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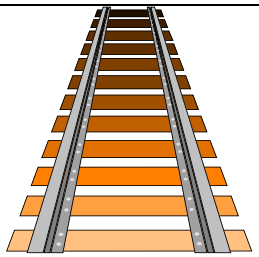

WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE / P.WAY / AAM PALAKKAD DIVISION

SOUTHERN RAILWAY

PLANNING BRANCH

G. 275 / WSSR-161819 / 2018-19

WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE / P.WAY / AAM PALAKKAD DIVISION

STUDIED BY

WORK STUDY TEAM
OF
PLANNING BRANCH

AUGUST 2018

(i)

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(i)

ACKNOWLEDGEMENT

The study team acknowledges the valuable guidance and co-operation given by the co-ordinating officer (ADEN/SRR) and Co-ordinating Supervisor (SSE/PW/AAM) which were useful in completing the study in time.

(ii)
AUTHORITY

Annual programme of work studies approved by SDGM/HQ for the year 2018-19.

(iii)
TERMS OF REFERENCE

To review the staff strength at the office of SSE/PW/AAM– PGT Division

(iv)
METHODOLOGY

1) Collection of data
2) Observation of present system of working.
3) Interaction with ADEN/SRR and SSE/PW/AAM.
4) Reassessed the manpower requirement in the light of TRMS formula of CMCNTM and Need base.
5) Suggestions for adopting Konkan Railway system for Track Maintenance for Branch lines having Single line.

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(V)

SUMMARY OF RECOMMENDATIONS

Recommendation:- 20 posts of Track maintainer IV in Level I with Grade Pay Rs.1800/- is found excess to the requirement, the same may be surrendered and credited to the vacancy bank, **on adoption of Konkan Railway System** of Track Maintenance.

(20 posts)

Improvement in Cost economy on the lines of ECKM:

- **Outsourcing of activities pertaining to Gate keeping (Interlocked gates) and Monsoon/Night Patrolling in view of the below furnished reasons.**

In the present changed scenario, women staff is recruited for track maintenance activities leading to underutilization of the existing manpower. They cannot be utilized for either monsoon patrolling or Night patrolling. Even Gate keeping duties in the night hours seems to be difficult to be performed by Track women. As on date, 11 women are working in this unit against the Actuals of 60 i.e., 18% of the staff utilized for track maintenance activities.

It is to be mentioned at this juncture that some of the divisions of Southern Railway has initiated proposals for outsourcing the same.

Hence, the study suggests for early implementation of outsourcing of the above said activities as is being done in other Railways such as SCR, NEFR etc for effective utilization of the Actual staff of this unit.

CHAPTER – I

1.0 INTRODUCTION

1.1 Palakkad division, formed in the year 1956 is one of the six divisions of Southern Railway and the first division in the State of Kerala, located at a distance of 550Kms from Chennai. Palakkad is having two stations - Palakkad Junction located at Olavacode and Palakkad Town, in the heart of the city. The Divisional office is situated at Kallekulangara at a distance of 1 Km from the Junction.

1.2 Most of the important stations of Palakkad division lies on the banks of Bharatappuzha river along the West Coast covering a distance of approximately 350 Kms, viz., SRR-CLT, CLT-CAN, CAN-MAQ etc. In addition to this, Palakkad division comprises of PTJ-SRR, PGT-PGTN, SRR-NIL, PGTN-POY-CNV sections.

Presently, the Route Kms. of Palakkad division is 577 which was once 1247.58 Kms before the formation of Thiruvananthapuram and Salem divisions in the year 1979 and 2007 respectively. Doubling work is in progress between SRR and MAQ.

1.3 **FROM THE ARCHIVES:**

The first train built by the Madras Railway Company started its journey from Beppur to Tirur covering 30.6 Kms. The first line in this region was Podanur to Pattambi in 1860 and the same was extended to Mangalore in phases by the year 1907. Subsequently, the company completed work on a narrow gauge that connected SRR-ERS (108.06 Km). The line has been converted to BG between 1930 and 1935 as apart of development of Cochin Port. At the time of Statehood in the year 1956, the Kerala state has 743 Kms. **(Rail net/PGT division).**

1.4 **Engineering (PW) Branch:** Permanent Way is the major activity of the Engineering Branch which is entrusted with the periodical maintenance of the track, bridges, level crossing gates and related areas. A well maintained track is very essential for speed, safety and efficient operation of trains. Continuous

monitoring and inspection on daily basis is warranted in ensuring a reliable permanent way.

1.5 With the introduction of heavy concrete sleeper tracks, the use of Track machines has become inevitable leading to the requirement of gangmen confined to routine light maintenance activities. During the last 15 years, Indian Railways have developed a reasonably good force of manpower to operate the track machines and for regular maintenance activities. 60 kg rails are the norm of the day. The equipments for testing the track have become sophisticated so as to trace all sorts of failures of the track. The interconnections with S&T branch and TRD branch is a new development to be considered during track maintenance. The computerization, the ubiquitous use of various hues of track machines, testing techniques etc., has reduced the manual labour and thereby less man power required for maintenance. Even many of the maintenance activities are now outsourced or are proposed for it.

So it has become imperative to have a hard look at the man power requirement for the following reasons.

- To tailor in the cost of mechanical maintenance to improve productivity.
- To create specialised man power for mechanised operations by matching surrender of trackmen.
- To improve the overall financial position of the Railways and to evolve standardized cost norms.

1.7 VARIOUS TYPES OF TRACK MACHINES IN VOGUE :

UNIMAT	-	Used for tamping all plain track including points and crossings.
BCM	-	Used for deep screening of the ballast in the track .
CSM	-	Used for tamping all plain track excerpt points and crossing.
TRT	-	Used to replace the complete track with new rails and sleepers.
BRM	-	Used to regulate the ballast available in the track.

T-28	-	Used to replace the existing points and crossing portion with new assembled points and crossings.
UTV	-	Used to pick up the released sleeper & rails lying side of the Track and unload the same for further disposal.
DTS	-	Used to consolidate the track.
SBCM	-	Used to clean the ballast in the shoulder area.

1.5 **KRCL SYSTEM OF TRACK MAINTENANCE:**

As per the system, the Track activities comprises of three-tier maintenance system viz., Top tier (ADEN level), Middle tier (SSE level) and Bottom tier (JE level).

- The activities coming under the Top tier is mainly the works done by Track machines such as UNIMAT, BRM, CSM etc.
- The Middle tier consists of Mobile Maintenance Gangs (MMG) with a jurisdiction of 70-80 Kms under the head of SSE. The main activities include tamping of isolated spots and other Repairs and maintenance.
- The Bottom tier comprises of monitoring activities such as Monsoon patrolling, Security patrolling with a jurisdiction of 35-40 Km under the head of JE.

  Details of workforce along with other details is explained in Chapter III.

1.6 An attempt has been made to arrive at the manpower requirement based on the Existing workload, deployment of workforce for various activities on the lines of

TRMS calculations and need base along with the suggestion of adopting KRCL System for Track Maintenance for this Unit. (**Reference:** - CTE`s letter No. W.506/14/Track Maintenance dated 08.01.2018 addressed to DRM/SA & MDU)

CHAPTER - II

2.0 PRESENT SCENERIO

2.1 ORGANISATION :

The Engineering department of PGT division is under the control of Sr.DEN/ Co-ord/PGT. The PW section of AAM which is managed by SSE/AAM is under the direct and general control of ADEN/SRR and Sr.DEN/East/PGT respectively.

2.2 The SSE/P.Way/AAM section lies in SRR-NIL section (Single line BG) having a route Km of 65.75 Kms.

The following are the stations in this section

1) Vadanam Kurushshi (VDKS) - 4.26 Km(Halt Station)
2) Vallapuzha (VPZ) - 9.28 Km (Halt Station)
3) Kulukallur (KZC) - 14.00 Km (Halt Station)
4) Cherukara (CQA) - 20.50 Km (Halt station)
5) Angadipuram (AAM) - 27.63 Km (Block Station)
6) Pattikad (PKQ) - 33.14 Km (Halt Station)
7) Melattur (MLTR) - 40.41 Km (Halt Station)
8) Tuvvur (TUV) - 46.67 Km (Halt Station)
9) Todiyappulam (TDPM) - 50.80 Km (Halt Station)
10) Vaniyambalam (VNM) - 55.20 Km (Block Station)
11) Nilambur (NIL) - 65.58 Km (Block Station)

Maximum sectional speed for passenger trains as well as Goods trains is 75 KMPH. The ruling gradient is 1 in 80 and line capacity for this section is 54. Permanent speed restriction for this section is 60 Kmph.

2.4. LC GATES:-

Sl. No.	LC No.	Section/ Km	Train Vehicle Units
1	LC No.2	SRR - AAM @ 4/100-200 –Special class	138847
2	LC No.3	SRR-AAM @ 8/500-600 - C class	6193
3	LC No. 4	SRR-AAM @ 10/300-400 –Special class	74215
4	LC No. 4A	SRR–AAM @ 13/400-500 – A class	37357
5	LC No. 5	SRR-AAM @ 18/400-500 – Special class	26241
6	LC No. 6	SRR-AAM @ 21/100-200 - Special class	118647
7	LC No. 8	AAM- VNB @ 32/900-33/000 - Special class	94798
8	LC No. 9	AAM-VNB @ 39/800-900 - Special class	91476

2.5 WELDING TECHNIQUES:

A1 - Air petrol preheating

A2 - Compressed air petrol preheating

A3 - Oxy-LPG preheating

AT - AluminoThermit welding

SKV is one type of Thermit Welding

2.6 WELD / TRACK Failures of SSE/P.Way/ AAM Section:-

Year	Weld Failure
2015-16	3
2016-17	5
2017-18	12

2.7 SANCTION, ACTUAL, VACANCY, EXCESS PARTICULARS:-

The staff strength of SSE/P.Way/AAM is given in Annexure– 1.

Sanctioned strength = 109

Actual strength = 98

Vacancy = 11

2.8 GANG JURISDICTION:-

Sl. No.	Units	Section/ Km.	Length in Km
1	Unit No.1	Km. 0/800 - 7/600	6.8
2	Unit No.2	Km.7/600 - 14/600	7
3	Unit No.3	Km. 14/600 - 21/600	7
4	Unit No.4	Km. 21/600 -27/100	5.5
5	Unit No. 5	Km. 27/100 - 33/100	6
6	Unit No. 6	Km. 33/100 - 39/200	6.1
7	Unit No. 7	Km. 39/200 - 46/200	7
8	Unit No. 8	Km. 46/200 -53/200	7
9	Unit No. 9	Km. 53/200 - 60/100	6.9
10	Unit No. 10	Km. 60/100 – 66/551	6.4

2.9 UTILISATION OF TRACK MAINTAINERS/TRACKMATE/KEYMAN/GATE KEEPERS/ARTIZANS

Unit No.1	9
Unit No.2	13
Unit No.3	10
Unit No.4	6
Unit No. 5	11
Unit No. 6	5
Unit No. 7	8
Unit No. 8	6
Unit No. 9	7
Unit No. 10	7
Trolley man	6
SWM	3
Grand Total	**91**

2.10 The number of available track maintainers is 91 as against the sanction of 103. The available artisans is 3. Overall sanction of this unit including all categories is 109 out of which the Actual is 98 leaving behind a vacancy of 11 posts.

2.11 **REGULAR DUTIES OF TRACK MAINTENANCE:**

- Through packing
- Shallow screening
- Picking of slacks
- Lubrication of Rail joints
- Minor attention to cess
- Clearing of catch water drains, side drains
- Water ways of bridges
- Casual renewal of Rails
- Casual renewal of Sleepers
- Opening & Examining and Overhauling of LC gates
- Attention to Points & Crossings
- Misc. items like renewal of bridge timbers.

2.12 **OTHER DUTIES:**

1. Loading and unloading of materials
2. Lorrying out of materials
3. Monsoon Patrol
4. Security Patrol
5. Repair of Bridges
6. Clearing of Goodshed Platforms
7. Stock verification
8. Repair of ash pits, water columns, CC aprons, etc.
9. Painting of Rails in station yards and elsewhere
10. Deep screening
11. Resurfacing of Points and Crossings
12. Watching of materials
13. Painting of Bridges
14. Heavy repairs to track including lifting
15. Complete renewal of Points & Crossings
16. Complete realignment of curves

2.13 As per executive summary of the said MCNTM report para 0.13, 12.5 % LR is allowed for all non-supervisory and non-secretarial category staff. The Rational formula covers all activities as per para 0.14 of the report.

As per para 0.20 Annual Review of gang strength is to be conducted on every 1st of April continuously. IRICEN will be custodian of software for calculating man power.

EMKM (Equated Man power Kilometre) will replace ETKM (Equated Track Kilometre) as performance unit.

Equated Cost Kilometre (ECKM) can be evolved as performance unit in future.

2.14 **TRACK MAINTENANCE ACTIVITIES**

The activities of Track Maintenance are categorised as follows.

I Primary Maintenance activities which are directly related to P.Way maintenance requiring manpower based on continuous length of track, further classified as follows.

Activities `T` (Affected by Traffic density) aimed at achieving safety and acceptable running quality, in commensurate with the loads and speeds carried.

Activities `R` (Unaffected by Traffic density) for maintaining the track, formation and other integrated assets, which are of routine nature, but quite important for operation and for achieving reliability and long life assets.

II Auxillary Maintenance activities to upkeep the P.Way section in operational condition needing manpower based on localised problems, special features and geographical nature of the section.

Activities `M` (Miscellaneous) related to requirement of man days based on the quantum of work arising in the P.Way section on universally adoptable method.

Activity `S` (Site specific) generally based on past experience and the quantum of work varies from location to location depending upon Site-specific features of the section.

2.15 **ACTIVITY 'T'** - AFFECTED BY TRAFFIC DENSITY

T_1	-	Slack attention to	a) Bad spots b) Low joints (FP, welded, glued joints) c) SEJ (1 No. / Km) d) Minor curve alignment
T_2	-	For Tie tamper Working	a) Pre tamping operations b) Along with tamper c) Post tamping operations
T_3	-	Casual Renewal of	a) Rails b) Sleepers c) Fasteners along with regauging
T_4	-	Repair Welding	

2.16 **ACTIVITY 'R'** – Not affected by Traffic Density

R_1	-	Lubrication of ERCs
R_2	-	Shallow screening
R_3	-	Loading, Leading, Unloading
R_4	-	Overhauling of LC gates
R_5	-	Watching of caution spots & misc.
R_6	-	Tree cutting for visibility
R_7	-	Lubrication of Rails in Curves
R_8	-	Accident Relief and carcass renewal in runover cases
R_9	-	Bridge, Sleeper attention & Renewal

R_{10} - Pre-monsoon attention such as clearing of drains and Water ways, cess repair, de-weeding of track and attention to Cuttings& Trolley refuges.

R_{11} - Creep pulling approaches to bridges, turnout

R_{12} - Rectifying damage to LC posts and gates.

2.17 ACTIVITY 'M'– Miscellaneous

M_1 - Monsoon patrolling

M_2 - Hot weather patrolling

M_3 - Cold weather patrolling

M_4 - Watching vulnerable locations

M_5 - Gate keeping of LC gates

M_6 - Rest Giving for key man

M_7 - Water man duty

M_8 - Store watch man duty

2.18 ACTIVITY 'S'– Miscellaneous

S_1 - Tunnel Maintenance

S_2 - Bridge substructure maintenance

S_3 - Long girder maintenance

S_4 - Extra maintenance due to very steep curves, deep cutting, steep gradient

S_5 - Maintenance of track on extremely bad formation

S_6 - Look out man duty

S_7 - Fog signal man duty

S_8 - Filth removal from track

S_9 - Security patrolling

S_{10} - Watching of water level in suburban section

2.19 The number of running lines in this section (Station wise) is as follows:-

Angadipuram (AAM)	-	3 lines
Vaniyambalam (VNB)	-	2 lines
Nilambur (NIL)	-	5 lines

2.20 Other particulars of the section

Max. Axle load	-	19.00 for Diesel loco
		22.86 for BHS wagons
		20.32 for all wagons
		17.27 for Unit wagons
Traffic density	-	3.63
Points and crossings	-	26 Nos
Major bridges	-	7 Nos.
Minor bridges	-	177 Nos.
Track	-	71.3 Kms
Monsoon Patrolling	-	1st June to 15th September
No. of LWR/Length	-	10/63 Kms
No. of Curves	-	62

2.22 **DUTY HOURS:**

The normal working hours of the gang staff is 7.00 to 12.00 hrs and 14.30 to 17.30 hrs.

2.23 Out of 91 Track maintainers, 11 are Track women and extraction of work is limited. They cannot be utilised for monsoon patrolling, key man duty and other works done with heavy tools, leading to under utilisation of Track women. The study is of opinion and suggests minimising the intake of women in the Permanent Way duties and other similar duties like Signalling and Electrical so that optimum utilization of the existing manpower can be achieved.

CHAPTER – III

3.0 CRITICAL ANALYSIS

3.1 The laying and maintenance of P.Way is a laborious task right from survey, sanction of funds, acquisition of land, construction through undulated and difficult terrains of mountains, rivers, ravines etc. Bridges, tunnels cuttings, gradients, curves, draining of water etc., pose big challenges not only for construction but also for maintenance.

3.2 Engineering Branch in Indian Railways has progressed by leaps and bounds from the time of Clark and Robert Stephenson. Bridges and tunnels running to a length of even 7 kilometers and 350m height, underground track running for long stretches etc., has become the order of the day. The gruesome manual maintenance of the track has given way to highly mechanized maintenance practices.

3.3 Such mechanization has become inevitable for the following reasons.

a) The high safety standards that can be achieved
b) The capability for higher axle load, speed etc.,
c) The overall economy in cost of maintenance
d) The accuracy in testing, checking and inspections that can be achieved through mechanization.
e) The necessity to avoid harsh physical work under inclement weather and isolated locations.
f) The speed of maintenance
g) The need to carry out the maintenance works within the constraints of time for line block etc.,

3.4 PUSH TROLLEY

Two push trolleys are available with SSE/PW/AAM. He had put the push trolleys for 25 days per month on an average. Trolleys can work without block protection during day, view clear and they require 4 persons. As IRPWM Rule No.124, the JE/P.Way shall inspect the entire section by push trolley at least once in a fortnight or more often as necessary. The corridor block line is from

13.00 to 14.55 hrs for 56615/56618 and 22.10 to 06.00 hours for 16350/16349 trains.

3.5 TRACKMACHINE UTILISATION

UNIMAT, DUOMAT, CSM and DTS have worked in this section during 2017.

Number of days worked - 6

Number of Sleepers tamped - 5860

The very idea of enhanced mechanization of track maintenance was to achieve cost economy and enhanced safety. And surely the savings of staff cost is the main factor in achieving cost economy.

3.6 SOME REFERENCES FROM MCNTM REPORT 2000

(a) The MCNTM Committee recommends that the effort to improved rail welds should receive adequate thought and that a review should made after 5 years from now, so as to avoid reduction factors to be applied for the yard stick of man power requirement for SWR/LWR track (Para 0.4).

(b) Rational formula can be amended easily by recasting the relevant tables. The Committee recommends that the Rational Formula can be reviewed once in five years and amended (Para 0.8 & 4.15)

(c) Possible man power savings by deploying on track tampers for machine hacking on BG

(d) The Pilot study has given confidence that the implementation of Rationalised formula will only result in savings in manpower and expenditure, at the same time ensuring equitable distribution of manpower in accordance with workload (Para 9.5 to 9.7 of MCNTM)

(e) As and when modernisation in various sub-activities progresses, some of the sub-activities may reduce in part or vanish, or these many require less man power (Para 4.13 of MCNTM).

(f) The Committee recommended the Railway Board may order review of the Rational formula once in 5 years to incorporate the effects of modernisation, such as introduction of more number of shoulder ballast cleaners, improving Rail weld technology, maintenance free level crossing track structures etc. (para 4.15 of MCNTM).

(g) **Hot Weather patrolling**

In zones of less temperature variation and in the case of track structure with adequate lateral strength, hot weather patrolling can be dispersed with as decided by CTE (Para 6.2.2 of MCNTM).

(h) **Cold weather patrolling**

CTE should authorise the need for this activity (Para 6.2.3 of MCNTM).

(i) **Gate keepers**

Only RG need be given from Trackman (para 6.2.5 of MCNTM).

3.7 The MCNTM Committee had not differentiated the requirements for SWR and LWR due to the problems then experienced in SEJ (Switch Expansion Joints) on account of poor welding technology. But the situation has now improved, and a distinction is warranted now between SW & LW track.

3.8 MCNTM & TRMS FORMULA

The report of MCNTM & TRMS Formula will convince us the need for rightsizing the manpower for track maintenance. It should be kept in mind that the very TRMS formula was evolved by studying the conditions existed during 1996 – 2000 period ie., when the mechanization was only in the nascent or experimental stage and when a good portion of the lines were in MG. Though the report was accepted in 2006 only, the basic points in the report are drawn from the above period.

3.9 INFERENCES :

a) The TRMS formula was approved in 2006 and it should have been implemented everywhere now.

b) The TRMS formula itself is 16 years old and requires periodical review.

c) The CMCNTM REPORT itself calls for annual review of staff strength based on the progressive mechanization and new technologies.

d) The very discarding of basic unit of the ETKM (Equated Track Kilometer) and the replacement of the same by Equated Manpower Kilometer (EMKM) and suggestions to transform it on Equated Cost Kilometer (ECKM) underscores the stress on manpower economy and cost economy in this field. So the work study is supposed to exercise a review on the TRMS formulae itself.

e) The CMCNTM report had recommended many activities for outsourcing which is not implemented fully. And in certain areas, the technology and practices are developed beyond the MCNTM Report period. So the proposal for outsourcing has a great relevance in this study.

3.10 EXTERNAL FACTORS

Certain external factors have also got a bearing on the manpower requirements especially under R, M & S activities, they are –

a) The improvements in road transport and vehicles

b) The improved availability of water, residence etc.

c) The substitution of manual checking / testing / Inspection due to the use of machines like USFD, WILD etc.

d) The longevity ensured due to mechanized laying of track and construction / inspection methods.

e) The supervisory element of work in the contracts.

3.12. MANDAYS T&R FOR TRACKMEN :

Under `T` activity, almost all the activities has already been carried out by the Track machines. Reduction of 50% from the total mandays is inevitable.

Under `R` activity, more than half of the activities should have been outsourced vide CTE`s letter No.95/CE-1/GNS/2 Vol II Pt II dt. 06/03/2006 by this time. Hence a reduction of 50% of the man-days given in the TRMS Sheet can be taken into account from the total man-days.

Further, under `M` activity, the man days for waterman is given as 3822. In the present changing scenario, this duty is no longer in existence anywhere in Southern Railway. Hence the man days allotted for waterman duty seems to be excess, the same has to be deducted from the total man days.

Moreover, it is understood that the division has initiated the activities of vegetation cutting and Monsoon/Night Patrolling for outsourcing.

3.13 <u>Coming to the conclusion, the revised man days and requirement as per MCNTM formula is as follows.</u>

Man days for `T`activity	=	10677
Man days for `R`activity	=	6145
Man days for `M`activity	=	4820
Man days for `S`activity	=	3738
Total Man days	=	25380

Number of working days - 291 days.

Number of men required for track related duties =25380 /291 = 87

LR @ 12.5% for 87 =98

Number of Gatekeepers required – 16 + 5 =21 (Incl. RG & LR)

Number of Artisans required – 2 Blacksmith

If the 4 (JE-2; SSE-2), Supervisory posts is added, the total requirement will become 125. By creating one office Superintendent post on matching surrender the overall requirement will become 126.

Requirement Vs Surplus:

Sl. No.	Category	Sanction	Actual	Requirement	Surplus
1	Track maintainers	103	91	119	-16
2	Artizans	2	3	2	0
3	SSE/JE	4	3	4	0
4	Office Supt (WB)	0	1	1	-1*
	Total	**109**	**98**	**126**	**-17**
* Division may create one post of OS on matching surrender					

As per the prevailing norms i.e., MCNTM formula, no post is identified as Surplus.

But the work study team recommends, adopting the Konkan Railway System for Track Maintenance in this section, as some of the divisions have already been in the process of implementation for the following reasons vide CTE`s letter addressed to DRM/SA & MDU.

- The unit is a Branch line/SL
- Traffic density is below 10 GMT.
- In the interest of Rightsizing the manpower in P.Way maintenance, IRICEN/Pune has recommended more than 20 activities mentioned in the Rational formula for outsourcing. Furthermore, as per the Railway Board instructions, CTE vide letter No. W.315/94/G.Men Rational Formula/Vol.III dt. 17.01.2014, has directed the divisions to outsource the activities (T2, T3, T4; R4 and R10) to increase the efficiency. Due to various constraints, PGT division is yet to accomplish any of stipulated items for outsourcing.

Before coming to the requirement as per KRCL, it is necessary to elaborate the deployment of workforce as per the Konkan Railway System.

- ❖ The middle tier consists of one Maintenance Gang (MMG) with a Rail maintenance vehicle (RMV) headed by a JE/MMG which moves over a jurisdiction of 70-80 Km. The ***MMG comprises of 6 Multi Skilled Men (MSM) and 4 Trackmen***.
- ❖ The Bottom tier consists of sectional gang which carries out maintenance works for a track length of 35-40 Km with ***gang strength of 12 Trackmen*** along with Pick up van mounted with all types of tools.
- ❖ One Keyman (Renamed as Track Safety Man) for each beat comprises of 6-7 Kms.
- ❖ Gate Keepers according to the total number and classification of LC gates.
- ❖ One Store Watchman as per the number of depots available.

Summary:

- ➢ Number of gangs is reduced to two sectional gangs, thereby maintenance activities are carried out through centralized planning.
- ➢ Mobile Maintenance gang is recommended for all lines having traffic density 10 to 12 GMT i.e., Upto 12 GMT.
- ➢ Reduced manpower leading to cost reduction.
- ➢ Improved transportation of P.Way materials to the site.

Based on the above, the requirement of manpower for AAM unit is arrived as follows:

Sl. No	Category	Middle Tier	Bottom Tier		Common	RG	LR	Total
			Sub-section I (AAM)	**Sub-section II (NIL)**				
1	SSE (IC)	1	-	-	-	-	-	1
2	JE/SSE (TMMG)	-	1	1	-	-	-	2
3	Motor Trolley man	1	-	-	-	-	-	1
4	Technical OA	2	-	-	-	-	-	2
5	Store Watchman	-	-	-	1	-	-	1
6	Mobile Maintenance Gang					-	-	0
	i) JE/MMG	1	-	-	-	-	-	1

	ii) Multi Skilled men	6	-	-	-	-	-	6
	iii) Trackmen	4	-	-	-	-	-	4
7	Mate	-	1	1	-	-	-	2
8	Track Safety men (TSM)	-	5	5	-	-	-	10
9	Trackmen	-	12	12	-	-	-	24
Total Requirement (Excl. Gate keeping & Night Patrolling)								**54**

In addition to this, the manpower required for Gate keeping & Night Patrolling is as follows:

Number of Engineering Gates - 8 Nos.

Requirement of Gate keepers - 21 staff

Requirement of Night Patrol men - 14 staff

Requirement of Track maintainers as per KRCL - 54 staff

Total requirement of staff for AAM unit - 89 staff

Overall Sanction Vs Requirement:

Sanction	Actual	Requirement	Surplus
109	98	89	20

Recommendation -On adopting the Konkan Railway System for Track Maintenance in this section, 20 posts of Track maintainer IV in Pay band Rs.5200-20200/- with Grade Pay Rs.1800/- is found excess to the requirement, the same may be surrendered and credited to the vacancy bank.

(20 POSTS)

CHAPTER – IV

4.0 PLANNING BRANCH'S REMARKS ON CO-ORDINATING OFFICER'S VIEWS:

Co-ordinating Officer's views/comments was received on 17.08.2018 vide ADEN/SRR letter No. dt.15.08.2018 and the remarks of the Planning Branch on the Co-ordinating Officer's views are given below.

Remarks of the Co-ordinating officer/ADEN/SRR on the work study to review of staff strength of SSE/P.Way/AAM.

In addition to the remarks offered by SSE/P.Way/AAM, the following remarks are offered.

i) During Annual GM inspection between PGT and CLT in the year 2018, Trackmen and Track women, nearly for about 88 days, directed to SSE/P.way/SRR section and 88man days lost in AAM section.

ii) During any emergency work and Caution duty : Track maintainers are utilized for caution and any emergency work. Total man days lost - 452 man days.

iii) Mandays lost during Monsoon patrolling – The period of monsoon patrolling is from 1st June to 15th September every year. In AAM section, during monsoon period lot of tree fallen cases and earth falling in cutting. It covers 1190 days in an year. Total man days lost – 1190 man days.

iv) Extra man power for defective rail/weld attention (IMR attention) – As per the correction slip No. 3 of USFD Manual, 2 OBS within 4 mtrs is classified as IMR. This IMR rails are to be renewed within 3 days. Last year SSE/P.Way/AAM renewed 53 Nos of IMR rails. (636 man days lost due to IMR rail renewal work).

v) Staff deputed for USFD testing Team – 1 track woman is directed to SSE/P.Way/USFD/CLT. 72 man days lost on the USFD account.

vi) Staff deputed for Painting work – At present there is no Painter in SSE/P.way/AAM section. Track maintainers are deputed for painting work for brightening the curve boards, hectometer posts, LC details, painting LWR, Points and crossing , Bridge boards etc., Total man days lost for Painting work – 153 man days.

vii) Special casual leave for sports persons – One man availed 6 days for Foot ball playing camp. Man days lost on account of special casual leave is 6 days.

viii) Mandays lost on account of CCL- There are 11 track women working in SSE/P.way/AAM section. CCL has to be given to the track women as per the standing instructions. But the man days lost on account of CCL is not considered in this work study. 215 days had been affected on account of CCL during the last year.

ix) Mandays lost on account of Maternity leave - 180 Mandays affected on account of Maternity leave.

x) Mandays lost on account of Paternity Leave – 75 Mandays had been affected on account of paternity leave of staff.

xi) Mandays lost on account of OMS/TRC Run – OMS Run in SE/P.way/AAM section is once in 2 months – 2 men is accompanying with SSE in OMS Recording car to identifying KMs, Points & Crossings, bridges etc., Therefore affected man days 2x 6 = 12 days (total man days lost – 12 man days).

xii) Monitoring of USFD defects by joggling OBS defects are very much important in view of safety. Last year 2 men directed for 36 days for joggling work that is not reflected in the work study while recommending for trackman surrendering.

xiii) Man days lost on account of LC road surfacing work - At present there is no bricklayer available in SSE / P.Way / AAM section. Track maintainers re being directed for brick layer work such as LC road surfacing work and bridge plastering work. Man days lost on account of LC work – 135 man days & Bridge work - 58 days. (Total : 193 mandays lost)

Considering the above, even after adopting KRCL system of maintenance, the 22 posts of recommended track maintainers cannot be surrendered.

Planning Branch Remarks:

Though the man days lost on account of various factors as mentioned by Co-ordinating Officer is agreed to some extent, it is to be pointed out that the man days is common to all departments and the existing man power shall be utilized and planned judiciously.

Moreover, the study has not identified any surplus on the grounds of prevailing norms (MCNTM formula) but identified the surplus of 20 posts only on implementation of KRCL system of track maintenance, as this system is on the advanced stage of implementation in various railways including two sections in southern railway ie., ADEN/KKDI of MDU Division and ADEN/ATU of SA Divisions.

The work study recommends for early identification of KRCL System, as this section seems to be fit, as per the guidelines of Railway Board vide CTE's letter No.W.506/14/Track maintenance dated January 08, 2018 addressed to DRM/MDU & SA.

CHAPTER – V

5.0 FINANCIAL SAVINGS

5.1 If the recommendations as per KRCL System of Track Maintenance are implemented, the annual recurring financial savings as per VII PC will be as follows:

Sl. No.	Category	Grade pay/Level	No. of posts	Money Value	Annual Financial savings
1	Track Maintainer Gr IV	1800/1	20	40072	96,17,280

ANNEXURE – I

SCALE CHECK OF SSE/P.Way/AAM SECTION AS ON 31.05.2018

Sl. No	Category	Grade Pay (Rs.)	Sanction	Actual	Vacancy	Excess
1	SSE/PW/AAM	4600	2	2	0	0
2	JE/PW/AAM	4200	2	1	1	0
3	Clerk/Works	1900	0	1	0	1
4	Blacksmith Gr I	2800	1	1	0	0
5	Blacksmith Gr II	2400	1	0	1	0
6	Blacksmith Gr.III	1800	0	1	0	1
7	Welder Gr.II	2400	0	1	0	1
8	Track Maintener I	2800	7	7	0	0
9	Track Maintainer II	2400	15	13	2	0
10	Track Maintainer III	1900	27	25	2	0
11	Track Maintainer IV	1800	54	46	8	0
TOTAL			**109**	**98**	**14**	**3**

ANNEXURE - II

ACTIVITIES RECOMMENDED FOR OUTSOURCING BY RATIONAL FORMULA.

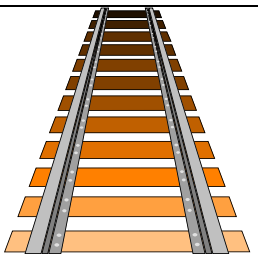
(MCNTM COMMITTEE 2000) AND APPROVED BY RAILWAY BOARD VIDE No.95/CE-1/GNS/2 Vol.11 Pt.11 dated 03/06.03.2006.

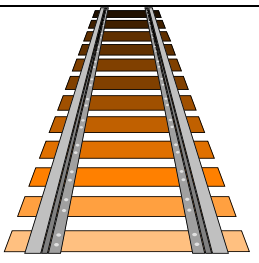
1. Formation of treatment Works.
2. Collection of ballast, training out ballast by material train leading ballast from stack to track, insertion of ballast in track.
3. Deep screening of the ballast in track, carried out manually oh by deploying BCM in which case man power is provided by the contractor.
4. Introduction of sub ballast and ballast layers.
5. Heavy repairs to track, including lifting.
6. Complete realignment of curved track.
7. Through renewal of rails, Sleepers and fosterers.
8. Complete renewal of points and crossings, SEJs, traps etc.
9. Resurfacing of crossings and switch rails.
10. Loading and unloading of P.Way materials in bulk.
11. Loading out of P.Way materials for other than casual renewal.
12. Security of materials kin a depot which is closed and locked.
13. Painting of Rails and weld collars.
14. Painting of bridge girders.
15. Heavy repairs (Measurable) to formation cutting bides drains and catch water.
16. Heavy repairs (measurable)to bridges, bridge protection works, river training works and tunnels.
17. Providing (Repairing road surface at level crossings including speed, breakers.
18. Removal of major sand breaches.
19. Works arising due to restoration following breach or accident.
20. Clearing of rank vegetation in platforms and in the insanity of tracks in coaching and goods yards, repair depots and workshops Engineering/Mechanical/Electrical and S & T depts.

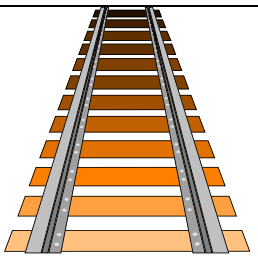
ANNEXURE –III

LIST OF ABBREVIATIONS USED IN THE REPORT

ABBREVIATION	EXPANSION
BRM	Ballast Regulating Machine
CMCNTM	Committee on Manpower and Cost Norms for Track Maintenance
CMMDTM	Committee for Machine and Manpower Deployment For Track Maintenance.
CTR	Complete Track Renewal
DTS	Dynamic Track Stabilizer
DUO	Duomatic Machine
ECKM	Equated Cost Kilometer
EMKM	Equated Manpower Kilometer
ERC	Elastic Rail Clips
ETKM	Equated Track Kilometer
FBW	Flash Butt Welding
GMT	Gross Million Tonne
IRICEN	Indian Railways Institute of Civil Engineering
IRPWM	Indian Railways Permanent Way Manual
LWR	Long Welded Rails
MCNTM	Manpower and Cost Norms for Track Maintenance
MMU	Mechanised Maintenance Unit
NRYL	Non-Running Yard Line
PET	Physical Endurance Test
PRC	Pre-stressed Reinforced Concrete
RYL	Running Yard Line
SBCM	Shoulder Ballast Cleaning Machine
SEJ	Switch Expansion Joint
SWR	Short Welded Rails
TRT	Track Relaying Train
TSR	Through Sleeper Renewal
UNIMAT	Universal Tamping Machine
USFD	Ultra Sonic Flaw Detection
UTV	Utility Track Vehicle

	**No. G.275/WSSR - 161819 / 2018-19** **WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE / P.WAY / AAM PALAKKAD DIVISION**

	**No. G.275/WSSR - 161819 / 2018-19** **WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE / P.WAY / AAM PALAKKAD DIVISION**

	**No. G.275/WSSR - 161819 / 2018-19** **WORK STUDY TO REVIEW THE STAFF STRENGTH AT SSE / P.WAY / AAM PALAKKAD DIVISION**