

Vande Bharat Express Train Set The Game Changer & Future of Indian Railways' Workforce & Infrastructure

In the context of South Central Railway

Presented by

K.V.Ramesh Sr.JGS/IRTSA

Indian Railways Technical Supervisors' Association

6th November 2023

Welcome

Sri.K.S.JAIN

Principal Chief Mechanical Engineer, SCR

Sri. P.D.Mishra,

Principal Chief Electrical Engineer, SCR

Sri.N.S.R.Prasad, CWE/SCR

Sri.Brij Mohan Meena, CESE/SCR

Sri.Birendra Sinku, CWM/LGDS

&

Officers of SC Rly

Welcome

Dr.M.Raghavaiah GS/NFIR

Sri.S.G.Mishra GS/AIRF

Sri.Shankara Rao GS/SCRMU

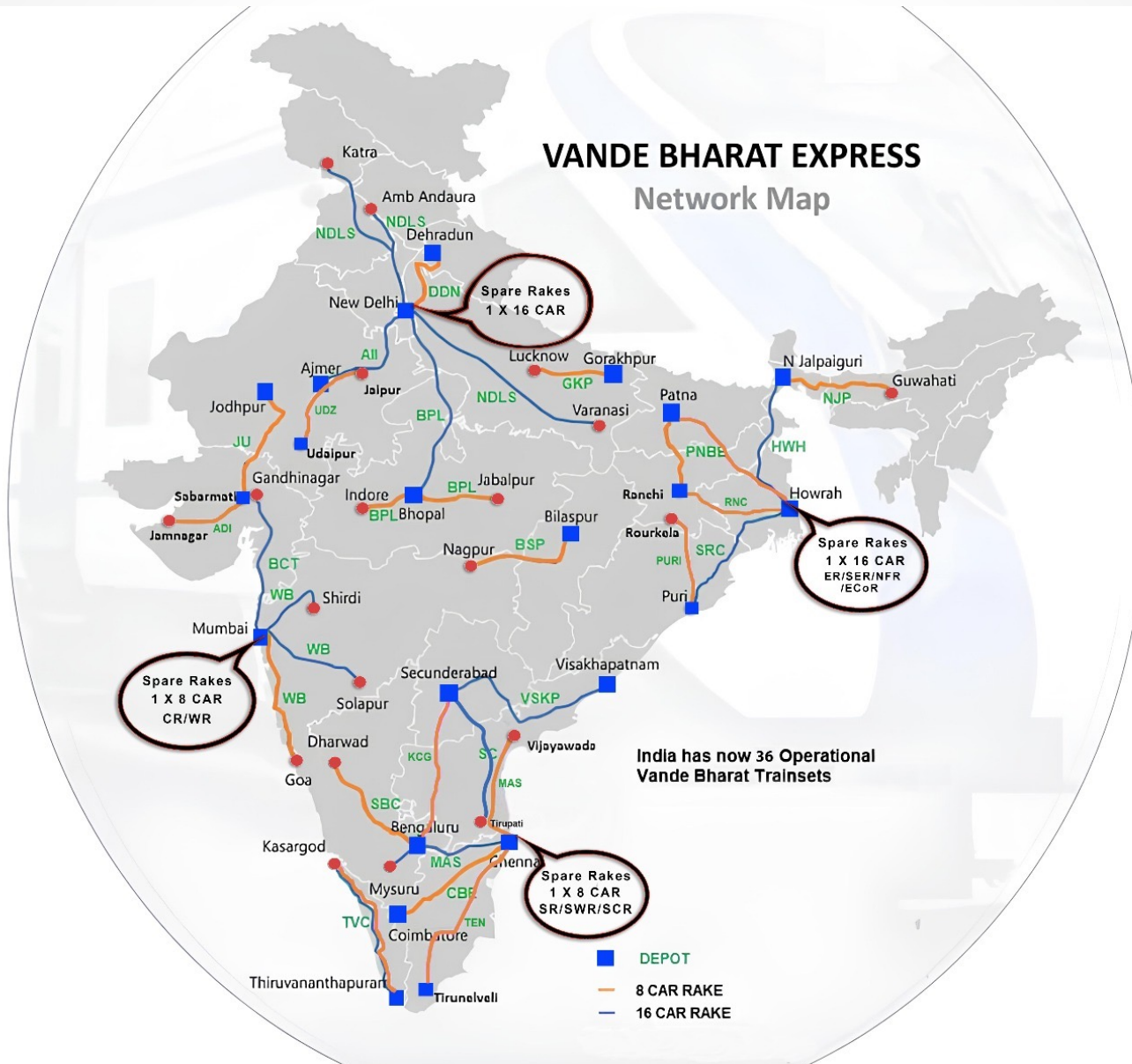
**Unions & Associations Office bearers
CEC members & Active members of IRTSA
&
Every one present in the hall**

Presented to 58th All India Annual Conference
& CGB of IRTSA
Lalaguda, Secundrabad, SC.Rly

India's first-ever indigenously designed
and manufactured
semi-high speed Vande Bharat trains



Vande Bharat Express Network map – 36 routes



Salient Features of Vande Bharat Express Train set

- 1) Fitted with KAVACH.
- 2) Faster acceleration and semi High speed operation up to 160 KMPH.
- 3) Fully Sealed Gangway for Free Passenger Movement
- 4) Automatic Plug Doors
- 5) Reclining Ergonomic Seats and Comfortable Seating with revolving seats in executive class.
- 6) Better Ride Comfort.

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- 7) Mobile charging sockets for every seat.
- 8) Mini Pantry with provision of Hot Case, Bottle Cooler, Deep freezer & Hot Water Boiler
- 9) Direct and Diffused Lighting.
- 10) For Divyangjan passengers special lavatory in DTC.
- 11) Emergency openable Windows and fire extinguisher in each coach
- 12) CCTVs in all Coaches
- 13) Disaster lights – 4 numbers in each coach in case of Emergency

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- 14) 4 platform side cameras including rear view cameras outside the coach.
- 15) Emergency Alarm Push buttons and Talk Back Units on all Coaches.
- 16) Better fire safety – Aerosol based fire detection and suppression system in electrical cabinets and lavatories.
- 17) Driver-Guard communication with voice recording facility & Crash hardened memory.
- 18) Coach Condition Monitoring System (CCMS) display with remote monitoring.

MGR CHENNAI CENTRAL – MYSURU VANDE BHARAT WILL EARN 14.7% MORE THAN SHATABDI EXPRESS

- 1) Every year VB running between MAS-MYS (16 car rake) will earn Rs.11.75 crore additionally compared to existing Shatabdi express.**
- 2) In the life period of 35 years MAS-MYS VB will earn around Rs.400 crore more than Shatabdi express.**
- 3) To earn more profit VB express should be operated in 20/24 coaches formation.**
(Suitable increased PF length for 24 coaches)

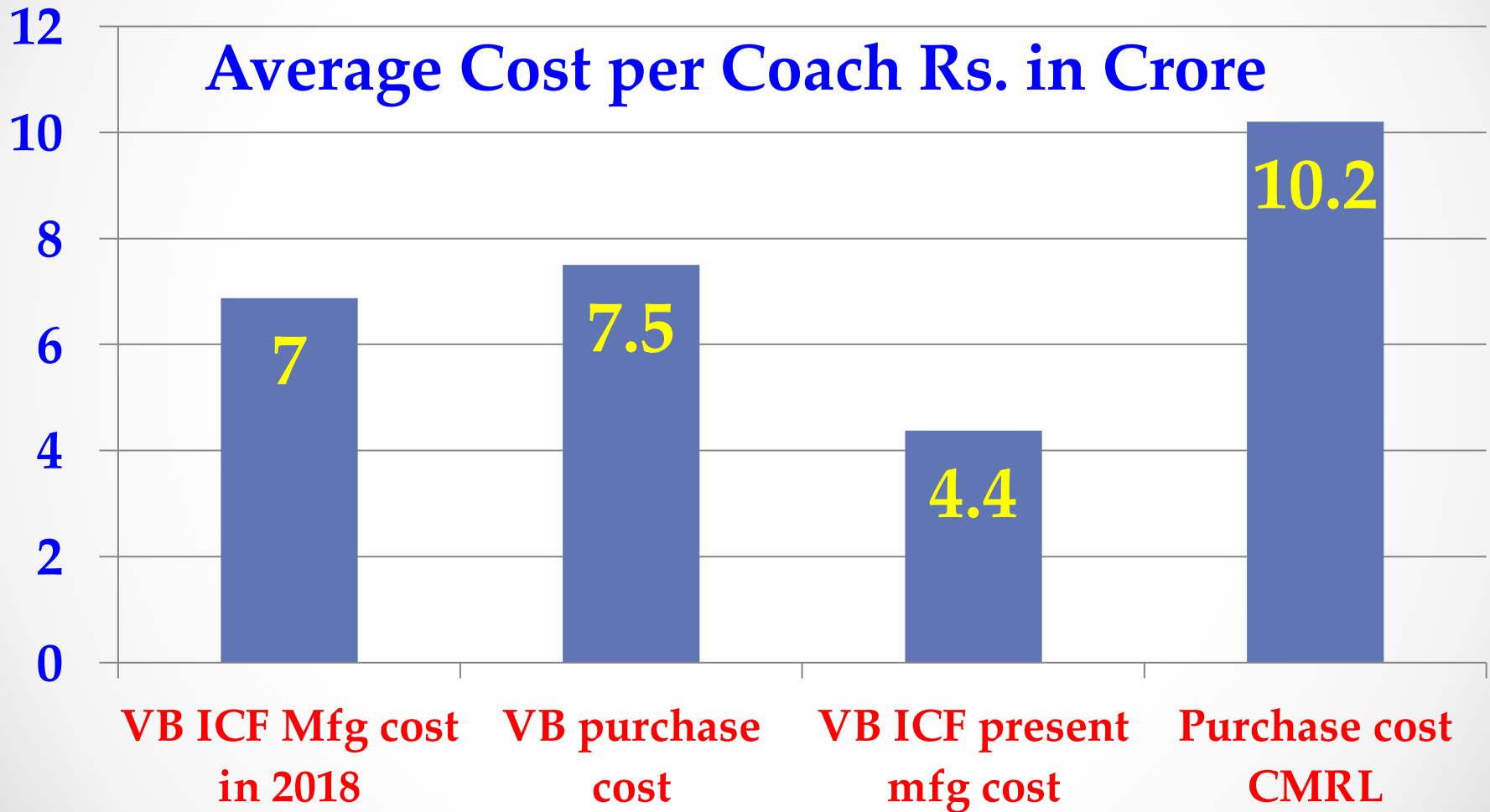
Manufacturing cum maintenance agreement for VB Sleeper Train sets with MNCs

- 1) Russia's TMH & RVNL combine, lowest bidder at the cost of Rs.120 crore per train set will manufacture 120 train sets utilizing infrastructure at Marathwada Rail Coach Factory (MRCF) Lathur.**
- 2) Titagarh Rail Systems Ltd & BHEL, second lowest bidder will manufacture 80 train sets utilizing infrastructure at Integral Coach Factory (ICF) Chennai.**
- 3) Agreement is for design, manufacture, supply, testing and commissioning of 200 train sets spread over 3 to 5 years.**

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- 4) Design & drawings, infrastructure including factory sheds, some machines, commissioning shed, EOT cranes, space for day-to-day work stores, electricity, free compressed air, free drinking water, canteen facility, specified number of technician and technical supervisors, etc & development fund will be given by Rly to MNCs.
- 5) Maintenance thereof for a period of 35 years. In the IR's coaching depots located in Delhi, Mumbai, Kolkata, Hyderabad, Bengaluru, Jodhpur, etc.
- 6) In 35 years Railways contractors will get 112.25% of train price as maintenance fee @ varied percent.
- 7) The Train Price, maintenance fee and price towards payable spares are exclusive of GST.

Average cost per coach VB manufactured by ICF, proposed purchase & Metro coach purchase



Indian Railways can manufacture & maintain Vande Bharat Train Sets

- 1) Nine production units of Indian Railways CLW, BLW, ICF, RCF, MCF, RWF, DLMW, MRCF & RWF Bela are having the capacity to manufacture ~10,000 coaches and ~1000 locomotives per year (9511.73 acres of land)
- 2) 47 mechanical workshops (6848.5 acres of land)
- 3) Around 152 loco maintenance sheds
- 4) 178 coaching depots
- 5) Adopted for change from steam age to Electric & Diesel locos, DPRS & now to semi-high speed train set.
- 6) Rivetted coach to integral coach, then to LHB, then to DPRS and now to semi-high speed train set.

South Central Railway

- | | |
|--|----------|
| 1) Divisions | - 6 |
| 2) No of states covered | - 6 |
| 3) No of stations | - 715 |
| 4) Sanctioned staff strength | - 92,890 |
| 5) Operating ratio (2022-23) | - 88.20% |
| 6) Average number of passenger
trains run daily | - 618 |

With 88.20% operating ratio (in other words 11.8% profit) SC Rly is a successful business module of any high standard.

Coaching & Locomotive maintenance infrastructure available in South Central Railway

Coaching Depots & their holdings in SCR

	Depot	Coach holding	Classification
1	Hyderabad	543	Mega
2	Secunderabad	481	Major
3	Tirupathi	410	Major
4	Kacheguda	408	Major
5	Vijayawada	335	Major
6	Narasapur	224	Medium
7	Nanded	217	Medium
8	Kakinada	190	Medium
9	Guntur	154	Medium
10	Purna	119	Minor
11	Kazipet	92	Minor
12	Guntakal	67	Minor
13	Machilipatnam	25	Minor
	Total	3265	

Electric Loco Sheds & their holding in SCR

	San Strength	Holding	Total area In acres	Covered Area In acres
Electric Loco Shed Lalaguda	683	275	19.37	3 App
Electric Loco Shed Vijayawada	600 app	239	31.8	2.5
Electric Loco Shed Kazipet	436	184	21.16	3 App
Total	1719	698	72.33	8.5 App

Diesel Loco Shed in SCR

	San Strength	Diesel Holding	Electric Holding	Total area in acres	Covered Area
Diesel Loco Shed Guntakal	600 App	61	130	20.28	2.3
Diesel Loco Shed Gooty	650	215	70	59.55	4.94
Diesel Loco Shed Kazipet	733	135	85	14.85	3.77
Diesel Loco Shed Vijayawada	500 App	53	-	6.67	2.33
Diesel Loco Shed Moula-ali	422	101 + DEMU 16 Rake	3	19.76	3.21
	2905	565+16	288	121.11	14.25

Mechanical Workshops in SCR

	San Strength	Out turn	Total area in acres	Covered area in acres
Carriage Workshop Lallaguda	3416	POH 1622 IOH 1445	54	24.5
Carriage Workshop Tirupati	1716	POH 1270 IOH 2186	351	9
Wagon Workshop Guntupalli	2500	POH 6000	602.9	17.8
Total	7632		1007.9	51.3

EMU & MEMU Depots, S&T Workshop, Engg Workshop & Wagon ROH depot

	San Strength	Holding	Total area in acres	Covered area in acres
Train Set Maintenance depot Moula-Ali	191	EMU 35 MEMU 28 units	35	4
MEMU Car Shed RJY	185	MEMU 28 rakes	28	3.5
S&T Workshop Mettuguda	300 App	S&T Equipment	8.65	3.1
Engineering Workshop Lalaguda				
BOX N ROH Depot Gooty				

Bitragunta Steam loco shed (Abandoned)

- History of Bitragunta's association with Railways started well before the year 1885.
- Was a major yard and also inter-changing depots for the drivers and guards.
- The closure of the Steam loco shed & marshalling yard brought a complete closure to the glory of this railway town.
- As per old records of Tahsildhar Bogole mandal, Railway land available in Bitragunta Railway station compound was 700.94 acres.
- 420 acres of vacant land readily available.
- Located between Vijayawada and Chennai on the east coast trunk line of IR.
- Road via Nellore to Chennai in the south and Kolkata in the east (NH-16) and other major cities enroute.

Suggestions for SC Rly

- 1) Ancillary Production unit for Integral Coach Factory, Chennai. Approximate cost of the project Rs.450 crores – Land to be utilised 50 acres.
- 2) Maintenance depot for Vande Bharat
- 3) Aluminium freight wagon manufacturing unit
Approximate cost of project Rs.200 crores – Land to be utilised 40 acres.

(Indian Railways has launched “Mission 3000 MT” with a target of doubling freight capacity to reach 3,000 million tonnes by 2027 through augmentation of rolling stock, with the objective to achieve 45 per cent market share in freight.)

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4) Establishing solar park to generate electricity

- SC.Railway zone getting bright sunlight throughout the year, will be idle place to establish solar park to generate electricity.
- Solar Power Plants occupy at least 4 acres of land per 1 MW output.
- If solar panels are setup in 300 acres of land, 75 MW output can be obtained.

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5) Manufacturing plant for next generation technology propulsion system for use in high power electric locomotives & DPRS.

Announced in Rly Budget 2012-13. Non starter.

6) Railway components manufacturing hub.

7) Setting up of semiconductor fab

Railway empty lands available may be spared to semi-conductor industry equivalent to fiscal support announced by Government.

8) Plantation of Jatropha and establishing Biodiesel plant

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9) Erection of windmills to generate electricity.

10) Establishing container storage & transit point for Krishnapatnam port.

Krishnapatnam Port is situated 70 km away from Bitragunta. Containers and cargo shipments of Krishnapatnam port can be stocked and transported through Rail Network using surplus vacant land available at Bitragunta.

IN A NUT SHELL

- 1) SC.Rly zone with efficient operating ratio of 88.2% is having potential to further expand its activities, to improve performance of IR.
- 2) Particularly its workshops, loco sheds and carriage maintenance depots can add IR's capacity in manufacturing and maintenance of Vande Bharat Express train sets and Aluminium freight wagons.
- 3) Land can be used for electricity generation especially from solar, so that entire energy requirement of SC.Rly can be met. Title of all these lands should be with IR.

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- 4) Complete outsourcing of manufacturing & maintenance of any rolling stock should not be done. It should remain with IR with controlled outsourcing by giving opportunities to regional establishments.
- 5) Sufficient addition of man power.
- 6) Training of workforce in new technology in the engineering fields of Civil, Mechanical, Electrical and S&T for manufacturing, maintenance & operation of semi high speed trains



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Special Thanks to IRTSA SC.Rly Zone