



***WELCOME TO  
PRESENTATION FOR GICC'2023,  
BANGLADESH RAILWAY PERSPECTIVE***



**BANGLADESH RAILWAY**



Logo



Emblem



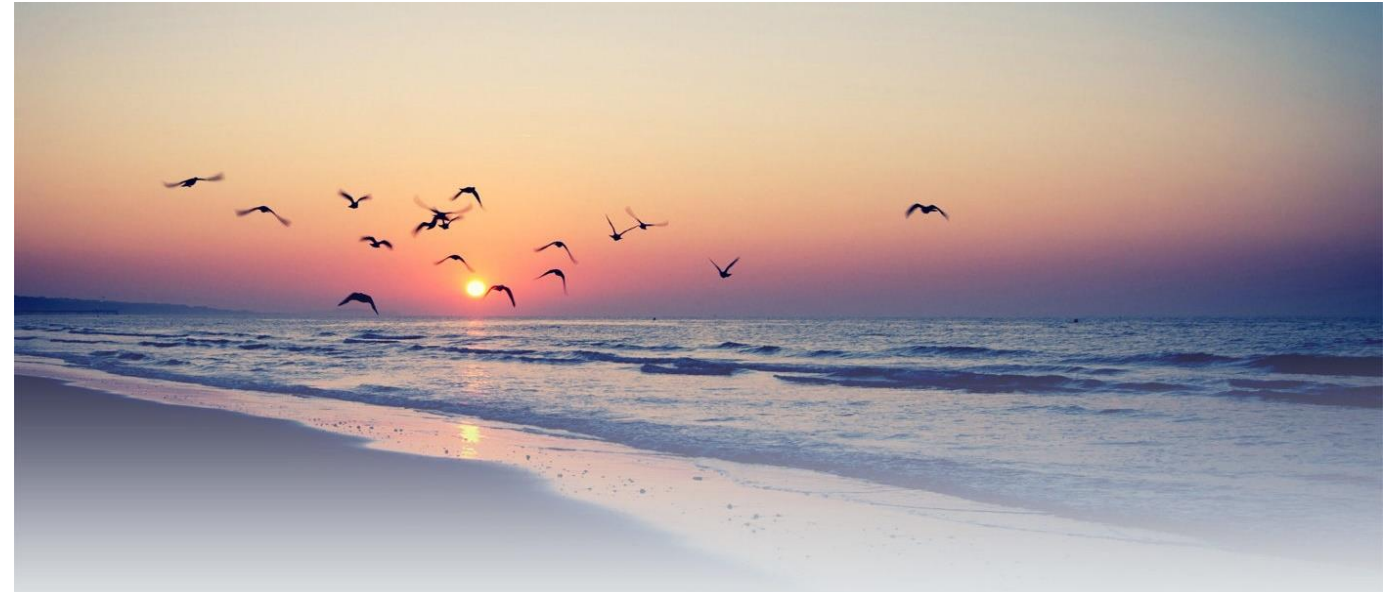
National Flag

# Self- Introduction

<i>Name of Presenter</i>	<b>Mamunul Islam, PEng.</b>
<b>Designation</b>	<b>Joint Director General (Engineering)</b>
Organization	Bangladesh Railway
<b>Ministry</b>	<b>Ministry of Railways</b>
Country	Bangladesh
<b>Official Name</b>	<b>People's Republic of Bangladesh</b>
Qualifications	Master of Engineering [in Transportation Engineering] (From AIT, Thailand)
	Master of Business Administration (MBA) from University of Dhaka
	B.Sc. Engineering (Civil), Bangladesh Institute of Technology (BIT, Khulna)
<b>Professional Affiliation</b>	<b>Professional Engineer (PEng.)</b>
	Assessor/Examiner of Bangladesh Professional Registration Board (BPERB)
	Graduate Member of Institution of Civil Engineers (ICE), UK
	Member of American Society of Civil Engineers (ASCE), USA
	Fellow of the Institution of Engineers, Bangladesh (Life)
	Life Member, AIT Alumni Association (AITAA)



# Bangladesh : Country Profile





Logo



Emblem



National Flag

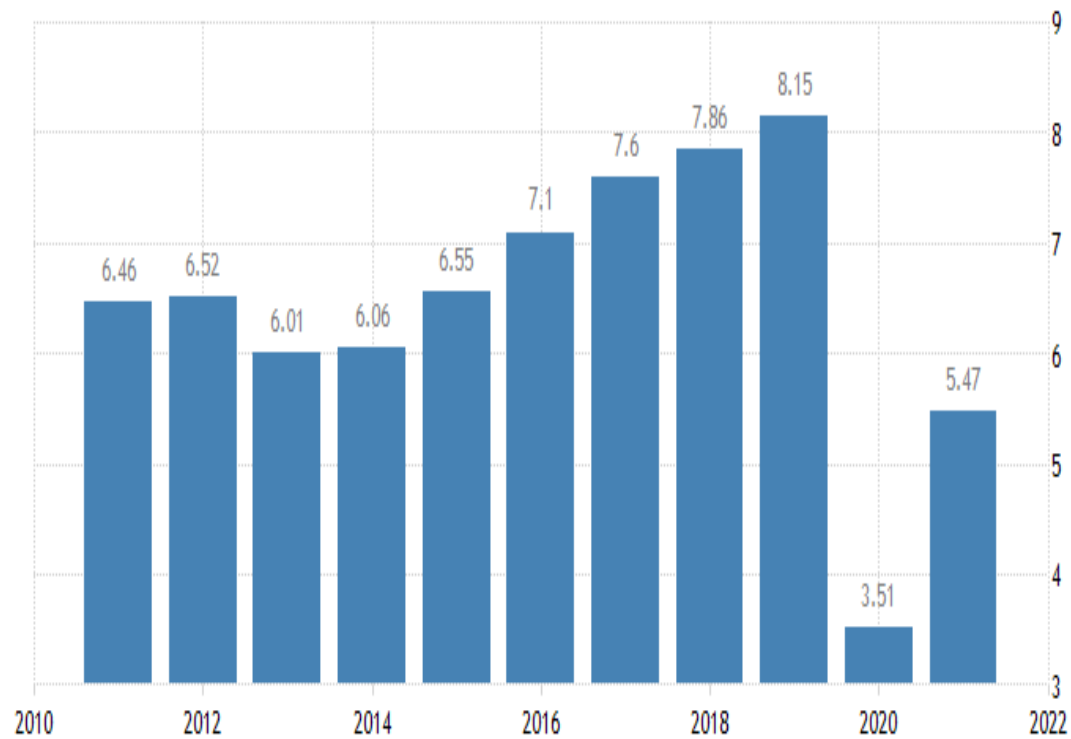
# Bangladesh: Fact Sheet

Head of Government	Prime Minister: Sheikh Hasina
Capital	Dhaka
Population	172,954,319
Head of State	President: Mohammed Shahabuddin
Form Of Government	Unitary Multiparty Republic with one Legislative House (Parliament [350])
Official Language	Bengali (Bangla)
Official Religion	Islam
Official Name	People's Republic of Bangladesh
Total Area (Sq Km)	147,570
Monetary Unit	Bangladesh Taka (Tk)
Density: Persons Per Sq Km	(2022) 1,156.84
Urban-Rural Population	Urban: (2022) 39.7% • Rural: (2022) 60.3%
Life Expectancy	Male: (2022) 70.8 years • Female: (2022) 74.2 years
Literacy	Male: (2022) 76.56% • Female: (2022) 72.82%
GDP (U.S.\$)	(2022) 460.20 billion
GDP per Capita (U.S.\$)	(2022) 2,688



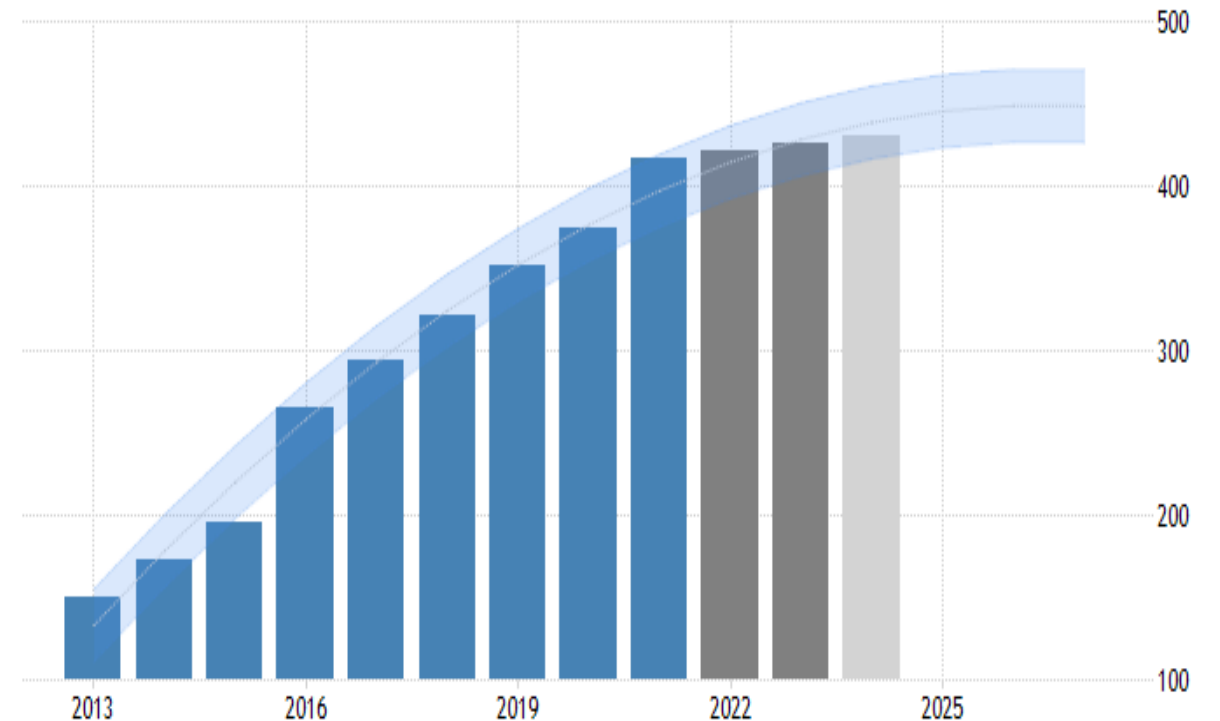
# Bangladesh Economy

## GDP Annual Growth Rate



SOURCE: TRADINGECONOMICS.COM | BANGLADESH BANK

## GDP



TRADINGECONOMICS.COM | WORLD BANK

# Bangladesh Railway



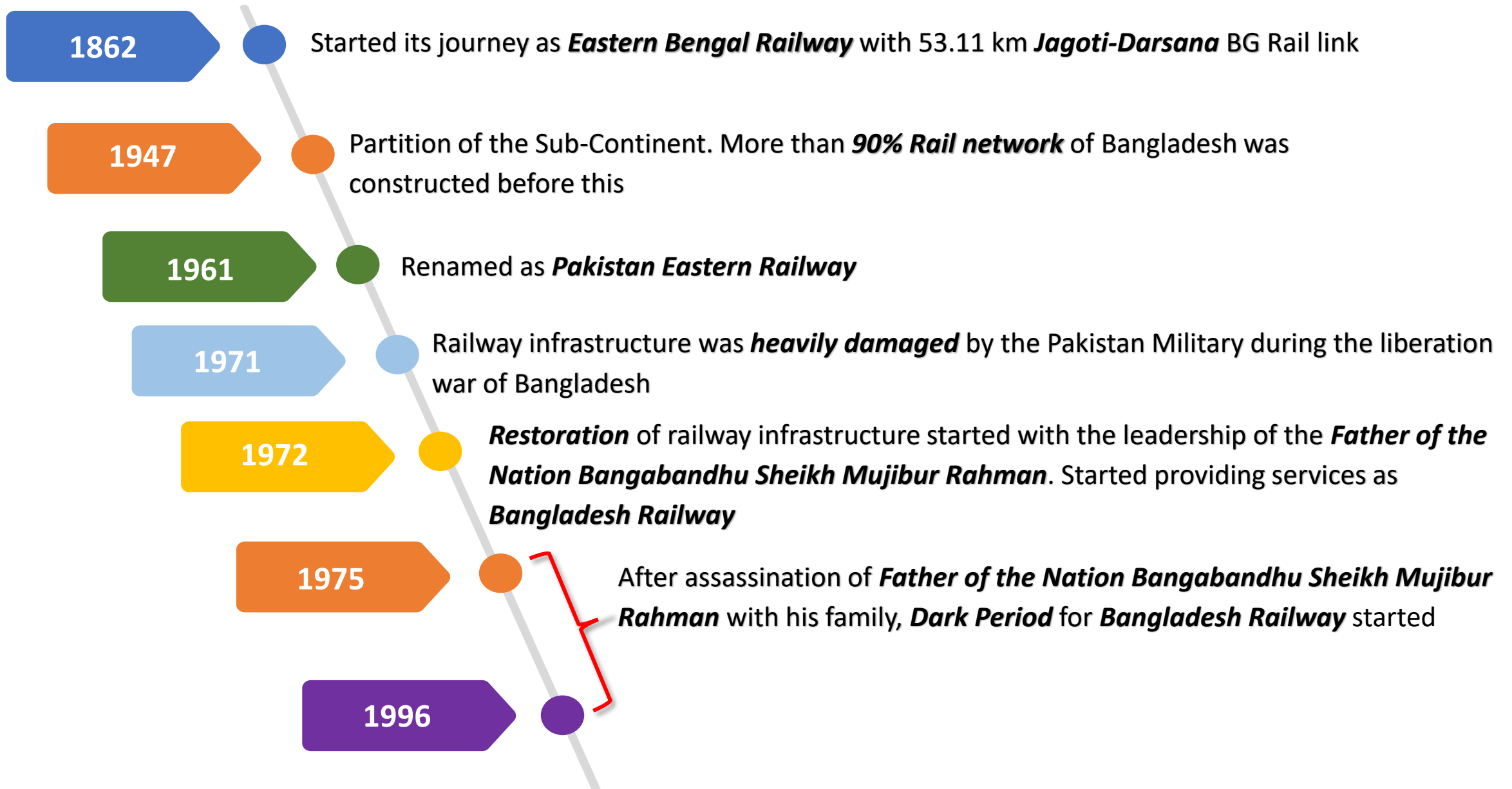
# Vision

- To expand and improve the railway system to provide ***safer, better, a more environment friendly and cost-effective*** transport facility to the national and international traffic.
- Foster ***international rail links*** to serve regional/sub-regional connectivity and ***Trans Asian Railway***. (Perspective Plan)
- To play an important and dominant role in an ***integrated transport system*** by emphasis on its strength. (Master Plan)

# Strategy to Achieve the Vision

- ***Gauge conversion*** and maintenance enhancement-Regional Integration
- Unlocking line capacity-***Signal and Telecom***
- ***New Rail line*** construction
- ***Rolling stock*** procurement and maintenance enhancement
- Establishment of ***Radio Data System*** (RDS) Unit
- To increase ***Market Share***

# History of Bangladesh Railway





# History of Bangladesh Railway

1996

Hon'ble Prime Minister ***Sheikh Hasina*** decided to include rail over ***Bangabandhu Bridge*** which was a ***groundbreaking*** decision to revive ***Bangladesh Railway***.

1998

East-West Railway connectivity over river Jamuna was established from the day of opening ***Bangabandhu Bridge***

2009

***Development of Bangladesh Railway*** started to ***boom*** with the leadership of ***Hon'ble Prime Minister Sheikh Hasina***

2011

***Ministry of Railways*** formed under SRO-361

2020

***64 million*** Passengers, and ***5.31 million*** Tonnes Freight carried by BR.

# Bangladesh Railway Network

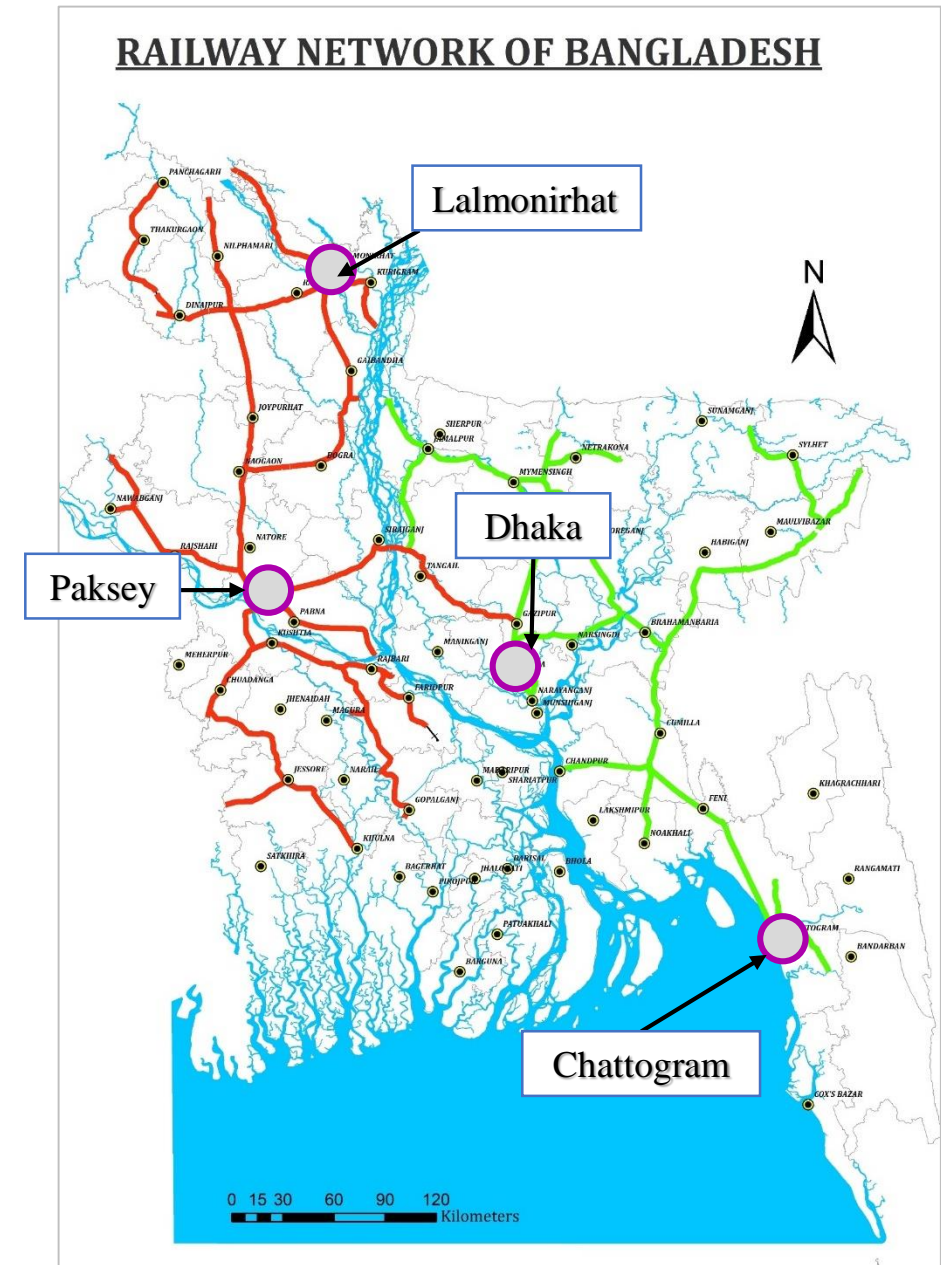
## Two Zones:

- ☐ East Zone
- ☐ West Zone

## Operating Divisions:

- ☐ Dhaka
- ☐ Chattogram
- ☐ Paksey
- ☐ Lalmonirhat

- Covers and connects **43 Districts** of the country out of 64 Districts.
- **489 Stations** encircling core business activities around the country.





# Brief Information on Bangladesh Railway (BR)

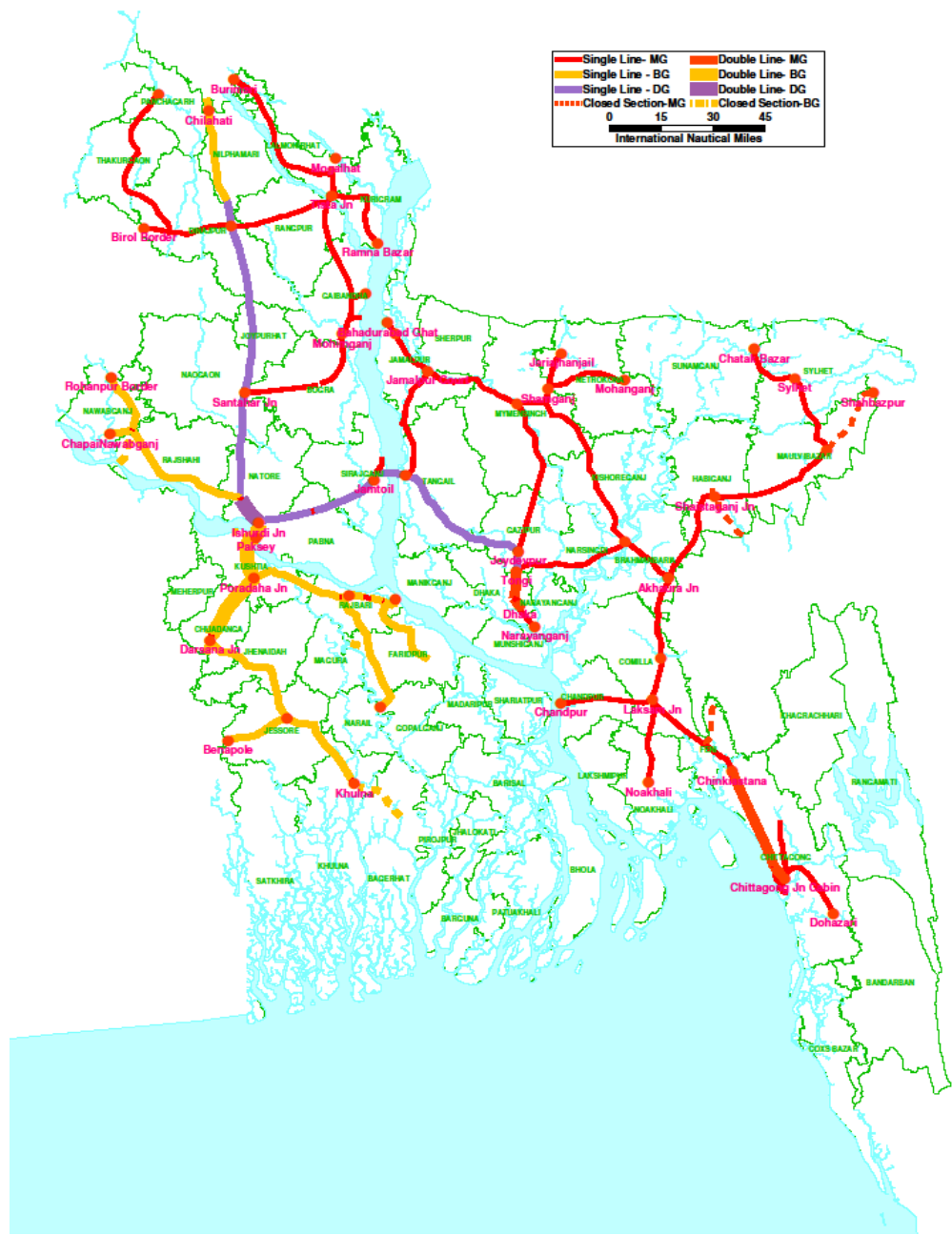
## Operational Information

Current No. of Stations:	489
Number of Passenger Trains Daily	328
Total Passengers Carried (million)	63.99
Average lead of a Passenger (Km.)	155.62
Number of Freight Trains Daily	40
Total Tons carried (million)	5.31
Average lead of a Ton of Freight (Km.)	230.74
Total Operating Revenue (million Taka)	14,665
Total Operating Expenses (million Taka)	22,724
Net Operating Income	(-) 8,059
Operating Ratio (%)	155
Number of Employees	25,733



# Route Kilometer

Zone	Meter Gauge (MG)	Broad Gauge (BG)	Dual Gauge (DG)	Total (K.M)
East Zone	1299.04	0	34.89	1333.93
West Zone	380.79	879.85	498.81	1759.45
Total	1679.83	879.85	533.70	3093.38





# Status of Rolling Stock

## Locomotive

Type	Total	Active	Inactive
Meter Gauge (MG)	188	174	14
Broad gauge (BG)	108	108	-
Total	296	282	14

## Passenger Coach

Type	AC	Non-AC	Total	Status	
				Active	Inactive
Meter Gauge (MG)	130	1073	1203	1203	0
Broad Gauge (BG)	86	382	468	468	0
Total	216	1455	1671	1671	0

## Freight Wagon

Type	Tank Wagon	Covered Wagon	Open Wagon	Total
Meter Gauge (MG)	383	452	121	956
Broad Gauge (BG)	535	578	1152	2265
Total	918	1030	1273	3221

# Signalling System

- Types of Signaling System in **353** Stations with Interlocking System:
  - **Computer Based** Interlocking - 112
  - **Relay** Interlocked - 22
  - Double Wire & Single wire **Mechanical** - 72
  - **Non-Interlocked** Color Light - 122
  - **Non-Interlocked** Mechanical - 25
- **\*BR is working on modernization of its entire signaling system.**



# Bangladesh Railway : Issues & Opportunities

## ❑ Opportunities

- *Geographical* location
- Large *population*
- Huge *demand*
- Connectivity to *TAR network*
- Connectivity to *Sea Ports*

## ❑ Issues

- BR is a *truncated portion* of the British Indian Railway system
- *Less priority* and *minimal investment* over decades
- *Gauge differences* between East and West
- *Missing links* and overall deteriorated rail networks
- *Poor multi-modal* transport and *logistics* facilities
- Lack of sufficient BG and MG *Rolling Stock*
- Poor *maintenance facility* with old plants and equipment
- Lack of sufficient *Relief Cranes* for salvage operation
- *Management* and *reform* issues
- Lack of *manpower*

# BR Master Plan

- ❖ BR has recently prepared the Master Plan aligning the GOB's plans & policy statements and adopted a ***Master Plan (July 2016-June 2045)*** under changed environment to meet emerging challenges.
- ***230 projects at BDT 553,662 crore*** (US\$ 70 billion), will be implemented over a period of 30 years spanning (6 phases of 5 years each) from FY 2016 to FY 2045.



# Strategy to Achieve the Target



01

## Gauge Conversion

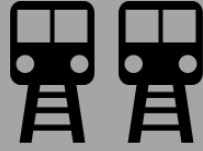
- Regional Railway Integration
- Improved operating performance



02

## Line Improvements

- Electric traction
- S&T enhancements; PW rehabilitation/improvement; Additional mainline tracks;
- Greater capacity; improved operating performance



03

## New Rail Lines

- Extend railway reach
- Increased passenger and freight traffic



04

## Rolling Stock Improvements

- Rehabilitated and new rolling stock;
- New and improved maintenance capacity



05

## Updated PW Maintenance

- Mechanized Track Maintenance



06

## Development and Standardization (D&S) Unit

- Increased standardization and more utilization of Bangladeshi suppliers,
- Resulting in greater efficiency and reduced costs

### Non-core Business

- 2400 km OFC Leasing
- Asset & Land Management

# Implementation Phases of the Master Plan

2016

2045

## Phase 1 (2016-2020)

*No. of Projects: 83*  
*Total Cost: 1,47,833*  
*Crore BDT (17.40*  
*Billion USD)*

## Phase 2 (2021-2025)

*No. of Projects: 67*  
*Total Cost: 1,19,680*  
*Crore BDT (14.08*  
*Billion USD)*

## Phase 3 (2026-2030)

*No. of Projects: 37*  
*Total Cost: 94,161*  
*Crore BDT (11.07*  
*Billion USD)*

## Phase 4 (2031-2035)

*No. of Projects: 23*  
*Total Cost: 96,885*  
*Crore BDT (11.40*  
*Billion USD)*

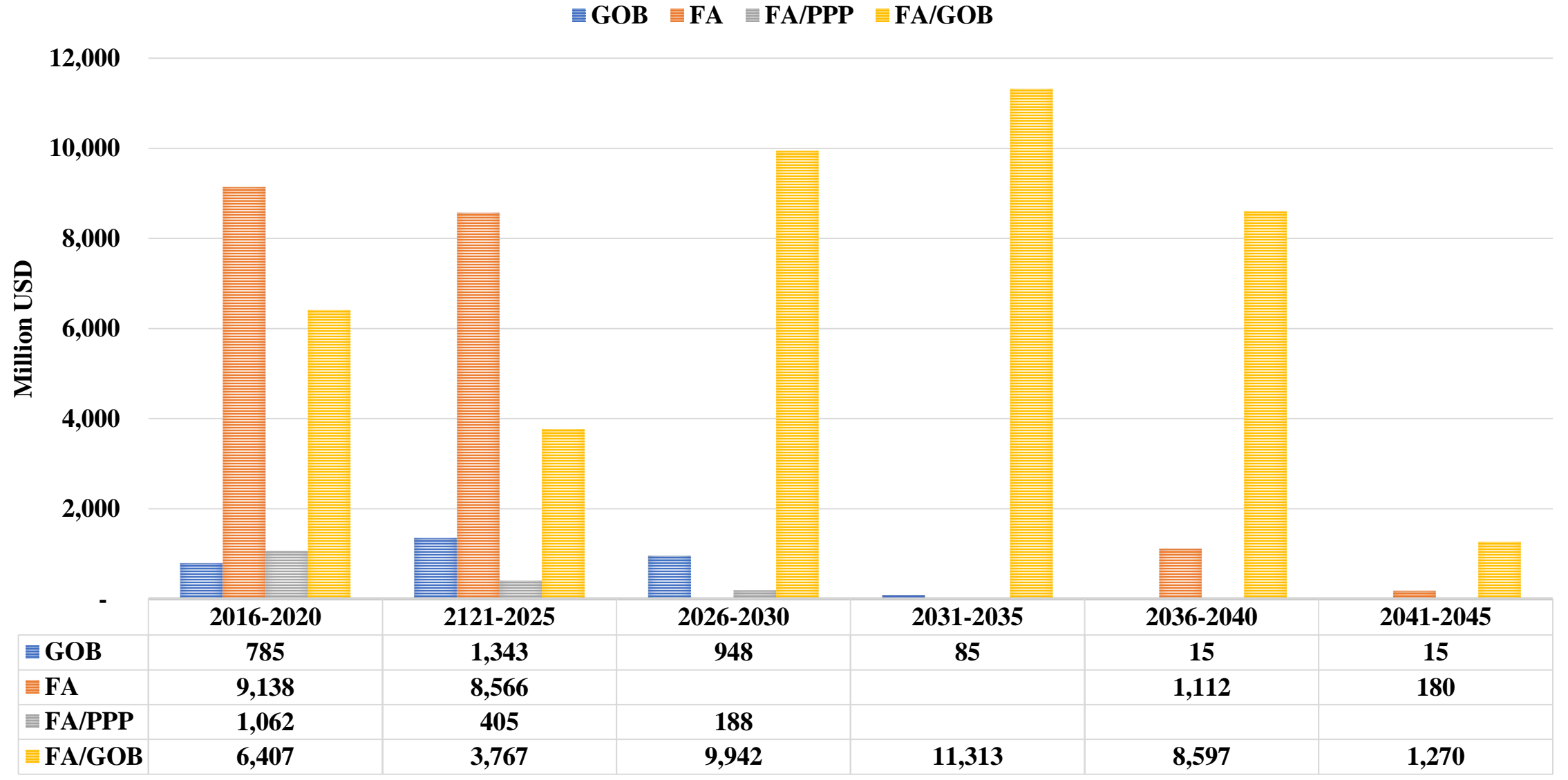
## Phase 5 (2036-2040)

*No. of Projects: 14*  
*Total Cost: 82,649*  
*Crore BDT (9.72*  
*Billion USD)*

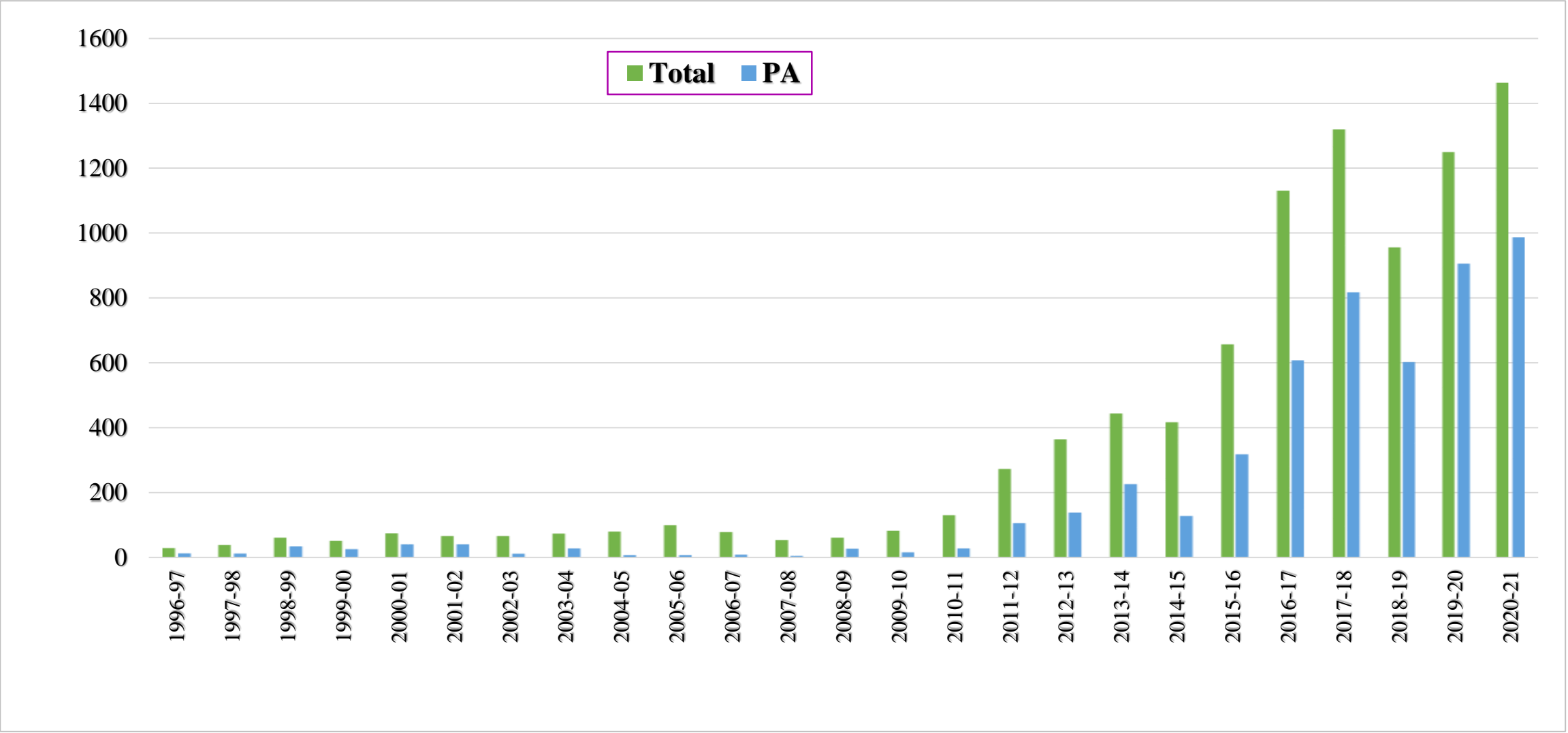
## Phase 6 (2041-2045)

*No. of Projects: 06*  
*Total Cost: 12,454*  
*Crore BDT (1.46*  
*Billion USD)*

# Project Financing by Phase

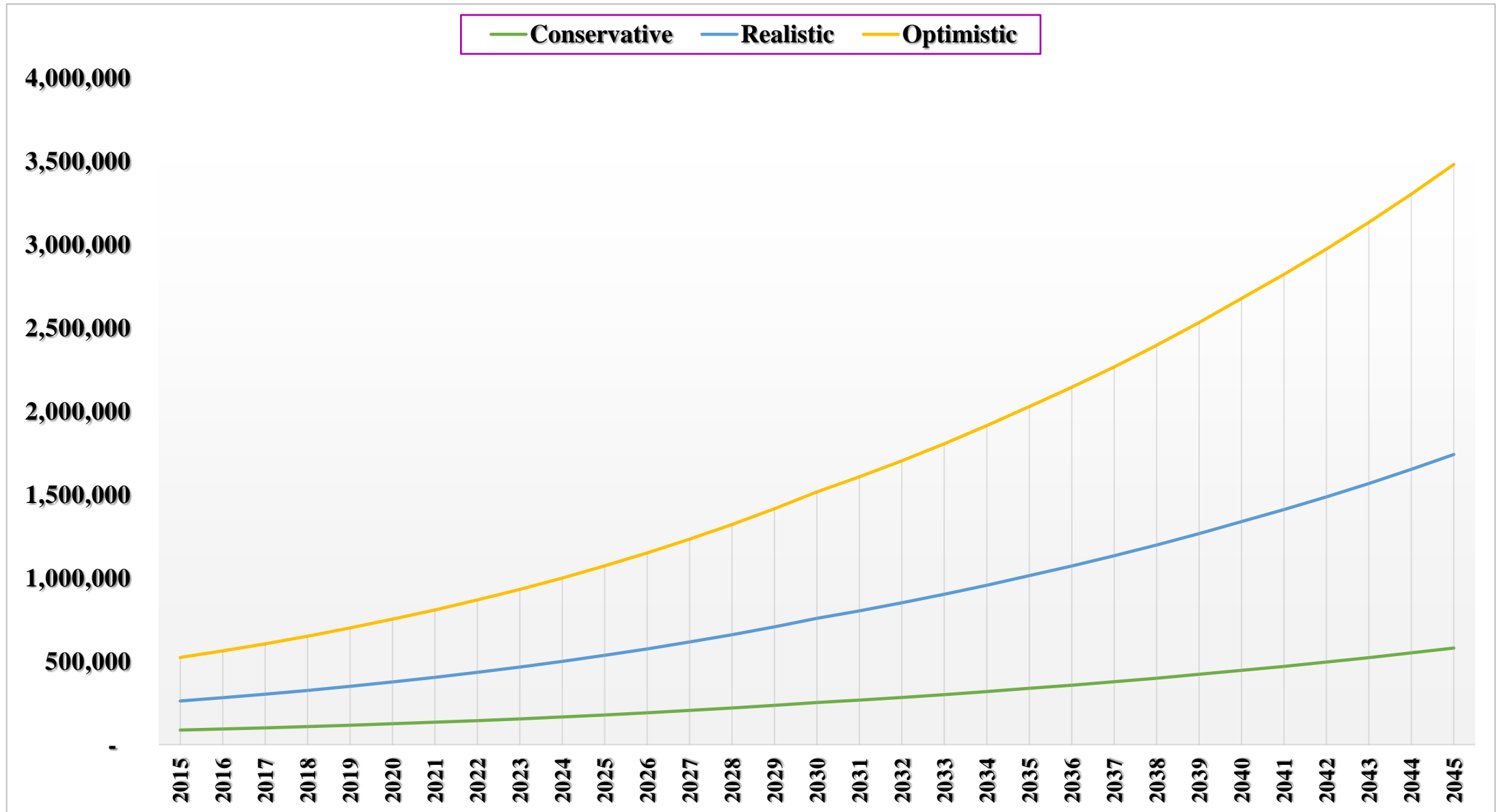


# Financing in BR Infrastructure Development





# Bangladesh Railway : Container Traffic Forecasts (TEU)



# Ongoing BR Projects

	Year 2022-23	Year 2023-24
No. of Projects	36 Nos.	28 Nos.
Investment Projects	31 Nos.	25 Nos.
Technical Assistance Projects	5 Nos.	3 Nos.

	Year 2022-23	Year 2023-24
Total Budget Allocation (ADP)	14,88,620 lakh BDT (1,391.23 Million USD)	14,37,288 lakh BDT (1,343.26 Million USD)
Project Aid	10,81,690 lakh BDT (1,010.85 Million USD)	9,99,136 lakh BDT (933.77 Million USD)

# Financing of Bangladesh Railway Projects

**25 Investment** Projects and **3 TA** Projects of BR are included in Annual Development Plan (2023-24)

▪ <b>GOB</b> funded	<b>7 nos.</b>	▪ <b>LOC</b> funded	<b>6 nos.</b>
▪ <b>ADB</b> funded	<b>3 nos.</b>	▪ <b>EDCF</b> funded	<b>1 nos.</b>
▪ <b>JICA</b> funded	<b>1 no.</b>	▪ <b>India</b> funded	<b>1 nos.</b>
▪ <b>DRGA</b> funded	<b>1 no.</b>	▪ <b>China</b> funded	<b>3 nos.</b>
▪ <b>EIB</b> funded	<b>1 no.</b>	▪ <b>Tender's</b> Financing	<b>1 nos.</b>

▪ <b>Total Cost</b>	:	<b>BDT 14,37,288 lakh (USD 1,343.26 million)</b>
➤ <b>PA</b>	:	<b>BDT 9,99,136 lakh (USD 933.77 million)</b>
➤ <b>GOB</b>	:	<b>BDT 4,38,152 lakh (USD 409.50 million)</b>

# Some Important Ongoing Investment Projects

Name	Length (Km)	Cost (Million USD)
<i>Padma Bridge</i> Rail Link (Chinese G2G)	172	4606.43
<i>Dohazari-Cox's Bazar</i> via Ramu to Ghundum (ADB)	100	2116.72
Bangabandhu Sheikh Mujib Rail Bridge over <i>Jamuna River</i> (JICA)	4.8	1969.60
Double Tracking of the <i>Akhaura-Laksam</i> Lines (ADB & EIB)	72	763.44
<i>Khulna-Mongla</i> Rail Link (Indian LOC)	84	446.20
3 <sup>rd</sup> & 4 <sup>th</sup> Line between <i>Dhaka-Tongi</i> and 2 <sup>nd</sup> Line between <i>Tongi-Joydebpur</i> (Indian LOC)	65	129.91
<i>Bogra-Shahid M. Monsur Ali</i> Dual Gauge Single Line (Indian LOC)	84	654.89
Procurement of Meter Gauge and Broad Gauge <i>Passenger Carriages</i> (ADB)		161.33
Procurement of 20 Nos. Meter Gauge Diesel Electric <i>Locomotives</i> and 150 Nos. Meter Gauge <i>Passenger Carriages</i> (EDCF)		211.16
Procurement of <i>Locomotives, Relief Cranes and Locomotive Simulator</i> (ADB)		86.10





# Some Important Ongoing Investment Projects



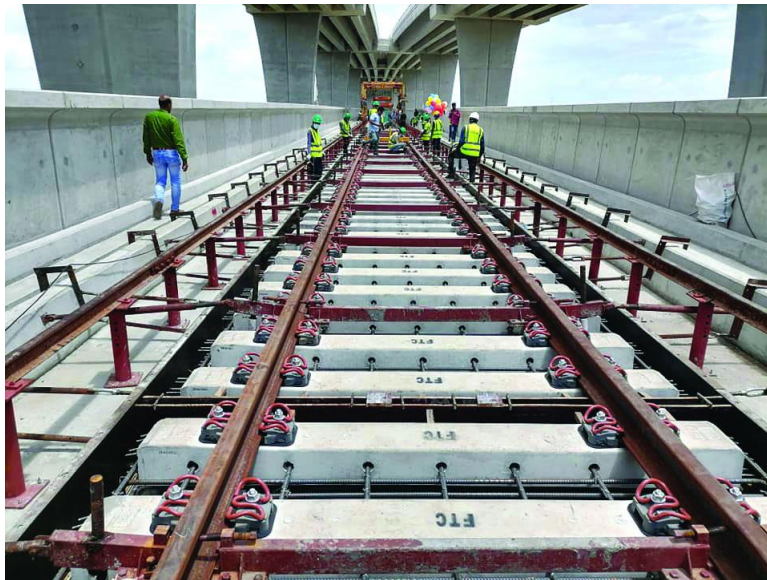
Locomotive



Coach



Akhaura-Laksam



Padma Bridge Rail Link



Bangabandhu Sheikh Mujib Rail Bridge



Dohazari-Cox's Bazar



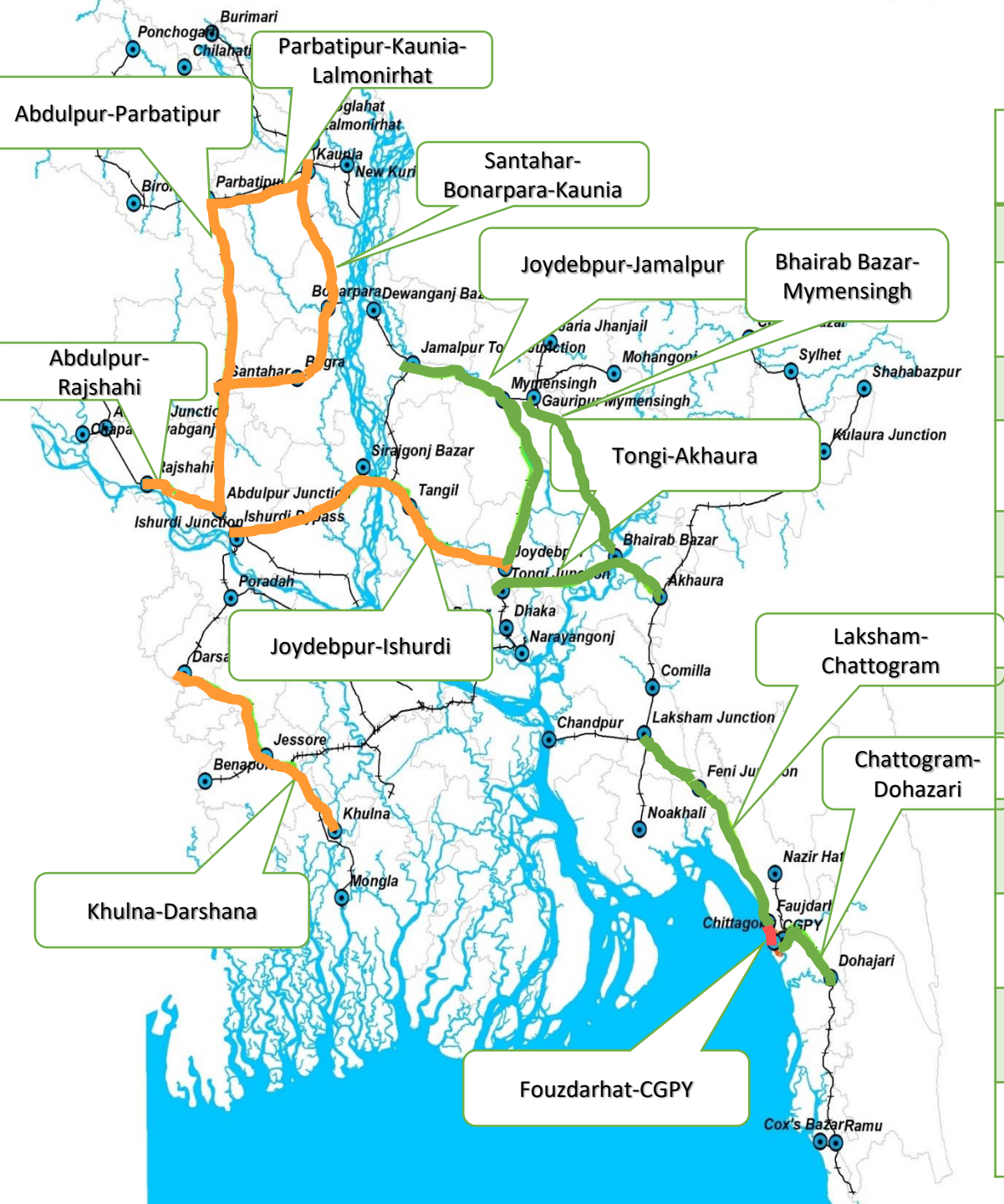
# Challenges of Bangladesh Railway

## Key Challenges

- Single Line in Important Corridors
- Gauge Unification
- Limitation in Bridge Capacity
- Limited Capacity to Carry Passengers and Goods
- Absence of Proper Railway Network
- Railway Network Expansion
- Hindrance in Regional Connectivity
- Shortage of Locomotives and Coaches
- Old Signaling System
- Increase Revenue
- Insufficient Funding in Development Projects and Maintenance
- Long Time for Project Implementation
- Lack of Modern Ticketing System
- Insufficient Manpower
- Inadequate Training
- Level Crossing Gates
- Digitalization

# Challenges Related to Railway Network

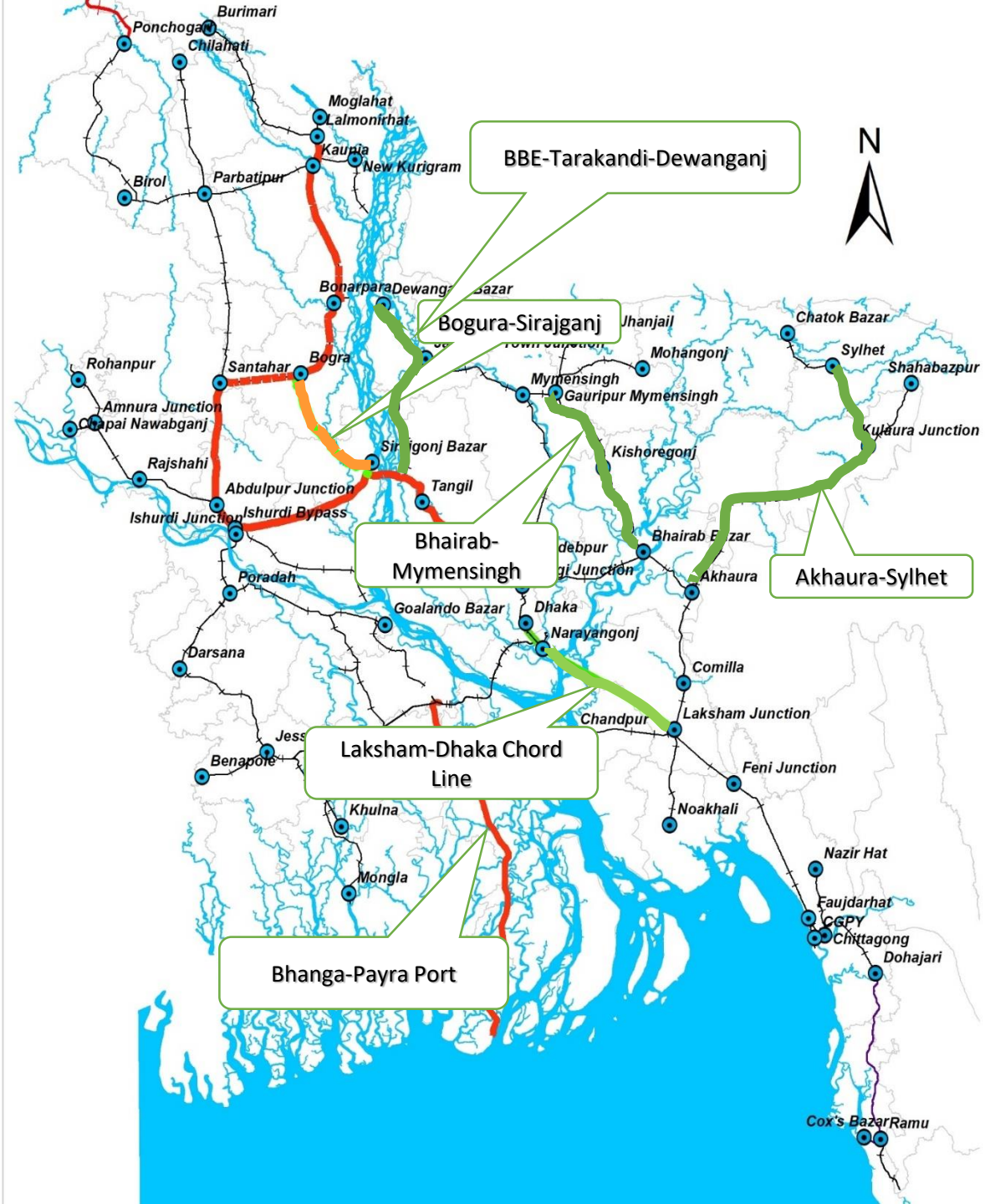
- Most of Bangladesh Railway's 3093 km of railways are **Single Line**. It is a major **hindrance** in smooth running of trains. **Crossing** of trains consumes more time in train operation and is prone to accidents. Also, due to priority in **passenger trains**, freight train movement is greatly delayed. Therefore, it is not possible to **increase** the **number of trains**, maintain **punctuality** and reduce **travel time**.
- The Railway network of Bangladesh, inherited from British-controlled India, is mainly bisected by the Jamuna River. The **western region** was mostly **broad gauge** and partly meter gauge and the **eastern region** was completely **meter gauge** system. Due to different gauge systems, **operation, maintenance** and **optimum utilization** of rolling stock is not possible.
- The railway network of Bangladesh was not developed considering the current context. It is necessary to build a capital-oriented railway network, reduce the existing distance between Chittagong port and important cities and establish a direct connection through the construction of bypass.



# Track Doubling and Gauge Unification

Sl No.	Section	Expected Completion	Status	Category
1	Laksham-Chattogram	2028	FS & DD Completed	DG Conversion
2	Chattogram-Dohazari	2027	FS & DD Completed	DG Conversion and Doubling
3	Tongi-Akhaura	2028	FS & DD Completed	DG Conversion
4	Fouzdarhat-CGPY	2027	FS & DD Completed	DG Conversion and Doubling
5	Joydebpur-Ishurdi	2028	DPP Approved	Doubling
6	Khulna-Darshana	2030	DPP Approved; FS & DD ongoing	Doubling
7	Abdulpur-Parbatipur	2032	FS & DD ongoing	Doubling
8	Abdulpur-Rajshahi	2032	FS & DD ongoing	Doubling
9	Joydebpur-Jamalpur	2030	FS Completed	DG Conversion and Doubling
10	Bhairab Bazar-Mymensingh	2032	FS & DD ongoing	DG Conversion and Doubling
11	Parbatipur-Kaunia-Lalmonirhat	2032	FS & DD ongoing	DG Conversion and Doubling
12	Santahar-Bogura-Kaunia-Lalmonirhat	2032	FS & DD ongoing	DG Conversion and Doubling





## Network Expansion and Gauge Unification

Sl No.	Section	Expected Completion	Status	Category
1	Bogura-Sirajganj	2027	DPP Approved; FS & DD ongoing	New DG Line
2	Laksham-Dhaka Chord Line	2029	FS & DD ongoing	New BG Line
3	Akhaura-Sylhet	2027	DPP Approved; Negotiation going on	DG Conversion
4	BBE-Tarakandi-Dewanganj	2032	FS & DD ongoing	DG Conversion
5	Bhanga-Payra Port	2030	FS & DD Completed	New BG Line
6	Panchagar-Banglabandha	2027	FS Completed	New DG Line

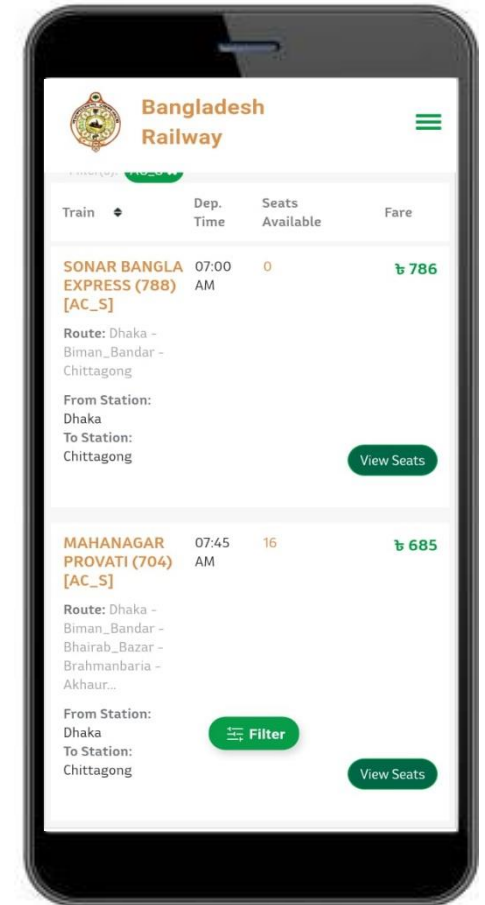
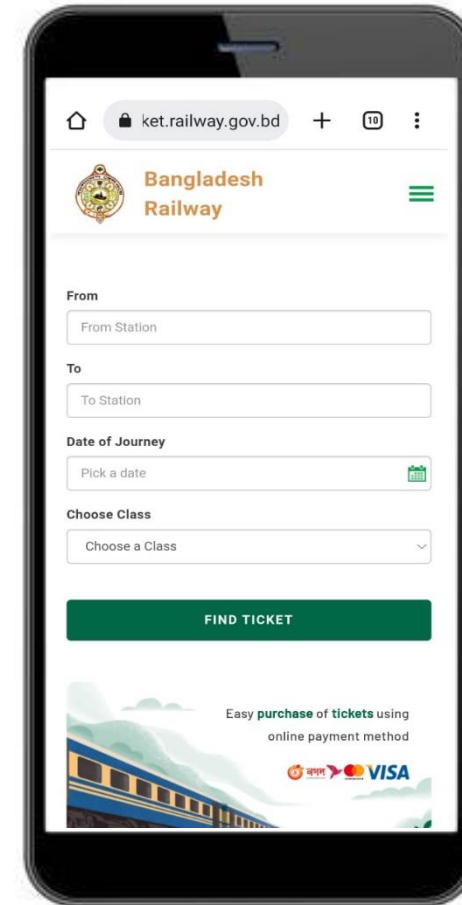
# Shortage of Locomotives and Coaches

- There is a severe shortage of locomotives and coaches in Bangladesh Railway. About **67% of locomotives, 47% of passenger coaches** have passed their economic life.
- Since 2011, Bangladesh Railway has procured 40 meter gauge and 34 broad gauge locomotives, 20 sets of demos, 300 meter gauge and 220 broad gauge passenger coaches, 165 broad gauge and 81 meter gauge tank wagons and 270 meter gauge container wagons, 4 relief cranes and 2 train washing plants.
- 80 meter gauge and 32 broad gauge locomotives, 350 meter gauge and 100 broad gauge passenger coaches, 580 meter gauge and 420 broad gauge wagons, 75 meter gauge and 50 broad gauge baggage vans, procurement of 21 locomotives are under process.
- BR needs assistance to procure required number of Rolling Stocks to cater the growing demand of passengers and goods transportation.



# Lack of Modern Ticketing System

- BR aims to modernization of ticketing system similar to the developed countries.
- Bangladesh Railway already implemented e-ticketing system through website and mobile app and linked passenger information with NID system.
- BR needs assistance to modernize the ticketing system to provide more convenience and amenities.



# Level Crossing Gates

- The total number of authorized level crossing gates in Bangladesh Railway is **1886**. On the other hand, **1225** unauthorized level crossings have been created as a result of crossing the railway line without the **permission** of the railway.
- Large number of legal-illegal level crossings is a major **hindrance** in train operations.
- It is not possible to run trains at **sectional speed** due to having an average of **one level crossing per kilometer** on the railway line and on the other hand **accidents** are often caused due to the lack of awareness of road drivers.
- Railway is not **responsible** for most of the **accidents** at level crossings, but when accidents occur, they create embarrassing situations.
- BR needs **assistance** to **modernize** and **automation** of LC gates



## রাস্তা পারাপারে জীবনের ঝুঁকি

রেল ক্রসিংয়ে জীবনের ঝুঁকি নিয়ে রাস্তা পার হচ্ছেন পথচারীরা। ট্রেন আসার আগে দু দিকে ব্যারিকেড দিয়ে রাস্তা পারাপার বন্ধ করে দেওয়া হয়। ঠিক সে সময়ে পথচারী ও যানবাহন চালকরা তাড়াহুড়ো করে রেল ক্রসিং অতিক্রম করার অঘোষিত প্রতিযোগিতা শুরু করে দেন। এভাবে প্রায়ই দুর্ঘটনা ঘটছে। রেলক্রসিংয়ের পাশেই মৌসুমি ফল ও সবজি নিয়ে বিক্রেতারা বাসেন, যা খুবই বিপজ্জনক। এই ঝুঁকিপূর্ণ দৃশ্য দেখা যায় সিলেট পুরাতন রেল স্টেশন সংলগ্ন রেল ক্রসিংয়ের। অনাকাঙ্ক্ষিত দুর্ঘটনা এড়াতে রেল ক্রসিংয়ের ব্যারিকেড ব্যবস্থা আরো শক্তিশালী করা প্রয়োজন। এ ব্যাপারে যথাযথ কর্তৃপক্ষের দৃষ্টি আকর্ষণ করছি।

শাহ মনসুর আলী নোমান, সিলেট

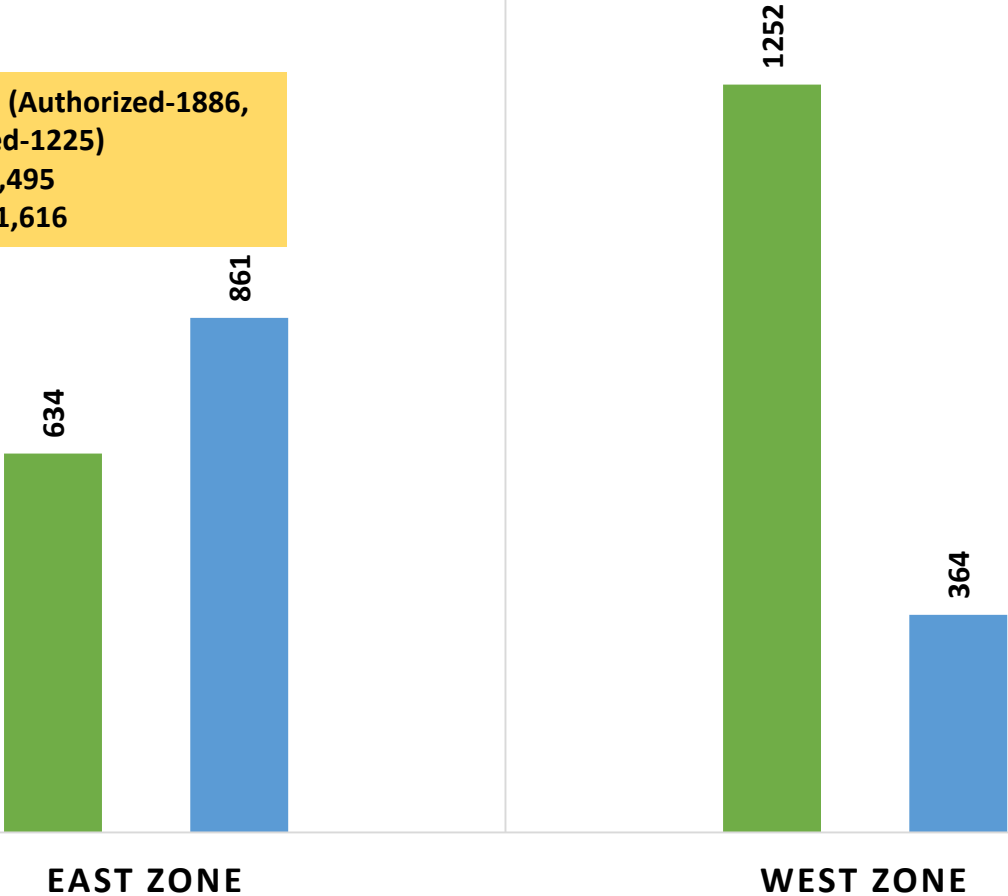


# Information of Level Crossing Gates

## LEVEL CROSSING GATES

■ Authorized   ■ Unauthorized

Total: 3,111 (Authorized-1886,  
Unauthorized-1225)  
East Zone: 1,495  
West Zone: 1,616



# Old Signaling System

- Modern signaling system is very important for increasing the safety, speed and sectional capacity of railway communication. Most of the stations of Bangladesh Railway have old signaling system till now.
- A total of 124 stations in various sections including Dhaka-Chittagong have been modernized. The remaining stations will be installed in phases.
- The introduction of automatic block signaling system in place of the existing signaling and interlocking system is also under consideration to increase the sectional capacity.
- Uninterrupted telecommunication system including train operations has been ensured by integration of railway route of Bangladesh Railway into optical fiber telecommunication network.
- BR need to upgrade whole network to CBI signaling system with CTC.



Old non-Interlock  
Mechanical Signaling System



Modern CBI Signaling System

## Way to Overcome the Challenges

- Realizing the need for an environment-friendly railway system, Bangladesh Railway has been given **high priority** under the Vision 2041 and the 8th Five Year Plan.
- BR has prepared the Master Plan (July 2016-June 2045) aligning the GOB's plans & policy statements under changed environment to meet emerging challenges.
- The present government has undertaken various activities for the development of railway sector. Among them, taking up investment projects and increasing the maintenance budget under the revenue sector is one of them.
- Bangladesh Railway requires massive investment for its development and modernization. Therefore, it seeks assistance from development partner.



# Some Important Future Projects of Bangladesh Railway

1. Laksam-Chattogram DG Conversion
2. Chittagong-Dohazari DG Single Line Conversion
3. Construction of a new ICD at Dhirasram
4. Abdulpur-Rajshahi and Abdulpur-Santahar-Parbatipur section Track Doubling
5. Santahar-Bogura-Kaunia-Lalmonirhat BG/DG conversion and Track Doubling
6. Bhairab Bazar-Mymensingh BG/DG conversion and Track Doubling
7. Bangabandhu Bridge East-Tarakandi-Jamalpur-Dewanganj Bazar DG conversion
8. Construction of Track Maintenance Machine Workshop
9. Procurement of Track Maintenance Machine
10. Modernization of Training Academy including new Academy at Dhaka with state of the art facilities
11. Construction of a New Carriage Maintenance Workshop at Rajbari
12. Procurement of Rolling Stock and Under Floor Wheel Lathe Machine for Bangladesh Railway.
13. Modernization of Syedpur Railway Workshop
14. Modernization of Pahartali Railway Workshop
15. Modernization and Automation of Level Crossing Gates
16. Modernization and upgradation of Signaling System
17. Establishment of Centralized Traffic Control
18. Establishment of Automatic Block Signaling
19. Construction of New BG Rail Line from Bhanga to Payra Port & Kuakata via Barishal

## List of Other Projects to be Considered by the Korean Side

SI No.	Name of the Projects	Approximate Cost (Million USD)
1	Modernization of Railway Training Academy (RTA)	70.00
2	Construction of Track Maintenance Machine Workshop	900.00
3	Introduction of Electric Traction at Dhaka-Chattogram Corridor including Feasibility Study and Detailed Design	800.00
4	Procurement of 54 nos. Meter Gauge Passenger Carriage for Tourist Train from Dhaka to Cox's Bazar	52.00
5	Construction of New BG Rail Line from Bhanga to Payra Port & Kuakata via Barishal	5000.00
6	<i>Construction of Interlocked Signaling System in Ishurdi to Parbatipur Section (20 Stations) of Bangladesh Railway</i>	62.00
7	Procurement of 60 MG Locomotive	250.00

## List of Other Projects to be Considered by the Korean Side

SI No.	Name of the Projects	Approximate Cost (Million USD)
8	Construction of Interlocked Signaling System in Abdulpur to Rajshahi Section of Bangladesh Railway.	70.00
9	Construction of Interlocked Signaling System in Parbatipur to Panchagrah Section of Bangladesh Railway.	100.00
10	Construction of a New Carriage Maintenance Workshop at Rajbari	700.00
11	Modernization of Syedpur Railway Workshop	400.00
12	Modernization of Pahartali Railway Workshop	400.00
13	Construction of 10 MW Solar Panel on Available Railway Land on PPP Basis.	10.00

## List of Other Projects (RCIPF) to be Considered by the Korean Side

Sl No.	Name of the Projects	Approximate Cost (Million USD)
1	Conversion of MG Single Line into DG Single Line from Jamalpur - Tarakandi - Bangbabandhu East	340.00
2	Construction of BG/DG Double Line from Abdulpur Parbatipur	1200.00
3	Construction of BG Double from Adbulpur to Rajshahi	350.00
4	Construction of DG/BG line parallel to the existing MG line and conversion of existing MG line into DG/BG line in Bhairab Bazar-Mymensinghh section.	1300.00
5	Conversion into DG and Doubling of Track of Parbatipur-Kaunia-Lalmonirhat Section	1200.00
6	Conversion into DG and Doubling of Track of Santahar-Bogura-Kaunia-Lalmonirhat Section	1500.00
7	Construction of New DG Line from Panchagarh Banglabandha	320.00

## Conclusion

- In a populous country like Bangladesh, the importance of railways as public transport is immense. But the railway sector was neglected for a long time.
- As the popularity of railway is increasing as it is safe, cost-effective, environment-friendly, the interest in rail travel among the people is also increasing.
- The current Government is determined to develop Bangladesh Railway as a strong transport network and multifaceted steps have been taken for this purpose.
- Bangladesh Railway is continuously working to build the expected prosperous and developed Bangladesh through the implementation of ongoing initiatives.



**THANK YOU**