Presentation made by GS IRTSA in the seminar organized by IRTSA in 60th AIAC & CGB on 11 & 12.11.2025

Sri.U.Subba Rao General Manager ICF graced as Chief Guest General Secretary NFIR, PHODs, HODs, Former Railway Board Member, Former GMs, union office bearers and members of IRTSA attended in large numbers

As part of Diamond Jubilee (60th) All India Annual Conference and Central General Body Meeting of IRTSA, Seminar has been organized by IRTSA. Sri.U.Subba Rao General Manager ICF graced as Chief Guest, General Secretary NFIR, PHODs, HODs, Former Railway Board Member, Former GMs, union office bearers and members of IRTSA attended in large numbers. Conference held in Dr.Amberdkar Auditorium, ICF, Chennai.

K.V.Ramesh, General Secretary IRTSA made PPP on Optimizing ICF & Improving Railway Earnings. Following achievements of ICF and suggestions for improving ICF infrastructure, quality of coaches manufactured in ICF and suggestions for improving Railway earnings were presented by GS IRTSA.

1. ICF the largest coach manufacturer – Milestones and achievements.
2. Promotion policy of ICF, promoting employees on the same day of vacancies arising and handing over of promotion orders to the employees getting promotion by retiring employees.
3. Corrugated side wall for all coaches & change of process in spot heating of side walls.
4. Introduction of pneumatic clamping in jig & fixtures.
5. Introduction of Laser welding.
6. Managing contracts and employees of contractors.
7. Grading of suppliers based on MTBF (Mean Time Between failure or stoppage) analysis for major critical items.
8. Design for introduction of private cabins in sleeper trains.
9. Additional space for ICF.
10. Necessities to improve quality & quantity of Technical Supervisors.
    a) Attachment of progress wing with shop floor.
    b) Upgradation of part of sanctioned strength of Senior Technicians to Junior Engineers.
    c) Operation of DR posts (SSE, CMS & CMDS) in level-7 through promotions from level-6.
    d) Trainings for Technicians, JEs & SSEs.
    e) Air conditioning of SSE & CDMS offices inside factories as per survey already completed.

K.V.Ramesh
GS/IRTSA

Optimizing ICF
&
Improving Railway Earnings

PRESENTATION BY

K.V.RAMESH

GENERAL SECRETARY

INDIAN RAILWAYS TECHNICAL SUPERVISORS' ASSOCIATION

PRESENTED IN 60TH AIAC & CGB MEETING OF IRTSA

ON 11.11.2025 AT ICF, CHENNAI

IRTSA WHOLE HEARTEDLY WELCOMES

General Manager, ICF

PCME, CAO, PFC, PCEE, PCMM, PCPO, CPO/Adm, PCE, HODs and Officers of ICF

PCME – SR

Dr. M.Raghavaiah – GS NFIR

Com. Shiv Gopal Mishra – GS AIRF

Distinguished Guest

Union Office bearers, IRTSA delegates from various zones & Members of ICF Family

Special Invitees for

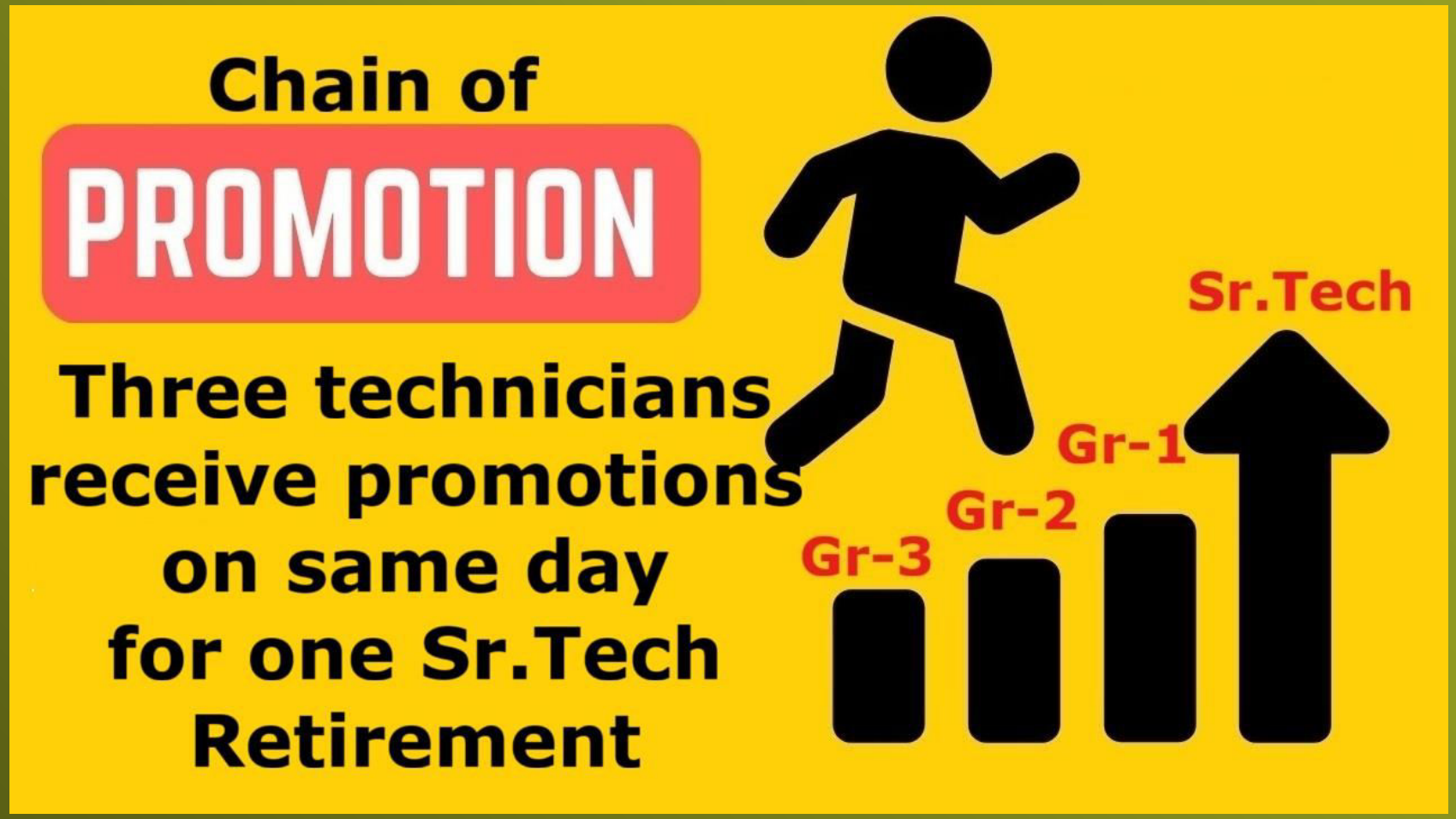
- **Sri.K.Balakesari - Former Member stff**
- **Sri. B Gopinath Mallya - Former GM ICF**
- **V. Carmelus - Former AGM Southern Railway**
- **Sri.S.Srinivas Former - GM RCF**

ICF the largest coach manufacturer

Promotions received by JE, SSE, CMA, CMS, DMS & CDMS in 2023, 24 & 25 (Oct) in ICF

Department	Level-6 to 7	Level-7 to 8
Mechanical	108	363
Electrical	44	87
Design	21	67
Engineering	1	11
C&M Supdt	11	32
CDMS	14	33
Total	199	593

Promotion on the date of vacancy arising



ICF promotes eligible employees on 1st day of every month.

Promotion orders handed over by retiring employee to promotes.

Discussion on ideas

1) Corrugated side wall for all coaches & change of process in spot heating of side walls.
2) Introduction of pneumatic clamping in jig & fixtures.
3) Introduction of Laser welding.
4) Managing contracts and employees of contractors.
5) Grading of suppliers based on MTBF (Mean Time Between failure or stoppage) analysis for major critical items.
6) Design for introduction of private cabins in sleeper trains.
7) Additional space for ICF.
8) Necessities to improve quality & quantity of Technical Supervisors.

1.A. Introduction of Corrugated side walls in all coaches

1) Reduces weight
2) Eliminates spot heating
3) Reduces man power requirement
4) Reduces production cycle

Side Wall Assembly

Stage	Work content	Shell	LHB
Stage - 1	Assembly & Tack - Sheet + frame work Spot weld (RSW M/C)	Shop-20 (3700 mts)	Work Contract Shop-19 (1700 mts)
Stage - 2	Carline Assembly MIG weld	Works Contract	Works Contract
Stage - 3	Weld parts Assembly Weld parts welding	Works Contract	Works Contract
After Body jig Assy in shell	Spot heating	Shop-26 & Works contract 8100 mts	Works Contract 8100 mts

Introduction of Corrugated side wall for all coaches

Corrugated metals have emerged as a remarkable resource in offering a range of benefits including durability and longevity, resource efficiency, energy savings, and reduced maintenance needs.

1. **Already ICF is manufacturing Antyodaya coaches with corrugated side walls.**
2. **Spot heating can be eliminated.**
3. **Side wall sheet thickness can be brought down to 1.5 mm.**
4. **Undulations can be brought down.**
5. **Weight reduction minimum 500 kg per coach and 11 tonnes per 22 coach formation can be achieved.**

WAY FORWARD

1) Manufacturing process – Required changes to be adopted.
2) Corrugation for trough floor sheet and side wall sheet can be standardised, so that same infrastructure can be used for both.
3) Reduction in steel cost Rs.1,00,000 per coach
4) Reduction in haulage cost.
5) Reliable and sustainable.

1.B. Spot heating of side walls

1) As mentioned earlier spot heating of 2mm side walls consumes nearly one shift, occupying precious space and time in the production belt.

2) Spot heating can be completed at the stage of manufacturing of side walls.

3) Spot heating & final activities can be shifted / off-loaded to Loco works or C&W works.

2. Introduction of pneumatic clamps

1) Applies high clamping force.

2) Simultaneous clamping of multiple parts & at multiple locations.

3) Centralized control for clamping.

4) De-clamping at all location by single command.

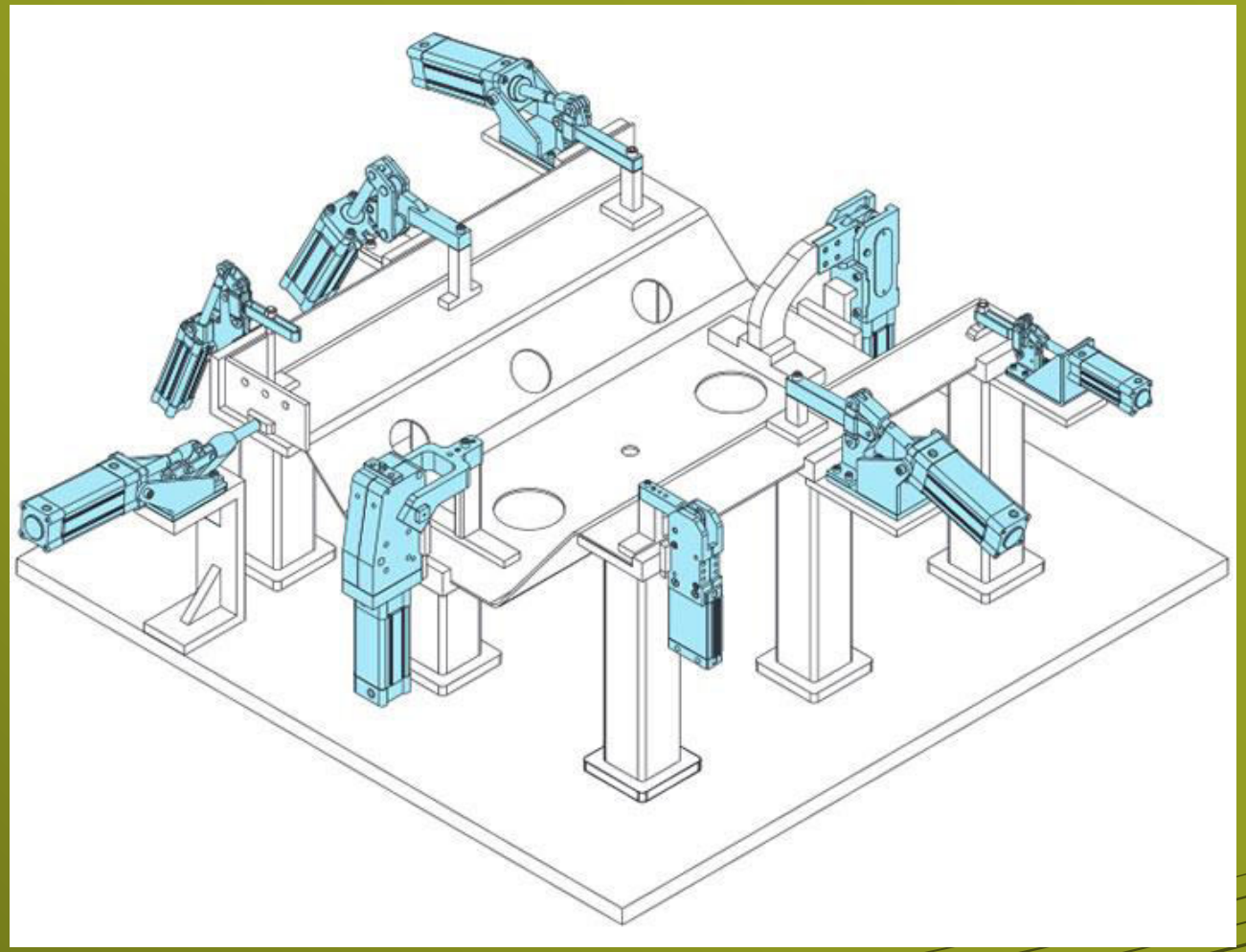
5) Welding distortion can be reduced.

6) Automatization possible.

7) Reduces production cycle.

Implementation pneumatic clamps in ICF

1) Body Jig assembly
2) Underframe assembly
3) Bogie frame assembly
4) Many sub assemblies



Way Forward

Instead of looking for precedence, ICF should design & develop good standardized pneumatic clamp systems.

3. Introduction of Laser Welding

Introduction of Laser Welding

1) For high volume manufacturing.
2) Quality and consistency of welding.
3) Lower heat input – smaller heated affected zone & less distortion.
4) Higher welding speed.
5) Laser weld in stainless steel requires no after-weld processes like grinding. Weld finish is bright and oxide free.
6) Ease of Automatization.

Limitations of laser weld over TIG

1. High initial equipment cost.
2. Not suitable for deep penetration in thick materials.
3. Suitable for materials up to 8.5mm thick.
4. Limitations in overhead welding.
5. More Power consumption.
6. Generates a significant amount of heat and, in some cases, hazardous fumes.

4. Managing contracts and employees of contractors

Qualification for contractors' Technicians - ITI, Diploma, Act Apprentices or minimum two years experience in fabrication industry.

Man power cost estimate for outsourcing is @ Rs.55 per man hour.

ICF contract conditions includes complying provisions of EPF, EPS & EDLI for the employees engaged by contractor.

Employee Provident Fund Act

1. Act applies to defined class of Industries employing 20 or more employees.
2. Three Schemes - The Employees' Provident Funds Scheme, 1952 (EPF), The Employees' Pension Scheme, 1995 (EPS) & The Employees' Deposit Linked Insurance Scheme, 1976 (EDLI).
3. EPF - Defined contribution by Employee and Employer.
4. EPS - Pension scheme – No employees contribution.
5. EDLI - Insurance benefit upto 7 lakh - No employees contribution.

WAY FORWARD

1. Minimum wages prescribed by Minimum wages act for highly skilled is Rs.1065 per day.
2. Inclusion of cost of EPF or EPS or EDLI in the estimate for man power cost and should ensure compliance.
3. Firms should have employees covered under EPF or EPS or EDLI on its roll.
4. Initially cost will increase.
5. Because of qualified workmanship quality in the work can be ensured.
6. Mean time between failure or stoppages (MTBF) can be reduced.
7. Requirement of supervising & inspection man power will come down.
8. Maintenance cost will come down.

5. Grading of suppliers / contractors through MTBF

1) ICF certifies its suppliers through firm inspection to ensure their capabilities.
2) Items supplied or work carried out by the firms go through standard inspection procedures.
3) Two or more tiers of inspection has not improved the quality appreciably.
4) Existing inspection and procedures are mainly oriented towards corrective actions.
5) Supply mismatch.

WAY FORWARD

1. MTBF (Mean Time Between failure or stoppage) should be introduced for major items like Shell kit items, Roof, underframe, sidewall, Bogie frame, RMPU, electricals, etc.
2. Supply schedules, Quality issues, time consumed for rework within ICF, complaints from user Railways, support extended for user Railways, etc should be the criteria.
3. Penalty clause for contractors' failure doesn't work well.
4. Credit should be given for adhering to schedule, nil failure, nil quality problem, etc.

6. Design for introduction of private cabins in upper class & sleeper class

ESTIMATED ADDITIONAL EARNINGS FOR IR

- RS.2600 CRORES -

FROM 4,111 MAIN LINE MAIL & EXPRESSES

Private cabins in upper class & sleeper class Additional Earnings without compromising passenger capacity

Class of travel	No of passengers traveled (2023-24) in crore	Proposed % to be converted to pvt cabin	No of passengers in proposed pvt cabin in crore	Additional cabin chagre per passenger in Rs	Additional earnings Rs in Cr
Upper class	31.9	25	7.975	**100**	**797.5**
2nd class Mail & Express	187.1	10	18.71	**50**	**935.5**
Total	219		26.685		**1733**

25% of berths in 2 tier & 3 tier AC proposed to be converted to private cabins.
10% of 2nd class mail & express berths proposed to be converted to private cabins.

.... Continued

Class of travel	No of passengers traveled (2023-24) in crore	Proposed % to be converted to pvt cabin	No of passengers in proposed pvt cabin in crore	Additional cabin chagre per passenger in Rs	Additional earnings Rs in Cr
Upper class	31.9	25	7.975	**150**	**1196.25**
2nd class Mail & Express	187.1	10	18.71	**75**	**1403.25**
Total	219		26.685		**2599.5**

It is an age-old suggestion agreed in principle by Railway Board. Waiting for implementation.

7.Additional Space for ICF

1) Attachment of part of Loco works (empty land) with ICF shell division through GSD without affecting existing setup of Loco Works. - ICF-Shell division will get approximately 50 acres of land in rectangle shape.

2) Existing Loco works bridge may be converted into 4 lane heavy vehicle fly over for a length of 1.6 km, connecting Kolathur side with Loco works road (existing), constable road (Railway road), KH Road (Ayanavaram Road) and New Avadi Road (Anna Nagar). This fly over will have multiple ascending & landing arms enabling distribution of road traffic.


ICF
SHELL
LOCO
EMPTY
LAND
Size: 575m X 255 m Approx
GSD
Size: 310m X 100 m Approx
Size:
200mX100 m
Approx
C&W WORKS
Perambur Loco Works
- General Stores Depot
Perambur Lco Wk
Locoworks perambur
reservation counter
Public Food Shelter
Loco Scheme 1st Rd
Nagathamman Temple
Loco Works Rd
Hoskote Camping
& Training Centre
Battery box shop
Carriage and
Wagon Workshop...
PES transport
Home goods store
Loco Works Factory
Constable Rd
Office Of Chief
Workshop Manager...
Southern Railway
OPD Block,
Southern Railway...
TV ground
Masjid-e-Ilahiya
Railway Quarters
4th St
3rd St
Play Ground
Karpaga
Morse Rd
Thope Rd
Google
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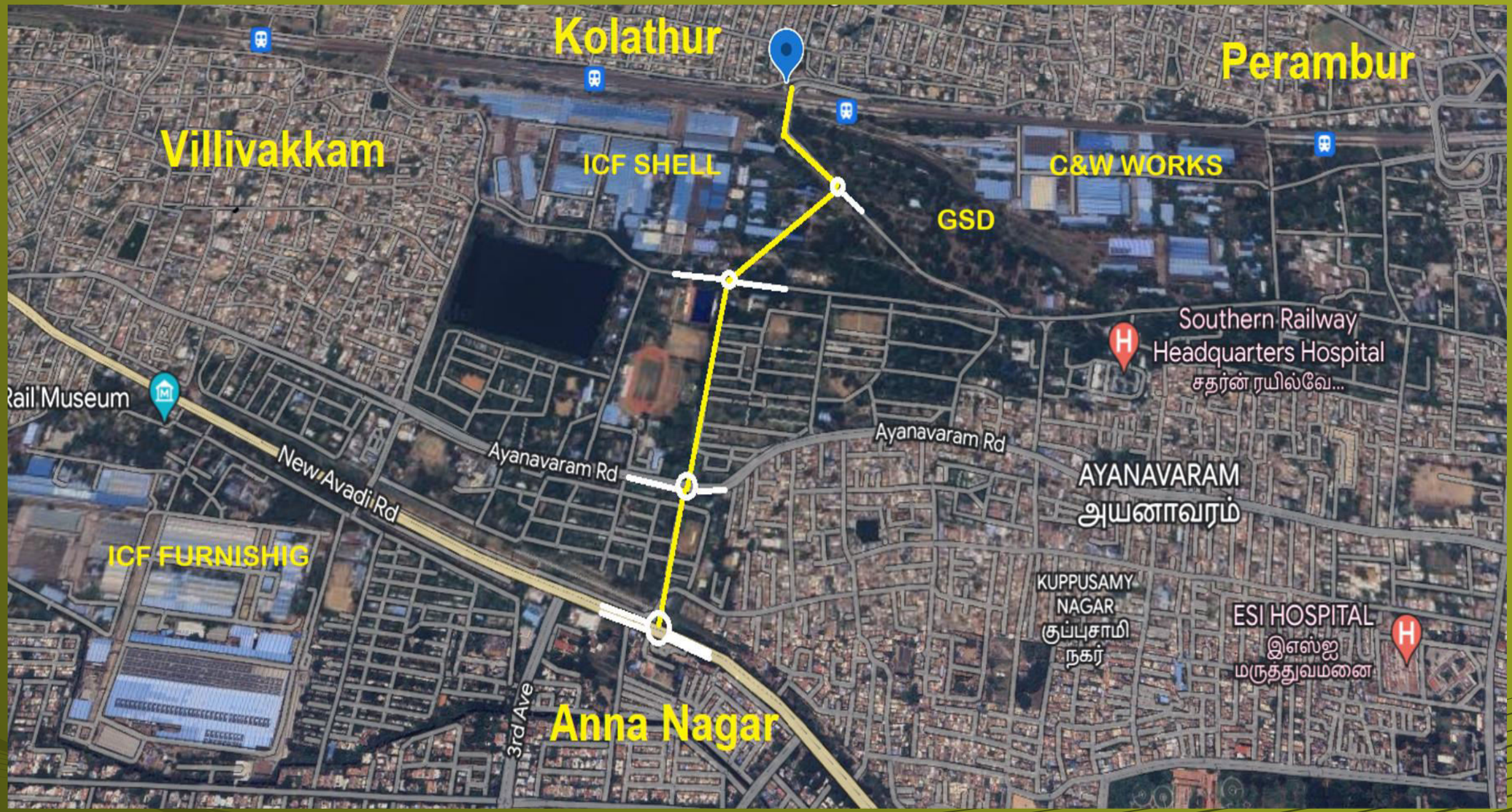
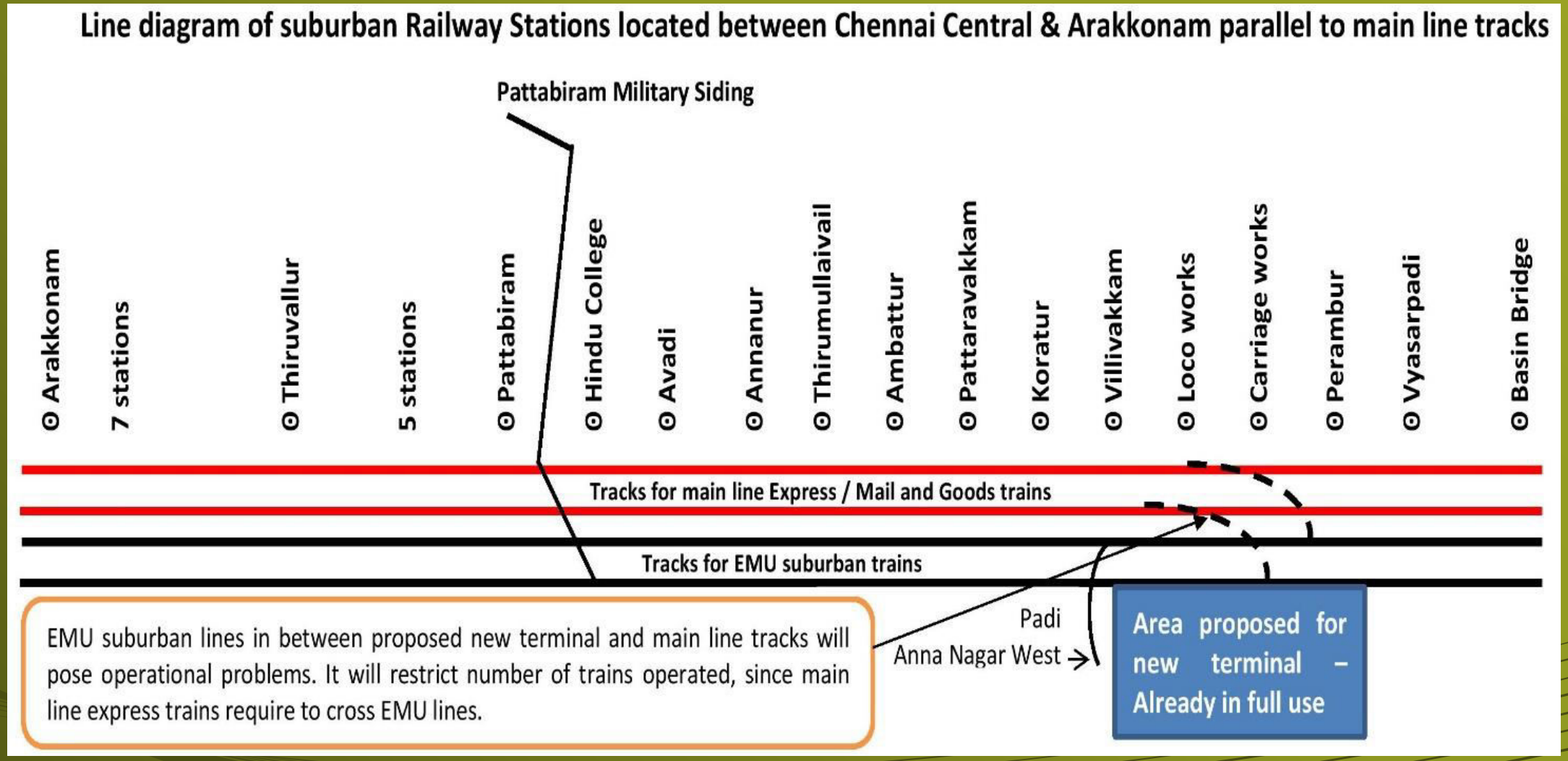
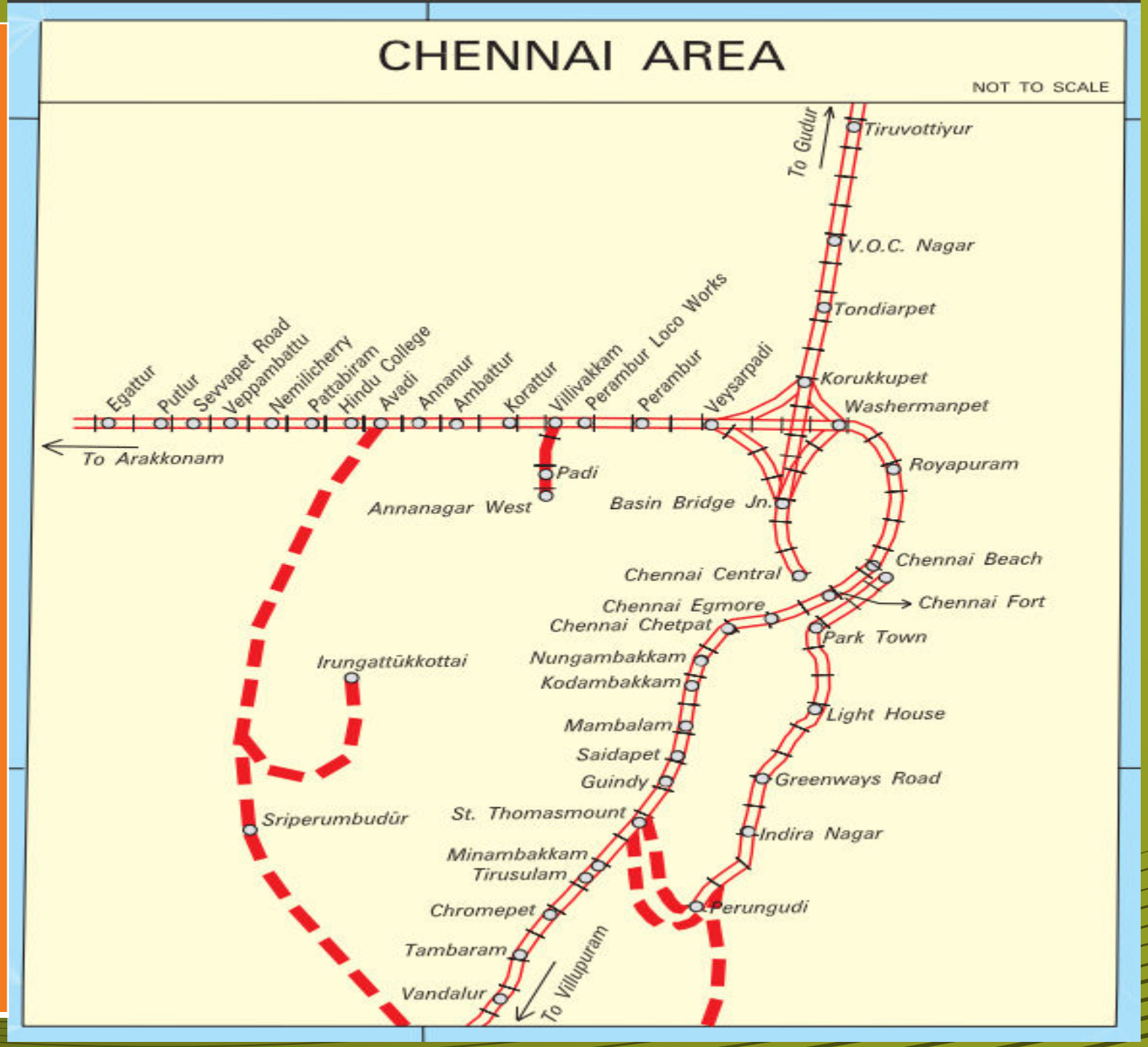

Kolathur
Perambur
Villivakkam
ICF SHELL
C&W WORKS
GSD
Southern Railway
Headquarters Hospital
சதர்ன் ரயில்வே...
Rail Museum
New Avadi Rd
Ayanavaram Rd
Ayanavaram Rd
AYANAVARAM
அயனாவரம்
ICF FURNISHIG
KUPPUSAMY
NAGAR
குப்புசாமி
நகர்
ESI HOSPITAL
இஎஸ்ஐ
மருத்துவமனை
3rd Ave
Anna Nagar

Additional terminal at Avadi / Pattabiram (Chennai) within available Rail network



New Rail terminal at Sripermbudur

- ✓ Avadi - Sriperambudur-Guduvanchery (60 km) with spur to Irunkattukotti – Rs. 840 crore.
- ✓ South bound trains coming from Arakkonam can by-pass Chennai.
- ✓ Situated 40 km away from Chennai, Sripermbudur will be an ideal location to form a new Rail terminal.



8. SUGGESTIONS TO IMPROVE QUALITY & QUANTITY OF TECHNICAL SUPERVISORS

Supervisors have to manage in-house, S&I and WC

Direct man power calculation for 3500 coaches (Direct purchase of finished items not included)						
	Required total man Hrs	In house capacity	S & I	Work Contract	Total Out sourcing	% of out sourcing
	man hours in lakhs					
	a	b	c	d	e = c + d	f
Shell	116.71	73.22	-	43.49	43.49	37.3%
Furnishing	200.53	48.24	74.99	77.30	152.29	75.9%
Electrical	80.75	11.13	-	69.63	69.63	86.2%
Total	398.00	132.59	74.99	190.42	265.41	66.7%

Major Roles of JEs & SSEs

1. To produce around 3500 coaches & 45 types.
2. To manage machinery, plant, jigs, fixtures, etc.
3. To manage in-house man power.
4. To manage contract man power.
5. To manage contract documents.
6. To mange more quality issues.
7. To manage house keeping & safe work environment.
8. To manage more scrap.
9. To manage inward outsourced items & to reduce inventory.
10. To implement continuous improvements.

Suggestions to improve quality & quantity of Technical Supervisors

1. Attachment of progress wing with shop floor.

2. Upgradation of part of sanctioned strength of Senior Technicians to Junior Engineers.

3. Operation of DR posts (SSE, CMS & CMDS) in level-7 through promotions from level-6.

4. Trainings for Technicians, JEs & SSEs.

5. Air conditioning of SSE & CDMS offices inside factories as per survey already completed.

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