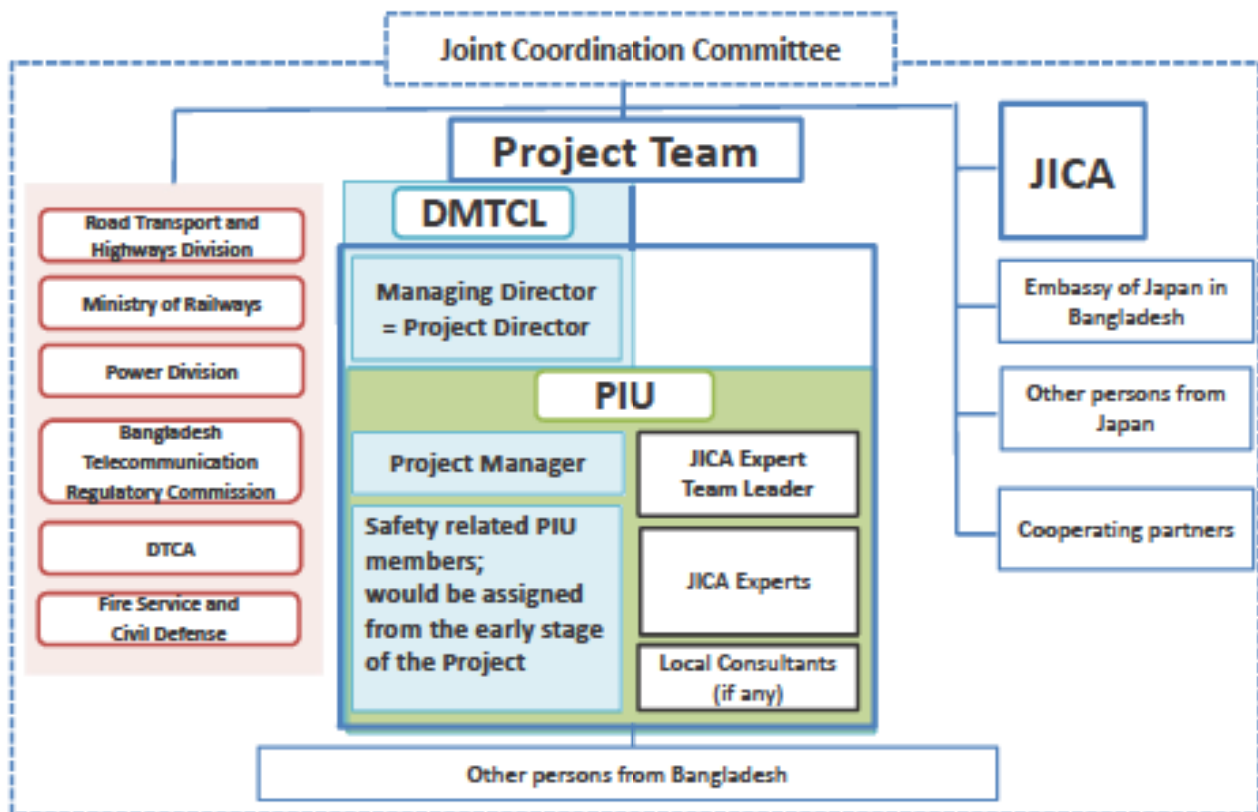
- Construction is going-on despite various challenges including COVID-19.
- General Consulting service and Contractors of Line 6 are not only conducting construction but also assisting DMTCL for Operation & Maintenance practice.

- Considering these situation, the main concept of this TCP is to...

Establish
“Safety Management System”
through establishing
“Safety First” philosophy and
corporate culture.

- DMTCL and JICA agreed to conduct “The project on Technical Assistance for Mass Rapid Transit Safety Management of Line 6” on the “Record of Discussion(R/D)”.
- This TCP started on Jan 2021 and will go on for 30 months.





Thank you.
Let's move on to the detail.



NIPPON KOEI



The 1st JCC for the Project on Technical Assistance for MRT Safety Management System on Line 6

Outline of the Project



Nov.9th, 2021

1. TA by Japanese Consultants/Metro Operator (JET)



- ✓ Established in 1933
- ✓ Privatized in 2018
- ✓ Operates 9 Lines, 138 km network
- ✓ Ridership: 2.5 mil /day (in 2019)

2. What is “SMS”?

In Japan,
After serious
accidents in 2005,
The Ministry (MLIT)
established SMS

JR West Fukuchiyama Line
Derailment Accident in 2005
(Fatality: 106)



2. What is “SMS”?

Background factors in serious accidents:

- **Insufficient involvement of management** in ensuring safety
- **Insufficient communication and sharing of information** between management and work sites

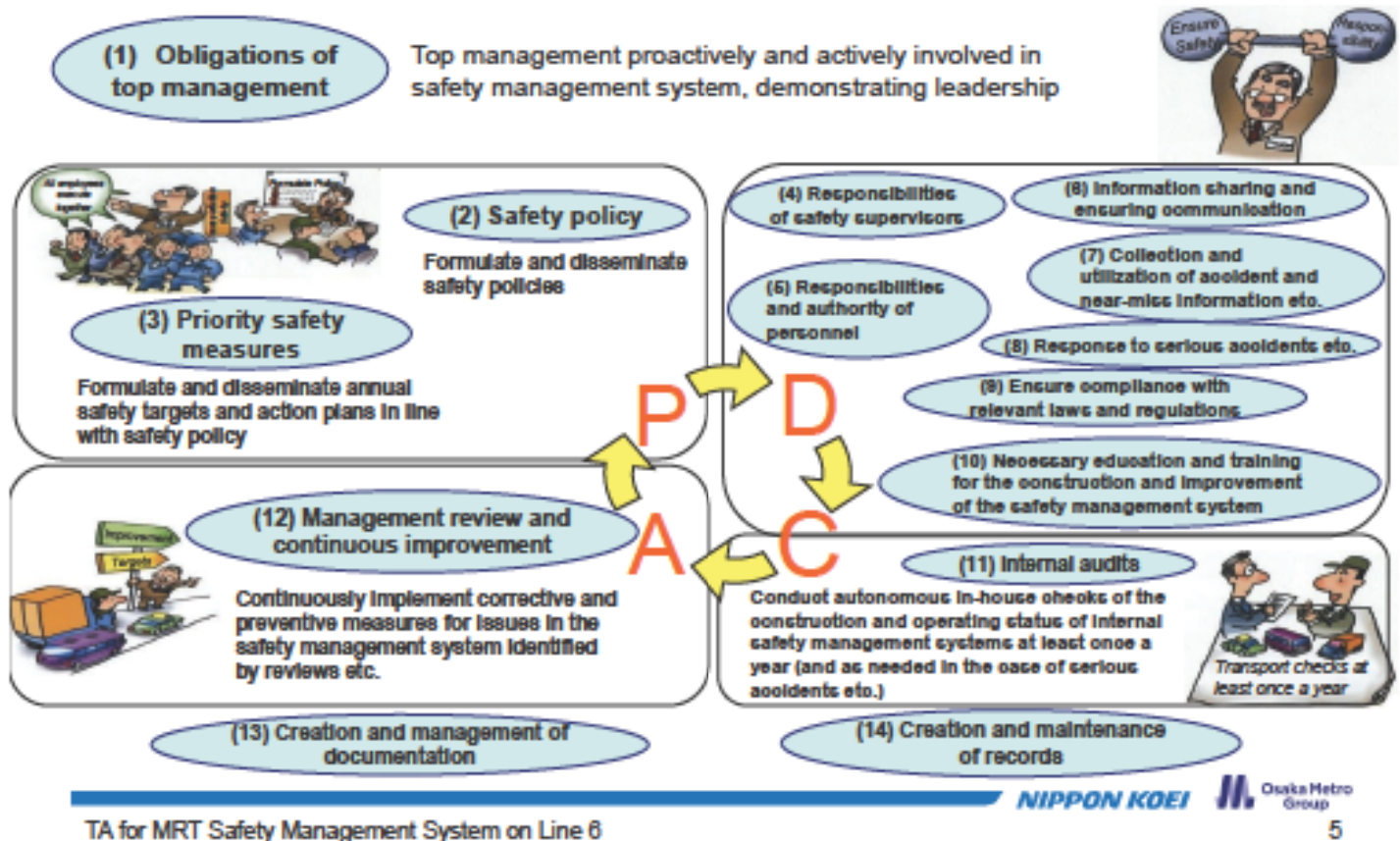


**Organizational response is
important in SMS!**



2. What is “SMS”?

14 SMS activities in Japan



3. Important Activities in the Project

- 1st** Organization Setup for SMS
(PIU establishment, Clarification of role/responsibilities in each level, etc)
- 2nd** Setting indicators, benchmarks and target goals
→ Conduct Baseline survey
- 3rd** Fostering “Safety First Culture” within DMTCL and
Discuss and establish safety related documents
→ Conduct trainings, (1) in Dhaka/hybrid, (2) in Japan, (3) in Jakarta
- 4th** Establishment of SMS in DMTCL
→ Lecture, guidance, monitoring and evaluation by JET
- 5th** Public Relation(PR) activities
(to Bangladesh citizens, Japanese citizens and donors)

4. Expected Outputs in the Project(1)

[1] High priority regulations & manuals for safety are regulated

1-1: Discussion and Preparation of Safety philosophy and policy
(by the management level of DMTCL)

1-2: Assignment of PIU

1-3: PIU identify the prioritized rules and manual for safety

1-4: PIU discusses and prepares safety regulations and/or manuals

1-5: Safety regulations and/or manuals are approved within DMTCL.

1-6: Follow-up activities will be carried out for the implementation and management of safety regulations and/or manuals.

1-7: Implementation of Public Relations (PR) activities

TA for MRT Safety Management System on Line 6

NIPPON KOEI 

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5. Expected Outputs in the Project(2)

[2] Safety activities will be implemented by DMTCL

2-1: Approved regulations/manuals are shared within DMTCL.

2-2: A safety internal audit system is established.

2-3: Implementation of Training for emergency activities
and Review of the safety management plan based on the trainings.

2-4: Safety internal controls of DMTCL are established.

2-5: Safety management activities by DMTCL will be evaluated and advice will be given by experts before the full opening of MRT Line 6



[Safety Internal Control Activities In Osaka Metro]

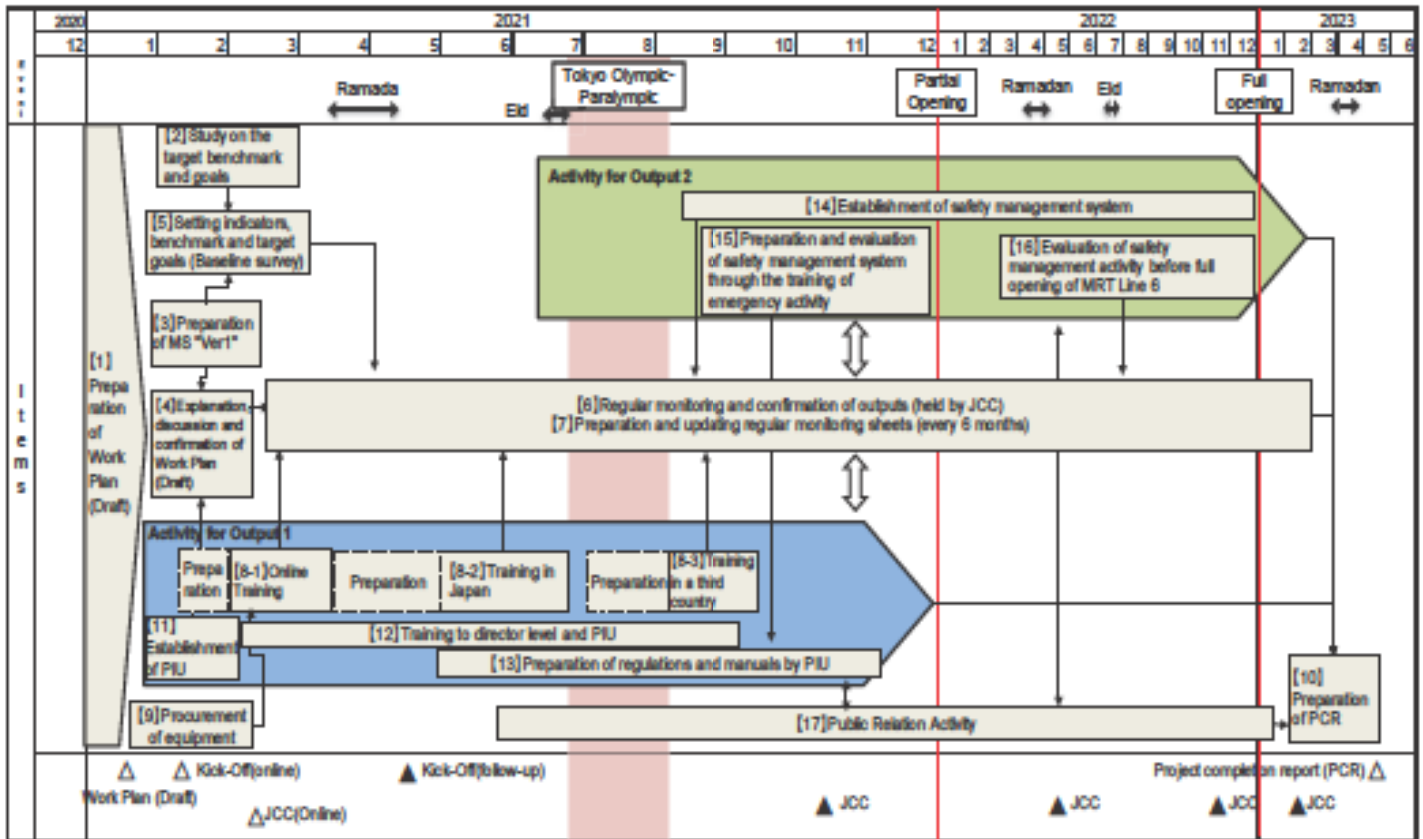
2-6: PR activities related to the established safety management system and operation will be carried out.

TA for MRT Safety Management System on Line 6

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8

6. Work Plan (Based on the Schedule of R/D)





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The 1st JCC for The Project on Technical Assistance for MRT Safety Management System on Line 6



November 9th, 2021

1. Progress on SMS (Abstract)

- Establishment of PIU
- Training on SMS (1st Training, 2nd Training)
- Workshop on Safety Policy
- Baseline Survey
- Safety Awareness Survey

2. Establishment of PIU

- 10 PIU members were assigned on 7th June 2021 by DMTCL

বাংলাদেশ রেলওয়ে কর্পোরেশন
 ঢাকা-মুম্বাই এক্সপ্রেস প্রকল্প
 সিস্টেম ম্যানেজমেন্ট সিস্টেম (SMS) এর জন্য
 প্রকল্প পরিচালনা কমিটি (পিউ) এর সদস্যদের
 তালিকা
www.dmtcl.gov.bd


 ঢাকা মেট্রো ট্রান্সিট কর্পোরেশন
 ১০, ১১, ১২, ১৩, ১৪, ১৫, ১৬, ১৭, ১৮, ১৯, ২০, ২১, ২২, ২৩, ২৪, ২৫, ২৬, ২৭, ২৮, ২৯, ৩০, ৩১, ৩২, ৩৩, ৩৪, ৩৫, ৩৬, ৩৭, ৩৮, ৩৯, ৪০, ৪১, ৪২, ৪৩, ৪৪, ৪৫, ৪৬, ৪৭, ৪৮, ৪৯, ৫০, ৫১, ৫২, ৫৩, ৫৪, ৫৫, ৫৬, ৫৭, ৫৮, ৫৯, ৬০, ৬১, ৬২, ৬৩, ৬৪, ৬৫, ৬৬, ৬৭, ৬৮, ৬৯, ৭০, ৭১, ৭২, ৭৩, ৭৪, ৭৫, ৭৬, ৭৭, ৭৮, ৭৯, ৮০, ৮১, ৮২, ৮৩, ৮৪, ৮৫, ৮৬, ৮৭, ৮৮, ৮৯, ৯০, ৯১, ৯২, ৯৩, ৯৪, ৯৫, ৯৬, ৯৭, ৯৮, ৯৯, ১০০

পিউ সদস্যদের
**THE PROJECT ON TECHNICAL ASSISTANCE FOR MASS RAPID TRANSIT
 SAFETY MANAGEMENT SYSTEM OF LINE 6-01 THE METRO RAIL (PIU) এর সদস্যদের
 তালিকা**

নাম	পদবী
Mr. Md. Saikat Rahman	Additional Project Director (E.R.M System & Rolling Stock), MRT Line-6
Mr. Krishna Kanta Ghosh	Additional Project Director (Environment Health Safety, Land Acquisition & Resettlement), MRT Line-6
Mr. Md. Zakaria	Additional Project Director (Electrical, Signal & Telecommunication and Track), MRT Line-6
Mr. Sheikh Khalidur Rahman	Project Manager-1, MRT Line-6
Mr. A.B.M. Ashik Rahman	Project Manager-1, MRT Line-6
Mr. Muhammad Shahjahan	Project Manager-1, MRT Line-6
Mr. Khalid Saadiah Saedi	Deputy Project Manager (Civil), MRT Line-6
Mr. Md. Abu Baker Siddique	Assistant Manager (Mechanical (Signal & Pneumatics)), DMTCL
Mr. Muhammad Raftan Faruque	Assistant Manager (Inspection & Planning and Monitoring), DMTCL
Mr. Md. Rajib Hossain	Assistant Manager (Operation Control Center Management), DMTCL


 (সিনিয়র প্রকল্প পরিচালক)
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(সিনিয়র প্রকল্প পরিচালক)
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 (সিনিয়র প্রকল্প পরিচালক)
 (সিনিয়র প্রকল্প পরিচালক)

TA for MRT Safety Management System on Line 6

3. Training on SMS

○ Purpose

- Learn about the importance of ensuring safety in railway operations
- Learn about the contents of the Transport Safety Management System (SMS) and discuss how to implement the SMS in DMTCL

○ Schedule

[1st Training (online)]

- From 2nd July to 17th July (Every Friday and Saturday, 3 batches)
- Total : 55 participants

[2nd Training (in person in Dhaka and Osaka Metro from online)]

- 8th-9th Oct (1st Batch), 21st Oct (2nd Batch), 24th Oct (3rd Batch)
- Total : 54 participants

3. Training on SMS (Program of 1st Training)

Day 1 (Friday)	9:00 - 9:05	Opening remarks from MD, DMTCL
	9:05 - 9:10	Introduction of the training program by JET
	9:10 - 9:20	Introduction of JET members
	9:20 - 9:30	Introduction of Osaka Metro Safety Activity
	9:30 - 11:30	[Session 1] Railway Characteristics and Safety Assurance Mechanism
		(Break)
	11:50 - 13:50	[Session 2] Japanese Railway Accidents and Lessons Learned
Day 2 (Saturday)	9:00 - 11:00	[Session 3] Development of Safety-First Corporate Culture
		(Break)
	11:30 - 13:30	[Session 4] Introduction of SMS

3. Training on SMS (Program of 2nd Training)

(Session 1)

Review of 1st training and discussion

- Presentation of (submitted) Homework
- Discussion

(Session 2)

Roles and responsibility of each position in SMS

(Session 3)

The Necessity of Safety Related Documents

(Session 4)

Draft Safety Policy in DMTCL

3. Training on SMS (Example of contents)

1) Railway Characteristics and Safety Assurance Mechanism

1.2 Advantages and Disadvantages of Railway Transportation

Advantages	Disadvantages?
1) Can operate many coaches in a train set allowing large volume transportation	
2) Possible to operate high-speed and high-frequency	
3) Highly regularity/punctuality with few external impacts on transportation	
4) Environmentally-friendly means of transportation	

3.2 Maintenance Work Required in Japan (Tracks)

Check the condition of tracks and materials from various perspectives.

Track conditions such as deviations etc.

- Gap between left and right rails
- Height difference
- Planar difference
- Differences in track direction

State of track materials

- Rail wear
- Joints
- Sleepers
- Track beds

How frequently is maintenance carried out? Also, why is maintenance needed?

2.3 Components of Safety Assurance Mechanism

Railways are a transport system when "Hard" and "Soft" come together to work as one. Every element is indispensable.



Example of Maintenance Work in Osaka Metro

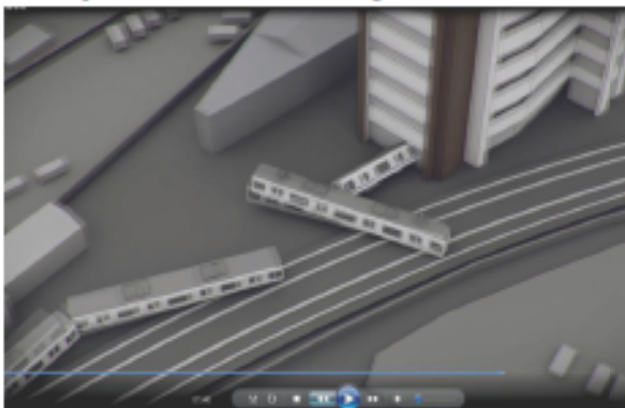
Checking the condition of the track due to the expansion of the rails in hot summer



<https://www.youtube.com/watch?v=W3nD9H-GQ>

3. Training on SMS (Example of contents)

2) Japanese Railway Accidents and Lessons Learned

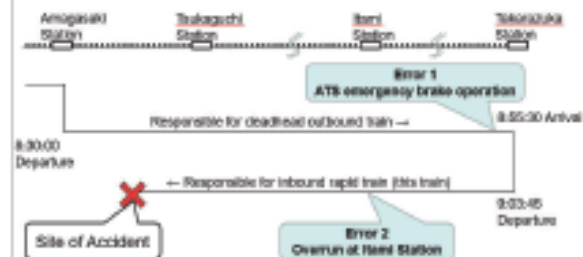


4.5 Lessons that Apply to DMTCL

Think about the lessons that can apply to DMTCL in response to the outline and factors of this accident.

4.2 Outline of Accident (Background)

Two small "human errors" caused a major accident.



6.2 Expectations for DMTCL

DMTCL is a new railway operator, but there is a possibility that unfortunate accidents may occur after beginning operations.

In preparation for this, it is necessary to learn the lessons of railway accidents not just internally, but from home and abroad.

It is very important to take the lessons learned into the company, develop basic rules for accident response etc., and to ensure that necessary personnel understand these rules.

DMTCL is expected to prevent accidents, and also to prepare appropriate responses in the event that an accident takes place.


Think about what the mission of DMTCL is.

3. Training on SMS (Example of contents)

3) Development of Safety-First Corporate Culture


1.3 What is Transportation Safety?

Built on the mutual trust of passengers and railway operators.



Passengers

Trusting that..
"when they are on the train
they are not in physical danger"



Operators

↓

"Obligation to maintain safe conditions"

2.1 Thinking about Human Error (4/6)

Please answer "Yes" or "No".

4. Accidents may happen even if the people that make errors are severely punished.

3.3 Organizations with a High Level of Safety

What kind of organization do you think is an "organization with a high level of safety"?


[Example of Answers in 1st & 2nd batch]

- > Good communication system
- > Strict about safety rules
- > Nuclear Power Plant

6.2 Lastly...

How do you all feel about the current situation?







- > What is your awareness of the issues?
- > Why is that?
- > What are the solutions?
- > What are the challenges to be solved?



3. Training on SMS (Example of contents)

4) Introduction of SMS and Discussion

1.3 Transportation Accidents that Triggered the Introduction of the Transportation Safety Management System

●March 2005  Level crossing accident (2 dead, 1 injured)	●April 2005  Bus wrecker accident (2 dead, 20 injured)	●May 2005  Ferry wrecker collision (21 injured)
●April 2005  Train derailment accident (107 dead, 601 injured)	●April 2005  Train railway crossing collision accident (dead/dying)	●March 2005  Cable-stayed bridge to operate the emergency exit door

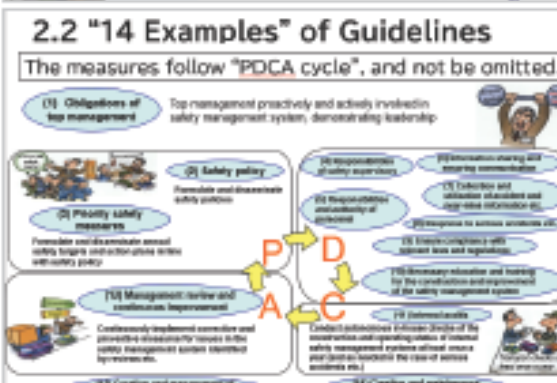
1.5 Overview of the Transportation Safety Management System

Transport operators are required to continue operation in accordance with guidelines.

National Govt.	Enactment of Transport Safety Law Package	Obligations
MLIT	Establishment of guidelines. Evaluation of the efforts of transport operators.	
Transport Operators (Manager)	Act in line with safety policy etc. which is issued from top manager.	Recommended activities and initiatives
Transport Operators (each department)	Understand the activities of guidelines	Initiative management


2.2 "14 Examples" of Guidelines

The measures follow "PDCA cycle", and not be omitted.



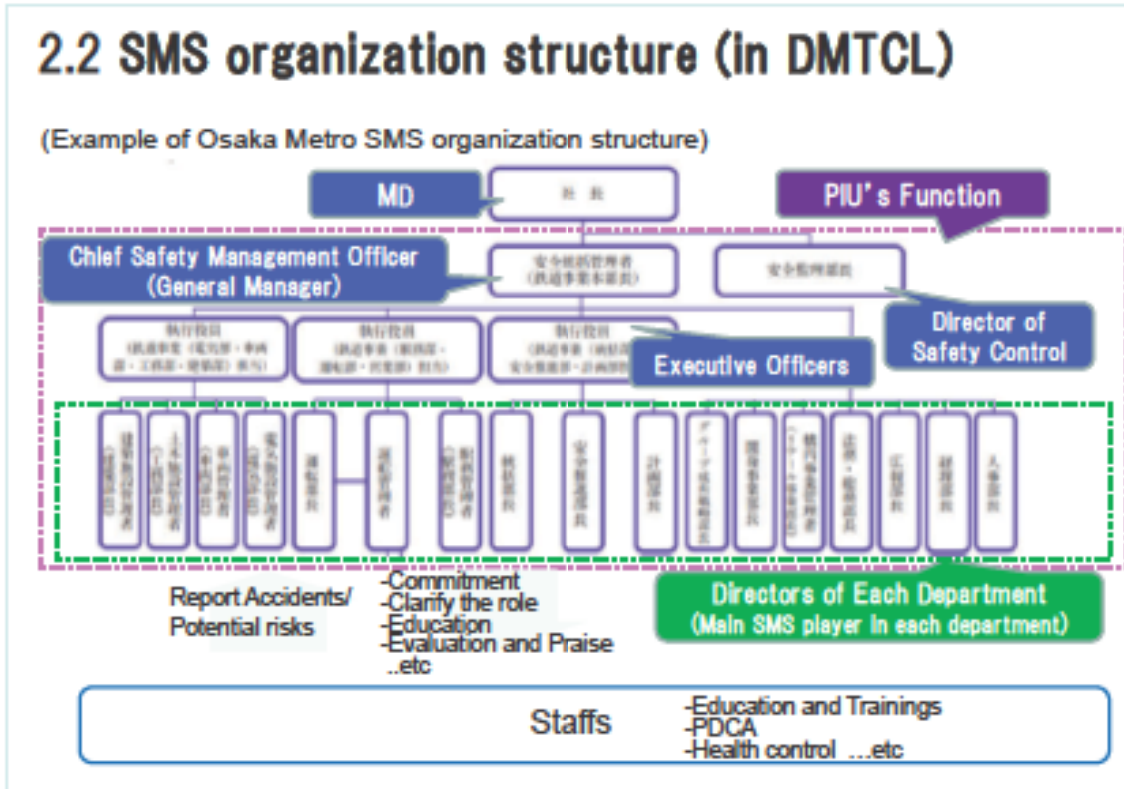
Praise

- Presentation on safety initiatives
 - Human error prevention, prevention of accidents/problems, emergency preparedness
 - Awards to the best examples
- Awards for Excellence in Awareness Raising
 - Awards for outstanding contribution to safety
- "Kaizen" (Improvement) Meister
 - Presentation of initiatives to improve administration, management and services
 - Awards to the best examples



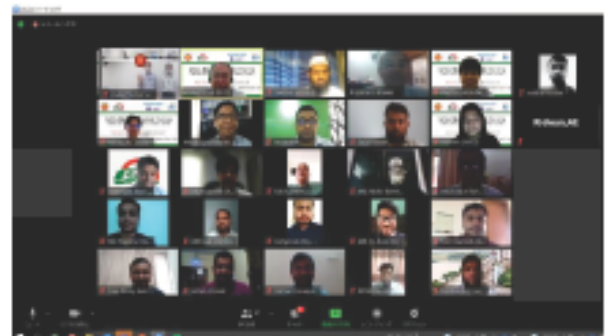
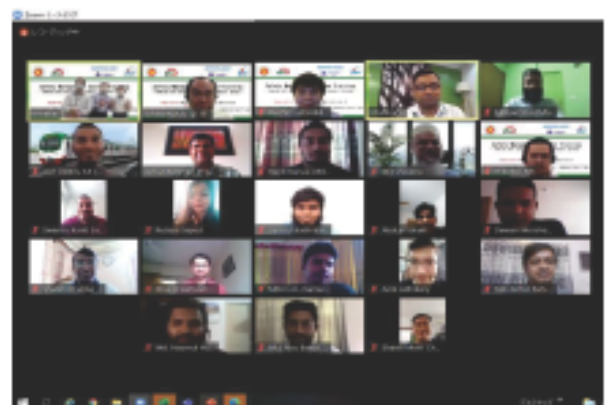
3. Training on SMS (Example of contents)

5) SMS Organization Structure and its role (example of OM)



3. Training on SMS

Certificate was issued for participants those who completed training and small test and homework



3. Training on SMS (Discussion)

[Topic] Response to serious accidents

If you have found the possibility of serious accident,
What will you do in terms of "Safety First Principle"?

[Discussion]

- Inform to shut all train
- Push the emergency stop button in the platform
- Inform other trains for stopping further accident
- Visible evacuation/emergency plan at all relevant places, along with emergency contact numbers
- Immediately take action to prevent the accident
- Safe excavation
- Do not be hesitated take decision in calm head
- Taking steps by following safety manuals and basic instincts



3. Training on SMS (Homework)

4.1 Summary of Homework

The contents of homework from 1st training participants can be possible to divide following 2 types.

Realization in Construction Site

- Risks of "Construction Phase"
 - Risk in working environment
 - Risk of operating machine
- Risks on "Construction Phase" and "Railway Maintenance" (Common Issue)
 - Risk in working environment
 - Risk of facing by worker

Anticipated Risk on Operation

- Risks of "Commercial Operation"
 - Harm from Nature Disaster
 - Harm from Third Party
 - Train Operation Error
 - Malfunction of Facility and System
 - Passenger Behavior

4.1 Summary of Homework

What should DMTCL do to prevent accident on maintenance work? (countermeasure)

Your realization in construction site

Electric Shock (Electrification)

Application of risk to railway maintenance

High voltage electricity is used for railway operation. How to prevent electric accident of maintenance staff?



4.1 Summary of Homework

What should DMTCL do to prevent accident on commercial operation? (countermeasure)

● Harm from Third Party

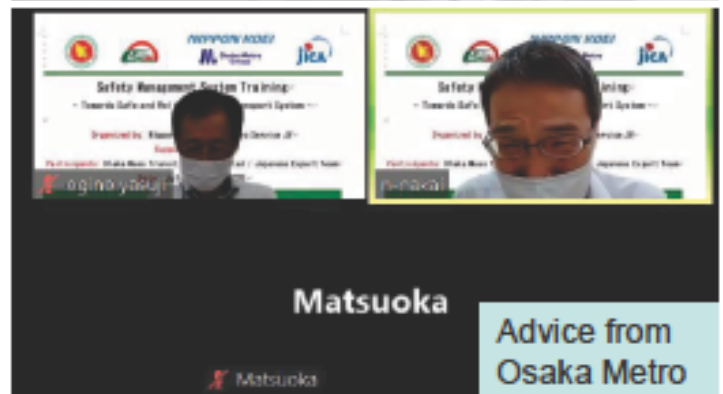
- Terrorism
- Throwing garbage etc. from adjacent building to railway facility
- Cyber attack to OCC or other equipment
- Interface with wireless device



4. Workshop on Safety Policy

Safety Policy in DMTCL was discussed by PIU and Directors on 7th and 11th October 2021.

- What keyword should be included in Safety Policy to realize “Safety-first culture” ?
- Consideration of our customers
- How to disseminate and implement Safety Policy?
- How DMTCL staffs should respond in case of emergency/accident?
- Style of Safety Policy ...etc



4. Workshop on Safety Policy

Draft Safety Policy in DMTCL (Under the discussion in Workshop)

11th October 2021

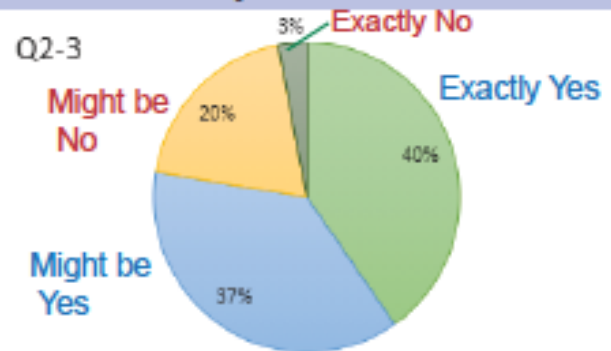
1. Safety is the top priority
2. Introducing safety culture by learning and understanding Laws, Rules & Regulations following with sincere responsibility and active vigilance
3. Both way communication among employees and customers
4. Providing a reliable service by trained and equipped employees
5. Assess the situation calmly and then take the safest action
6. Strive for continuous improvement by sharing and recording information, providing training, motivation, and incentives

5. Baseline Survey

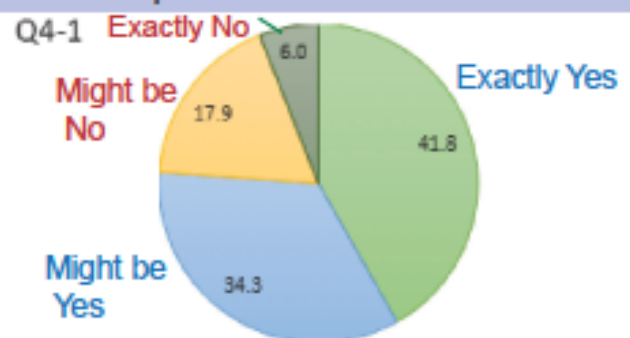
- To measure the outputs of the Project
(from view of safety awareness of DMTCL staffs)
- Target: 66 staffs in DMTCL
(DGM, Manager, Assistant Manager, etc)
- Conducted in 3 stage:
 - (1) Early stage of the Project
(till September 2021)
 - (2) Before partial opening
 - (3) After full opening

(Example of the 1st survey result)

[Q2-3] Do you have confidence not to make errors in your work?



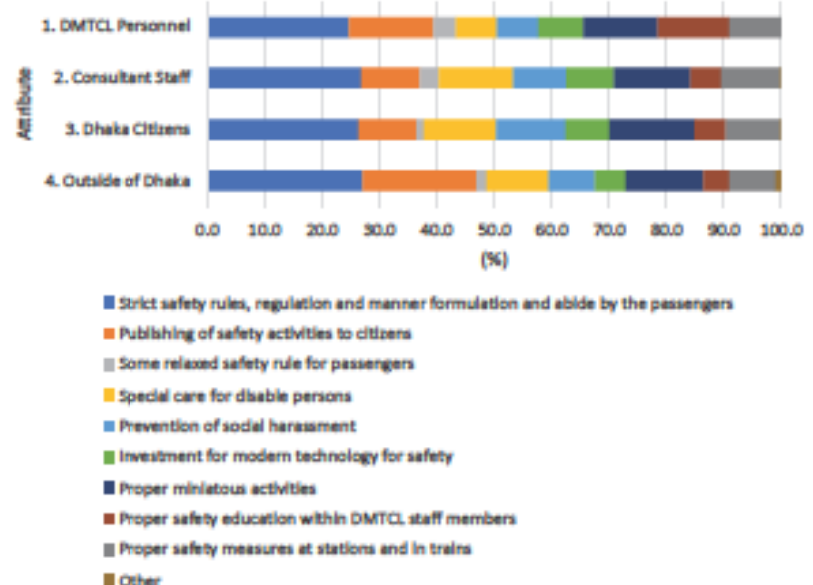
[Q4-1] Do you think any accidents can be certainly prevented by the brand-new railway system which will be installed in DMTCL operation?



6. Safety Awareness Survey

- To measure the outputs of the Project
(from the view of passengers, PR activities)
- Survey period:
6th – 23rd Sep. 2021
- Conducted through online-survey
- Collected 545 answers

[Q12] What is your expectation from DMTCL to conduct the safety activities?
Choose top 3 priorities



(Example of the survey result)

Annex 5: JCC Materials

2nd JCC (21 April 2022)

Monitoring Sheet

TO JCC Members

Project Monitoring Sheet

Project Title :The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6

Version of the Sheet: Ver.3 (Term: November 2021 - March 2022)

Name: Atsushi Mochizuki

Title: Team Leader/ Safety Management

Submission Date: 21st April 2022

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I. Summary

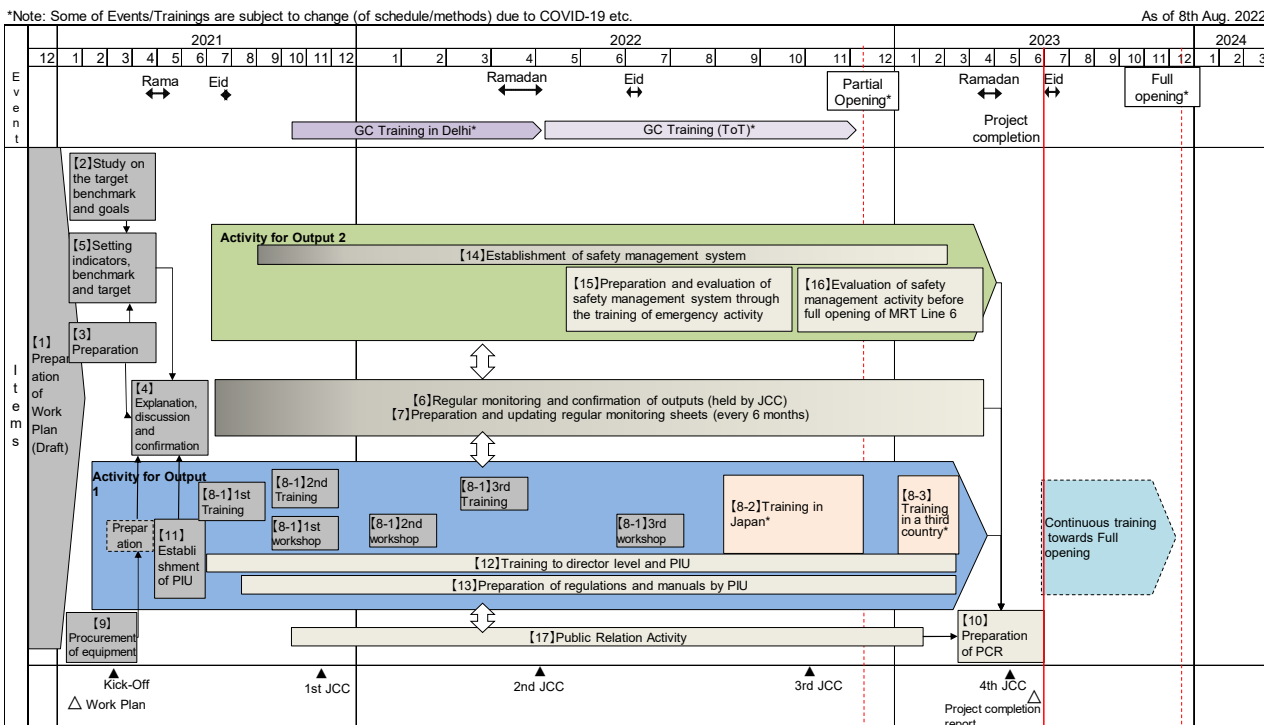
1. Progress

1-1 Progress of Inputs

The project has agreed on the Record of Discussions dated August 4, 2020 between Dhaka Mass Transit Company Limited (DMTCL) and Japan International Cooperation Agency (JICA). The Project has commenced since January 2021.

We have held several types of training activities which are 1st Training (Online) in July 2021, 2nd Training in October 2021, 1st Workshop in October 2021, 2nd Workshop in February 2022 and 3rd Training in April 2022.

SMS TA Project Work Schedule (Draft)



Source: JET

Figure 1 Project Flow as of October 2021

The inputs plan of Japanese Expert Team (JET) is summarized in the table below.

【3】 Preparation of Monitoring Sheet “Ver.1”

JET prepared the Monitoring Sheet “Ver.1” and submitted to JICA and DMTCL on the Kick-off meeting in February 2021.

【4】 Explanation, discussion and confirmation of Work Plan Draft

During the Kick-off meeting, DMTCL and JET confirmed the contents of the Work Plan. JET received the comments from DMTCL during the Kick-off meeting and its follow-up meeting. The major comment is that the Work Plan should be flexible due to the COVID-19 situation. So, our Work Plan (Draft) would be acceptable as of the discussion date and the Work Plan shall be flexible if necessary.

【5】 Setting indicators, benchmark and target goals (conduct the Baseline survey)

JET has conducted the 1st Baseline Survey since March 2021 and completed. 2nd Baseline survey will be conducted from May 2022.

【6】 Regular monitoring and confirmation of outputs (held by JCC)

1st JCC was held in November 2021. 2nd JCC will be held in April 2022.

【7】 Preparing and updating regular monitoring sheets (every six months)

To be confirmed on the next JCC meeting.

【8-1】 Implementation of Trainings (Online Training/ Face to Face in Dhaka)

JET held three types of trainings.

Training	Date	Nos. of Participants	Contents
1 st Training (Online)	[1st Batch] 2 nd and 3 rd July 2021 [2nd Batch] 9 th and 10 th July 2021 [3rd Batch] 16 th and 17 th July	Total 55 persons	- Railway Characteristics and Safety Assurance Mechanism - Japanese Railway Accidents and Lessons Learned -Development of Safety-First Corporate Culture - Introduction of SMS in Japan

PM Form 3-1 Monitoring Sheet Summary

Training	Date	Nos. of Participants	Contents
	2021		
2 nd Training	[1st Batch] 8 th and 9 th October 2021 [2nd Batch] 19 th October 2021 [3rd Batch] 21 st October 2021	Total 54 persons	- Review of 1st training - Roles and responsibility of each position in SMS -The Necessity of Safety Related Documents and Those Examples
1 st Workshop	7 th October and 11 th October 2021	15 persons	- Outline of Safety Related Documents and Those Necessity -Discussion on the Necessary Documents in DMTCL and Those Priority - Discussion on Implementation of the Safety Policy
2 nd Workshop	8 th February and 10 th February 2022	19 persons from DMTCL 9 persons from other organizations	- Identify the Top Priority Document - Discussion on the “Basic Regulation of Emergency Situations”
3 rd Training	[1st Batch] 12 th and 13 th April 2022 [2nd Batch] 18 th and 19 th July 2022	51 persons from DMTCL 3 persons from other organization	- Practical Daily SMS Activities - Response to Emergency Situation - Emergency Drill

【8-2】 Implementation of Training in Japan

JET is planning to implement training in Japan between September and November 2022. There are three batches, and each duration will be around one week.

The participants and other details have not been decided.

Although it fully depends on the situation of COVID-19 and Japanese Metro Company (Osaka Metro), JET will arrange the training in line with the demand of DMTCL.

【8-3】 Implementation of Training in a Third Country

Training in a third country (Jakarta) shall be implemented after the training in Japan.

【9】 Procurement of training/communication equipment

Done.

【10】 Preparation of Project Completion Report

To be done.

【11】 Establishment of PIU for the Work

Completed. (assigned by DMTCL)

【12】 Training to director level and PIU

JET conducted the two Workshops in October 2021 and February 2022 to PIU and director level of DMTCL. The contents are shown in table above.

【13】 Preparation of regulations and manuals by PIU

To be done.

【14】 Establishment of safety management system

JET conducted the three trainings regarding the fundamental and advanced of safety management system.

JET will provide the Workshop regarding the Internal Audit system which is the very important item to establish the SMS.

【15】 Preparation and evaluation of safety management system through the training of emergency activity

To be done.

【16】 Evaluation of safety management activity before full opening of MRT Line 6

To be done.

【17】 Public Relation Activity

To be done.

1-3 Achievement of Output

Output1 : 「High Priority Regulations and/or Manuals for Safety are Regulated」

1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL.

Safety policy was discussed in the Workshop in October in 2021. The Draft Safety Policy was formulated during the Workshop and shall be finalized and shall be approved within DMTCL shortly.

1-2: Project Implementation Unit (PIU) of the Project is assigned.

Completed.

1-3: PIU identifies the prioritized rules and manual for safety.

DMTCL and JET identified the “Basic Regulation of Emergency Situations” as the top priority document in 2nd Workshop.

1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team.

DMTCL discussed the contents of “Basic Regulation of Emergency Situations” in 2nd Workshop. Summary of the contents was submitted by JET to DMTCL. Further discussion will be required to finalize the document of “Basic Regulation of Emergency Situations”.

1-5: Safety regulations and/or manuals are approved within DMTCL.

After the discussion and finalize the “Basic Regulation of Emergency Situations” by DMTCL, MD of DMTCL should approve the document.

1-6: Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals.

JET will follow up the progress of the finalization of Safety Policy and “Basic Regulation

of Emergency Situations” in 3rd Workshop and other opportunities.
JET will support to implement the internal training within DMTCL.

1-7: Public relations (PR) activities related to safety enhancement are carried out.

Discussion between DMTCL and JET has been conducted. Schedule of the activities have been discussed. The detail contents will be discussed later.

Output 2: 「Safety activities will be implemented by DMTCL」

2-1: Approved regulations and/or manuals are shared within DMTCL.

In 2nd Workshop, DMTCL discussed how to circulate the documents within DMTCL. After the completion of the documents, JET will support to circulate the documents.

2-2: A safety internal audit system is established.

No positions on internal audit have been hired yet, therefore the recruitment of the positions should be done shortly.

Internal audit system will be discussed in 3rd Workshop.

2-3: Training for emergency activities are conducted, and the safety management plan is reviewed based on the trainings.

Mini Emergency Drill was done in 3rd training in Dhaka. Main emergency drill will be organized by GC and JET will support to organize and review the training.

2-4: Safety internal controls of DMTCL are established.

N/A

2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6

N/A

2-6: PR activities related to the established safety management system and operation are carried out.

N/A

1-4 Achievement of the Project Purpose

Project purpose is “Safety management process and activities in DMTCL are continuously implemented during operation” according to R/D.

Due to the prior operation currently, no achievement is progressed. However, based on the several times of trainings, the activities on safety management system have been implemented by the support of JET. In order to achieve the project purpose, DMTCL must conduct the SMS activities within DMTCL continuously.

1-5 Changes of Risks and Actions for Mitigation

Due to the pandemic of COVID-19 and the arrangement of Osaka Metro, JET assumes that the schedule of training in Japan is unclear.

1-6 Progress of Actions undertaken by JICA

Confirmation of the progress of DMTCL employment.

Confirmation of the possibility of the training in Japan and a third country with following JICA policy on COVID-19 and checking latest COVID-19 situation.

1-7 Progress of Actions undertaken by Gov. of Bangladesh

Approval of Safety Policy by DMTCL.

Preparation and approval of “Basic Regulation of Emergency Situations”.

Recruitment of Director and General Manager Class as permanent.

Recruitment of Safety & Quality Audit and Internal Audit.

1-8 Progress of Environmental and Social Considerations (if applicable)

N/A

1-9 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

N/A

1-10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

N/A

2. Delay of Work Schedule and/or Problems (if any)

JET’s original schedule of the start of revenue operation was December 2021, however,

at this moment, Revenue operation of Line 6 is planned to be started from December 2022. Furthermore, the date of revenue operation might be further delay.

Therefore, the schedule of trainings and other activities shall be followed accordingly.

3. Modification of the Project Implementation Plan

3-1 PO

3-2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

N/A

4. Current Activities of Gov. of Bangladesh to Secure Project Sustainability after its Completion

Hiring the permanent staffs especially management level.

Appointment of the fixed training participants to keep the sustainability of the Project activities.

II. Project Monitoring Sheet I & II

As attached.

Project Monitoring Sheet I (Project Design Matrix)

Project Title: The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6

Implementing Agency: Dhaka Mass Transit Company Limited (DMTCL)

Target Group: Management and all safety-related staff of DMTCL


Period of Project: February 2021 – October 2023

Project Site: Dhaka

**Version 3
Dated April 2022**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Overall Goal Safe and reliable operation and maintenance of MRT is achieved by DMTCL	DMTCL establishes and conducts necessary activities for safe MRT in a reliable and immediate way, even in the case of an emergency or accident.	1. Internal meetings related to safety shall be held within DMTCL 2. Baseline survey for DMTCL Staff	- Training shall be conducted properly in Dhaka, Japan and a third country.	1 st round Baseline survey was completed. A brief summary report shall be prepared by JET.	
Project Purpose (to be achieved within this project) The safety management process and activities in DMTCL are continuously implemented during the operation	1. DMTCL establishes and authorizes safety-related manuals and internal rules 2. Internal audits for safety management are established in DMTCL and desirable countermeasures and improvements are considered and implemented	- Number of safety-related manuals established in comparison with its plan -Record of safety activities of DMTCL	- Training shall be conducted properly in Dhaka, Japan and a third country.	N/A	
Outputs 1. High priority regulations and/or manuals for safety are regulated	1-1: Safety policy and its management plan are established. 1-2: The safety management plan is implemented. 1-3: Training is conducted by Japanese expert team	-Record of training and/or meetings within DMTCL -Number of safety-related documents -Report of the training by Japanese experts	-Discussion within DMTCL shall be required.	The draft Safety Policy has been prepared during the Workshop in October 2021. The contents of "Basic Regulation of Emergency Response" were discussed during the 2 nd workshop. 3 rd SMS training was done in April 2022.	Finalization of the Safety Policy by internal DMTCL meeting and its approval by MD must be required. Further discussion regarding "Basic Regulation of Emergency Response" will be required.
2. Safety activities will be implemented by DMTCL	2-1 Organization structures for safety management are established and in operation.	-Number of safety-related meetings within DMTCL. -Evaluation of the activities by JET	-Staff recruitment of DMTCL especially the position of Safety & Quality Audit.		

Activities	Inputs		Important Assumption
	The Japanese Side	The Bangladesh Side	
0: Baseline Survey 1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL. 1-2: Project Implementation Unit (PIU) of the Project is assigned. 1-3: PIU identifies the prioritized rules and manual for safety. 1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team. 1-5: Safety regulations and/or manuals are approved within DMTCL.	Dispatch of Japanese experts 1. Team Leader/ Safety Management 2. Training Planning (Management Level)/Safety Document Management Plan 1 3. Training Planning (Safety Staff Level) 4. Safety Management (Organization Management) 5. Safety Management (Implementation) 6. Safety Management (Document Management) 7. Safety Document Management Plan 2	-Assignment of Counterpart and administrative staff -Employment of safety-related staff -Provision of office space and office facilities -Permit the utilization of facilities of MRT and BR -Provision of safety-related documents and records -Joint Coordination Committee (JCC) -Organization formulation and authority delegation regarding implementation of SMS	Pre-conditions

Activities	Inputs		Important Assumption
	The Japanese Side	The Bangladesh Side	
<p>1-6: Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals. 1-7: Public relations (PR) activities related to safety enhancement are carried out.</p> <p>2-1: Approved regulations and/or manuals are shared within DMTCL. 2-2: A safety internal audit system is established. 2-3: Training for emergency activities is conducted, and the safety management plan is reviewed based on the training. 2-4: Safety internal controls of DMTCL are established. 2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6 2-6: PR activities related to the established safety management system and operation are carried out.</p>	<p>8. Training Implementation 9. Public Relation Activity/ Training Implementation Support</p> <p><u>Online/Hybrid Training</u> [Training target] 55 Candidates (ToT style) [Contents at 1st time] -Railway Characteristics and Safety Assurance Mechanism -Japanese Railway Accidents and Lessons Learned -Development of Safety-First Corporate Culture -Introduction of Safety Management System in Japan</p> <p>[Contents at 2nd time] -Review of 1st Training (Safety Assurance Mechanism and Punishment) -Roles and Responsibility of each Position -Necessity of Safety-Related Documents and Those Examples</p> <p>[Contents at 3rd time] -Practical Daily SMS Activities -Response to Emergency Situation -Emergency Drill and its review</p> <p><u>Workshop in Dhaka</u> [Contents at 1st Workshop] -Outline of Safety Documents and Safety Policy -Discussion on the Contents to be included in the Safety Policy -Open Discussion on the Safety Policy -Discussion on Implementation of Safety Policy</p> <p>[Contents at 2nd Workshop] -Identify the Top Priority Document -Discussion on the "Basic Regulation of Emergency Situations"</p> <p><u>Training in Japan</u> [Training target] 1. Top Management 2. Project Implementation Unit/ Manager Level 3. Safety-related officials and staff [Contents] -Review of Training -Discussion on the safety management documents -Role and responsibility of each position -Site visit on the safety activities -Site visit on the safety-related facilities -Site visit on the maintenance activities</p> <p>Training in a third country (Indonesia) [Training target] 1. Project Implementation Unit [Contents] -Hearing to MRTJ -Site visit -Discussion</p>	<p>-The training done by JET must be conducted within DMTCL since JET's training is To (Training of Trainer) style and expected to disseminate throughout DMTCL.</p>	<p>-The opening date of MRT Line 6 (partially & full) shall be properly updated and shared with JET. -Staff recruitment and/or assignment of DMTCL progress according to the plan (especially management level and operation/safety-related staff for PIU) - Appointed staff for the Project must be permanent or long-term contract to keep sustainability in DMTCL. - There is no change for the operator of MRT -GC shall prepare the draft of "Internal Regulation of Safety Management" before the commencement of the Project and DMTCL pursue it. -DMTCL should conduct the same types of training within DMTCL to establish the safety management system and keep sustainability.</p> <p style="text-align: center;"></p> <p style="text-align: center;"><Issues and Countermeasures></p> <p>[Issues] Staff recruitment of DMTCL is significantly delayed. Assigned staff should be permanent or long-term contract basis.</p> <p>[Countermeasures] Hire the staff, especially the manager level.</p>

Presentation Materials

2nd Joint Coordinating Committee (JCC)
For
The Project for Technical Assistance for
Safety Management System(SMS)

Date: 21st Apr, 2022

Time: 10:30 – 12:00

Venue: DMTCL conference room

Agenda

1. Opening Remarks by DMTCL (10 mins)
2. Opening Remarks by Transportation Group, Infrastructure Management Department, JICA HQ (5 mins)
3. Review of 1st JCC meeting (5 mins)
4. Presentation
 - 4.1 Introduction of the Project Progress – *Expert Team* (10 mins)
 - 4.2 Introduction of Response to Emergency Situation – *Expert Team* (5 mins)
 - 4.3 Update of Project Monitoring Sheet – *Expert Team* (10 mins)
 - 4.4 Way Forward (Project Work Plan) – *Expert Team* (5 mins)
5. Discussion (30 mins)
6. Closing Remarks by DMTCL (5 mins)

Attachment:

- Handout for Project progress report, Response to Emergency Situation, Project Monitoring Sheet, Project Work Plan



The Project on Technical Assistance for MRT Safety Management System on Line 6 The 2nd Joint Coordinating Committee (JCC)

Introduction of the Project Progress

April 21st, 2022

1. Abstract of the Project Progress

Reported on 1st JCC (Nov.9th.2021)

- Establishment of PIU
- Training on SMS (1st Training, 2nd Training)
- 1st Workshop on Safety Policy
- Baseline Survey
- Safety Awareness Survey

Today's Report

- Discussion meeting with Relevant Organizations
- 2st Workshop on Emergency Response
- 3rd Training on Practical SMS Activities

2. Discussion meeting with Relevant Organizations

1) Ministry of Road Transport and Bridges (RTHD and DTCA)

➤ **Meeting Date :**
16th February 2022

➤ **Discussion Points:**

- ✓ What kind of emergency situations does DMTCL need to report to Ministry instantly?
- ✓ Does the Ministry conduct external inquiry for emergency?
- ✓ How will Ministry monitor the emergency?



2. Discussion meeting with Relevant Organizations

2) Dhaka Metropolitan Police

➤ **Meeting Date :**
14th February 2022

➤ **Discussion Points:**

- ✓ Introduction of Emergency Situation examples in Japan
- ✓ Police Organization Structures in Japan and Dhaka (MRT Police, Policeman inside train ...etc)
- ✓ Expected Role of Police



2. Discussion meeting with Relevant Organizations

3) Fire Service and Civil Defence(FSCD)

➤ **Meeting Date** : 13th February 2022

➤ **Discussion Points:**

- ✓ Introduction of Emergency Situation examples in Japan
- ✓ How to cooperate with FSCD during emergency situation related with DMTCL
- ✓ How to communicate between DMTCL and FSCD



3. Workshop on Emergency Response

○ Purpose

- Discussion on how to response various emergency situations which may occur in actual MRT operation with DMTCL and related organizations
- Emergency Response is identified as an important component of SMS

○ Program

[Day 1 : 8th February] 9:30 – 12:30

- Opening Remarks from MD of DMTCL
- Introduction of Emergency response and related document structure (including examples of Osaka Metro)
- Discussion on the classification of emergency types and those levels

[Day 2 : 10th February] 9:30 – 12:30

- Discussion on each role in emergency response and DMT (Disaster Management Team)
- Comments/ final remarks from Osaka Metro

3. Workshop on Emergency Response

[DMTCL] (total 20 persons)

- Managing Director (online)
- SMS-PIU (Project Implementation Unit) and additional members
- JCC (Joint Coordinating Committee) members (1 person from the each) MoRTHD, DTCA, FSCD, DMP, BR, DNCC, DSCC
- JET (JICA Expert Team : Nippon Koei at Dhaka & Osaka Metro online), JICA-HQ (Online)



3. Workshop on Emergency Response

What is “Top Priority” in Emergency Response ?

- Saving Passenger’s Life
- Prevention of damage expansion and secondary damage

Prompt DMT* setup and taking actions are required

※DMT : Disaster Management Team

What is the classification of Emergency Types and those levels?

➤ Emergency Types

Disaster (Typhoon, Storm, Flood, Earthquake ...), Fire, Railway Accident, Crime, Terrorism, Cyber Attack ...

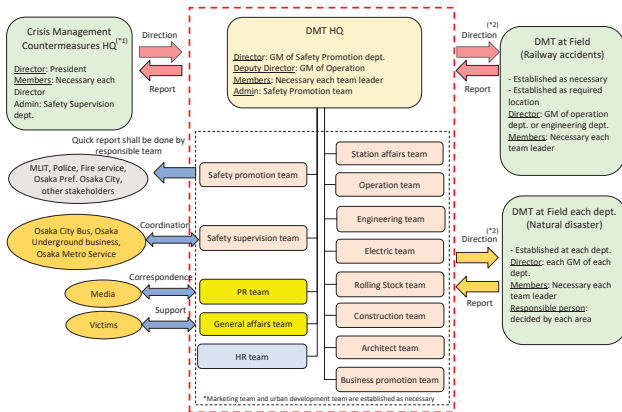
➤ Accident Levels

- In terms of severity of damages (Injury of passengers/properties)
- In terms of responsibility of DMTCL (Internal / External factors)

3. Workshop on Emergency Response

- Who should be the “Top(Leader)” of DMT?
- Which organization should be communicated, and Who should be the responsible person for it in DMTCL?
- What is your role in DMT?

Example of Osaka Metro (Level 3)



Example of Discussion (Group 1, in case of Level 3 fire)

GM Operation (Top Leader)

- Organization
 - Fire FSCD (emergency number)
 - Ministry
 - Police (emergency number)
 - City Cooperation
 - Hospital (emergency number)
- The Responsible Person in DMTCL
 - OCC
 - Station controller
 - > FSCD (first priority)
 - > GM operation (after FSCD)
 - > Director O&M -> MD
 - MD -> higher coordination higher government level reporting
 - MD -> Ministry of Road and Highway
 - Ministry of home affairs- Fire, DMP
 - (in case of MD is not available... Company Secretary)

3. Workshop on Emergency Response

- Document formulation of emergency response by DMTCL
- Meeting with related organizations on emergency response (based on the discussion in Workshop)

(Example of Discussion Point)

- Trigger of Communicate/Report with related organization
- Contact person/window in each organization and communication method
- Role of each organization and actual response procedure for each emergency pattern (ex. Fire inside station, Fire nearby viaduct between stations...)

- Emergency response field drill before MRT operation (with all organizations concerned emergency response)

4. 3rd Training on Practical SMS Activities

○ Purpose

- To learn and Discuss more on advanced and practical activities to establish Safety Management System (SMS) in DMTCL
- To learn how to respond to emergency situations by role-playing drill
- To learn how to communicate and cooperate with related organizations

○ Targeted Participants

	Organization	Number of Participants
1 st Batch (12 th and 13 th April)	DMTCL (mainly younger level)	Total 25
2 nd Batch (18 th and 19 th April)	DMTCL (PIU and mainly senior level)	Total 29
	Ministry (RTHD)	
	DMP (Police)	
	FSCD	

4. 3rd Training on Practical SMS Activities

➤ [Day 1]

(Session 1)

- Introduction of Practical daily SMS Activities and Information sharing Activities
(i.e. Shisa-Kanko, Risk Assessment)

(Session 2)

- Introduction of Response to Emergency Situation
(i.e. Formulation of Disaster Management Team, Emergency Drill)

➤ [Day 2]

(Session 3)

- Mini-Emergency Drill assuming Fire case

(Session 4)

- Review and Discussion based on the Drill

4. 3rd Training on Practical SMS Activities

(Session 1) Practical Daily SMS Activities

Shisa-Kanko শিশা-কানকো

Let's practice !!

1. Look and confirm the object
2. Make point finger
3. Point finger set your temple (next of your eye)
4. **Confirming condition of the object**
5. Point out the object
6. **Calling the object name and the condition**

The case from Osaka Metro

Train operators must hold the breaking handle for emergency cases in operation the running trains.
 ⇒ The train operator do only "Calling" without "Point out"

Point 1
Confirming is the main purpose of "Shisa-Kanko"

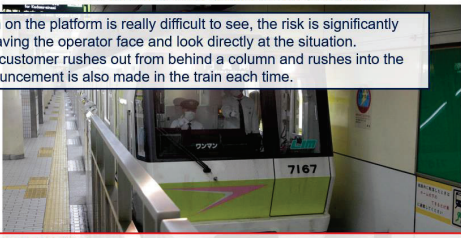
Point 2
Calling sentence should be decided the case by case.

Point 3
Calling sentence should be short and easy to understand. EX)
*When the departure signal mentions "Green" signal.
 "প্রহান G" is good calling. (Prosthana)*

Photo 2 : Potential Risks of One-man Operation

The operator check the rear-view mirror when operating the closing door, but there is a risk that the door could catch customers

If the situation on the platform is really difficult to see, the risk is significantly reduced by having the operator face and look directly at the situation. However, if a customer rushes out from behind a column and rushes into the train, an announcement is also made in the train each time.



- ✓ Rushing from escalators
- ✓ Rushing from behind of column on the platform
- ✓ Small children are difficult to see due to overlap with PSD and passengers getting off the train

"Shisa-kanko" Practice Scene

NIPPON KOEI | Osaka Metro Group

TA for MRT Safety Management System on Line 6

13

4. 3rd Training on Practical SMS Activities

(Session 1) Introduction/Practice of "Shisa-Kanko" Software

NIPPON KOEI | Osaka Metro Group

TA for MRT Safety Management System on Line 6

14

4. 3rd Training on Practical SMS Activities

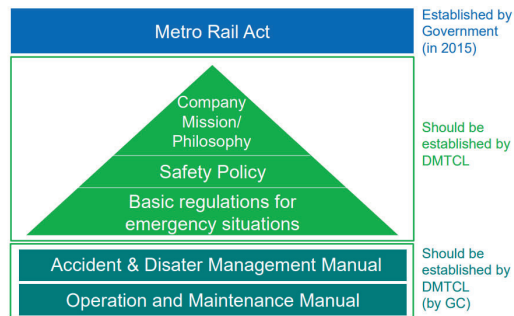
(Session 2) Introduction of Response to Emergency Situation

1.1 Example of Emergency Situation

Please watch video No.2
(Criminal and Fire in Keio Line (Tokyo) in 2021)



2.1 Documents regarding Emergency situation



3.1 Introduction of Disaster Management Team

○ Function of DMT

From
"Basic Regulation for Emergency Situations"
of Osaka Metro

Making Decision regarding..

- ✓ Ensuring Safety of Passengers and Staffs
- ✓ Protection and restoration of facilities
- ✓ Necessity measures on train operations and others

..Based on information from the site



(Example of Osaka Metro)

4.3 Emergency Drill in DMTCL

1) Mini-Drill at Exhibition Centre (Diabari)

○ Assumption of the Drill

- ✓ Arson (throwing fire) on trains and intimidating other passengers

○ Training items

- 1) DMT set-up
- 2) Communication Training between DMT, OCC, Station Controller, Train Operator and Related Organizations
- 3) Evacuation training



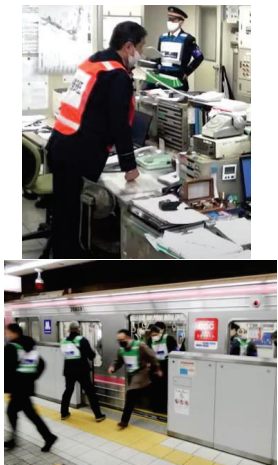
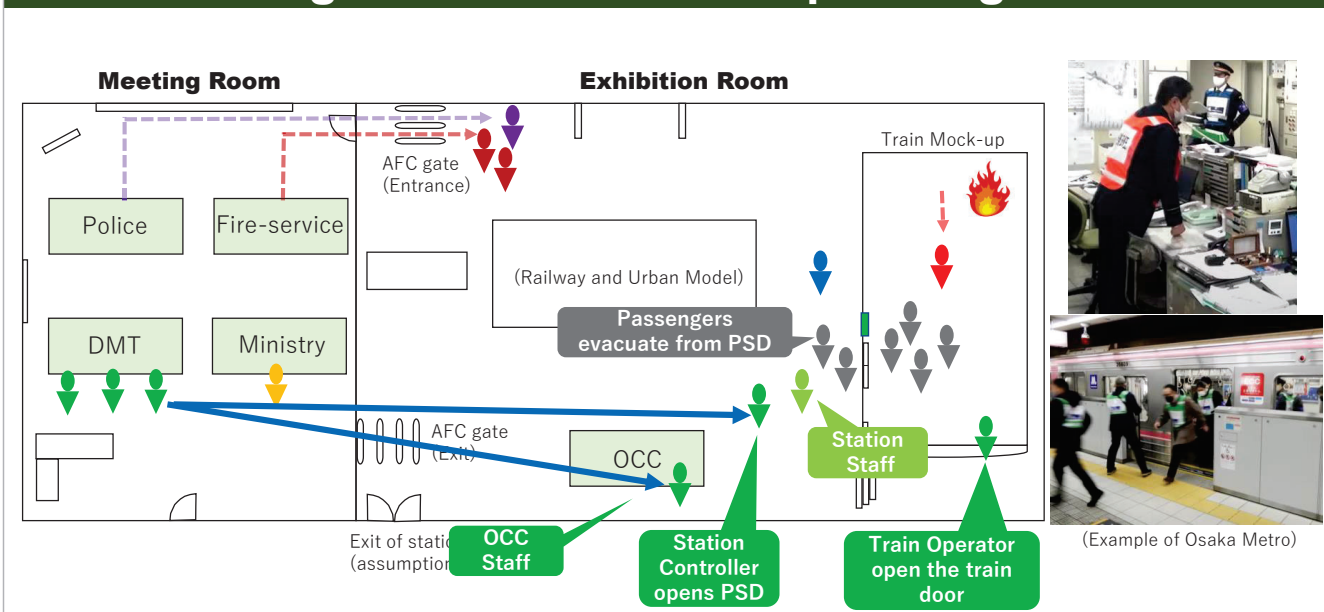
(Example of Emergency Drill, Osaka Metro)

4. 3rd Training on Practical SMS Activities

(Session 3) Mini-Emergency Drill assuming Fire case

(Example of the Emergency Drill Scene)

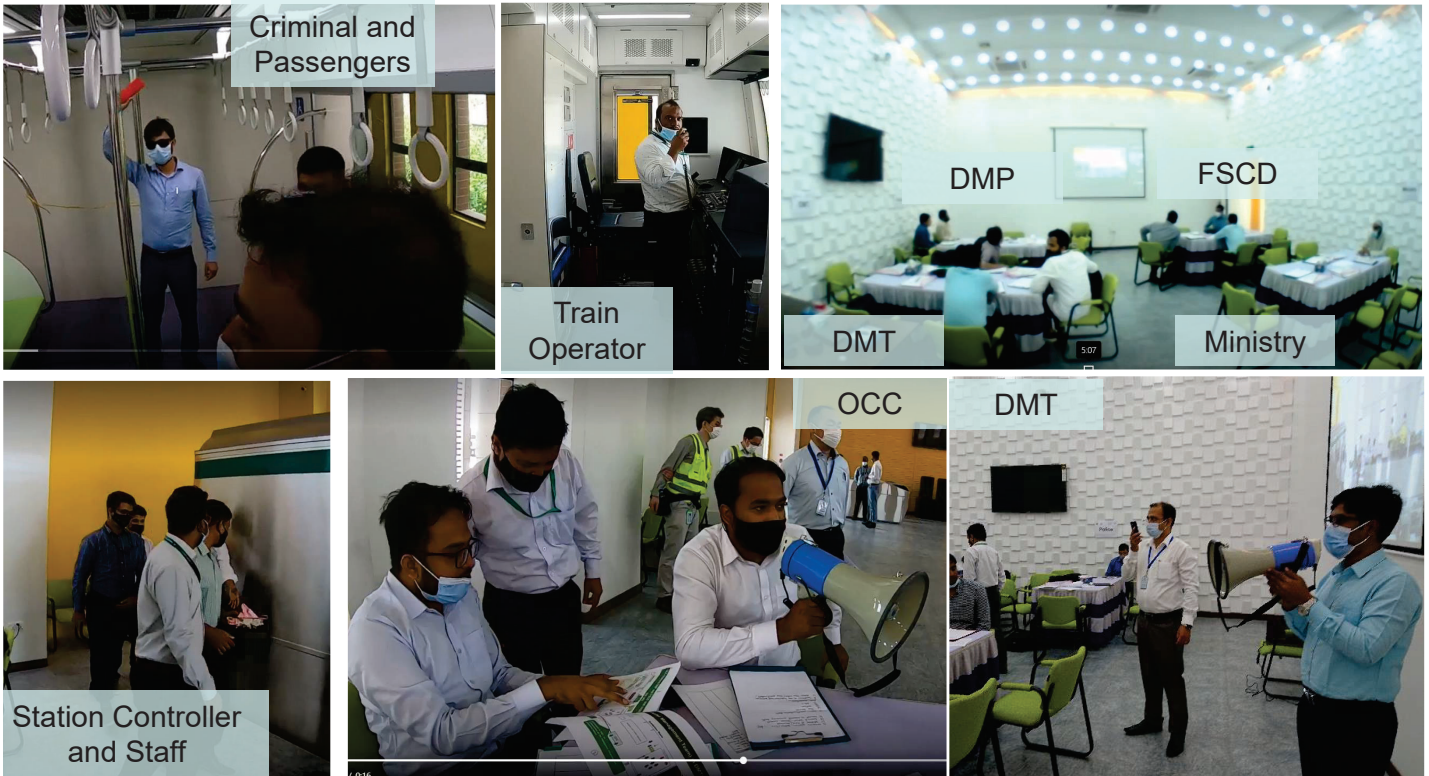
DMT commands to OCC/Station Controller to guide evacuation for passengers



(Example of Osaka Metro)

4. 3rd Training on Practical SMS Activities

(Session 3) Mini-Emergency Drill assuming Fire case



4. 3rd Training on Practical SMS Activities

(Session 3) Mini-Emergency Drill assuming Fire case



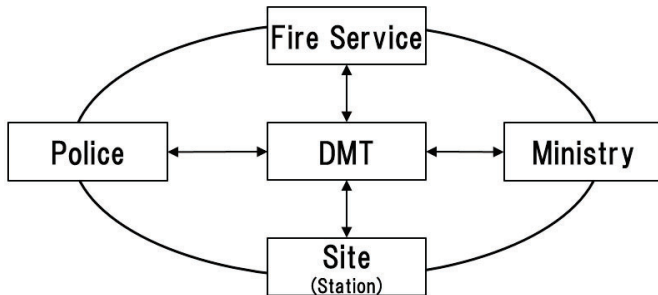
4. 3rd Training on Practical SMS Activities

(Session 4) Review and Discussion based on the Drill

4. Settle Down Phase

⑩ Did DMT record the all activities?

⑪ Record the accident case, location, date, time, victims, measures to be taken, lessons learn, etc.



Review and Discussion after the Drill is very important to enhance consciousness of safety and improvement SMS



The Project on Technical Assistance for MRT Safety Management System on Line 6 The 2nd Joint Coordinating Committee (JCC)

Introduction of Response to Emergency Situation

April 21st, 2022

1. Possible Emergency Situation in DMTCL

From the discussion of Workshop on Emergency Response...

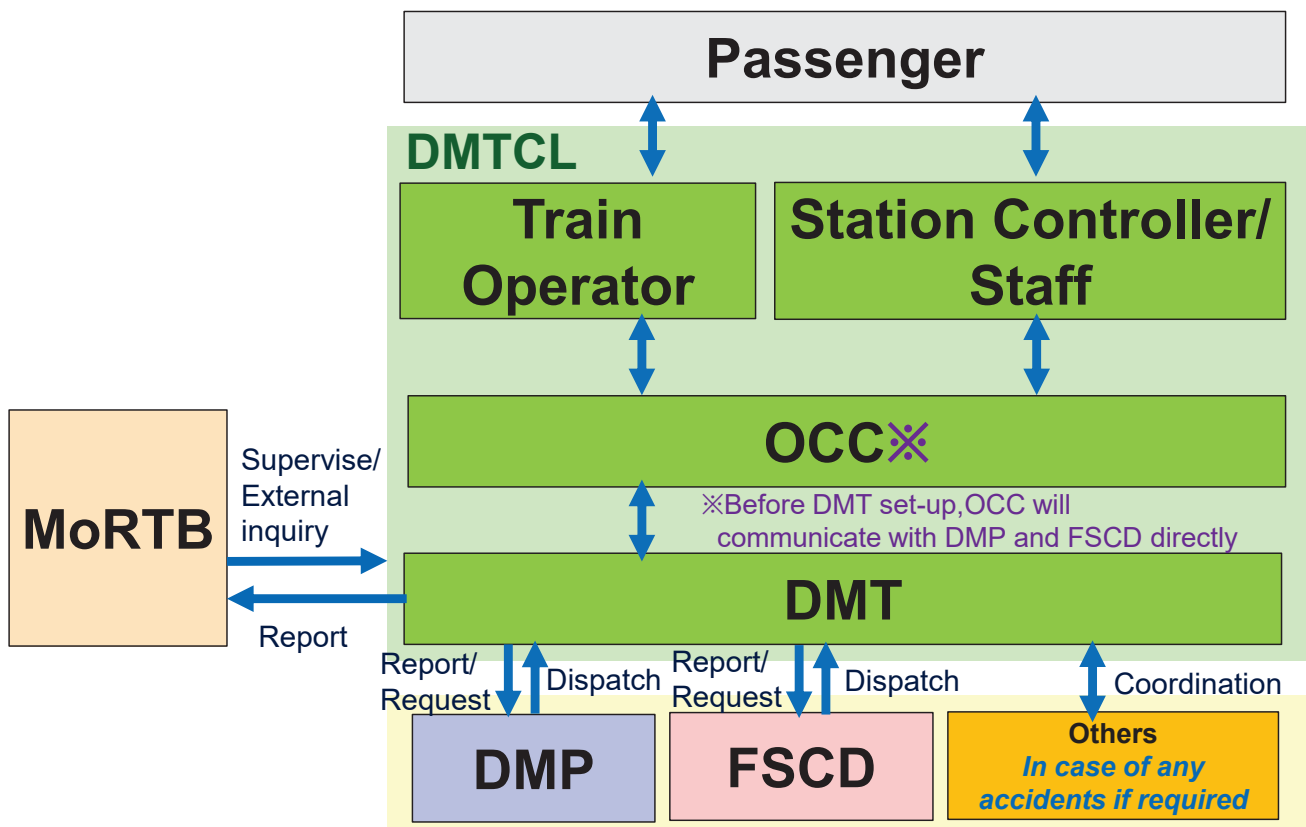
No.	Emergency Situation Type
1	Derailment
2	Collision
3	Fire
4	Power failure
5	Natural disaster (Earthquake, Flood, Strong wind etc.)
6	Cyber attack
7	Terrorism
8	Public unrest, Protest demonstration
9	Crime (inside rolling stock, stations, throwing stones etc.)
10	Suicide

2. Importance of Cooperation among Organizations

Please watch Video on Emergency Drill conducted by Osaka Metro and Relevant Organizations



3. Communication and Each Roles (simplified)





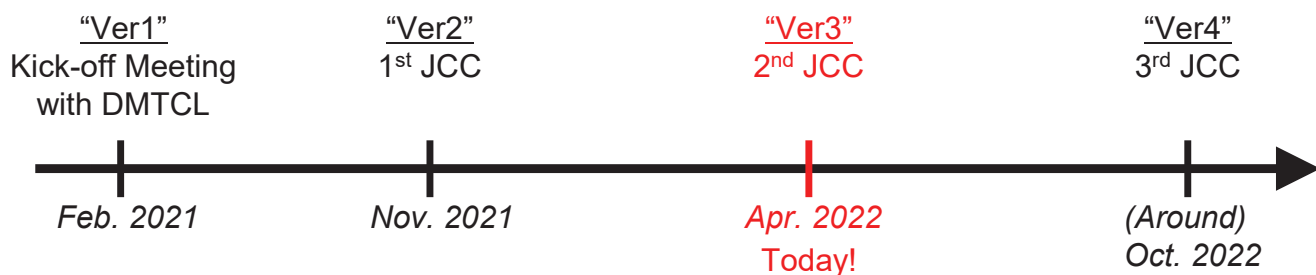
The Project on Technical Assistance for MRT Safety Management System on Line 6 The 2nd Joint Coordinating Committee (JCC)

Monitoring the Progress and Further Activities

April 21st, 2022

1. Purpose of the Monitoring Sheet

- To monitor the progress, issues and that mitigation of the Project
- To share the progress with all stakeholders of JCC
- Shall be updated every 6 months in JCC



1. Format of Monitoring Sheet

Monitoring Sheet

1 Project Design Matrix (PDM)

- Define the goals, purposes and outputs
- Confirm the indicators, means of verification and assumption
- Identify the issues to achieve

2 Plan of Operation (PO)

- Schedule of expert input
- Schedule of activities
- Schedule of meetings, report submission, etc.

3 Project Monitoring Sheet Summary

- Overall summary of the achievement of activities
- Overall summary of the achievement of outputs
- Other summary of progress, issues and others

2. Project Goals, Purposes and Outputs

Written in R/D

Overall Goals

Safe and reliable operation and maintenance of MRT is achieved by DMTCL

Project Purposes

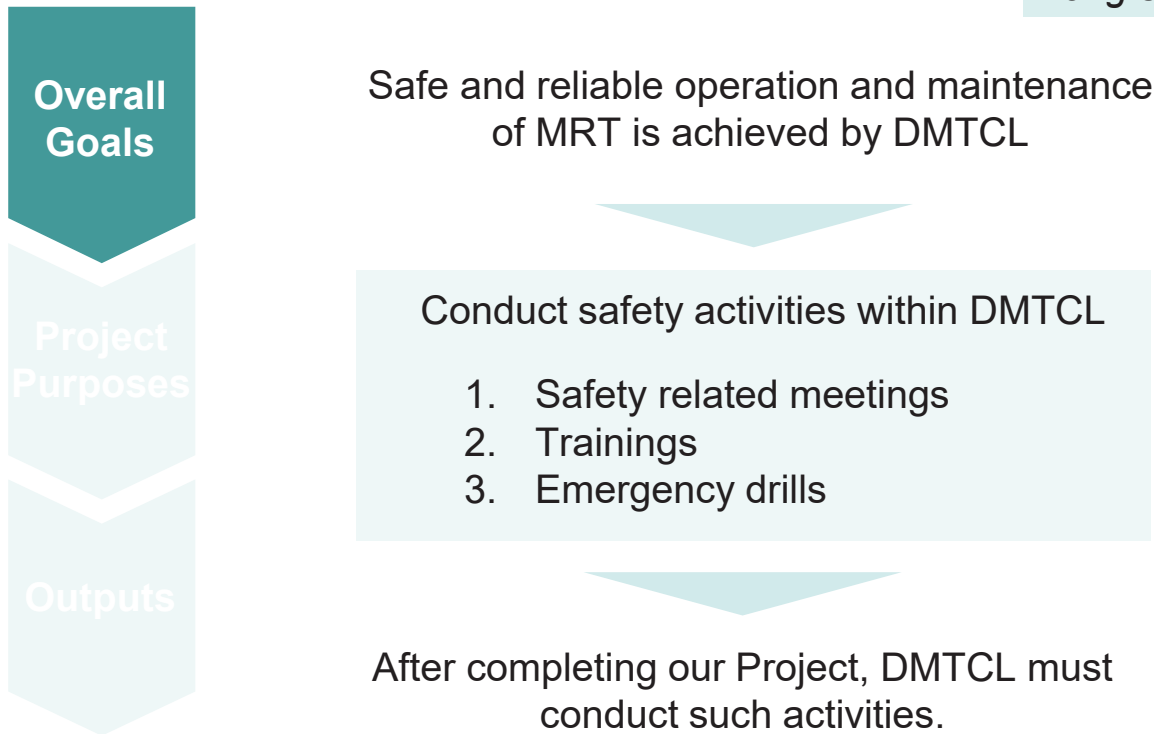
Safety management process and activities in DMTCL are continuously implemented during operation

Outputs

1. Prioritized rules and manuals for safety are prepared by DMTCL
2. DMTCL commences the series of safety activities

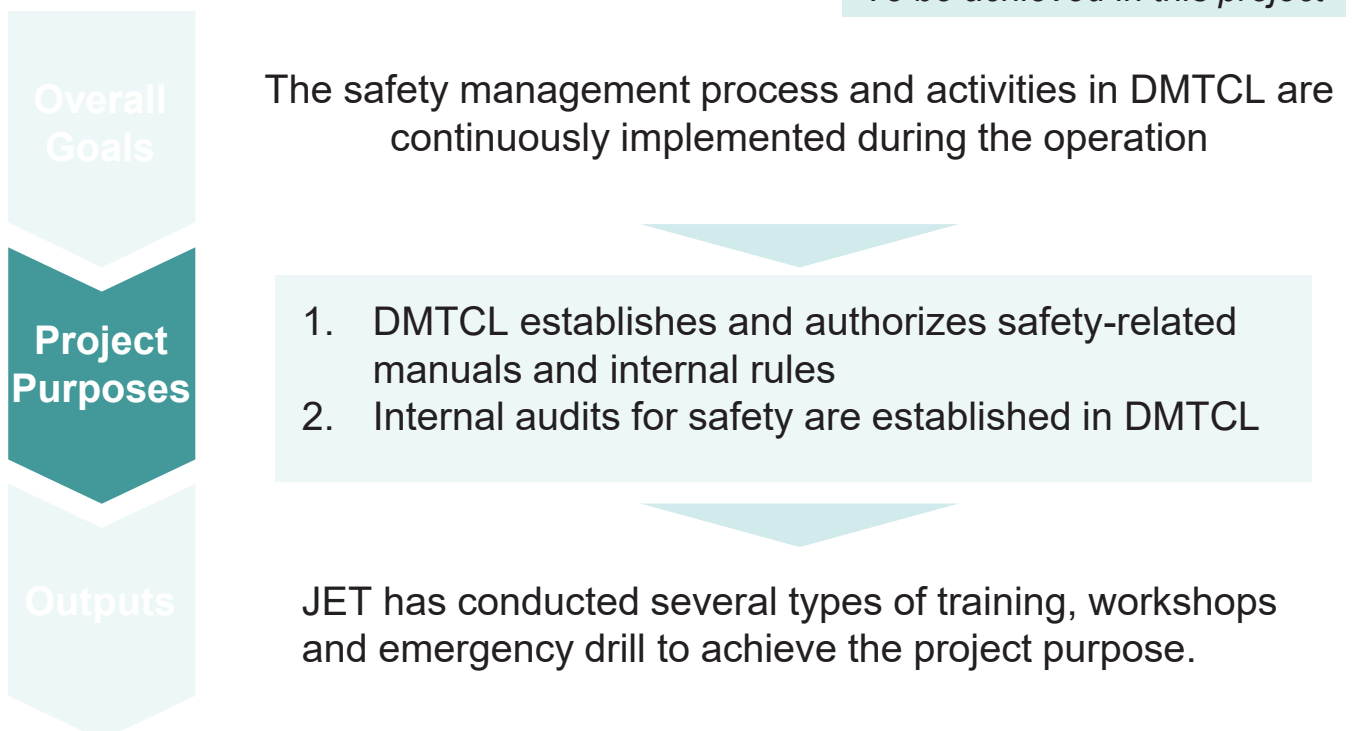
2. Project Goals, Purposes and Outputs

Long span goals



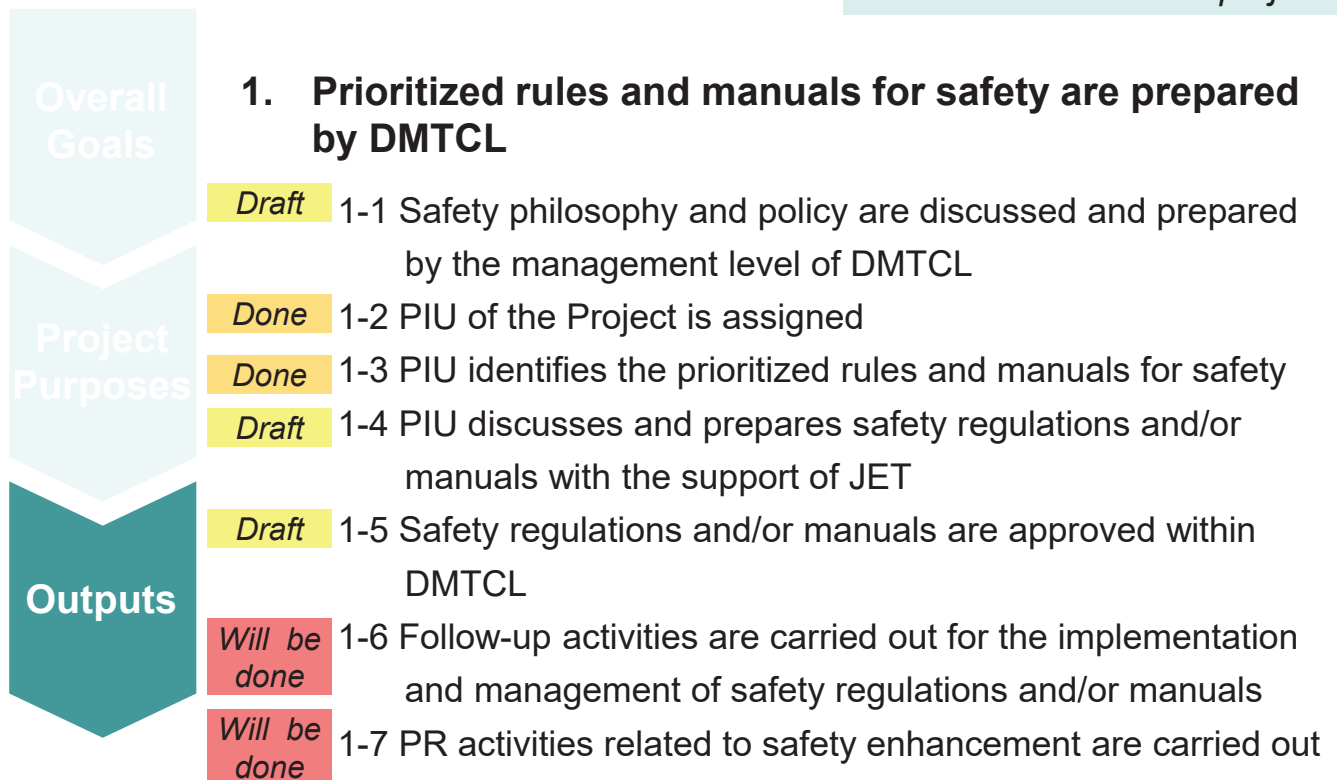
2. Project Goals, Purposes and Outputs

To be achieved in this project



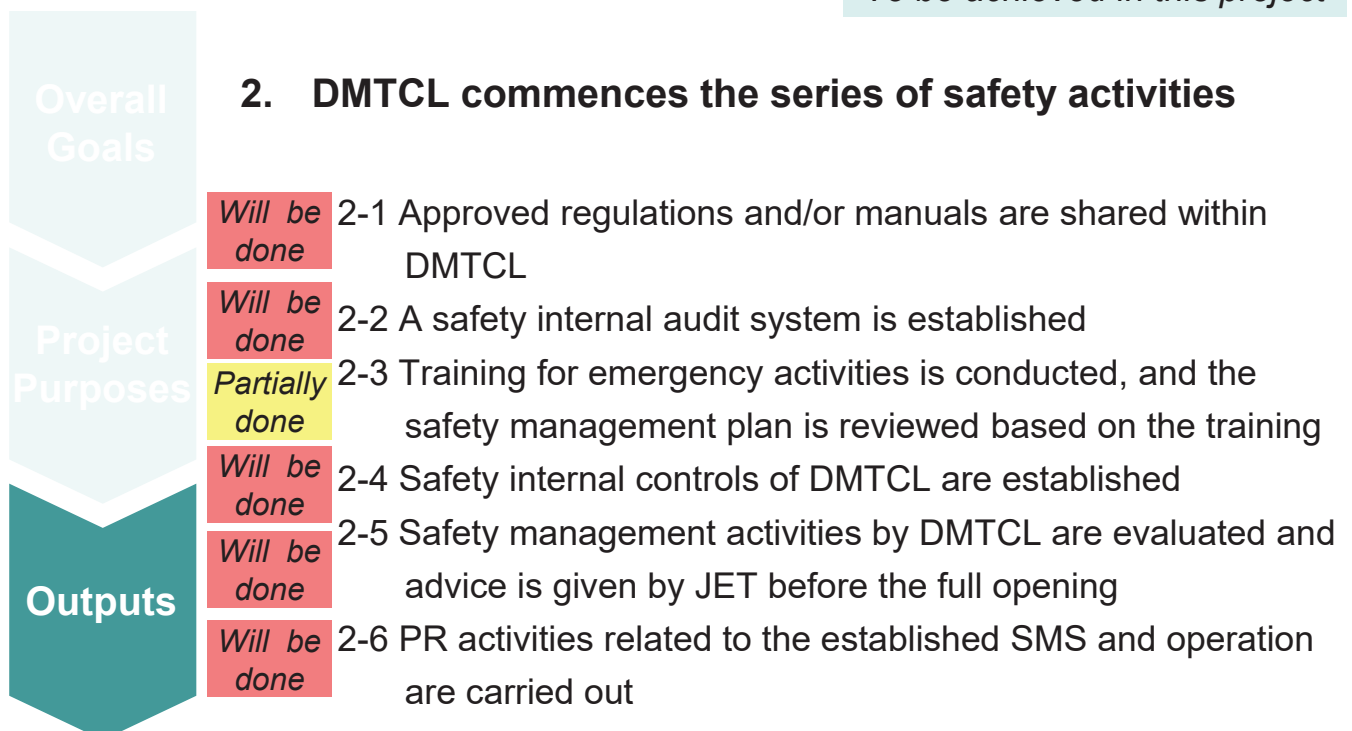
2. Project Goals, Purposes and Outputs

To be achieved in this project



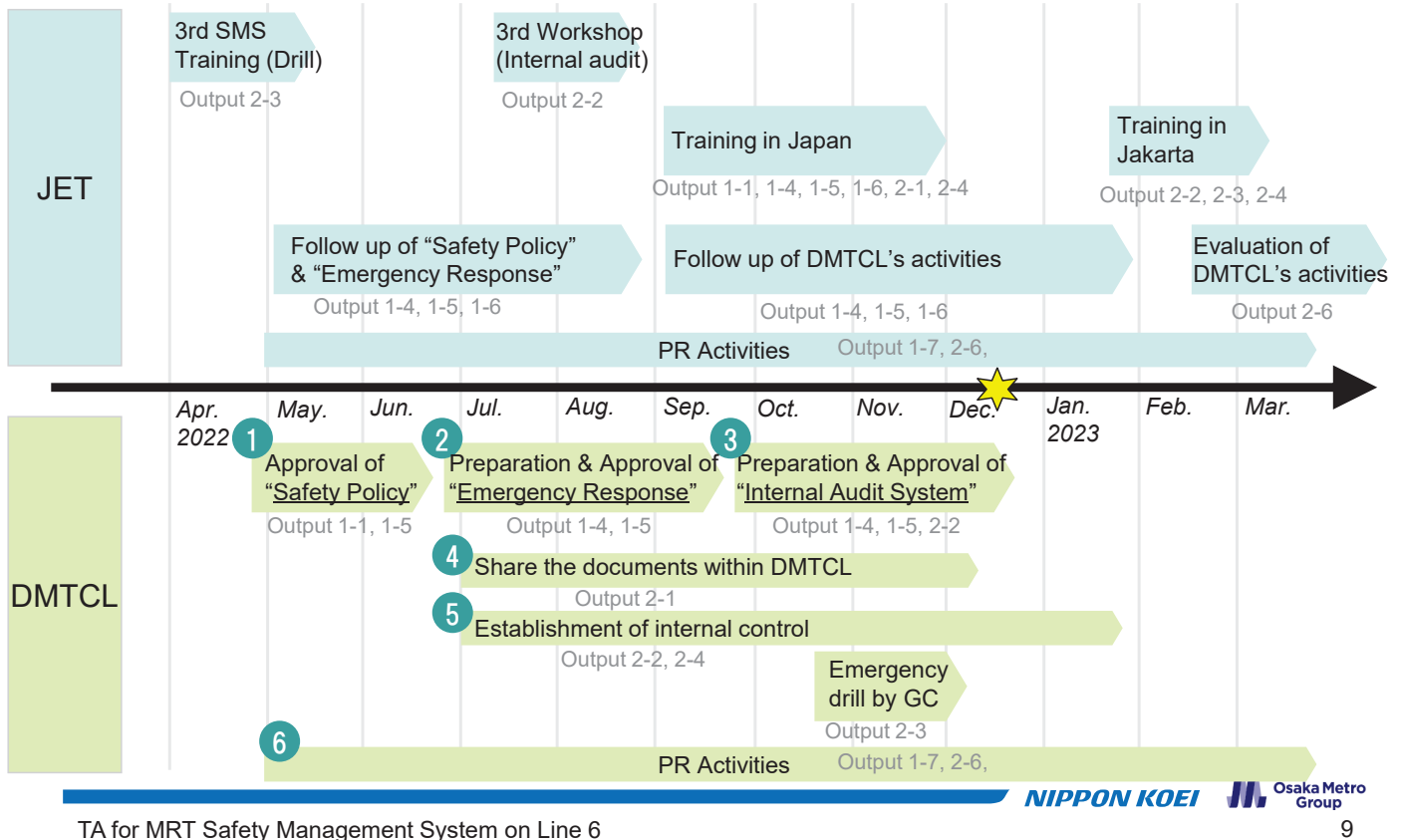
2. Project Goals, Purposes and Outputs

To be achieved in this project



3. Further Activities

DMTCL also conducts activities to achieve project purpose and outputs



TA for MRT Safety Management System on Line 6

NIPPON KOEI Osaka Metro Group

3. Further Activities Done by DMTCL

1 Approval of "Safety Policy"

- When will you discuss based on the draft?
- Who will discuss? -> PIU
- When can you approve? -> must be before the operation

2 Preparation and approval of "Emergency Response"

- When will you discuss based on the summary of the 2nd Workshop? -> Sent a letter from JET
- Who will discuss? -> PIU
- When can you approve? -> must be before the operation

3 Preparation and approval of "Internal Audit System"

- We will conduct the 3rd Workshop
- After Workshop, DMTCL should prepare and approve

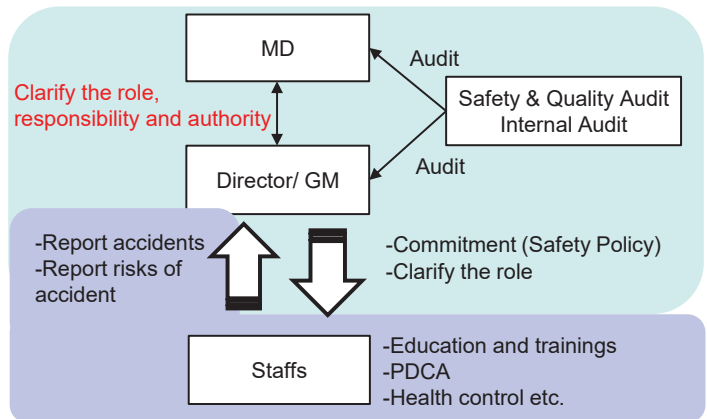
3. Further Activities Done by DMTCL

4 Documents prepared by DMTCL & distributed among DMTCL

- Sending internal memo within DMTCL -> after completion of the documents
- Participants of our training should conduct internal training to their team members

5 Establishment of internal control

- Clarify the role, responsibility & authority (**Delegation of authority**)
- Audit system (**3rd Workshop**)
- Safety policy (**1st Workshop**)
- Report from staff (**3rd Training**)
- Internal training (**4**)




3. Further Activities Done by DMTCL

6 PR Activities

- PR activities on our proses and outcome of our SMS activities

<p>TV CM</p>  <p>Broadcast on local TV</p>	<p>Newspaper</p>  <p>Press release & op-ed</p>
<p>Animation movie</p>  <p>Upload to SNS</p>	<p>Safety report</p>  <p>Publish to customers</p>
<p>Advertise in the train and/or at stations</p>  <p>Use the advertising space (electronic/ paper base)</p>	

A green and white train with orange accents is shown on tracks. The train has a green front and roof, white sides, and orange accents on the front and windows. It is moving along a track with a concrete platform in the foreground. The background is a hazy, light blue sky.

Thank you very much for your kind attention
আপনাদের সবাইকে ধন্যবাদ



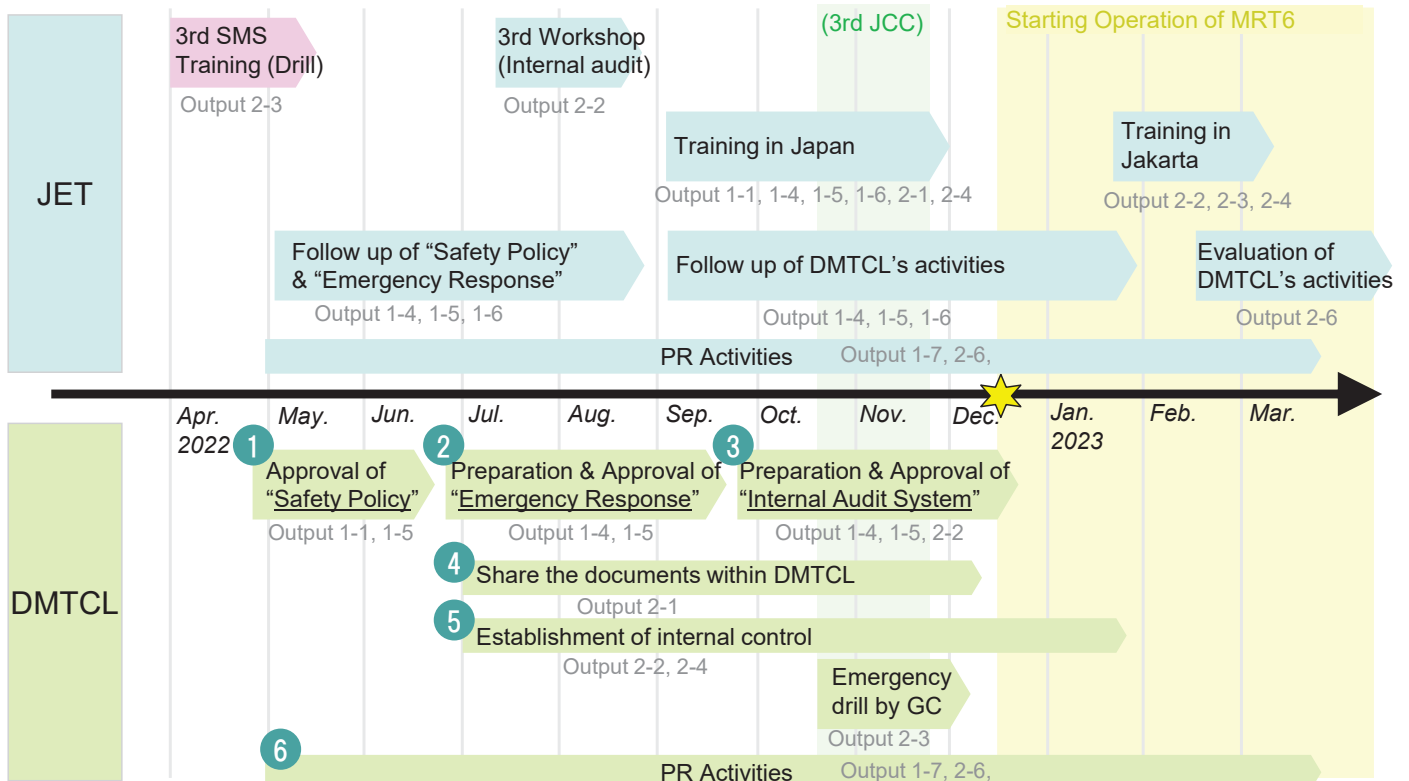
The Project on Technical Assistance for MRT Safety Management System on Line 6 The 2nd Joint Coordinating Committee (JCC)

Way Forward (Project Work Plan)

April 21st, 2022

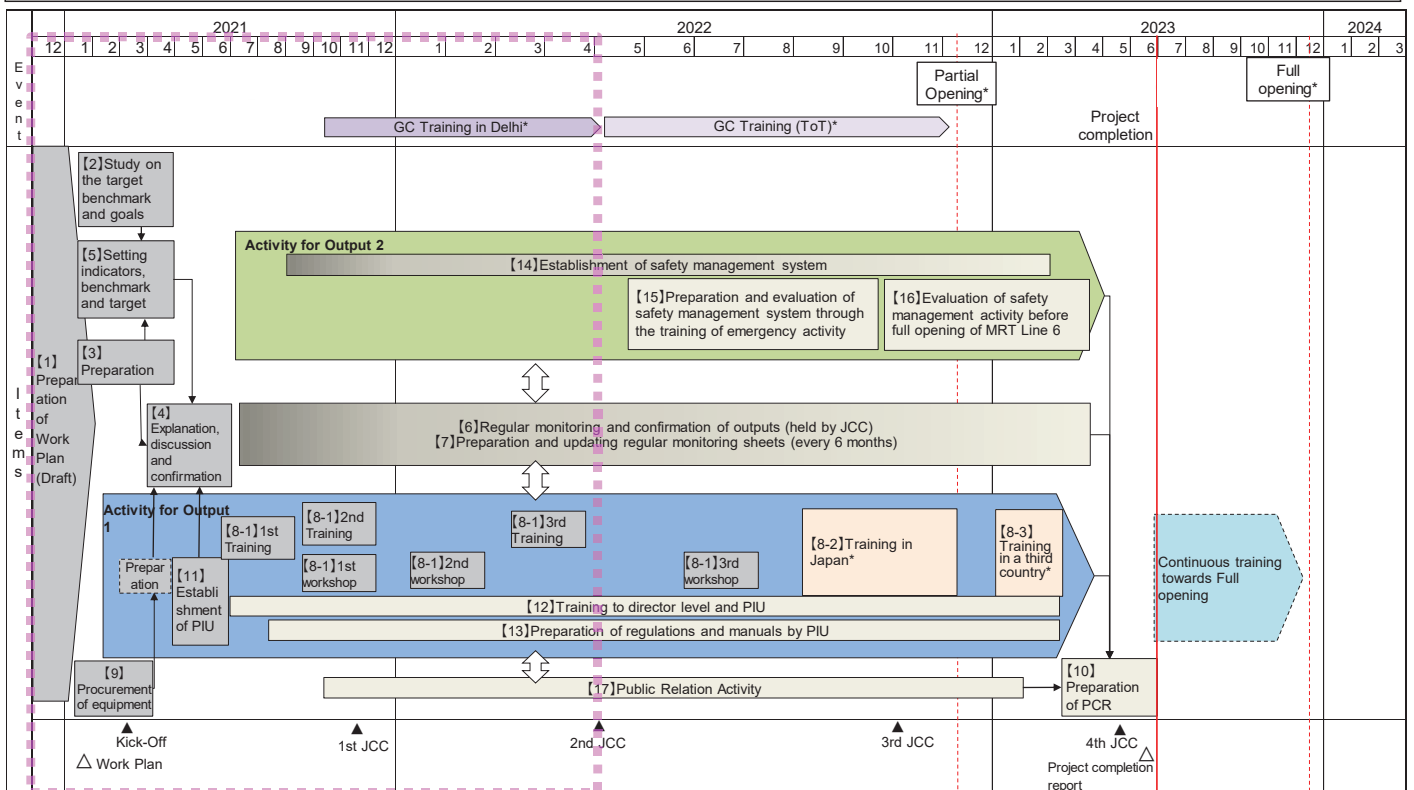
1. Project Work Plan (for one year, repost)

Note: All schedules are tentative and depends on the actual situation



2. Overall Activity Schedule

Note: All schedules are tentative and depends on the actual situation



Annex 5: JCC Materials

3rd JCC (7 February 2023)

Monitoring Sheet

TO JCC Members

Project Monitoring Sheet

Project Title :The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6

Version of the Sheet: Ver.3 (Term: November 2021 - February 2023)

Name: Atsushi Mochizuki

Title: Team Leader/ Safety Management

Submission Date: 7th February 2023

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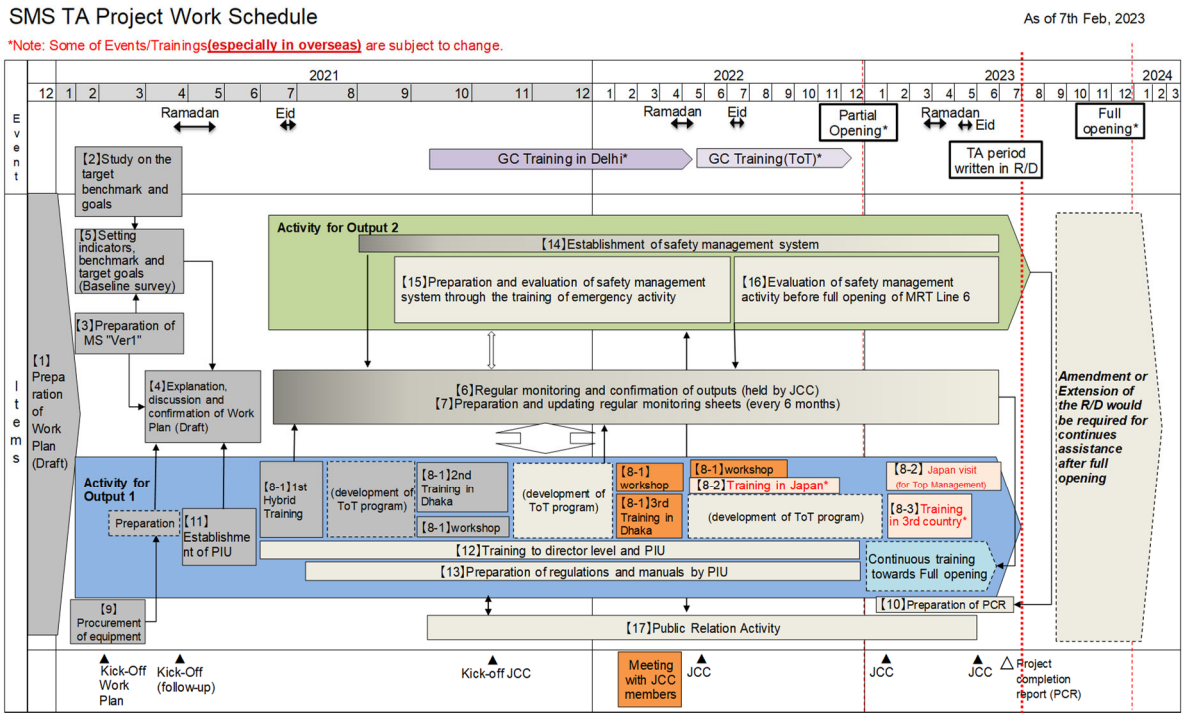
I. Summary

1. Progress

1-1 Progress of Inputs

The project has agreed on the Record of Discussions dated August 4, 2020 between Dhaka Mass Transit Company Limited (DMTCL) and Japan International Cooperation Agency (JICA). The Project has commenced since January 2021.

We have held several types of training activities which are 1st Training (Online) in July 2021, 2nd Training in October 2021, 1st Workshop in October 2021, 2nd Workshop in February 2022 and 3rd Training in April 2022, 3rd Workshop in August 2022 and Training in Japan in September and October 2022(2 batches).



Source: JET

Figure 1 Project Flow as of February 2023

The inputs plan of Japanese Expert Team (JET) is summarized in the table below.

【3】 Preparation of Monitoring Sheet “Ver.1”

JET prepared the Monitoring Sheet “Ver.1” and submitted to JICA and DMTCL on the Kick-off meeting in February 2021.

【4】 Explanation, discussion and confirmation of Work Plan Draft

During the Kick-off meeting, DMTCL and JET confirmed the contents of the Work Plan. JET received the comments from DMTCL during the Kick-off meeting and its follow-up meeting. The major comment is that the Work Plan should be flexible due to the COVID-19 situation. So, our Work Plan (Draft) would be acceptable as of the discussion date and the Work Plan shall be flexible if necessary.

【5】 Setting indicators, benchmark and target goals (conduct the Baseline survey)

JET has conducted the 1st and 2nd Baseline Survey since March 2021 and completed. **3rd Baseline survey will be conducted from March 2023.**

【6】 Regular monitoring and confirmation of outputs (held by JCC)

1st and 2nd JCC were held in November 2021 and April 2022 respectively. 3rd JCC will be held on February 2023.

【7】 Preparing and updating regular monitoring sheets (every six months)

To be confirmed on the next JCC meeting.

【8-1】 Implementation of Trainings (Online Training/ Face to Face in Dhaka)

JET held three types of training.

Training	Date	Nos. of Participants	Contents
1 st Training (Online)	[1st Batch] 2 nd and 3 rd July 2021 [2nd Batch] 9 th and 10 th July 2021 [3rd Batch] 16 th and 17 th July 2021	Total 55 persons	- Railway Characteristics and Safety Assurance Mechanism - Japanese Railway Accidents and Lessons Learned -Development of Safety-First Corporate Culture - Introduction of SMS in Japan
2 nd Training	[1st Batch] 8 th and 9 th October	Total 54 persons	- Review of 1st training - Roles and responsibility of

Training	Date	Nos. of Participants	Contents
	2021 [2nd Batch] 19 th October 2021 [3rd Batch] 21 st October 2021		each position in SMS -The Necessity of Safety Related Documents and Those Examples
1 st Workshop	7 th October and 11 th October 2021	15 persons	- Outline of Safety Related Documents and Those Necessity -Discussion on the Necessary Documents in DMTCL and Those Priority - Discussion on Implementation of the Safety Policy
2 nd Workshop	8 th February and 10 th February 2022	19 persons from DMTCL 9 persons from other organizations	- Identify the Top Priority Document - Discussion on the “Basic Regulation of Emergency Situations”
3 rd Training	[1st Batch] 12 th and 13 th April 2022 [2nd Batch] 18 th and 19 th July 2022	51 persons from DMTCL 3 persons from other organization	- Practical Daily SMS Activities - Response to Emergency Situation - Emergency Drill
3 rd Workshop	8 th and 10 th August 2022	19 persons from DMTCL	- Explain the safety internal audit using Osaka Metro case. - Discussion on the necessary activities and procedures of the safety internal audit.

【8-2】 Implementation of Training in Japan

JET held two batches of training in Japan between September and November 2022. In both two training, JET lectured on the role and responsibilities of the site manager, the importance of safety activity on the site, etc. After completing the whole curriculum of training, they made a “Commitment Card” individually to keep them aware of the importance of safety.

JET will invite the top manager level including the Managing Director of DMTCL to Japan in May 2023 and, will have discussion with the safety manager of Osaka Metro to deeply understand the essential role of a top manager.

【8-3】 Implementation of Training in a Third Country

Training in a third country (Jakarta) will be conducted in March 2023.

【9】 Procurement of training/communication equipment

Done.

【10】 Preparation of Project Completion Report

To be done.

【11】 Establishment of PIU for the Work

Completed. (assigned by DMTCL)

【12】 Training to director level and PIU

JET conducted the three Workshops in October 2021, February and August 2022 to PIU and director level of DMTCL. The contents are shown in table above.

【13】 Preparation of regulations and manuals by PIU

PIU discussed "Safety Policy" and finalized it. And it has been approved by MD of DMTCL.

PIU discussed the document related Emergency Response and JET gave comments. DMTCL reflected our comments on the "Accident, Incidents and Disaster Manual" prepared by Line-6 GC. It is under reviewed by DTCA.

PIU discussed on the outline of safety internal audit. After that, PIU prepared "Safety Internal Audit Manual" and it has been reviewed by Safety and Quality Audit.

【14】 Establishment of safety management system

Safety policy, the documents related emergency response and internal safety audit were selected as required manuals in DMTCL and each draft manual was prepared in accordance with the PIU monthly meeting. Regarding the safety policy was approved by MD of DMTCL and other manuals were under verification by the related organization.

Furthermore, to promote the safety management system in DMTCL, safety quality audit team member has started preparation for Internal Safety Audit such as discussion on the above mention documents and Safety Inspection with JET members.

Through the series of activities from JET, DMTCL gradually improves their awareness regarding the safety management system.

【15】 Preparation and evaluation of safety management system through the

training of emergency activity

An emergency drill using actual facilities/staffs of DMTCL will be conducted this February 2023. Through this drill, JET evaluates the safety management system and gives some advice to DMTCL.

【16】 Evaluation of safety management activity before full opening of MRT Line 6

DMTCL will conduct an emergency drill as written above.

【17】 Public Relation Activity

JET will publish the initial annual safety report with the safety audit member of DMTCL in 2023.

1-3 Achievement of Output

Output1 : 「High Priority Regulations and/or Manuals for Safety are Regulated」

1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL.

Completed. Prepared safety policy by PIU was approved by MD of DMTCL in December 2022.

1-2: Project Implementation Unit (PIU) of the Project is assigned.

Completed.

1-3: PIU identifies the prioritized rules and manual for safety.

DMTCL and JET identified the “Basic Regulation of Emergency Situations” as the top priority document in the 2nd Workshop. To unify the manual for the emergency, the “Accident, Incidents and Disaster Manual” prepared by Line-6 GC was updated using the essence of “Basic Regulation of Emergency Situations”. The updated manual is under verification by DTCA.

1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team.

DMTCL discussed the contents of the “Basic Regulation of Emergency Situations” in 2nd Workshop. Summary of the contents was submitted by JET to DMTCL. In the PIU meeting, further discussion to decide the contents and relation with another safety

manual was implemented. Finally, DMTCL decided on the procedure of basic response for emergency situations, and its essence was written in the “Accident, Incidents and Disaster Manual” to unify the manual for the emergency.

1-5: Safety regulations and/or manuals are approved within DMTCL.

The “Accident, Incidents and Disaster Manual” which adds the essence of “Basic Regulation of Emergency Situations” has been finalized by PIU and is under verification by DTCA.

1-6: Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals.

The safety policy was approved by the MD of DMTCL. The content of the “Basic Regulation of Emergency Situations” was discussed and its essence was written in the “Accident, Incidents and Disaster Manual” which is under verification by DTCA. A 3rd workshop was held in August 2022 to discuss the outline and procedure of safety internal audit system. Following monthly PIU meetings, further discussion was implemented and the procedure and implementing department (Safety & Quality audit department) of the safety internal audit were decided. The draft “Internal Safety Audit System Manual” was prepared and it’s under confirmation internally.

1-7: Public relations (PR) activities related to safety enhancement are carried out.

JET has confirmed DMTCL the status of the PR activities by DMTCL.

Then, JET is now selecting the contents of PR activities by JET team including TV commercial.

For the executed local PR activities, JET has succeeded to post articles on several local newspapers regarding emergency drills and Japan training with female participants.

For additional activities, JET has supported JICA press release for the Japan training,

Output 2: 「Safety activities will be implemented by DMTCL」

2-1: Approved regulations and/or manuals are shared within DMTCL.

In 2nd Workshop, DMTCL discussed how to circulate the documents within DMTCL. After the completion of the documents, JET will support to circulate the documents.

2-2: A safety internal audit system is established.

3rd workshop was held in August 2022 to discuss the outline and procedure of the safety internal audit system. The draft “Internal Safety Audit System Manual” was prepared and is being reviewed internally.

One DMTCL staff was assigned to Safety & Quality audit department, but the other 4 positions are not hired. DMTCL must recruit or assign persons to blank positions as soon as possible.

The demonstration of the safety internal audit between DMTCL and JET was conducted in accordance with the draft "Internal Safety Audit System Manual" in February 2023. Through the demonstration, Safety & Quality audit department member learned the procedure and purpose of the safety audit. The manual must be finalized and get approval from MD of DMTCL.

2-3: Training for emergency activities are conducted, and the safety management plan is reviewed based on the trainings.

Mini Emergency drill using mockup train was done in 3rd training in Dhaka. An emergency drill assuming a fire case using a real railway facility will be conducted in February 2023.

2-4: Safety internal controls of DMTCL are established.

N/A

2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6

JET inspected stations and a depot area to check the safety management activity and gave some advice to DMTCL to improve that activity in February 2023.

An emergency drill and a review meeting to enhance the safety response will be conducted in February 2023, in the review meeting JET give some advice to DMTCL.

2-6: PR activities related to the established safety management system and operation are carried out.

Preparation for PR is progressed by JET.

1-4 Achievement of the Project Purpose

Project purpose is "Safety management process and activities in DMTCL are continuously implemented during operation" according to R/D.

This project is approaching the end of the contract period. Toward completing this project, DMTCL and JET completed to set-up the "Safety Policy" and prepared "Emergency Response" and "Safety Internal Audit System Manual" which are under verification. Not only the establish the manual but also safety mind and awareness are gradually improving through a series of training, 3 times workshops and training in Japan. Since the starting operation, DMTCL's staff motivation for Safety Management System is increasing.

1-5 Changes of Risks and Actions for Mitigation

As a risk of DMTCL, some of the positions related to the metro operation are not hired. Therefore, railway operation is implemented by limited staff. In addition, the position of Safety & Quality audit which is in charge of the promotion of safety management also not hired except for one position. In the event of an emergency in the railway operation, DMTCL may not be able to properly implement the required safety action.

To mitigate the above risks, DMTCL should immediately boost recruitment and assign staff to key safety positions and operations. In addition, each staff should be assigned a safety-related role in order to enhance their safety awareness. JET will support the DMTCL's training for newcomers by the training center of DMTCL.

1-6 Progress of Actions undertaken by JICA

Two trainings in Japan.

Attendance of JCC

Introduction of Shisa-Kanko software

Attendance of the monthly PIU meeting.

1-7 Progress of Actions undertaken by Gov. of Bangladesh

Approval of Safety Policy by DMTCL.

Preparation and approval of "Basic Regulation of Emergency Situations".

Recruitment of Director and General Manager Class as permanent.

Recruitment of Safety & Quality Audit and Internal Audit.

Verification of "Accident, Incidents and Disaster Manual".

1-8 Progress of Environmental and Social Considerations (if applicable)

N/A

1-9 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

As a part of the development of barrier elimination, JET give a lecture on how to support disabled passengers as railway staff in the training in Japan. We invited 3 female participants to the training of Japan. And one female was in charge an initial train operation in the opening ceremony of Dhaka Metro.

1-10 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

N/A

2. Delay of Work Schedule and/or Problems (if any)

Railway operation was started before completing/approval of safety manuals such as “Accident, Incidents and Disaster Manual” and “Internal Safety Audit Manual”. DMTCL should complete them and get approval from MD of DMTCL.

Internal training for the safety management system by trained staff from JET is not started. This training should be implemented for the staff who is assigned to the operation and maintenance sector.

3. Modification of the Project Implementation Plan

3-1 PO

N/A

3-2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

N/A

4. Current Activities of Gov. of Bangladesh to Secure Project Sustainability after its Completion

Hiring the permanent staffs especially management and operation level.

II. Project Monitoring Sheet I & II


As attached.

Project Monitoring Sheet I (Project Design Matrix)

Project Title: The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6
Implementing Agency: Dhaka Mass Transit Company Limited (DMTCL)
Target Group: Management and all safety-related staff of DMTCL
Period of Project: February 2021 – July 2023
Project Site: Dhaka

Version 4
Dated February 2023

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p>Overall Goal</p> <p>Safe and reliable operation and maintenance of MRT is achieved by DMTCL</p>	<p>DMTCL establishes and conducts necessary activities for safe MRT in a reliable and immediate way, even in the case of an emergency or accident.</p>	<p>1. Internal meetings related to safety shall be held within DMTCL</p> <p>2. Baseline survey for DMTCL Staff</p>	<p>- Training shall be conducted properly in Dhaka, Japan and a third country.</p>	<p>The series of training and workshop in Dhaka and training in Japan related to the safety management system has been completed.</p>	<p>Data collection for the 2nd baseline survey has been done and the report is under preparation by JET. The third country training will be conducted from this March to April.</p>
<p>Project Purpose (to be achieved within this project)</p> <p>The safety management process and activities in DMTCL are continuously implemented during the operation</p>	<p>1. DMTCL establishes and authorizes safety-related manuals and internal rules</p> <p>2. Internal audits for safety management are established in DMTCL and desirable countermeasures and improvements are considered and implemented</p>	<p>- Number of safety-related manuals established in comparison with its plan</p> <p>-Record of safety activities of DMTCL</p>	<p>- Training shall be conducted properly in Dhaka, Japan and a third country.</p>	<p>The safety policy prepared by PIU was approved in December 2022. Preparation of other manuals related to safety are progressed by PIU.</p>	<p>JET organized 3 times workshops for establishing the safety policy and manuals of emergency response and safety internal audit.</p>
<p>Outputs</p> <p>1. High priority regulations and/or manuals for safety are regulated</p>	<p>1-1: Safety policy and its management plan are established.</p> <p>1-2: The safety management plan is implemented.</p> <p>1-3: Training is conducted by Japanese expert team</p>	<p>-Record of training and/or meetings within DMTCL</p> <p>-Number of safety-related documents</p> <p>-Report of the training by Japanese experts</p>	<p>-Discussion within DMTCL shall be required.</p>	<p>The “emergency response” was lectured and discussed in 2nd workshop and that essence was written in the “Accident, Incidents and Disaster Manual” which was under verification by DTCA.</p>	<p>The safety audit manual is under preparation by PIU of DMTCL. This topic was lectured and discussed in 3rd workshop.</p>
<p>2. Safety activities will be implemented by DMTCL</p>	<p>2-1 Organization structures for safety management are established and in operation.</p>	<p>-Number of safety-related meetings within DMTCL.</p> <p>-Evaluation of the activities by JET</p>	<p>-Staff recruitment of DMTCL especially the position of Safety & Quality Audit.</p>	<p>An emergency drill was conducted and checked the needed action for emergency response and the efficiency of safety manuals.</p>	<p>DMTCL shall implement internal education for spreading the safety policy and approved manual to each staff.</p>

Activities	Inputs		Important Assumption
	The Japanese Side	The Bangladesh Side	
<p>0: Baseline Survey</p> <p>1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL.</p> <p>1-2: Project Implementation Unit (PIU) of the Project is assigned.</p> <p>1-3: PIU identifies the prioritized rules and manual for safety.</p> <p>1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team.</p> <p>1-5: Safety regulations and/or manuals are approved within DMTCL.</p> <p>1-6: Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals.</p> <p>1-7: Public relations (PR) activities related to safety enhancement are carried out.</p> <p>2-1: Approved regulations and/or manuals are shared within DMTCL.</p> <p>2-2: A safety internal audit system is established.</p> <p>2-3: Training for emergency activities is conducted, and the safety management plan is reviewed based on the training.</p> <p>2-4: Safety internal controls of DMTCL are established.</p> <p>2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6</p> <p>2-6: PR activities related to the established safety management system and operation are carried out.</p>	<p>Dispatch of Japanese experts</p> <ol style="list-style-type: none"> 1. Team Leader/ Safety Management 2. Training Planning (Management Level)/Safety Document Management Plan 1 3. Training Planning (Safety Staff Level) 4. Safety Management (Organization Management) 5. Safety Management (Implementation) 6. Safety Management (Document Management) 7. Safety Document Management Plan 2 8. Training Implementation 9. Public Relations Activity/ Training Implementation Support <p><u>Online/Hybrid Training</u></p> <p>[Training target]</p> <p>55 Candidates (ToT style)</p> <p>[Contents at 1st time]</p> <ul style="list-style-type: none"> -Railway Characteristics and Safety Assurance Mechanism -Japanese Railway Accidents and Lessons Learned -Development of Safety-First Corporate Culture -Introduction of Safety Management System in Japan <p>[Contents at 2nd time]</p> <ul style="list-style-type: none"> -Review of 1st Training (Safety Assurance Mechanism and Punishment) -Roles and Responsibility of each Position -Necessity of Safety-Related Documents and Those Examples <p>[Contents at 3rd time]</p> <ul style="list-style-type: none"> -Practical Daily SMS Activities -Response to Emergency Situation -Emergency Drill and its review <p><u>Workshop in Dhaka</u></p> <p>[Contents at 1st Workshop]</p> <ul style="list-style-type: none"> -Outline of Safety Documents and Safety Policy -Discussion on the Contents to be included in the Safety Policy -Open Discussion on the Safety Policy -Discussion on the Implementation of Safety Policy <p>[Contents at 2nd Workshop]</p> <ul style="list-style-type: none"> -Identify the Top Priority Document -Discussion on the "Basic Regulation of Emergency Situations" <p>[Contents at 3rd Workshop]</p> <ul style="list-style-type: none"> -Purpose of the safety audit -Discussion on the required activities for safety audit in DMTCL <p><u>1st and 2nd batches of training in Japan (has been done)</u></p> <p>[Training target]</p> <ul style="list-style-type: none"> -Project Implementation Unit (PIU) in DMTCL -Safety-related positions in DMTCL -Related institutions for MRT safety (Dhaka Metropolitan Police / Ministry of Road Highway Transport and Bridge) <p>[Contents]</p> <ul style="list-style-type: none"> -Lecture on safety activity in Osaka Metro -Lecture on the responsibility of site safety manager 	<ul style="list-style-type: none"> -Assignment of Counterpart and administrative staff -Employment of safety-related staff -Provision of office space and office facilities -Permit the utilization of facilities of MRT and BR -Provision of safety-related documents and records -Joint Coordination Committee (JCC) -Organization formulation and authority delegation regarding implementation of SMS -The training done by JET must be conducted within DMTCL since JET's training is To (Training of Trainer) style and expected to disseminate throughout DMTCL. 	<p>Pre-conditions</p> <p>[Document (Manual)]</p> <ul style="list-style-type: none"> -Manuals related to safety must be prepared before the operation. <p>[Recruitment]</p> <ul style="list-style-type: none"> -Recruitment should be done before the operation. <p>[Training]</p> <ul style="list-style-type: none"> -Initial training and OJT shall be completed before the assignment to the site. -DMTCL should conduct the same types of training within DMTCL to establish the safety management system and keep sustainability. <p style="text-align: center;"></p> <p style="text-align: center;"><Issues and Countermeasures></p> <p>[Document]</p> <p><u>Issue</u></p> <ul style="list-style-type: none"> -Manuals related to safety such as "Accident, incidents and disaster manual", "Internal safety audit manual", etc. are under preparation or verification. <p><u>Countermeasures</u></p> <ul style="list-style-type: none"> - Assign a representative person for each document - After the approval of the documents, update or modification of the document is needed based on the emergency drill and daily MRT operation. <p>[Recruitment]</p> <p><u>Issue</u></p> <ul style="list-style-type: none"> -Some of the key positions for safety such as safety audit, Director has not been recruited/assigned. -The number of operation staff (station controller, maintenance staff) is not satisfied with the scheduled number for partial operation. <p><u>Countermeasures</u></p> <ul style="list-style-type: none"> -Hire the staff <p>[Training]</p>

Activities	Inputs		Important Assumption
	The Japanese Side	The Bangladesh Side	
	<ul style="list-style-type: none"> -Site visit on the safety activity -Site visit on the safety-related facilities -Site visit on the maintenance facilities <p><u>Japan visit for Top Management (will be conducted in May 2023)</u></p> <p>[Training target]</p> <ul style="list-style-type: none"> -Managing Director -Top manager related to MRT safety (Ministry of Road Highway Transport and Bridge, Dhaka Transport Coordination Authority, etc.) <p>[Contents]</p> <ul style="list-style-type: none"> -Lecture on Top manager's responsibility for safety -Discussion with Osaka Metro's safety officer -Site visit related to railway safety <p><u>Training in a third country (will be conducted in March 2023)</u></p> <p>[Training target]</p> <ul style="list-style-type: none"> -General Manager level related to the operation -Department of safety audit -Training center -Site staff (OCC, Train Operator, etc.) -Trainer of training staff <p>[Contents]</p> <ul style="list-style-type: none"> -Lecture on experience of Safety Management System from MRTJ -Site visit -Discussion <p><u>Public Relations</u></p> <p>[Content]</p> <ul style="list-style-type: none"> -Publishing an initial safety report with the safety audit team of DMTCL (in 2023) -Airing a TV commercial regarding this project's activity to promote JICA assistance to Bangladesh citizens (in 2023) 		<p><u>Issue</u></p> <ul style="list-style-type: none"> -Internal training about SMS activity by the trainer who has taken training by JET is not started. - Initial training for newcomers is required before the assignment to the site. <p><u>Countermeasures</u></p> <ul style="list-style-type: none"> -Make a training schedule and conduct training, especially for newcomers

Presentation Materials

3rd Joint Coordinating Committee (JCC)
For
The Project for Technical Assistance for
Safety Management System (SMS)

Date: 7th Feb 2023

Time: 11:00 - 12:00

Venue: DMTCL conference room

Agenda

1. **Opening Remarks by DMTCL (5 mins)**
2. **Opening Remarks by Senior Representative, JICA Bangladesh Office (5 mins)**
3. **Review of 2nd JCC meeting (5 mins)**
4. **Presentation**
 - 4.1 **Introduction of the Project Progress – *Expert Team* (5 mins)**
 - 4.2 **Introduction of on-going/further activities related to Safety Management System in MRT Line-6 operation – *Expert Team* (5 mins)**
 - 4.3 **Update of Project Monitoring Sheet – *Expert Team* (5 mins)**
 - 4.4 **Way Forward (Project Work Plan) – *Expert Team* (5 mins)**
5. **Discussion (20 mins)**
6. **Closing Remarks by DMTCL (5 mins)**

Attachment:

- **Handout for Project progress report, SMS Activity Plan, Project Monitoring Sheet, Project Work Plan**



The Project on Technical Assistance for
MRT Safety Management System on Line 6
The 3rd Joint Coordinating Committee (JCC)
Introduction of the Project Progress

February 7th, 2023

1. Abstract of the Project Progress

Reported on 2nd JCC (Apr.21st. 2022)

- Discussion meeting with Relevant Organizations
- 2nd Workshop on Emergency Responce
- 3rd Training on Practical SMS Activites

Today's Report

- 3rd Workshop on Internal Safety Audit
- Training for Basic Safety Action "Shisa-Kanko"
- Information sharing meeting with Site staffs
- Japan Training (for 1st and 2nd Batch)
- Safety Policy of DMTCL
- PIU Meeting

2. 3rd Workshop on Internal Safety Audit

➤ **Date :** 8th – 10th August 2022

➤ **Discussion Points:**

- Audit Items in DMTCL
- How to conduct the Audit
- PCDA Cycle to enhance safety through conducting Audit ..etc

■ **Day 1: 8th August 2022**

9:00 – 9:30	Registration
9:30 – 9:35	Opening Remarks
9:35 – 9:45	Self-Introduction including Osaka Metro introduction
9:45 – 11:45	(Lecture/discussion) Outline of Internal Audit System
11:45 – 12:00	Break
11:00 – 12:20	(Lecture/discussion) Outline of Internal Audit System
12:20 – 12:30	Introduction of Homework
12:30 – 14:00	Lunch buffet

■ **Day 2: 10th August 2022**

9:30 – 11:30	(Lecture/discussion) Implementation of Internal Audit System
11:00 – 11:15	Break
11:15 – 12:15	Open discussion about SMS activities
12:15 – 12:20	Closing remarks from Osaka Metro
12:20 – 12:25	Closing Remarks (expression of determination) from DMTCL
12:25 – 12:30	Final Closing
12:30 – 14:00	Lunch buffet



TA for MRT Safety Management System on Line 6

NIPPON KOEI 

3

3. Training for Basic Safety Action “Shisa-Kanko”

➤ **Date :** 19th July and 20th July 2022

➤ **Number of participants :** around 90 persons of DMTCL for 4 batches

➤ **Training Items:** Introduction of Shisa-Kanko and its experience and effectiveness through practice. (including training software)



TA for MRT Safety Management System on Line 6

NIPPON KOEI 

4

4. Information sharing meeting with site staffs

- **Date** : 10th August 2022
- **Discussion Items**:
 - Free discussion on operations and safety assurance for MRT opening
 - Advice from Osaka Metro members on safety related issues and problems that site staffs faces



5. Japan Training

- **Date** : [1st Batch] 21st September – 30th September 2022
[2nd Batch] 25th October – 2nd November 2022
- **Participants** : [1st Batch] 12 persons, [2nd Batch] 15 persons
- **Training Program**
 - Site visit of Osaka Metro facilities and training center, Safety Museum (including “Commitment Card for Safety”)
 - Lectures and Discussions on SMS
 - Learning of “Spirits for Safety” of Osaka Metro



6. Safety Policy of DMTCL

➤ Approved and Disclosed on website

➤ Way Forward :


- ✓ Dissemination among all members of DMTCL
- ✓ Implementation in daily/emergency situation



TA for MRT Safety Management System on Line 6

Safety Policy Dhaka Mass Transit Company Limited (DMTCL)

English	বাংলা
Our Aspiration	আমাদের আশা
Providing safe environment that brings zero harm to people.	সুস্থতা নিয়ে নিরাপদ পরিবেশ
Our Goal	আমাদের লক্ষ্য
Zero accidents every year.	শূন্য দুর্ঘটনা প্রতি বছর
Our Strategic Focus Areas	আমাদের গুরুত্বপূর্ণ ক্ষেত্র
1. Safety is the topmost priority.	নিরাপত্তা সর্বোচ্চ প্রাধান্য
2. Establishing safety culture by learning and well understanding national Laws, Rules & Regulations.	নিরাপত্তা সংস্কৃতি গঠন করা এবং জাতীয় আইন, বিধি এবং নিয়ন্ত্রণের ব্যাপারে ভালো বোঝাপড়া
3. Ensuring both way communication between customers and employees.	গ্রাহক এবং কর্মীদের মধ্যে দুই দিকের যোগাযোগ নিশ্চিত করা
4. Providing a reliable service by trained, skilled and equipped employees.	শিক্ষিত, দক্ষ এবং সঠিক সরঞ্জামের সহিত নিরাপদ সেবা প্রদান
5. Assessing the situation calmly and taking the safest action quickly.	স্থিতির মূল্যায়ন করা এবং সর্বোচ্চ নিরাপত্তা নিশ্চিত করা
6. Striving for continuous improvement of safety culture by sharing and documenting information providing training, motivation and incentives.	নিরাপত্তা সংস্কৃতিতে অবিচ্ছিন্ন উন্নতি আনা এবং তথ্য শেয়ার করা, প্রশিক্ষণ, প্রেরণা এবং উৎসাহ প্রদান
7. Conducting Safety Audit regularly for identifying shortcomings and taking corrective measures.	নিয়মিত নিরাপত্তা পরিদর্শন করা এবং ত্রুটি চিহ্নিত করে সংশোধন করা
8. Increasing safety awareness among the stakeholders by appropriate ways and means.	সম্পর্কিত সকলের মধ্যে নিরাপত্তা সচেতনতা বৃদ্ধি করা



 (প্রকল্প পরিচালক) (উপ প্রকল্প পরিচালক) (সহ প্রকল্প পরিচালক)

<http://dmtcl.gov.bd/site/page/7cd74fcb-2f8a-46da-b9de-b62cad35ba74/>



7. PIU Meeting

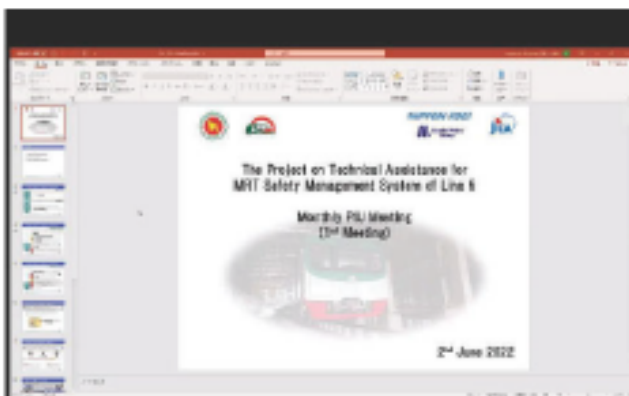
➤ Held 6 times from 2nd June 2022

➤ Topics Discussed :

- Safety Policy
- Documents for SMS and Emergency Response
- Safety Internal Audit ...etc

Member list of PIU

Sl No.	Name	Designation
01	Mr. Nasir Uddin Ahmed	Director (Operation & Maintenance), DMTCL The Project Manager of PIU
02	Mr. Krishna Kanti Bhowmik	Additional Project Director, Line-6
03	Mr. NM. Zakaria	Additional Project Director, Line-6
04	Mr. Shaik Khairul Rahman	Project Manager-4, Line-6
05	Mr. NM. Ibrahim Hossain	General Manager (Operation), DMTCL
06	Mr. A.B.M. Ariful Rahman	Project Manager-5, Line-6
07	Mr. Muhammad Shahjahan	Project Manager-1, Line-6
08	Mrs. Kuran Nahar	Assistant Engineer (Civil), Line-6
09	Mr. NM. Abu Baker Siddique	Assistant Manager (Mechanical), DMTCL
Sl No.	Name	Designation
10	Mr. Mohammad Rofiqur Feroque	Assistant Manager (Inspection & Planning and Monitoring), DMTCL
11	Mr. Md. Sajid Hossain	Assistant Manager (Operation Control Center Management), DMTCL



TA for MRT Safety Management System on Line 6

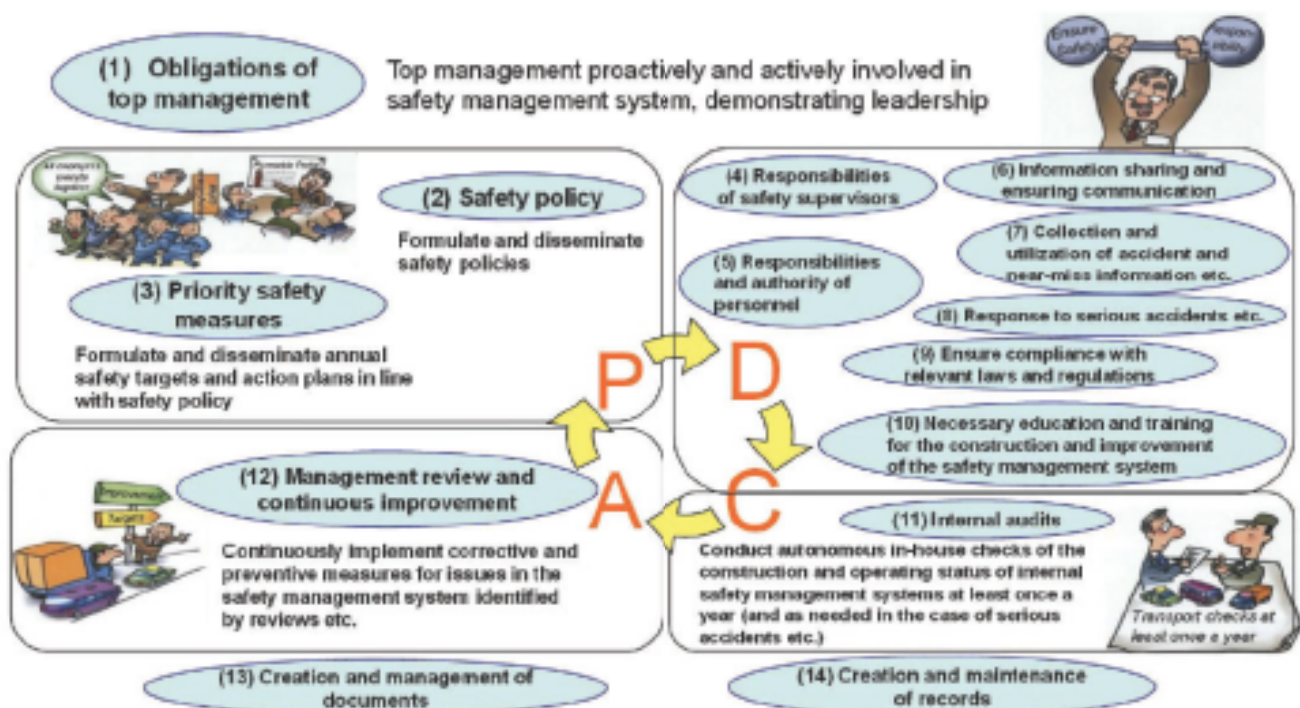
The Project on Technical Assistance for MRT Safety Management System on Line 6 The 3rd Joint Coordinating Committee (JCC)

Introduction of Ongoing/upcoming activities related to Safety Management System in MRT Line-6 operation

February 7th, 2023

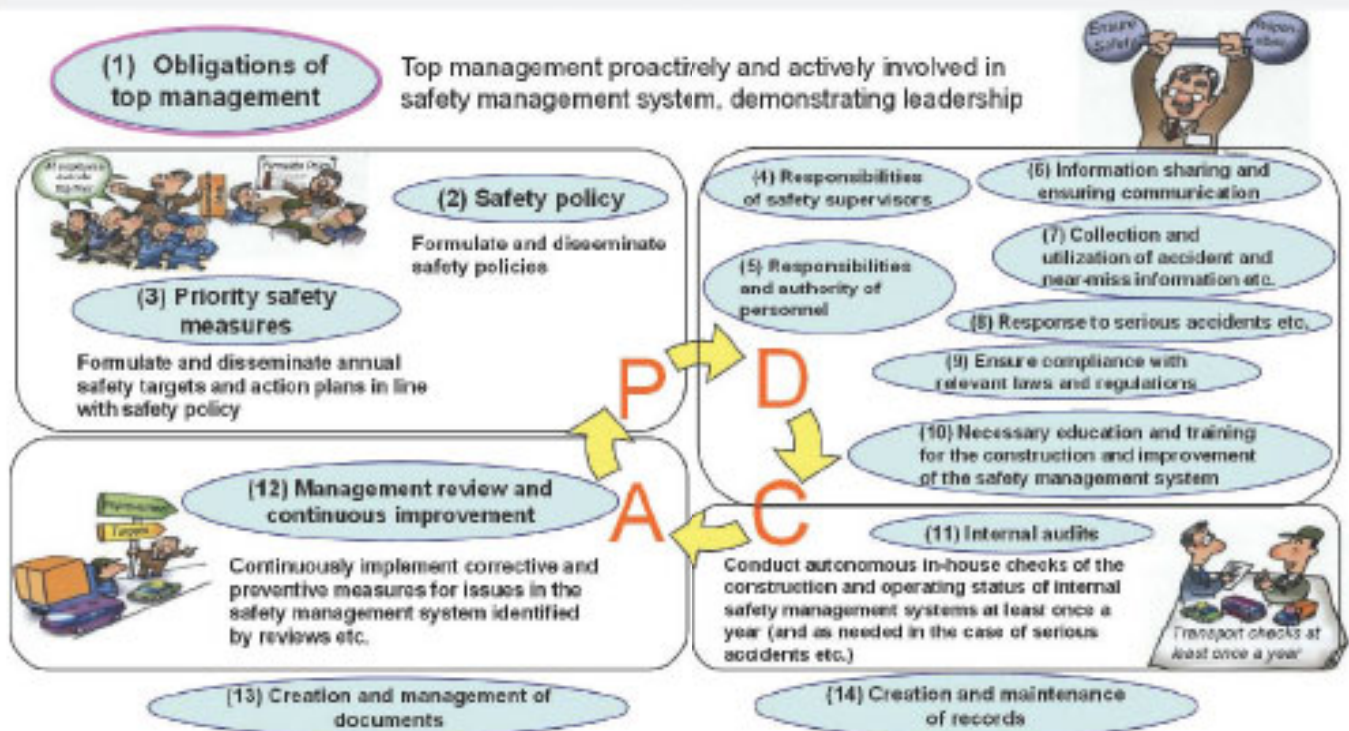
1. Overview of SMS Activities

MRT Line-6 started operation, but we are just at **“Start Line”!**



2. Ongoing/Upcoming Activities for SMS (1)

Obligations of Top Management



2. Ongoing/Upcoming Activities for SMS (1) - Japan Visit of Top Management -

- ✓ **Purpose :**
 - Discussion on the roles/responsibilities in SMS as the Top Manager with Osaka Metro Directors
 - Commitment on Ensuring Safety and SMS Implementation in DMTCL
- ✓ **Candidate Schedule :** May 2023 (3-4 days in Japan)
Note : it will be after completion of MRT Line-6 full day/station operation start
- ✓ **Candidate Participants :**
 - Managing Director of DMTCL
 - Top Management Level from RTHD/DTCA

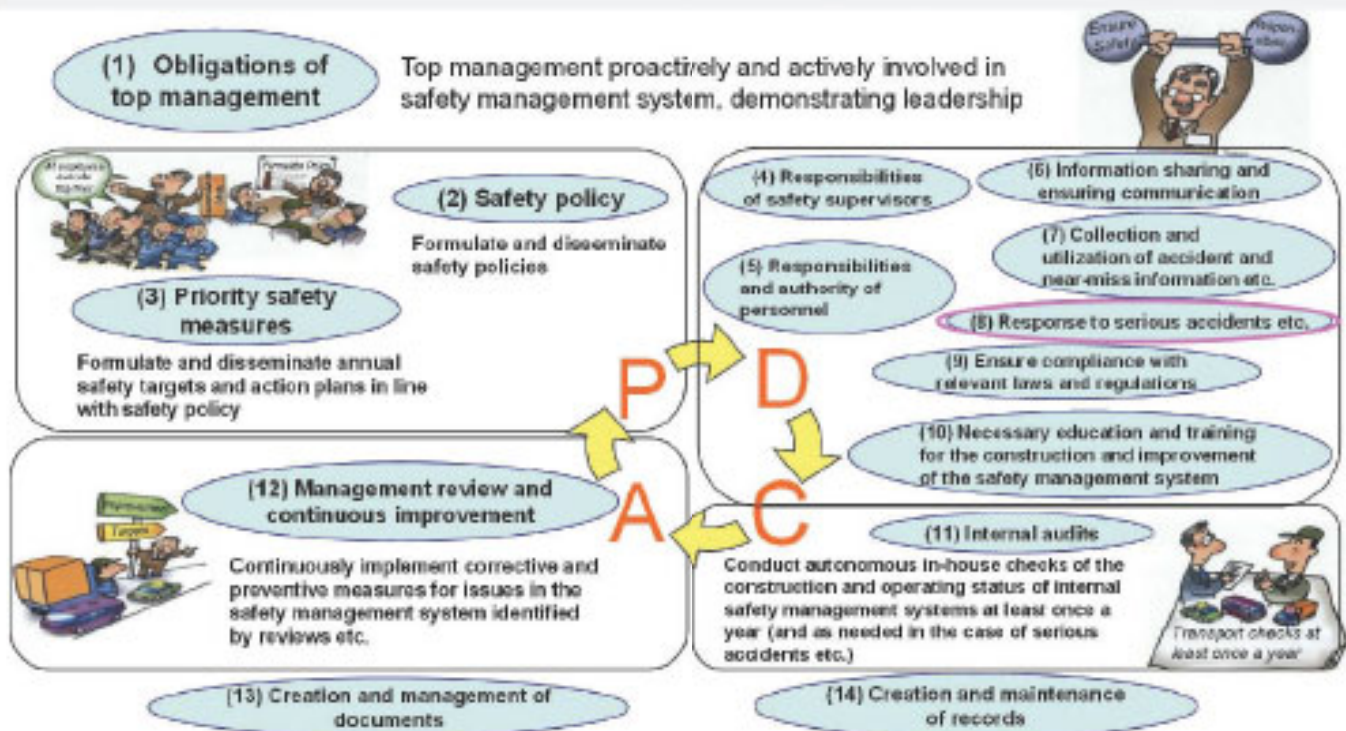
The Site of the Accident on the Fukuchiyama Line and the Memorial



<https://www.westjr.co.jp/fukuchiyama/inorinomori/>

3. Ongoing/Upcoming Activities for SMS (2)

Response to Serious Accidents/Emergency Situation



3. Ongoing/Upcoming Activities for SMS (2)

- Emergency Drill and Review Meeting -

By participation of actual staffs and using actual facilities..
(in off-operation time)



■ First step:

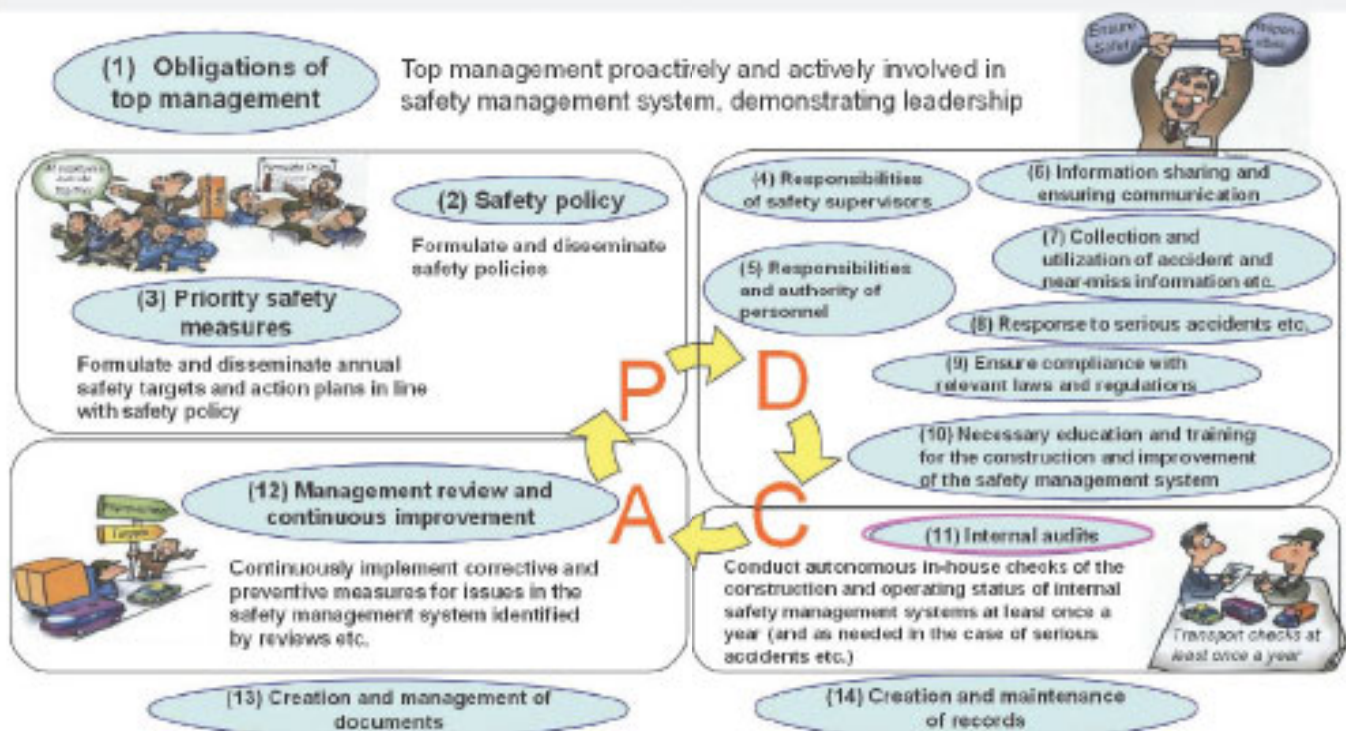
- Confirmation of Site/Role by participants
- Training of equipment handling (ex. Fire extinguisher)

■ Second step: Conducting Drill at actual facilities and Review meeting

- ✓ Enhancement of capability for Emergency Response
- ✓ Review/update of existing manuals

4. Ongoing/Upcoming Activities for SMS (3)

Internal Audits (Checking and Advice from Osaka Metro)



4. Ongoing/Upcoming Activities for SMS (3)

Internal Audits (Checking and Advice from Osaka Metro)

Site Visit with Safety Audit Member of DMTCL

Meeting with Officials/Staffs



Checking/Advice Items

- 1) Dissemination of Safety Policy, and Manuals among DMTCL
- 2) Clarification of the role of each members of DMTCL for SMS
- 3) Recording and reporting of Accident/Incident/Potential Risk
- 4) Response to Emergency Situation
- 5) Implementation of Basic Safety Actions (ex. Shisa-Kanko) ...etc

5. Ongoing/Upcoming Activities for SMS (4)

Jakarta Training

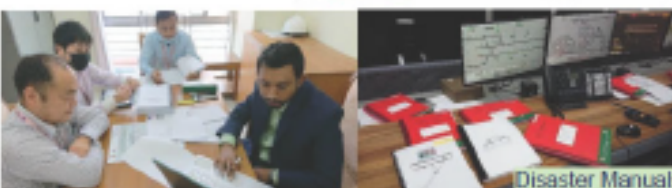
- ✓ **Background / Purpose :**
 - To discuss on the issues and countermeasures related SMS and MRT operation as “Senior Teacher”
 - MRTJ started operation from March 2019
- ✓ **Candidate Schedule :**
March 15th -21st 2023 (including travel date)
- ✓ **Candidate Participants :** (total number will be around 5)
 - 1-2 person from Operation related GM/Manager level
 - 3-4 person from Operation related AM/Staff level



5. Ongoing/Upcoming Activities for SMS (5)

[OUTPUT 1] High priority regulations & manuals for safety are regulated

Item	Content
1. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
2. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
3. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
4. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
5. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
6. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
7. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
8. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
9. Safety Management System (SMS) Manual	Development and completion of the SMS Manual
10. Safety Management System (SMS) Manual	Development and completion of the SMS Manual



Disaster Manuals

Formation, Improvement and Spread of the Regulation etc are important!

[OUTPUT 2] Safety activities will be implemented by DMTCL



PIU Meeting on SMS

Internal Audit



Emergency Drill

Safety Basic Actions (Shisa-Kanko)

Implementation as PDCA cycle and participation of all are important!

5. Ongoing/Upcoming Activities for SMS (5)

[OUTPUT 2] Safety activities will be implemented by DMTCL

✓ Initiative for safety activity by "Safety Committee"

- Osaka Metro is conducting the **"Safety Committee"** by each department director class and the above and Officers/Director of Safety Management.
- Important safety issues required top-level decision are discussed in the meeting
- The decision decided by the meeting is delivered to each staff by their director
- **We recommend to setup "Safety Committee" in DMTCL based on current PIU and Safety & Quality Audit members, under the initiative of Top Management**



Advice and Comments from Osaka Metro





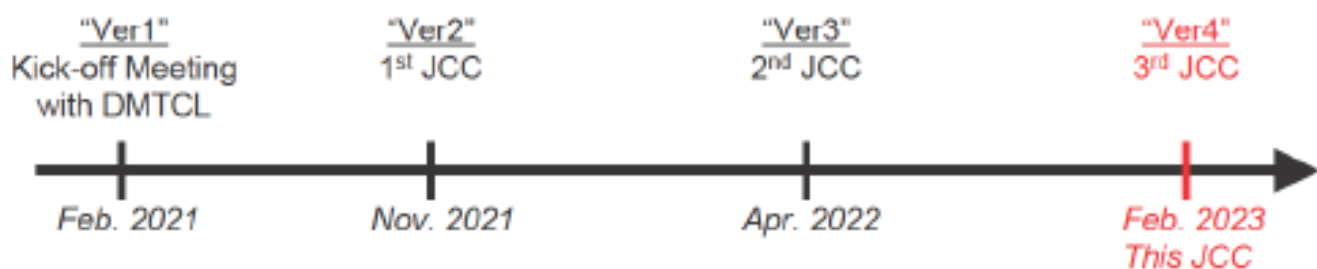
The Project on Technical Assistance for MRT Safety Management System on Line 6 The 3rd Joint Coordinating Committee (JCC)

Monitoring the Progress and Further Activities

February 07th, 2023

1. Purpose of the Monitoring Sheet

- To monitor the progress, issues and that mitigation of the Project
- To share the progress with all stakeholders of JCC
- Shall be updated according to JCC



1. Format of Monitoring Sheet

Monitoring Sheet

1 Project Design Matrix (PDM)

- Define the goals, purposes and outputs
- Confirm the indicators, means of verification and assumption
- Identify the issues to achieve

2 Plan of Operation (PO)

- Schedule of expert input
- Schedule of activities
- Schedule of meetings, report submission, etc.

3 Project Monitoring Sheet Summary

- Overall summary of the achievement of activities
- Overall summary of the achievement of outputs
- Other summary of progress, issues and others

2. Project Goals, Purposes and Outputs

Written in R/D

Overall Goals

Safe and reliable operation and maintenance of MRT is achieved by DMTCL

Project Purposes

Safety management process and activities in DMTCL are continuously implemented during operation

Outputs

1. Prioritized rules and manuals for safety are prepared by DMTCL
2. DMTCL commences the series of safety activities

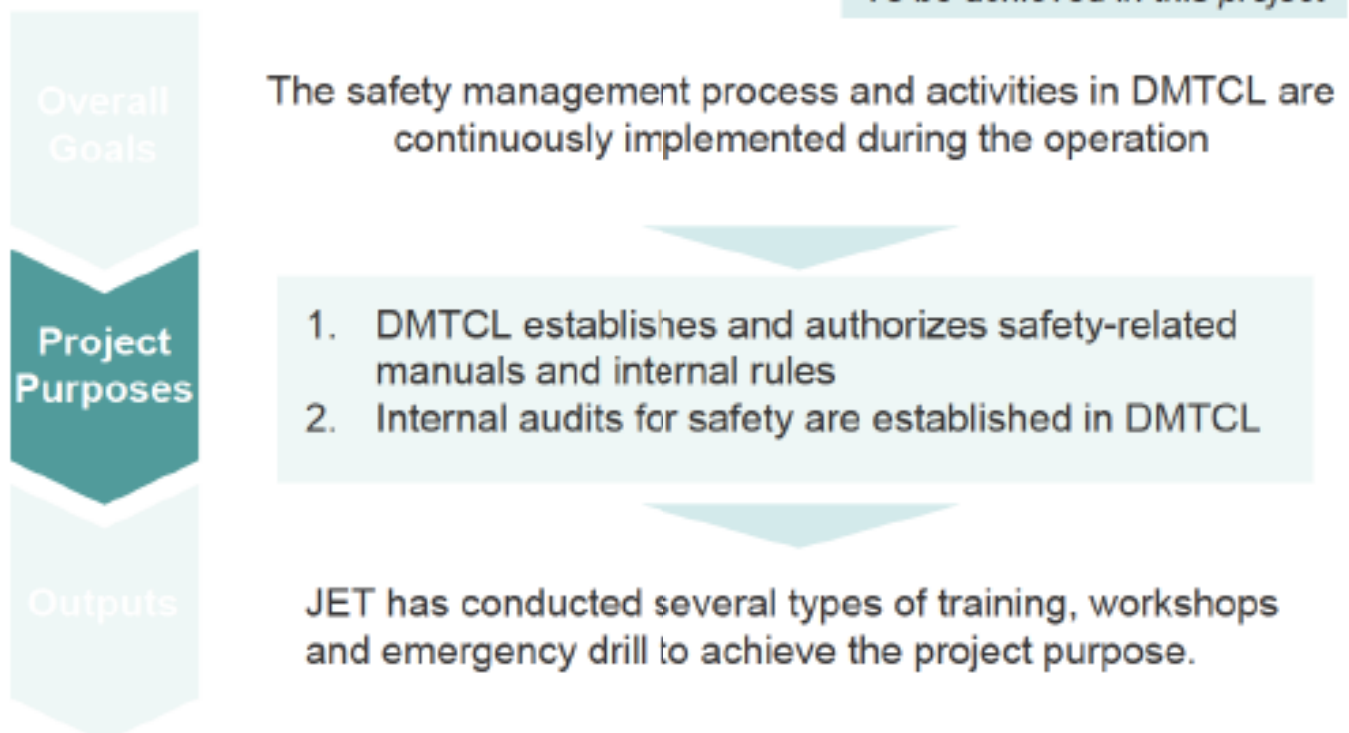
2. Project Goals, Purposes and Outputs

Long span goals



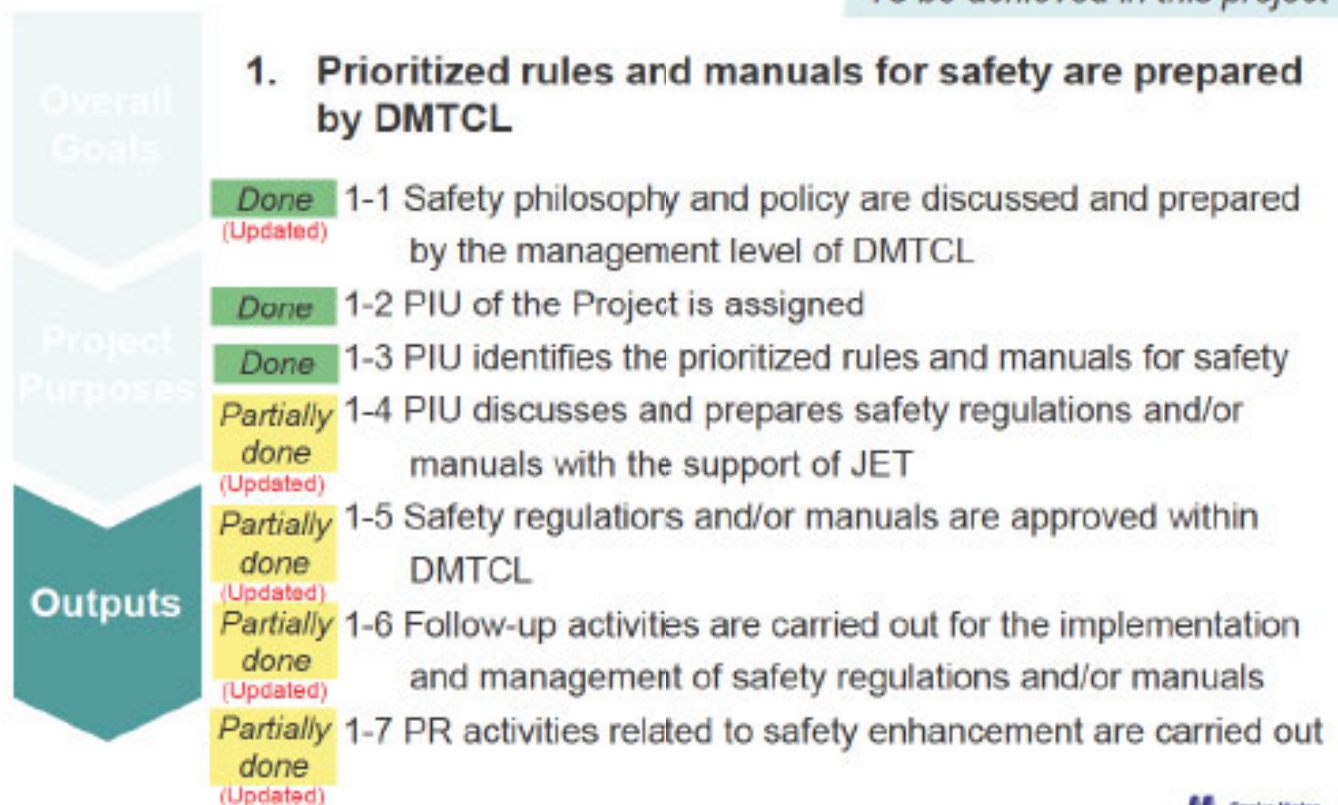
2. Project Goals, Purposes and Outputs

To be achieved in this project



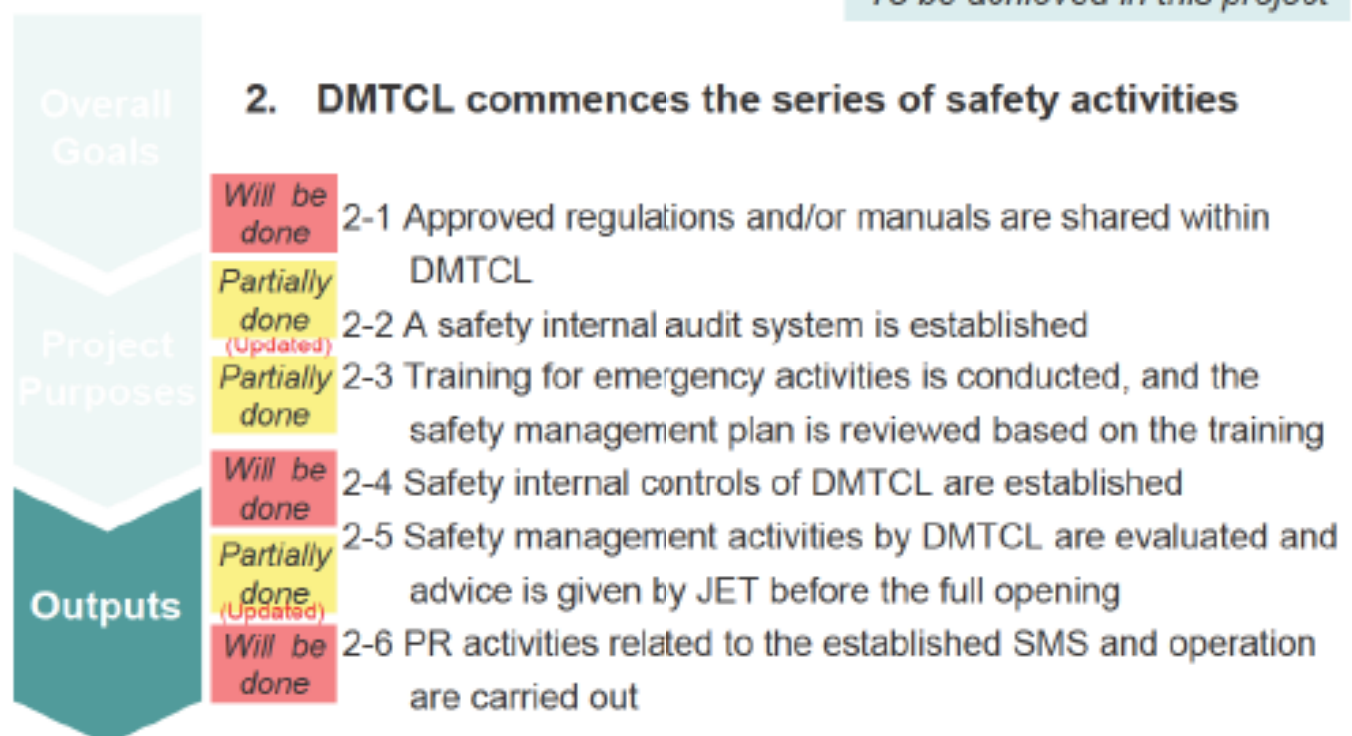
2. Project Goals, Purposes and Outputs

To be achieved in this project



2. Project Goals, Purposes and Outputs

To be achieved in this project



3. Further Activities Done by DMTCL

1 Status of Safety documents (Manuals)

- **Required Manuals** → ✓ Safety Policy (Done)
 - ✓ Safety Internal Audit (Prepared and reviewed by PIU)
 - ✓ Emergency Response* (Prepared and reviewed by DTCA)

*The essence of emergency response was written in the "Accident, Incidents and Disaster Manual" prepared by Line-6 GC to unify the Emergency manual

➤ Expectation to DMTCL

- ✓ The preparation of draft manuals by PIU was completed.
- ✓ After getting approval for each manual, DMTCL should implement internal training to lecture on the safety documents.

Preparation of draft manuals by PIU



Get approval from MD/DTCA



Internal training to each staff

3. Further Activities Done by DMTCL

2 Internal Audit System

➤ Decision by DMTCL

- ✓ Internal Safety Audit → Once a year
- ✓ Auditor → Internal Safety Quality Audit Team
- ✓ Auditee → MD and Each Director

➤ Expectation to DMTCL

- ✓ The "Internal Safety Quality Audit" position has been assigned to staff yet except for 1 position. As soon as possible, DMTCL should assign staff for other blanked positions.
- ✓ The manual for "Internal Safety Audit" is not completed, it should be finalized before the audit.

3 Other Safety Initiatives

➤ Expectation to DMTCL

- ✓ Recording and reporting system is needed
- ✓ Emergency training using manuals is important for quick response
- ✓ Establishment of the "Safety Committee" in DMTCL
- ✓ Updating each manual by DMTCL (if needed)
- ✓ Establishment of each role for the safety management system including upper levels

3. Further Activities Done by DMTCL

4 PR Activities

➤ PR activities on our proses and outcome of our SMS activities

TV CM Broadcast on local TV		Newspaper Press release & op-ed	
Animation movie Upload to SNS		Safety report Publish to customers	
Advertise in the train and/or at stations Use the advertising space (electronic/ paper base)			

Thank you very much for your kind attention
আপনাদের সবাইকে ধন্যবাদ



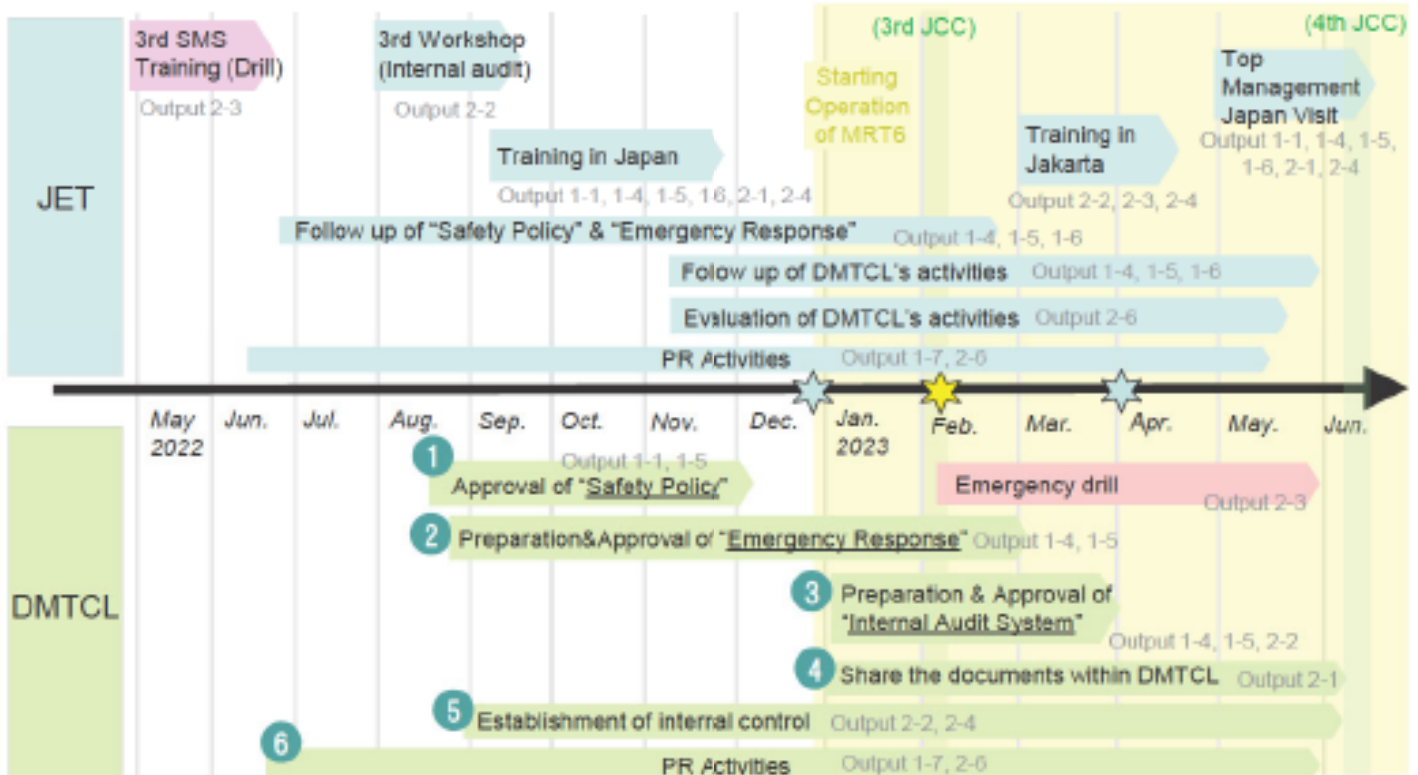
The Project on Technical Assistance for MRT Safety Management System on Line 6 The 3rd Joint Coordinating Committee (JCC)

Way Forward (Project Work Plan)

Feb 7th, 2023

1. Project Work Plan

Note: All schedules are tentative and depends on the actual situation



2. Output of SMS-TA(1)

No.	Contents of Activities	Status (Black : Completed / Red : Items to be conducted)
[OUTPUT 1] High priority regulations & manuals for safety are regulated		
1-1	Discussion/Preparation of Safety philosophy/policy	•Conducted workshop on Safety Policy and got approval by Managing Director of DMTCL
1-2	Assignment of PIU	•Set up in January 2022
1-3	PIU identify the prioritized rules and manual for safety	•Discussion of Basic Regulation for Emergency (based on Accident & Disaster Manual) was done
1-4	PIU discusses and prepares safety regulations/manuals	•Prepared the Basic Procedure document of Safety Internal Audit(SIA) and discuss within PIU members
1-5	Safety regulations and/or manuals are approved within DMTCL	• Discuss the recording/reporting format on Accident/Potential risk and how to record/report within DMTCL
1-6	Follow-up activities for the implementation and management of safety regulations and/or manuals	•Conducted trainings on Basic Safety Actions (Shisa-Kanko, etc.) and Discuss on the contents/procedure within DMTCL
1-7	Public Relations (PR) Activities	• The introduction and activities of the project was pitched to newspapers • Preparation of TV commercial

2. Output of SMS-TA(2)

No.	Contents of Activities	Status (Red : Items to be conducted / Blue : ongoing)
[OUTPUT 2] Safety activities will be implemented by DMTCL		
2-1	Regulations/manuals are shared within DMTCL	• Sharing Safety Policy and Manuals within DMTCL
2-2	A Safety Internal Audit (SIA) system is established	•Conduct Workshop on SIA and Prepared the Basic Procedure document of SIA and discuss within PIU • Establishment of SIA system (Auditor, Criteria, etc)
2-3	Implementation of Training for emergency activities and Review of the safety management plan based on the trainings	•Conduct Drill Mock-up train (in April 2022) • Conduct Drill using actual MRT staff/facilities • Update/Review of Manuals based on the drill result
2-4	Safety internal controls of DMTCL are established	• Conduct SIA for the each department of DMTCL • Consideration of countermeasures for "Follow-up Items" by audited department
2-5	Safety management activities by DMTCL will be evaluated and advice will be given by experts	•Advice on necessary documents • Advice on report/sharing system and countermeasures for Accident/Potential Risk • Conducting Baseline survey
2-6	PR activities related to the established SMS will be carried out	• Preparation of TV commercial • Preparation and Publication of Safety Report (JET will prepare the draft of 1st edition and DMTCL will prepare from 2nd edition)

Annex 5: JCC Materials

4th JCC (19 July 2023)

Monitoring Sheet

TO JCC Members

Project Monitoring Sheet

Project Title :The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6

Version of the Sheet: Ver.4(Term: November 2021 - July 2023)

Name: Atsushi Mochizuki

Title: Team Leader/ Safety Management

Submission Date: 19th July 2023

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I. Summary

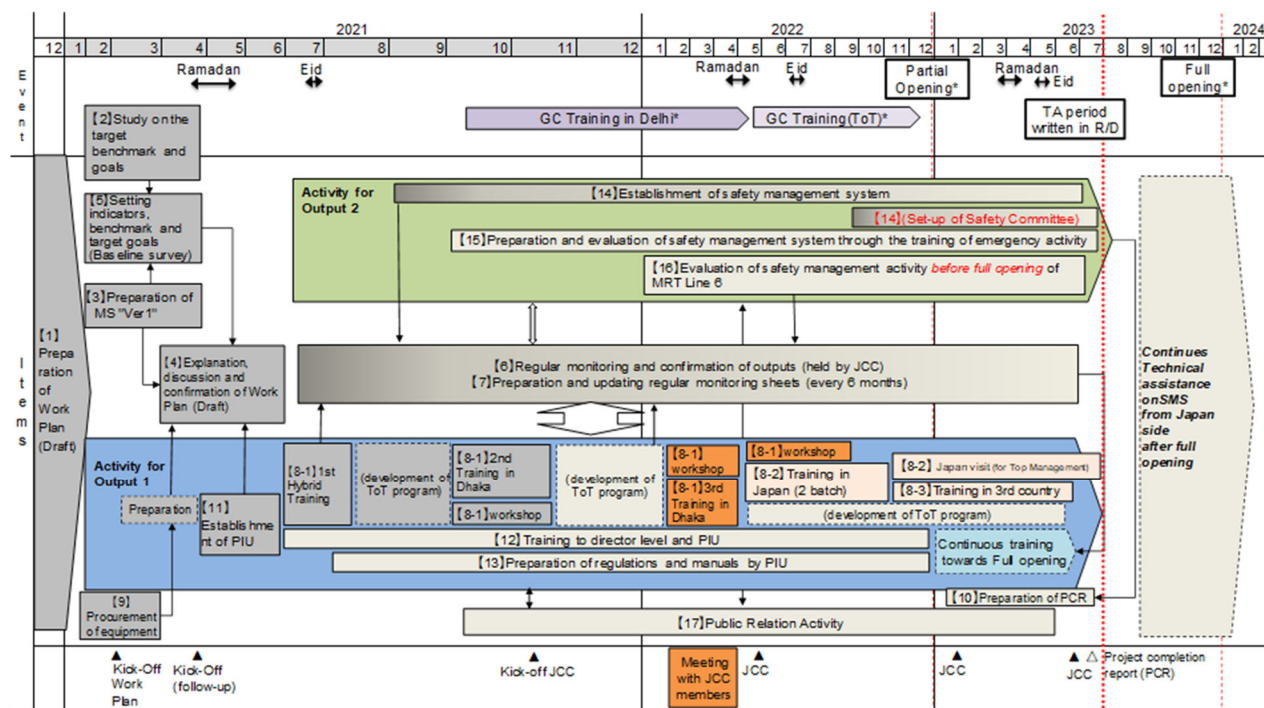
1. Progress

1-1 Progress of Inputs

The project has agreed on the Record of Discussions dated August 4, 2020 between

Dhaka Mass Transit Company Limited (DMTCL) and Japan International Cooperation Agency (JICA). The Project has commenced since January 2021.

JICA Expert Team (JET) has held several types of training activities which are 1st Training (Online) in July 2021, 2nd Training in October 2021, 1st Workshop in October 2021, 2nd Workshop in February 2022, 3rd Training in April 2022, 3rd Workshop in August and Training in Japan in September and October 2022(2 batches), 3rd country training in Jakarta (MRTJ) in March 2023, Japan invitation program in July 2023.



Source: JET

Figure 1 Project Flow as of July 2023

The mobilization plan of Japanese expert is summarized in the table below.

【3】 Preparation of Monitoring Sheet “Ver.1”

JET prepared the Monitoring Sheet “Ver.1” and submitted to JICA and DMTCL on the Kick-off meeting in February 2021.

【4】 Explanation, discussion and confirmation of Work Plan Draft

During the Kick-off meeting, DMTCL and JET confirmed the contents of the Work Plan. JET received the comments from DMTCL during the Kick-off meeting and its follow-up meeting. The major comment is that the Work Plan should be flexible due to the COVID-19 situation. So, our Work Plan (Draft) would be acceptable as of the discussion date and the Work Plan shall be flexible if necessary.

【5】 Setting indicators, benchmark and target goals (conduct the Baseline survey)

Since March 2021, JET has been conducting the baseline survey to monitor changes in the DMTCL’s safety awareness. Two baseline surveys, one at the initial timing of the project and the other after the completion of the three trainings in Dhaka were completed in September 2021 and November 2022, respectively.

Since last JCC, JET conducted the 3rd baseline survey for analyzing the safety awareness at the operation stage, and it was completed in July 2023.

【6】 Regular monitoring and confirmation of outputs (held by JCC)

The JCC among the JET, DMTCL, JICA and local stakeholders related with railway operation is held every 6 months, and four times of JCC has been conducted.

The 4th JCC is held on 19th July.

【7】 Preparing and updating regular monitoring sheets (every six months)

The monitoring sheet is updated at the same time as the JCC and issued and approved version 5 in the last JCC.

For the 4th JCC, monitoring sheet version 5 is drafted by JET and will be approved through the meeting.

【8-1】 Implementation of Trainings (Online Training/ Face to Face in Dhaka)

JET conducted several types of trainings and workshops online or in person in Dhaka below. Through the training, JET provided with DMTCL the basic and important knowledge for implementing the Safety Management System. In the workshop, efforts of concrete safety management system for DMTCL were discussed. The Scheduled training and workshop in Dhaka have been completed.

PM Form 3-1 Monitoring Sheet Summary

Training	Date	Nos. of Participants	Contents
1 st Training (Online)	[1st Batch] 2 nd and 3 rd July 2021 [2nd Batch] 9 th and 10 th July 2021 [3rd Batch] 16 th and 17 th July 2021	Total 55 persons	- Railway Characteristics and Safety Assurance Mechanism - Japanese Railway Accidents and Lessons Learned -Development of Safety-First Corporate Culture - Introduction of SMS in Japan
2 nd Training (In person)	[1st Batch] 8 th and 9 th October 2021 [2nd Batch] 19 th October 2021 [3rd Batch] 21 st October 2021	Total 54 persons	- Review of 1st training - Roles and responsibility of each position in SMS -The Necessity of Safety Related Documents and Those Examples
1 st Workshop (In person)	7 th October and 11 th October 2021	15 persons	- Outline of Safety Related Documents and Those Necessity -Discussion on the Necessary Documents in DMTCL and Those Priority - Discussion on Implementation of the Safety Policy
2 nd Workshop (In person)	8 th February and 10 th February 2022	19 persons from DMTCL 9 persons from other organizations	- Identify the Top Priority Document - Discussion on the “Basic Regulation of Emergency Situations”
3 rd Training (In person)	[1st Batch] 12 th and 13 th April 2022 [2nd Batch] 18 th and 19 th July 2022	51 persons from DMTCL 3 persons from other organization	- Practical Daily SMS Activities - Response to Emergency Situation - Emergency Drill
4 th Training (In person)	[1st Batch] 19 th July 2022 [2nd Batch] 20 th July 2022	Open-style training	- Importance and effect of conducting Basic safety action “Shisa-kanko” - Demonstration of “Shisa-kanko” practice software
3 rd Workshop (In person)	8 th and 10 th August 2022	19 persons from DMTCL	- Explain the safety internal audit using Osaka Metro case.

Training	Date	Nos. of Participants	Contents
			- Discussion on the necessary activities and procedures of the safety internal audit.

【8-2】 Implementation of Training in Japan

JET held two batches Training in Japan to provide with DMTCL the practicalities safety management in the railway operation at the Osaka Metro site. These training held on September to November 2022, and totally 27 staffs (including RHTD, DMP) attended them.

JET invited the Top Management level including the Managing Director of DMTCL to Japan in July 2023. And the discussion between the safety manager of Osaka Metro and Managing Director was conducted to deeply understand the essential role of the Top Management.

【8-3】 Implementation of Training in a Third Country

Training in a third country (Jakarta) was conducted in March 2023. Five site staff members of DMTCL attended it and learned the safety management activities in MRTJ.

【9】 Procurement of training/communication equipment

Done. The procurements which prepared by JET will hand over to DMTCL.

【10】 Preparation of Project Completion Report

JET and DMTCL prepared project completion report and verified by JICA Bangladesh office.

【11】 Establishment of PIU for the Work

Completed. (assigned by DMTCL)

【12】 Training to director level and PIU

Scheduled training for director and PIU level was completed. JET conducted the three Workshops in October 2021, February and August 2022 to PIU and director level of DMTCL. The contents are shown in the above table.

【13】 Preparation of regulations and manuals by PIU

PIU discussed “Safety Policy” and finalized it. And it has been approved by the MD of DMTCL.

PIU discussed about Emergency Response and JET gave comments. DMTCL reflected our comments on the “Accident, Incidents and Disaster Manual” prepared by Line-6 GC. It was reviewed by DTCA.

PIU discussed on the outline of safety internal audit. After that, PIU prepared “Safety Internal Audit Manual” and it has been reviewed by Safety and Quality Audit member of DMTCL.

【14】 Establishment of safety management system

Safety policy, the documents related emergency response and internal safety audit were selected as required manuals in DMTCL, and each draft manual was prepared in the PIU monthly meeting. As for the status of each document, Safety Policy was approved by MD of DMTCL, and other manuals will be approved by “Kick-off meeting of Safety Committee” held on 19th July.

As a practice of safety internal audit, JET and safety quality audit team of DMTCL conducted the demonstration of safety internal audit. Through the demonstration, safety quality audit team of DMTCL learned the process of safety internal audit.

【15】 Preparation and evaluation of safety management system through the training of emergency activity

An emergency drill (drill on the desk) by participation of actual staffs of DMTCL has conducted in June 2023. Through this drill, JET evaluated the safety management system and gave some advice to DMTCL.

【16】 Evaluation of safety management activity before full opening of MRT Line 6

DMTCL conducted the emergency drill on the desk as written above. In the drill, JET evaluated and gave some advice to DMTCL.

【17】 Public Relation Activity

JET has prepared the initial annual safety report with DMTCL in July 2023.

1-3 Achievement of Output

Output1 : 「High Priority Regulations and/or Manuals for Safety are Regulated」

1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL.

Completed. Prepared safety policy by PIU was approved by MD of DMTCL in December 2022.

1-2: Project Implementation Unit (PIU) of the Project is assigned.

Completed.

1-3: PIU identifies the prioritized rules and manual for safety.

The task is completed. PIU identified the following four prioritized rules and manuals from the Osaka Metro safety documents in the 1st workshop.

1) Safety Policy, 2) Basic Regulation of Emergency Situation, 3) Safety Internal Audit, 4) Potential Risks and sharing information 5) Safety Report

DMTCL and JET identified the “Basic Regulation of Emergency Situations” as the top priority document in the 2nd Workshop. To unify the manual for the emergency, the “Accident, Incidents and Disaster Manual” prepared by Line-6 GC was updated using the essence of “Basic Regulation of Emergency Situations”. The updated manual is reviewed by DTCA.

1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team.

The task is completed. DMTCL discussed the contents of the “Basic Regulation of Emergency Situations” in 2nd Workshop. Summary of the contents was submitted by JET to DMTCL. In the PIU meeting, further discussion to decide the contents and relation with another safety manual was implemented. Finally, DMTCL decided on the procedure of basic response for emergency situations, and its essence was written in the “Accident, Incidents and Disaster Manual” to unify the emergency manual.

1-5: Safety regulations and/or manuals are approved within DMTCL.

The task is partially completed. “Safety Policy” was approved in December 2022. The other hand, “The Procedure Manual of Safety Internal Audit” and “The Procedure Manual for Potential Risks and Sharing Information” have not been approved yet by MD. Both manuals will be approved at the kick-off meeting of safety committee to be held during the invitation program for the top manager to Japan.

The “Accident, Incidents and Disaster Manual” which includes the essence of “Basic Regulation of Emergency Situations” has been finalized in DMTCL, and it is under the verification by DTCA.

1-6: Follow-up activities are carried out for the implementation and management

of safety regulations and/or manuals

The task is completed. As a support of the “Safety Policy”, JET prepared and provided the safety policy poster and handy card for smoothly spreading the contents to staffs. The poster is hanged on the station office and inside of the station. The handy card is gradually provided to staff completing the safety training.

As a support of the “Internal Safety Audit manual”, JET and safety quality audit team of DMTCL conducted the demonstration of internal safety audit in accordance with the drafted “procedure manual of safety internal audit”, and the participant understood the procedure of audit and the contents of the manual.

As a support of the “Accident, Incidents and Disaster Manual”, JET made a drill scenario, and DMTCL conducted the emergency drill (Drill on the desk) in accordance with the prepared scenario. After the drill JET gave some advice to DMTCL for developing the safety activity.

1-7: Public relations (PR) activities related to safety enhancement are carried out.

For the executed local PR activities, JET has succeeded to post articles on several local newspapers regarding emergency drills and Japan training.

The task is completed. JET prepared PR materials such as posters, short videos which promote safety manner for passengers so that DMTCL can utilize and continue PR activities by themselves.

Output 2: 「Safety activities will be implemented by DMTCL」

2-1: Approved regulations and/or manuals are shared within DMTCL.

The task is partially completed. The status of five documents which were chosen from the safety manual of Osaka Metro are below.

1) Safety Policy: It was approved in December 2022.

2) Basic Regulation of Emergency Situation: Emergency response section was added to the Accident, Incidents and Disaster Manual, as advice by JET. DTCA reviewed this manual.

3) Basic Procedure of Internal Safety Audit Manual: Draft Manual was prepared following the discussion in the 3rd workshop. It will be approved by MD in the “Kick-off meeting of Safety Committee”.

4) The Procedure Manual for Potential Risk Sharing and Reporting: The contents of the manual was discussed and prepared a draft manual. It will be approved by MD in the “Kick-off meeting of Safety Committee”.

5) Safety Report: It was prepared in July 2023.

2-2: A safety internal audit system is established.

The task is completed. Draft "Internal Safety Audit Manual" was prepared and finalized by PIU.

The demonstration of the safety internal audit between DMTCL and JET was conducted in accordance with the draft "Internal Safety Audit Manual" in June 2023. Through the demonstration, Safety & Quality audit team member learned the procedure and purpose of the safety audit.

The manual will be approved by MD in the "Kick-off meeting of Safety Committee".

2-3: Training for emergency activities are conducted, and the safety management plan is reviewed based on the trainings.

The task is completed. The mini emergency drill using mockup train was done in 3rd training in April 2022. The emergency drill (drill on the desk) by participation of actual staffs of DMTCL has conducted this June 2023.

2-4: Safety internal controls of DMTCL are established.

N/A

2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6

The task is completed. JET inspected stations and a depot area to check the safety management activity and gave some advice to DMTCL to improve activity in February 2023 and June 2023.

An emergency drill (drill on the desk) by participation of actual staffs of DMTCL has conducted this June 2023, in the review meeting JET gave some advice to DMTCL.

2-6: PR activities related to the established safety management system and operation are carried out.

The task is completed. JET prepares the safety short videos, posters, flyer for the passenger. It will post on the public relation space in the station and rolling stocks and DMTCL's SNS channel.

1-4 Achievement of the Project Purpose

Project purpose is "Safety management process and activities in DMTCL are continuously implemented during operation" in accordance with R/D.

This project is approaching the end of the contract period. For the continuous development in DMTCL after the project, DMTCL must complete following things before

the project period.

- 1) Approval of draft safety documents by MD.
- 2) Appoint of safety committee members including the chairperson and hold it.

1-5 Changes of Risks and Actions for Mitigation

As a risk in DMTCL, some of the staffs related to the metro operation and maintenance are not hired. Therefore, railway operation is implemented by limited staff. In addition, the position in Safety & Quality audit which is in charge of the promotion of safety management is also not hired except for one position. In the event of an emergency in the railway operation, DMTCL may face to difficulty to properly implement the required safety action. Furthermore, DMTCL have to implement the safety management themselves after the project. As a first barrier for safety development in DMTCL, first safety internal audit must be conducted within this December (before extension of MRT Line 6). The importance of the safety audit doesn't penetrate in DMTCL. The organization needs to cooperate with the audit.

To mitigate the above risks, DMTCL should immediately boost recruitment and assignment of staff to key safety positions and operations. In addition, each staff should be assigned a safety-related role in order to enhance their safety awareness. Furthermore, to implement the safety development, safety committee must be hold periodically, and they must take the lead in safety measures.

1-6 Progress of Actions undertaken by JICA

N/A

1-7 Progress of Actions undertaken by Gov. of Bangladesh

N/A

1-8 Progress of Considerations on Gender/Peace Building/Poverty Reduction (if applicable)

As a part of the development of barrier elimination, JET gave lectures on how to support disabled passengers as railway staff in the training in Japan. We invited 3 female participants to the training of Japan. And one female was in charge an initial train operation in the opening ceremony of Dhaka Metro.

1-9 Other remarkable/considerable issues related/affect to the project (such as other JICA's projects, activities of counterparts, other donors, private sectors, NGOs etc.)

N/A

2. Delay of Work Schedule and/or Problems (if any)

To complete the project, above thing written in 1-4 must be completed before the end of the project.

3. Modification of the Project Implementation Plan

3-1 PO

N/A

3-2 Other modifications on detailed implementation plan

(Remarks: The amendment of R/D and PDM (title of the project, duration, project site(s), target group(s), implementation structure, overall goal, project purpose, outputs, activities, and input) should be authorized by JICA HDQs. If the project team deems it necessary to modify any part of R/D and PDM, the team may propose the draft.)

N/A

4. Current Activities of Gov. of Bangladesh to Secure Project Sustainability after its Completion

Hiring the permanent staffs especially management and operation level.

II. Project Monitoring Sheet I & II

As attached.

Project Monitoring Sheet I (Project Design Matrix)

Project Title: The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6

Implementing Agency: Dhaka Mass Transit Company Limited (DMTCL)


Target Group: Management and all safety-related staff of DMTCL

Period of Project: February 2021 – July 2023

Project Site: Dhaka

Version 5
Dated 19th July 2023

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
<p>Overall Goal</p> <p>Safe and reliable operation and maintenance of MRT is achieved by DMTCL</p>	DMTCL establishes and conducts necessary activities for safe MRT in a reliable and immediate way, even in the case of an emergency or accident.	<p>1. Internal meetings related to safety shall be held within DMTCL</p> <p>2. Baseline survey for DMTCL Staff</p>	- Training shall be conducted properly in Dhaka, Japan, and a third country.	The series of SMS training in Dhaka, Japan, and Jakarta (MRTJ) has been completed.	Since the last JCC, the 3 rd country training in Jakarta has been completed. And the Japan invitation program for a top manager is underway.
<p>Project Purpose (to be achieved within this project)</p> <p>The safety management process and activities in DMTCL are continuously implemented during the operation</p>	<p>1. DMTCL establishes and authorizes safety-related manuals and internal rules</p> <p>2. Internal audits for safety management are established in DMTCL and desirable countermeasures and improvements are considered and implemented</p>	<p>- Number of safety-related manuals established in comparison with its plan</p> <p>-Record of safety activities of DMTCL</p>	- Training shall be conducted properly in Dhaka, Japan and a third country.	Manuals which should be prepared between DMTCL and JET have been prepared.	DMTCL shall review and update manuals regularly in accordance with the operation situation, results of the internal safety audit, etc.
<p>Outputs</p> <p>1. High priority regulations and/or manuals for safety are regulated</p>	<p>1-1: Safety policy and its management plan are established.</p> <p>1-2: The safety management plan is implemented.</p> <p>1-3: Training is conducted by Japanese expert team</p>	<p>-Record of training and/or meetings within DMTCL</p> <p>-Number of safety-related documents</p> <p>-Report of the training by Japanese experts</p>	-Discussion within DMTCL shall be required.	<p>Done: Safety Policy</p> <p>Drafted: Procedure Manual for the Internal Safety Audit, the Potential Risks</p> <p>Await of verification: The Accident, Incidents, and Disaster Manual</p>	<p>The Accident, Incidents Disaster Manual shall be approved by DTCA as soon as possible.</p> <p>The drafted manuals shall be approved in the kick-off meeting of Safety Committee</p>
<p>2. Safety activities will be implemented by DMTCL</p>	2-1 Organization structures for safety management are established and in operation.	<p>-Number of safety-related meetings within DMTCL.</p> <p>-Evaluation of the activities by JET</p>	-Staff recruitment of DMTCL especially the position of Safety & Quality Audit.	<p>A drill on the desk assuming the fire case in the station was conducted among operation staff.</p> <p>A demonstration of the safety internal audit was conducted between JET and the safety quality audit team of DMTCL.</p>	<p>DMTCL shall appoint the internal safety audit staff, especially the DGM position.</p> <p>DMTCL shall officially conduct the hands-on emergency training using real equipment and facility, and the safety internal audit.</p>

Activities	Inputs		Important Assumption
	The Japanese Side	The Bangladesh Side	
<p>0: Baseline Survey</p> <p>1-1: Safety philosophy and policy are discussed and prepared by the management level of DMTCL.</p> <p>1-2: Project Implementation Unit (PIU) of the Project is assigned.</p> <p>1-3: PIU identifies the prioritized rules and manual for safety.</p> <p>1-4: PIU discusses and prepares safety regulations and/or manuals with the support of the JICA Expert Team.</p> <p>1-5: Safety regulations and/or manuals are approved within DMTCL.</p> <p>1-6: Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals.</p> <p>1-7: Public relations (PR) activities related to safety enhancement are carried out.</p> <p>2-1: Approved regulations and/or manuals are shared within DMTCL.</p> <p>2-2: A safety internal audit system is established.</p> <p>2-3: Training for emergency activities is conducted, and the safety management plan is reviewed based on the training.</p> <p>2-4: Safety internal controls of DMTCL are established.</p> <p>2-5: Safety management activities by DMTCL are evaluated and advice is given by experts before the full opening of MRT Line 6</p> <p>2-6: PR activities related to the established safety management system and operation are carried out.</p>	<p>Dispatch of Japanese experts</p> <ol style="list-style-type: none"> 1. Team Leader/ Safety Management 2. Training Planning (Management Level)/Safety Document Management Plan 1 3. Training Planning (Safety Staff Level) 4. Safety Management (Organization Management) 5. Safety Management (Implementation) 6. Safety Management (Document Management) 7. Safety Document Management Plan 2 8. Training Implementation 9. Public Relations Activity/ Training Implementation Support <p><u>Online/Hybrid Training</u></p> <p>[Training target]</p> <p>55 Candidates (ToT style)</p> <p>[Contents at 1st time]</p> <ul style="list-style-type: none"> -Railway Characteristics and Safety Assurance Mechanism -Japanese Railway Accidents and Lessons Learned -Development of Safety-First Corporate Culture -Introduction of Safety Management System in Japan <p>[Contents at 2nd time]</p> <ul style="list-style-type: none"> -Review of 1st Training (Safety Assurance Mechanism and Punishment) -Roles and Responsibility of each Position -Necessity of Safety-Related Documents and Those Examples <p>[Contents at 3rd time]</p> <ul style="list-style-type: none"> -Practical Daily SMS Activities -Response to Emergency Situation -Emergency Drill and its review <p><u>Workshop in Dhaka</u></p> <p>[Contents at 1st Workshop]</p> <ul style="list-style-type: none"> -Outline of Safety Documents and Safety Policy -Discussion on the Contents to be included in the Safety Policy -Open Discussion on the Safety Policy -Discussion on the Implementation of Safety Policy <p>[Contents at 2nd Workshop]</p> <ul style="list-style-type: none"> -Identify the Top Priority Document -Discussion on the "Basic Regulation of Emergency Situations" <p>[Contents at 3rd Workshop]</p> <ul style="list-style-type: none"> -Purpose of the safety audit -Discussion on the required activities for safety audit in DMTCL <p><u>1st and 2nd batches of training in Japan (has been done)</u></p> <p>[Training target]</p> <ul style="list-style-type: none"> -Project Implementation Unit (PIU) in DMTCL -Safety-related positions in DMTCL -Related institutions for MRT safety (Dhaka Metropolitan Police / Ministry of Road Highway Transport and Bridge) <p>[Contents]</p> <ul style="list-style-type: none"> -Lecture on safety activity in Osaka Metro 	<ul style="list-style-type: none"> -Assignment of Counterpart and administrative staff -Employment of safety-related staff -Provision of office space and office facilities -Permit the utilization of facilities of MRT and BR -Provision of safety-related documents and records -Joint Coordination Committee (JCC) -Organization formulation and authority delegation regarding implementation of SMS -The training done by JET must be conducted within DMTCL since JET's training is To (Training of Trainer) style and expected to disseminate throughout DMTCL. 	<p>Pre-conditions</p> <p>[Document (Manual)]</p> <ul style="list-style-type: none"> -Manuals related to safety must be regularly reviewed and updated in accordance with the operating situation based on PDCA cycle. -The contents of manuals shall be spread and educated to all staff of DMTCL through the training and working on the site. <p>[Recruitment]</p> <ul style="list-style-type: none"> -The appropriate person shall be appointed to the vacant safety position as soon as possible. -Recruitment of staff shall proceed toward expansion of operation time and expansion of MRT operation section. <p>[Training]</p> <ul style="list-style-type: none"> -Internal safety training shall be conducted not only for newcomers but also for existing staff. <p style="text-align: center;"></p> <p style="text-align: center;"><Issues and Countermeasures></p> <p>[Document]</p> <p><u>Issue</u></p> <ul style="list-style-type: none"> -Some manuals have not yet been approved by the MD or supervised organization. <p><u>Countermeasures</u></p> <ul style="list-style-type: none"> -The documents should be approved in the kick-off meeting of "Safety Committee". <p>[Recruitment]</p> <p><u>Issue</u></p> <ul style="list-style-type: none"> -The DGM of safety quality audit position is not assigned. This position is essential for proceeding Internal Safety audit in DMTCL. -Strategic recruitment is required for the full operation. <p><u>Countermeasures</u></p> <ul style="list-style-type: none"> -Appoint the senior staff of DMTCL as the DGM of safety quality audit. <p>[Training]</p>

Activities	Inputs		Important Assumption
	The Japanese Side	The Bangladesh Side	
	<ul style="list-style-type: none"> -Lecture on the responsibility of site safety manager -Site visit on the safety activity -Site visit on the safety-related facilities -Site visit on the maintenance facilities <p><u>Public Relations (Plan)</u> [Content]</p> <ul style="list-style-type: none"> -Create and publish the initial Safety Report (in July 2023) -Create safety videos and publish them in the coach and on the social networking sites (from July 2023) -Create safety posters and post them on the wall in the station (in July 2023) -Create a flyer related to safety manners and behaviors in the DMTCCL facility and distributes it at the station (in July 2023) 		<p><u>Issue</u></p> <ul style="list-style-type: none"> -A strategic internal safety training plan for new and existing staff is needed. <p><u>Countermeasures</u></p> <ul style="list-style-type: none"> -An inclusive annual training plan for proceeding safety training involving the existing site staff shall be prepared by the Training center of DMTCCL.

Project Monitoring Sheet II (Original of Plan of Operation)

Version 5
Dated: 19, July, 2023

Project Title: Technical Assistance Project for Dhaka Mass Rapid Transit Development (Line No.6)

Inputs	Year	2021												2022												2023							Remarks	Monitoring					
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7		Issue	Solution				
Expert																																							
Team Leader/ Safety Management	Plan																																						
	Actual																																						
Training Planning (Management Level)/Safety Document Management Plan 1	Plan																																						
	Actual																																						
Training Planning(Safety Staff Level)	Plan																																						
	Actual																																						
Safety Management (Organization Management)	Plan																																						
	Actual																																						
Safety Management (Implementation)	Plan																																						
	Actual																																						
Safety Management (Document Management)	Plan																																						
	Actual																																						
Safety Document Management Plan2	Plan																																						
	Actual																																						
Training Implementation	Plan																																						
	Actual																																						
Public Relation Activity/ Training Implementation Support	Plan																																						
	Actual																																						
Equipment																																							
	Plan																																						
	Actual																																						
Training in Japan																																							
	Plan																																						
	Actual																																				Two training and one invitation program were conducted		
In-country/Third country Training																																							
	Plan																																						
	Actual																																				It was hold in MRT Jakarta		

Activities	Sub-Activities	Year	1st Year												2nd Year												3rd Year							Responsible Organization		Achievements	Issue & Countermeasures			
			+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12	+1	+2	+3	+4	+5	+6	+7	Japan	Bangladesh					
Tasks																																								
[1]	Preparation of Work Plan (Draft)	Plan																																						
		Actual																																						
[2]	Study on the target benchmark and goals	Plan																																						
		Actual																																						
[3]	Preparation of Monitoring Sheet Ver. 1	Plan																																						
		Actual																																						
[4]	Explanation, discussion and confirmation of Work Plan Draft	Plan																																						
		Actual																																						
[5]	Setting indicators, benchmark and target goals (conduct the baseline survey)	Plan																																						
		Actual																																						
[6]	Regular monitoring and confirmation of outputs (held by JCC)	Plan																																						
		Actual																																						
[7]	Preparing and updating regular monitoring sheets (every six months)	Plan																																						
		Actual																																						
[8-1]	Conduct online/hybrid training	Plan																																						
		Actual																																						
[8-2]	Conduct the training in Japan	Plan																																						
		Actual																																						
[8-3]	Training in a third country	Plan																																						
		Actual																																						
[9]	Procurement of training/communication equipment	Plan																																						
		Actual																																						
[10]	Preparation of Project Completion Report	Plan																																						
		Actual																																						
Activities for Output 1: High Priority Regulations and/or Manuals for Safety are Regulated																																								
[11]	Establishment of PIU for the Work	Plan																																						
		Actual																																						
[12]	Training to director level and PIU	Plan																																						
		Actual																																						
[13]	Preparation of regulations and manuals by PIU	Plan																																						
		Actual																																						
Activities for Output 2: Safety activities will be implemented by DMTCL																																								
[14]	Establishment of safety management system	Plan																																						
		Actual																																						
[15]	Preparation and evaluation of safety management system through the training of emergency activity	Plan																																						
		Actual																																						
[16]	Evaluation of safety management activity before full opening of MRT Line 6	Plan																																						
		Actual																																						
[17]	Public Relation Activity	Plan																																						
		Actual																																						

Monitoring Plan	Year	1st Year												2nd Year												3rd Year							Remarks	Issue	Solution				
		+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12	+1	+2	+3	+4	+5	+6	+7							
Monitoring																																							
Joint Coordinating Committee (JCC)	Plan																																						
	Actual																																						
Reports/Documents																																							
Work Plan	Plan																																						
	Actual																																						
Monitoring Sheet	Plan																																						
	Actual																																						
Project Completion Report	Plan																																						
	Actual																																						
Public Relations																																							
PR for Bangladesh side	Plan																																						
	Actual																																						
PR for Japan side	Plan																																						
	Actual																																						

Legend:
 Input Plan in Bangladesh:
 Actual input in Bangladesh:
 Activity plan in Japan:
 Activity plan in Bangladesh:
 Actual activities in Japan&Bangladesh:
 Monitoring Plan: △
 Actual Monitoring Activities: ▲

Presentation Materials

**4th Joint Coordinating Committee (JCC)
For
The Project for Technical Assistance for
Safety Management System (SMS)**

Date: 19th July 2023

Time: 11:00 -12:30(BST), 14:00 -15:30 (JST)

**Venue: Conference room in Osaka Japan
and**

DMTCL conference room in Dhaka / Zoom

Agenda

- 1. Opening Remarks by DMTCL (5 mins)**
- 2. Opening Remarks by Transportation Group, Infrastructure Management Department, JICA HQ (5 mins)**
- 3. Review of 3rd JCC meeting (5 mins)**
- 4. Presentation**
 - 4.1 Introduction of Project Output – *Expert Team* (5 mins)**
 - 4.2 Update of Project Monitoring Sheet – *Expert Team* (5 mins)**
 - 4.3 Way Forward for implementation of SMS – *Expert Team* (5 mins)**
 - 4.4 Future plan for Capacity Building on SMS – *Principal of DMTCL Training Center* (10 mins)**
- 5. Commitment of Top Management for Ensuring Safety and Establishment of SMS in DMTCL (5 mins)**
- 6. Discussion (10 mins)**
- 7. Closing Remarks by DMTCL (5 mins)**

Attachment:

- Handout for Project output, Way Forward for implementation of SMS, Project Monitoring Sheet,**



The Project on Technical Assistance for MRT Safety Management System on Line-6 The 4th Joint Coordinating Committee (JCC)

1. Introduction of Project Output

July 19th, 2023

1. Abstract of the Project Output

Project Output written in the “Record of Discussions”

[OUTPUT 1] High priority regulations & manuals for safety are regulated

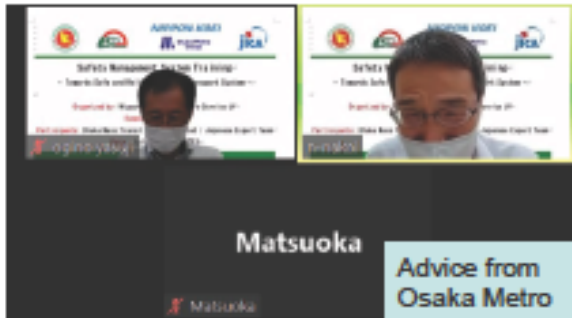
[OUTPUT 2] Safety activities will be implemented by DMTCL

Establishment of Safety Management System in DMTCL

2. [Output 1]

- High priority regulations & manuals for safety are regulated -

[1-1] Discussion/Preparation of Safety philosophy/policy



Safety Policy Dhaka Mass Transit Company Limited (DMTCL)	
English	বাংলা
Our Aspiration	আমাদের লক্ষ্য
Providing safe environment that brings new hope to people.	স্বাস্থ্যকর পরিবেশ নিশ্চিত করা
Our Goal	আমাদের লক্ষ্য
Zero accidents every year.	শূন্য দুর্ঘটনা প্রতি বছর
Our Strategic Focus Areas	আমাদের গুরুত্বপূর্ণ ক্ষেত্র
1. Safety in development priority.	স্বাস্থ্যকর পরিবেশ
2. Establishing safety culture by learning and well understanding related Laws, Rules & Regulations.	সংশ্লিষ্ট আইন, নিয়ম ও বিধি নিয়ে সচেতনতা তৈরি করা
3. Ensuring both way communication between contractors and employees.	কন্ট্রাক্টর ও কর্মীদের মধ্যে দুই দিকের যোগাযোগ নিশ্চিত করা
4. Providing suitable working by trained, skilled and equipped employees.	শিক্ষিত, দক্ষ ও যথাযথ সরঞ্জামাদি সহ কর্মীদের নিয়োগ করা
5. Promoting the initiative capacity and taking the self-help action quickly.	স্বনির্ভরতা তৈরি করা এবং দ্রুত স্ব-সহায়তা নেওয়া
6. Striving for continuous improvement of safety culture by sharing and documenting information, providing training, motivation and incentives.	সংশ্লিষ্ট তথ্য শেয়ার করা এবং নথিভুক্ত করা, প্রশিক্ষণ, প্রেরণা এবং উৎসাহ প্রদান করা
7. Conducting Safety Audit regularly to identify shortcomings and taking corrective measures.	নিয়মিতভাবে সুরক্ষা পরিদর্শন করা এবং ত্রুটি সংশোধন করা
8. Increasing safety awareness among the stakeholders by appropriate ways and means.	সংশ্লিষ্ট সকলের মধ্যে সুরক্ষা সচেতনতা তৈরি করা

Approved Safety Policy

- Conducted workshop on Safety Policy (in February 2022)
- Got approval by Managing Director and prepared Safety Policy Poster

2. [Output 1]

- High priority regulations & manuals for safety are regulated -

[1-2] Assignment of PIU (Project Implementation Unit)

[1-3] PIU identify the prioritized rules and manual for safety

[1-4] PIU discusses and prepares safety regulations/manuals



Sl.	Name	Designation
01	Mr. Nasir Uddin Ahmed	Director (Operation & Maintenance), (DMTCL, The Project Manager of PIU)
02	Mr. Krishna Kanta Bhowmik	Additional Project Director, Line-6
03	Mr. Md. Zakaria	Additional Project Director, Line-6
04	Mr. Shakh Khairul Rahman	Project Manager-4, Line-6
05	Mr. Md. Fikhar Hossain	General Manager (Operation), (DMTCL)
06	Mr. A.B.M. Ariful Rahman	Project Manager-5, Line-6
07	Mr. Muhammad Shahjahan	Project Manager-1, Line-6
08	Ms. Kamrun Nahar	Assistant Engineer (Div), Line-6
09	Mr. Md. Abu Bakor Siddique	Assistant Manager (Mechanical (Single & Pneumatic)), (DMTCL)
10	Mr. Mohammad Rafiqul Faruque	Assistant Manager (Inspection & Planning and Monitoring), (DMTCL)
11	Mr. Md. Sajid Hasan	Assistant Manager (Operation Control Center Management), (DMTCL)

List of PIU members (as of July 2022)

- Set up PIU in January 2022 and conducted PIU meetings in 5 times
- Discussed on Safety Policy and Basic Regulation for Emergency (based on Accident & Disaster Manual) and SMS related documents

2. [Output 1]

- High priority regulations & manuals for safety are regulated -

[1-5] Safety regulations and/or manuals are approved within DMTCL

Sl.	Name of document	Status	Remarks
1	Accident, Incidents & Disaster Manual	Draft document is prepared after JET suggested the modification point And waiting for final approval by DTCA	Daily MRT operation and Emergency Drills are conducted based on this manual (currently daily/emergency operation is conducted based on current draft Manual)
2	Safety Policy of DMTCL	The content was approved by the Managing Director in December 2022	The poster design was also approved and the poster was hanged in the office and Line-6 stations
3	Basic Procedures of Internal Safety Audit	JET had prepared the draft and handed over to PIU member	JET also gave advice on necessary audit items in DMTCL, and DMTCL will update the documents
4	The procedure manual for Potential Risk report	JET had prepared the draft and handed over to PIU member	Need to update by DMTCL based on actual MRT operation experience
5	The procedure manual of Emergency Drill	JET had prepared the draft and handed over to PIU member	Need to update by DMTCL based on the actual Emergency response/drill



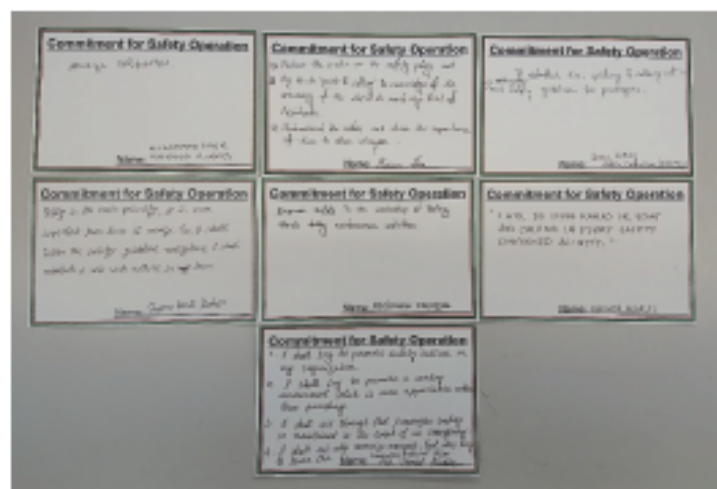
Contents of "Basic Procedures of Internal Safety Audit"

• JET has prepared SMS related Manuals and JET would like to request DMTCL to utilize for implementation of SMS and update as necessary

2. [Output 1]

- High priority regulations & manuals for safety are regulated -

[1-6] Follow-up activities for the implementation and management of safety regulations and/or manuals



• JET have supported for follow-up of implementation of "Safety Policy" (including its commitment) and "Accident and Disaster Manual".
 • Further follow-up of the implementation/management of manuals is needed after expansion of MRT Line-6 operation

2. [Output 1]

- High priority regulations & manuals for safety are regulated -

[1-7] Public Relations (PR) Activities



Safety Report in 2023 (1st edition)



Safety Promotion Video



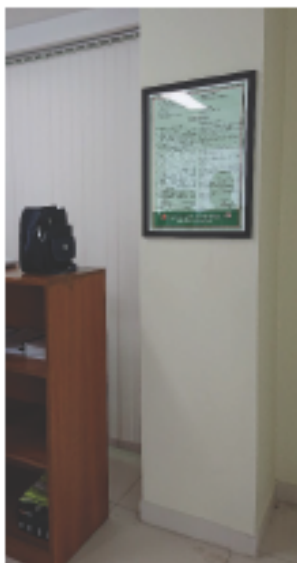
Safety Promotion Poster

- JET supported various PR activities/contents for promotion of SMS in DMTCL
- The safety report (1st edition) is prepared as a reference of the safety report in 2024 that will be prepared by DMTCL

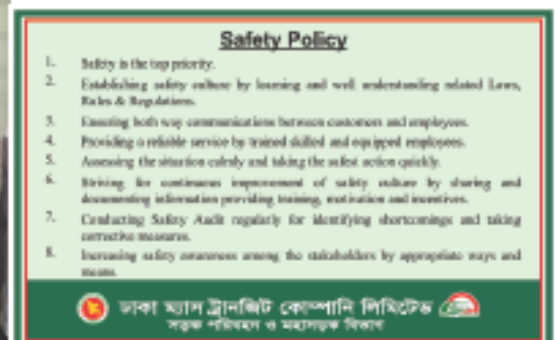
3. [Output 2]

- Safety activities will be implemented by DMTCL -

[2-1] Regulations/manuals are shared within DMTCL



Sharing "Safety Policy"
in office room of DMTCL



Safety Policy Card

- Sharing Safety Policy and Manuals within DMTCL
- "Safety Policy Card" is distributed among all DMTCL staffs

3. [Output 2]

- Safety activities will be implemented by DMTCL -

[2-2] Internal Safety Audit system is established



Discussion with Site Manager Level

Item	Check	Result
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Checklist (excerpt)



Workshop on Internal Safety Audit



Discussion with Site Staff Level



Audit Report (excerpt)

Demonstration of Internal Safety Audit

- Conducted Workshop on Internal Safety Audit (in August 2022)
- Prepared the Basic Procedure document of Internal Safety Audit
- Establishment of Internal Safety Audit Team
- Conducted "Demonstration of Internal Safety Audit" (in June 2023)

3. [Output 2]

- Safety activities will be implemented by DMTCL -

[2-3] Implementation of Training for emergency activities and Review of the safety management plan based on the trainings



Emergency Drill (in April 2022)



Emergency Drill (in June 2023)

- Conducted Workshop on Emergency Response (in April 2022)
- Conducted Emergency Drill two times (before/after MRT Operation) and had review meeting after the Drill

3. [Output 2]

- Safety activities will be implemented by DMTCL -

[2-4] Safety internal controls of DMTCL are established

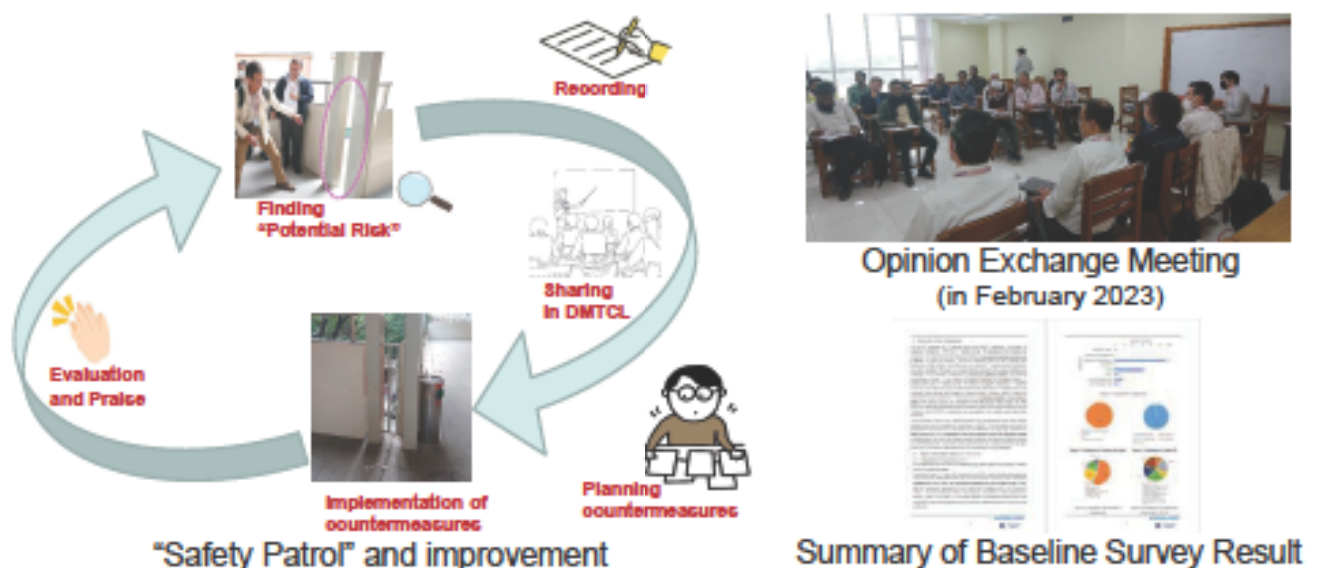


- JET supported for set-up of Internal Safety Audit Team and "Safety Committee" for the continuous implementation/control of SMS in DMTCL
- DMTCL will implement/improve SMS through Internal Safety Audit Team and Safety Committee as a "PDCA Cycle"

3. [Output 2]

- Safety activities will be implemented by DMTCL -

[2-5] Safety management activities by DMTCL will be evaluated and advice will be given by experts



- Evaluated SMS activities and advised by "Safety Patrol" by JICA Experts
- Conducted Baseline survey and evaluated Safety awareness of DMTCL staffs
- Hold "Opinion Exchange Meeting on Safety" with DMTCL site staffs

3. [Output 2]

- Safety activities will be implemented by DMTCL -

[2-6] PR activities related to the established SMS will be carried out



Safety Report



PR Activity in Japan and Bangladesh



Flyers with Metro rail information



Safety Policy / Promotion Poster (in station)



- PR activities on Safety for passengers/citizens are conducted by DMTCL/JET
- PR activities for Japanese citizens are also conducted by JET

4. Output of SMS-TA(1)

No.	Contents of Activities	Status
[OUTPUT 1] High priority regulations & manuals for safety are regulated		
1-1	Discussion/Preparation of Safety philosophy/policy	•Conducted workshop on Safety Policy and got approval by Managing Director of DMTCL
1-2	Assignment of PIU	•Set up in January 2022
1-3	PIU identify the prioritized rules and manual for safety	•Discussion of Basic Regulation for Emergency (based on Accident & Disaster Manual) was done
1-4	PIU discusses and prepares safety regulations/manuals	•Prepared the Basic Procedure document of Safety Internal Audit(SIA) and discuss within PIU members
1-5	Safety regulations and/or manuals are approved within DMTCL	•Prepared the procedure manual for Potential Risk and discuss within PIU members •The above documents might be approved by DMTCL
1-6	Follow-up activities for the implementation and management of safety regulations and/or manuals	•JET conducted "Safety Patrol" and had discussion with DMTCL staffs and gave advice to DMTCL
1-7	Public Relations (PR) Activities	• JET prepared PR materials and conducted PR activities

4. Output of SMS-TA(2)

No.	Contents of Activities	Status
[OUTPUT 2] Safety activities will be implemented by DMTCL		
2-1	Regulations/manuals are shared within DMTCL	-Safety Policy is shared among DMTCL
2-2	A Safety Internal Audit (SIA) system is established	-Conducted Workshop on SIA and Prepared the Basic Procedure document of SIA and discuss within PIU -Establishment of SIA system
2-3	Implementation of Training for emergency activities and Review of the safety management plan based on the trainings	-Conducted Drill Mock-up train (in April 2022) -Conducted Drill on the desk by actual MRT staffs -Update/Review of Manuals based on the drill result
2-4	Safety internal controls of DMTCL are established	-Establishment of SIA system
2-5	Safety management activities by DMTCL will be evaluated and advice will be given by experts	-Advice on necessary documents -Advice on report/sharing system and countermeasures for Accident/Potential Risk -Conducted Baseline survey
2-6	PR activities related to the established SMS will be carried out	-Preparation and Publication of Safety Report (JET prepared the draft of 1st edition and DMTCL will prepare from 2nd edition)



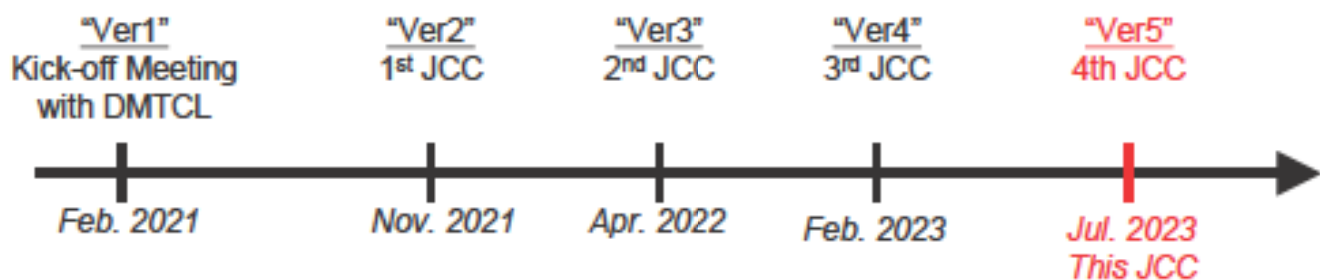
The Project on Technical Assistance for MRT Safety Management System on Line 6 The 4th Joint Coordinating Committee (JCC)

Monitoring the Progress

July 19th, 2023

1. Purpose of the Monitoring Sheet

- The Monitoring sheet is updated for each JCC
- To monitor the progress, issues and that mitigation of the Project
- To share the progress with all stakeholders of JCC



1. Format of Monitoring Sheet

Monitoring Sheet

1 Project Design Matrix (PDM)

- Define the goals, purposes and outputs
- Confirm the indicators, means of verification and assumption
- Identify the issues to achieve

2 Plan of Operation (PO)

- Schedule of expert input
- Schedule of activities
- Schedule of meetings, report submission, etc.

3 Project Monitoring Sheet Summary

- Overall summary of the achievement of activities
- Overall summary of the achievement of outputs
- Other summary of progress, issues and others

2. Project Goals, Purposes and Outputs

To be achieved in this project

1. Prioritized rules and manuals for safety are prepared by DMTCL

Done 1-1 Safety philosophy and policy are discussed and prepared by the management level of DMTCL

Done 1-2 PIU of the Project is assigned

Done 1-3 PIU identifies the prioritized rules and manuals for safety

(Updated) **Done** 1-4 PIU discusses and prepares safety regulations and/or manuals with the support of JET

(Updated) **Will Be Done soon!** 1-5 Safety regulations and/or manuals are approved within DMTCL

(Updated) **Done** 1-6 Follow-up activities are carried out for the implementation and management of safety regulations and/or manuals


(Updated) **Done** 1-7 PR activities related to safety enhancement are carried out

2. Project Goals, Purposes and Outputs

To be achieved in this project

2. DMTCL commences the series of safety activities

- (Updated) **Will Be Done soon!** 2-1 Approved regulations and/or manuals are shared within DMTCL
- (Updated) **Done** 2-2 A safety internal audit system is established
- (Updated) **Done** 2-3 Training for emergency activities is conducted, and the safety management plan is reviewed based on the training
- (Updated) **Done** 2-4 Safety internal controls of DMTCL are established
- (Updated) **Done** 2-5 Safety management activities by DMTCL are evaluated and advice is given by JET before the full opening
- (Updated) **Done** 2-6 PR activities related to the established SMS and operation are carried out



Thank you very much for your kind attention
আপনাদের সবাইকে ধন্যবাদ



The Project on Technical Assistance for MRT Safety Management System on Line-6 The 4th Joint Coordinating Committee (JCC)

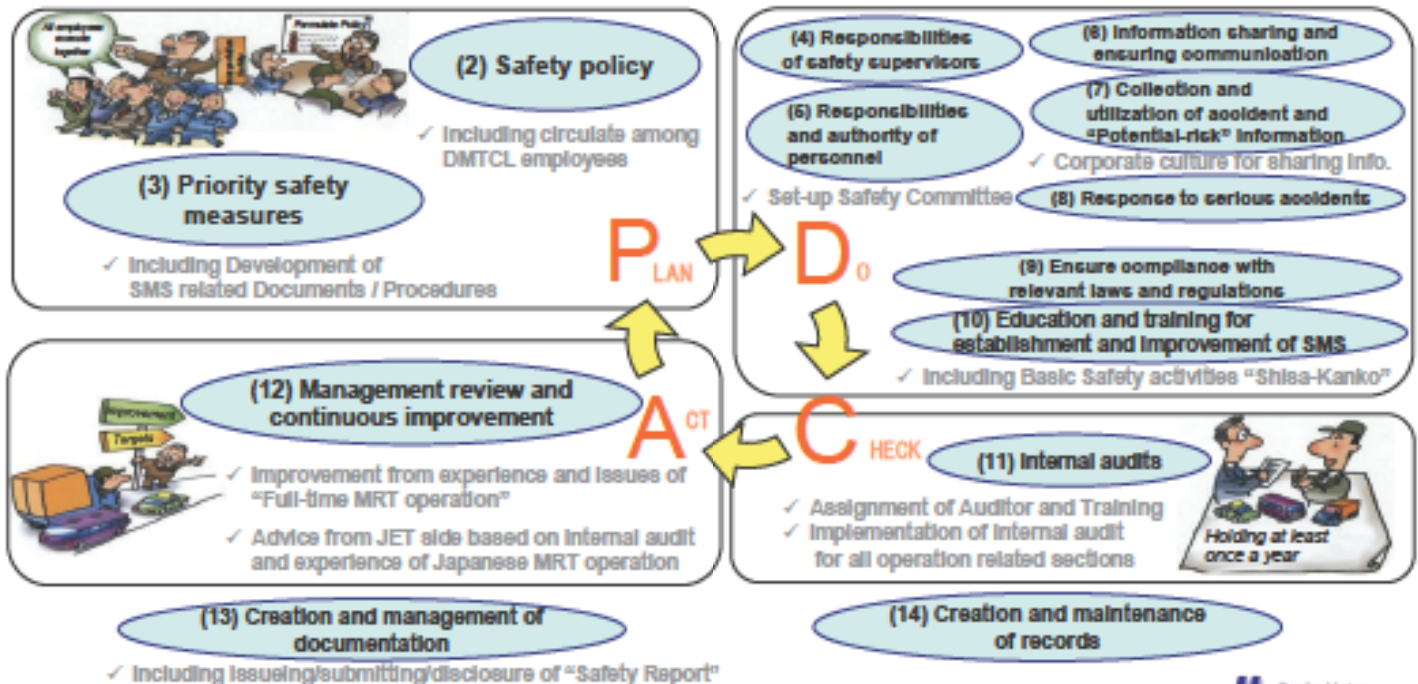
3. Way Forward for implementation of SMS

July 19th, 2023

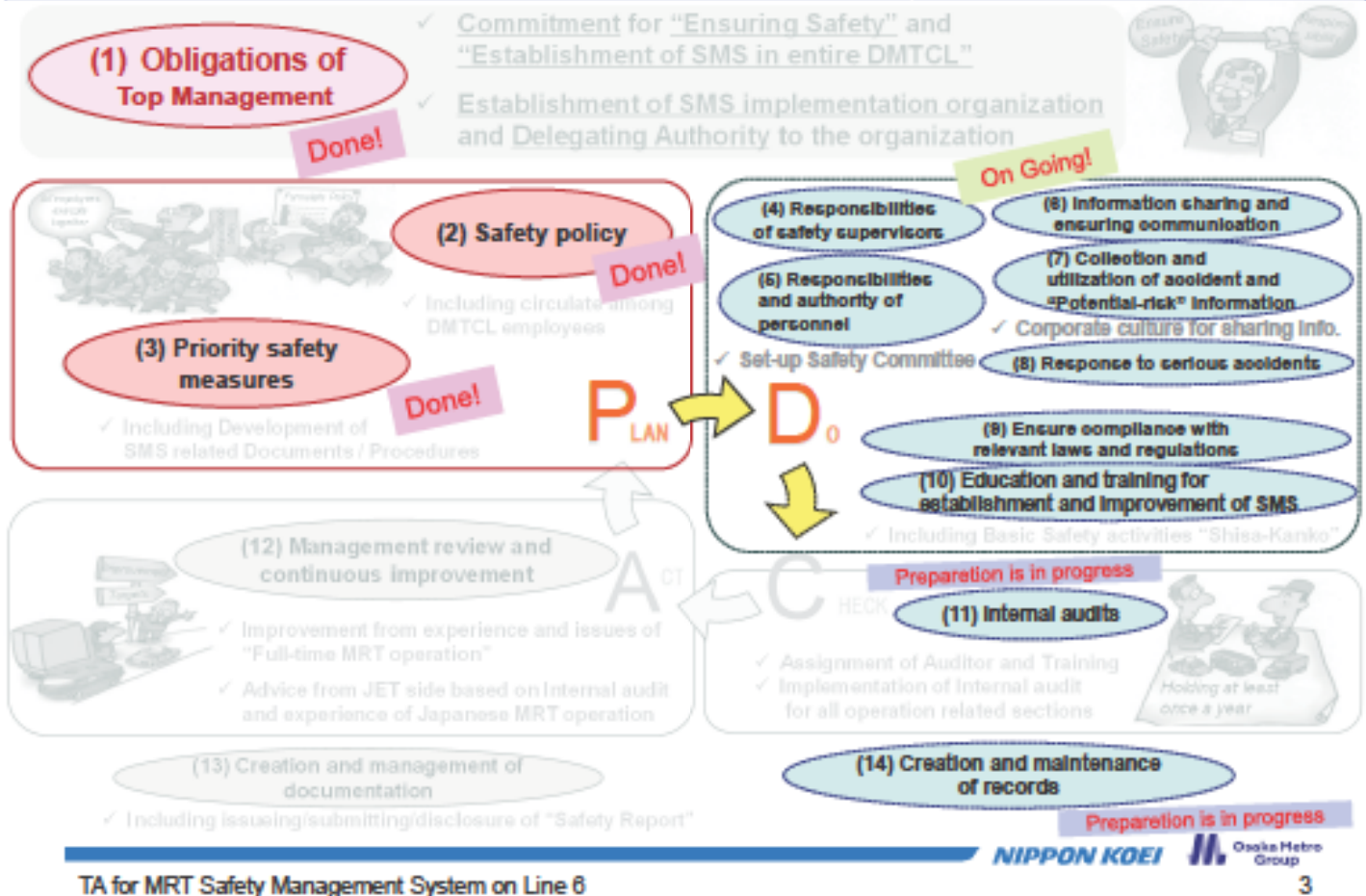
1. Overview of SMS “PDCA-Cycle”

(1) Obligations of Top Management

- ✓ **Commitment** for “Ensuring Safety” and “Establishment of SMS in entire DMTCL”
- ✓ **Establishment of SMS implementation organization and Delegating Authority** to the organization



2. Efforts done so far

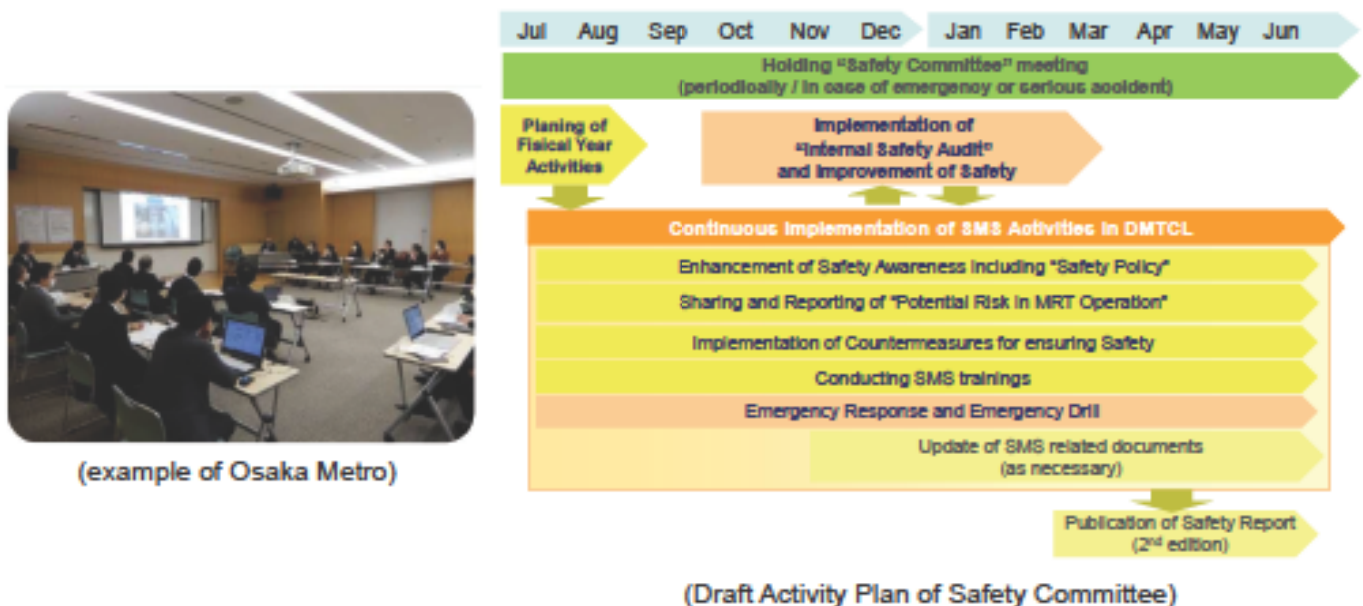


TA for MRT Safety Management System on Line 6

3

3. Way Forward

1) Set-up of Organization Structure for SMS implementation



"Safety Committee" will be set-up and held for SMS implementation in DMTCL

TA for MRT Safety Management System on Line 6

NIPPON KOEI **Osaka Metro Group**

4

3. Way Forward

2) Continuous SMS implementation and Operation as a “PDCA-Cycle”

- Conduct from “Do” to “Check” and “Action” Phase
 - Sharing “Potential Risk” and improve accordingly
 - Development and updating of SMS related documents through the experience of MRT operation
 - Implementation of “Internal Safety Audit”
...and improvement based on the Audit result

3. Way Forward

3) Continuous SMS implementation and Operation as a “PDCA-Cycle”

- Response to further expansion of MRT operation
 - opening of new section
 - expansion of operation time
 - increase of passengers
- Response to Emergency Situation which may occur in future MRT operation
 - Conducting necessary Trainings and Drills

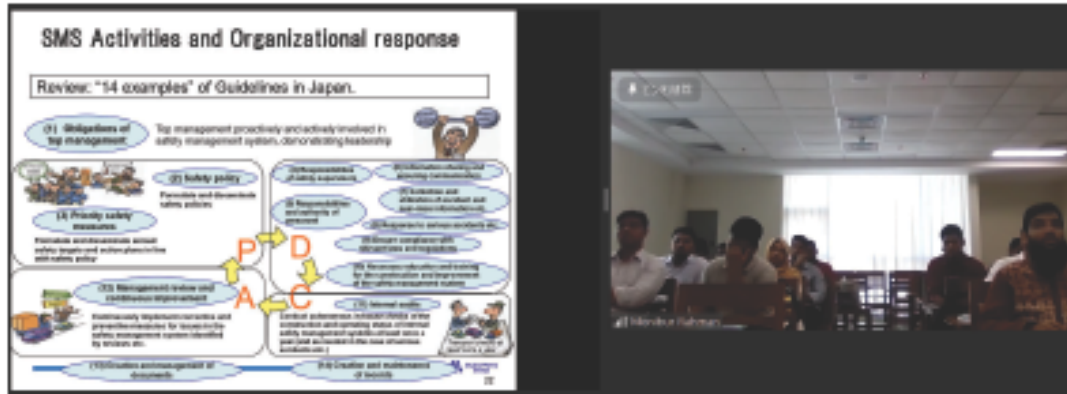


Source: <http://bangladeshstorms.com/>

3. Way Forward

4) Enhancement of the awareness of Safety for all DMTCL officials and employees

- Conducting necessary Trainings on SMS and Drills for all DMTCL officials/staffs



(Example of SMS Training in DMTCL Training Center held 16th May 2023)

- Cultivating “Safety Top Priority” company culture

TA for MRT Safety Management System on Line 6

We JET strongly wish to ...

- Establishment of SMS by DMTCL
- Realization of Safety and Reliable MRT



TA for MRT Safety Management System on Line 6

[Annex] Way Forward for implementation of SMS (Relationship with Project Output)

Output of SMS-TA(1)

No.	Contents of Activities	Way Forward
[OUTPUT 1] High priority regulations & manuals for safety are regulated		
1-1	Discussion/Preparation of Safety philosophy/policy	<ul style="list-style-type: none"> • Continuously dissemination among DMTCL including newly recruited staffs • Continuously holding Safety Committee • Implementation and revise of safety regulations/manuals towards expansion of MRT operation
1-2	Assignment of PIU	
1-3	PIU identify the prioritized rules and manual for safety	
1-4	PIU discusses and prepares safety regulations/manuals	
1-5	Safety regulations and/or manuals are approved within DMTCL	
1-6	Follow-up activities for the implementation and management of safety regulations and/or manuals	
1-7	Public Relations (PR) Activities	

4. Output of SMS-TA(2)

No.	Contents of Activities	Way Forward
[OUTPUT 2] Safety activities will be implemented by DMTCL		
2-1	Regulations/manuals are shared within DMTCL	<ul style="list-style-type: none"> •Sharing Safety Policy and Manuals within DMTCL
2-2	A Internal Safety Audit system is established	<ul style="list-style-type: none"> •Conduct Internal Safety Audit periodically •Improve safety of MRT operation based on the result of Internal Safety Audit
2-3	Implementation of Training for emergency activities and Review of the safety management plan based on the trainings	<ul style="list-style-type: none"> •Conduct Emergency Drill using actual MRT staff/facilities for various situation •Update/Review of Manuals based on the drill result
2-4	Safety internal controls of DMTCL are established	<ul style="list-style-type: none"> •Continuously holding Safety Committee •Conduct Internal Safety Audit periodically
2-5	Safety management activities by DMTCL will be evaluated and advice will be given by experts	<ul style="list-style-type: none"> •Continuously follow-up and monitoring
2-6	PR activities related to the established SMS will be carried out	<ul style="list-style-type: none"> • Continuously conduct PR activities by DMTCL • Updating and Publication of Safety Report by DMTCL



Dhaka Mass Transit Company Limited
Road Transport and Highways Division



Future Action Plan for DMTCL Staff Capacity Building

Md. Saidur Rahman
Principal
MRT Training Centre
Dhaka Mass Transit Company Limited

MRT Line-6 Depot (Main Entrance)



DMTCL Admin Building



DMTCL Training Centre



Floor Wise Facilities of Training Centre

Floor Description	Floor Description
Ground Floor	Level-3
Entrance Lobby Auditorium Simulator Room Vice Principal Room Pantry First Aid Room	Class Room Computer Lab Course Coordinator Room
Level-1	Level-4
Principal Room AFC, Telecom, Signaling Lab Course Coordinator Room	LAB (Lift & Escalator) Class Room Course Coordinator Room
Level-2	Level-5
Class Room Course Coordinator Room Cafeteria	Library Course Coordinator Room
	Level-6
	Meeting Room 1&2 Lounge

Present Manpower of DMTCL Training Centre (Dedicated Trainers)

Sl No.	Name	Position	Education	Experience
01.	Md. Saidur Rahman	Principal	Bachelor in Mechanical Engineering	32 working years working experience in Bangladesh Railway and 8 years experience in DMTCL
02.	Kamrun Nahar	Vice Principal	Bachelor in Civil Engineering	9 years working experience in DMTCL
03.	Mossa. Farhana Jesmin	Training Coordinator (P-Way & Civil)	Bachelor in Civil Engineering	5 years working experience in DMTCL
04.	Md. Sajid Khan	Training Coordinator (Electrical)	Bachelor in Electrical Engineering	3 years working experience in DMTCL
05.	Md. Uzsal Hossain	Training Coordinator (Rolling Stock)	Bachelor in Mechanical Engineering	5 years working experience in DMTCL
06.	Md. Adibul Islam Ramim	Training Coordinator (Signaling & Telecom)	Bachelor in Electrical Engineering	5 years working experience in DMTCL
07.	Md. Sabuz Mia	Training Coordinator (Operation)	Bachelor in Mechanical Engineering	5 years working experience in DMTCL
08.	Md. Asif Uddin	Training Coordinator [BMS (E&M)]	Bachelor in Mechanical Engineering	5 years working experience in DMTCL
09.	Md. Shah Ali Haydar	Demonstrator (P-Way & Civil)	Diploma in Civil Engineering	5 years working experience in DMTCL

Guest Trainers of DMTCL Training Centre

Sl No.	Name	Position	Education	Experience
01.	Md. Rakibul Islam	Assistant Manager (Sub-Station & Switchgear)	Bachelor in Electrical Engineering	4 years working experience in DMTCL
02.	Raihan Khalil	Assistant Manager (Train Operation)	Bachelor in Electrical Engineering	4 years working experience in DMTCL
03.	Md. Zubayer Bin Sharif	Assistant Manager (Telecom & AFC Line Maintenance)	Bachelor in Electrical Engineering	5 years working experience in DMTCL
04.	Ali Muhammad Saleh	Assistant Manager [Building Service (E&M)]	Bachelor in Electrical Engineering	4 years working experience in DMTCL
05.	Md. Hasibul Hasan	Assistant Manager [Building Services Depot (E&M)]	Bachelor in Electrical Engineering	4 years working experience in DMTCL
06.	Md. Abdus Salam	Assistant Manager [Rolling Stock (Electrical)]	Bachelor in Electrical Engineering	4 years working experience in DMTCL
07.	Dewan Golam Morshed	Assistant Manager (OCS)	Bachelor in Electrical Engineering	5 years working experience in DMTCL
08.	Shahriyar Kabir	Assistant Manager (OCS Monitoring)	Bachelor in Electrical Engineering	5 years working experience in DMTCL
09.	Md. Nazmul Hasan	Assistant Manager (Escalator)	Bachelor in Electrical Engineering	4 years working experience in DMTCL

Guest Trainers of DMTCL Training Centre (Contd.)

Sl No.	Name	Position	Education	Experience
10.	Riad Al Rahman	Assistant Manager (SCADA)	Bachelor in Electrical Engineering	4 years working experience in DMTCL
11.	Md. Nazmul Alam	Assistant Manager (Feeder Service)	Bachelor in Mechanical Engineering	5 years working experience in DMTCL
12.	Mohammad Raihan Faruque	Assistant Manager (Inspection and Planning/Monitoring RS)	Bachelor in Electrical Engineering	4 years working experience in DMTCL
13.	Md. Issa	Assistant Manager (Inspection)	Bachelor in Mechanical Engineering	4 years working experience in DMTCL
14.	Md. Samiul Kadir	Assistant Manager (Line Operation)	Bachelor in Electrical Engineering	5 years working experience in DMTCL
15.	Ahmedul Hasan	Assistant Manager (Signaling)	Bachelor in Electrical Engineering	4 years working experience in DMTCL
16.	Md. Sajid Hasan	Assistant Manager (Operation Control Centre Management)	Bachelor in Computer Science Engineering	4 years working experience in DMTCL

Guest Trainers of DMTCL Training Centre (Contd.)

Sl No.	Name	Position	Education	Experience
17.	Md. Rasidul Islam	Assistant Manager (Telecom & AFC Depot Maintenance)	Bachelor in Electrical Engineering	4 years working experience in DMTCL
18.	Abu Bakar Siddique	Assistant Manager [Mechanical (Bogie & Pneumatics)]	Bachelor in Mechanical Engineering	4 years working experience in DMTCL
19.	Horipada Roy	Assistant Manager [RS & Mechanical]	Bachelor in Mechanical Engineering	5 years working experience in DMTCL
20.	Swarno Kanti Sarker	Assistant Manager [Mechanical (Aircon & Door)]	Bachelor in Mechanical Engineering	4 years working experience in DMTCL
21.	Md. Mizanur Rahman	Section Engineer [(Inspection (RS))]	Diploma in Mechanical Engineering	5 years working experience in DMTCL

Training Courses Conducted From DMTCL Training Centre Since Nov. 2022

Sl No.	Training Course	Course Duration	Total no. of Trainees
01.	Training for CRA (Customer Relation Assistant) Batch-1	02 -16 January, 2023	34
02.	Training for Skilled Maintainer	26 - 28 February, 2023	30
03.	Training for Station Controller	22 November 2022- 20 March, 2023	26
04.	Training for TMO (Ticket Machine Operator)	13-21 March, 2023	69
05.	Training for CRA (Customer Relation Assistant) Batch-2	03 - 28 May, 2023	31
06.	Training for Train Operator	06 April-28 May, 2023	8
07.	Training for Section Engineer (Signaling & Telecom)	31 May-14 June, 2023	20
08.	Orientation Course for Assistant Engineers of MRT Line-5: Northern Route & MRT Line-5: Southern Route	12-25 June, 2023	42
09.	Training for Section Engineer (Electrical & Rolling Stock)	06 July to present	20
		Total	280

Subjects of Training Provides from DMTCL Training Centre

- Training on Rolling stock (EMU Train set)
- Training on Signaling System (CBTC)
- Training on Electrical System (Traction Power System)
- Training on P-Way (Railway Track)
- Training on MRT Train Operation
- Training on BMS
- Training on SCADA
- Train Driving training using driving simulator
- Training on Lift & Escalator
- Training on Metro Rail General Procedure (MRGP)
- Training on Accident, Incidents and Disaster Management System in MRT
- Training on Technical Standards for Metro Rail in Bangladesh
- Training on Safety Management System (SMS)
- Training on Fire Detection and Prevention

Classrooms in DMTCL Training Centre

Level	Class Room No.	No. of Trainees to be accommodated
Level-2	201	42
	202	42
	203	49
	204	42
	205	47
Level-3	301	49
Level-4	403	49
	404	49
	405	49
Total	9	418

Training Classes

Assistant Engineers (MRT Line-5: Northern Route & MRT Line-5: Southern Route)



Section Engineers (Signaling & Telecom)



Training Classes

Class Session of Section Engineers (Electrical & Rolling Stock)



Class Session of Section Engineers (Electrical & Rolling Stock)



**Closing of Training of
Section Engineer
(Signaling & Telecom)**



Practical Class (Route Learning)

**Route Learning for Train Operators (from
SBL to Uttara North)**



**Route Learning for Train Operators (from
SBL to Uttara North)**



Practical Class (Route Learning)

Route Learning for Assistant Engineers (from Farmgate to Karwan Bazar)



Route Learning for Assistant Engineers (from Farmgate to Karwan Bazar)



Auditorium of DMTCL Training Center



Capacity: At a time 86 persons can be accommodated

Computer Lab of DMTCL Training Centre

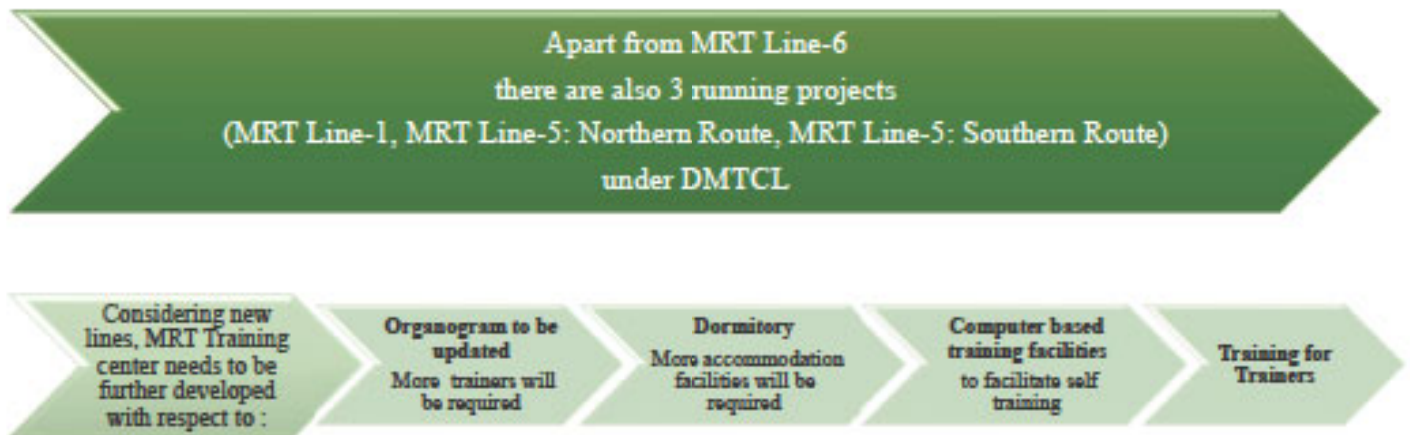
Level	Room No.	No. of computers to be accommodated
03	302	44
	303	52
Total		96



Library of DMTCL Training Center



Future development may be incorporated in DMTCL Training Centre



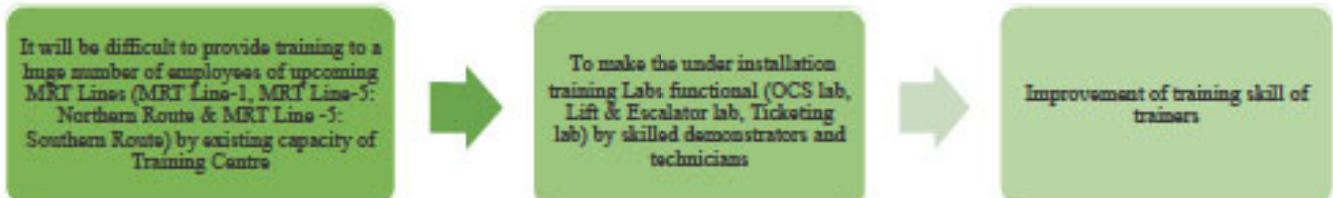
Plan for Capacity Building on Safety Management System (SMS)

Under Safety Management System Project of Line-6, DMTCL's staff were trained. Now, the trained staff are providing SMS training to field level staff. However, a pool of trainers to be developed through further training on SMS in home and abroad.

Besides, there are following plans for implementation of SMS:

- Regular training on SMS for field level employees
- Internal Safety Audit
- Emergency drill on safety related issues on regular basis.

Challenges



Expectations

To overcome the challenges for safe and efficient MRT operation following initiatives to be taken:

- Advanced TOT for participatory and interactive training
- Training of trainers for utilizing lab facilities as well as modern safety and other maintenance equipment of MRT
- Provide hands on training to field level staff
- Develop a pool of trainers for SMS training.

Thanks