EASTERN RAILWAY

WORK STUDY REPORT
ON
REVIEW OF STAFF STRENGTH VIS-À-VIS WORKLOAD OF TRACKMAN IN PWAY UNITS UNDER ENGINEERING DEPARTMENT OVER HWH DIVISION

(STUDY NO.WSER-01/19-20)

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Study conducted by: Sri S.K. Mandal, CPLI
Study guided by: Sri S.Chandra, AEO.

BY

GM'S EFFICIENCY CELL
EASTERN RAILWAY
KOLKATA

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ACKNOWLEDGEMENT

The study team is thankful to CPDE/E.RLY, Sr. DEN (Co-Ord.)/HWH and all other concerned staff at HQ & Division unit in engineering department for their heartiest co-operation and guidance in conducting the subject work study successfully.

TERMS OF REFERENCE

The subject work-study has been conducted based on the following terms of references –

i) Existing sanctioned strength and MOR of Trackman in HWH division.

ii) Activities of Trackman.

iii) Activities of Track Machines.

iv) Outsourcing in track maintenance activities.

METHODOLOGY

In conducting the subject work study, the study team has applied the following methodology.

i) The study team recorded the existing system of working.

ii) A threadbare discussion was made with the supervisors and staff concerned.

iii) Implementations of mechanized maintenance of track.

iv) Outsourcing of Track maintenance.

SUMMARY OF RECOMMENDATION

It is recommended by the study team that the revised sanction strength of Trackman in HWH division after reducing 8% of the existing vacancy would be 4463 as against the existing sanctioned strength of 4528, thus, rendering surplus of (4528-4463)=65 posts of Trackman.

CHAPTER-I

1.0 **Introduction:**

1.1 Indian Railway system is one of the largest railway systems in the world under a single management having over 63000 routes Km and about 1.1 lakh track kilometres.

Civil Engineering department or commonly known as Engineering department of the Railways specifically performs or holds responsibility of the following three different kinds of works.

i) To upkeep the railway track under the supervision of PWI or Sr. Section Engineer (P Way)

ii) To upkeep the building, sewage, water system etc under the supervision of IOW OR Sr. Section Engineer (Works).

iii) To upkeep the bridges under the supervision of BRI or Sr. Section Engineer (Bridge).

Track maintenance in the railway has undergone a sea change during the past 30 years due to continuous developments in various track components viz. sleepers, fastenings and long welded rails. The use of the machines both for mechanized track maintenance as well as track laying has increased substantially in recent past with the introduction of heavy track structures to meet the challenges of growing traffic and changed socio-economic conditions. Being fit for modern heavy track structure and giving quality output far superior than what one can achieve manually, a complete mechanization of track maintenance has become inevitable. Similarly at present track relaying is being done manually as well as by machines, but the quality and progress of machines has outplayed what we achieve manually.

1.2 With the introduction of heavy concrete sleeper tracks on Indian Railways, the use of Track machines has become inevitable. Numbers of gang men are reducing day by days and numbers of track machines are increasing progressively. Once upon a time the concept of track maintenance without gang men was a dream only. Now a day's gang men are deployed for any other job other than actual track maintenance. Time is going to come when Indian Railway Track will be maintained by Track machines only and other engineering staff will be there to help these machines. Recent development in this regard indicates such happening in coming next few years only.

1.3 Today, Indian Railways have a large fleet of different types of new generation track machines. However due to growing traffic density, axle loads and speeds on the Indian Railways, the deployment of further new generation high performance sophisticated track machines is to be thought of on Indian Railway.
Modern railway track structure on Indian Railway matches with the world-class railway track structure with PSC sleepers, 60 Kg 90 UTS rails, fan shaped turnouts, LWR/CWR, elastic fastenings etc. The sleeper density varies from 1660 to 1310 sleepers per kilometer. With the Uni-gauge policy of Indian Railway the entire MG/NG track is being converted in BG at a very fast pace.

1.4 Indian Railway is facing tremendous financial crunch after implementation of 7th Pay Commission. Operating ratio is gradually increasing. Though Indian Railway is not a

business organization but to survive, it is always essential to make the organization in profit i.e. operating ratio should be less than 100. The "Operating Ratios" from 2014-15 to 2018-19 shown in the corporate plan booklet published by the Eastern Railway are given below –

2014-2015	177.27%
2015-2016	180.75%
2016-2017	165.25%
2017-2018	181.15%
2018-19 (Proposed)	168.66%

As a result, Railway Board is paying more attention to the concept of rightsizing of manpower to achieve an optimum level of productivity in the Zonal Railways keeping the revised concept of modernization in view.

1.5 In view of the above, Rly Board issued nos. of circulars, orders, etc to minimize expenses and increase earnings to Zonal Railways to achieve better Operating Ratio. The Zonal Railways also implement various measures for financial discipline.
At this juncture, the role of Railway Efficiency & Research Directorate is also very important in connection with the productivity without hampering normal progress and activity by employing technique of 'Rationalizing of Man-Power' and eliminating diminishing categories/redundant activities, etc. The Railway has also invested huge amount in capital expenditure to improve its infrastructure by adopting new technology time to time.

1.6 As the main objective of Indian Railway is to improve the operating Ratio of railway, the GM's Efficiency Cell always pays attention to curtail manpower from different wings of different departments that are found excess in all respect based on the justification drawn by the study team during period of physical observation and as a result, the productivity is increased by decreasing the inputs i.e. by surrendering the excess manpower. The prime aim of conducting the subject work study is to assess **the revised requirement of Trackman in Engineering Department in HWH division consequent upon the changed scenario in maintenance activities.**

CHAPTER-II

2.0 **EXISTING SCENARIO & CRITICAL ANALYSIS:**

2.1 The mainly track maintenance works under Engineering department over Howrah division are being made in the following sections:

a. HWH-BDC-BWN Main line Section.
b. HWH-BWN Chord line Section.
c. HWH-Seoraphuli-Tarakeswar Section.
d. BDC-KWAE Section.
e. NHT-BDC section.

2.2 All the P.Way units are under the overall control of Sr.DEN/Co-ord/HWH and under direct supervision of concerned DEN & AEN. Each P.Way unit is functioning directly under supervision of SSE/P.Way in regard to maintenance of Railway track after consideration of safety rules.

Track or Permanent Way is the single costliest asset on Indian Railways. It basically consists of rails, sleepers, fittings and fastening ballast and formation.

2.3 An annual programme for regular track maintenance works to be done by the existing gangs is drawn out. This annual programme is divided in three periods such as post monsoon attention for period of six months after the end of monsoon, Pre-monsoon attention for period of two months prior to break of monsoon and attention during monsoon for a period of four months.
The twelve months cycle of maintenance works are shown as under.

1. Trough packing
2. Systematic overhauling
3. Picking up of slacks

Through packing consists of following works being done systematically in the order given below:

- Opening of road
- Examination of rails, sleepers and fastenings.
- Squaring of sleepers
- Alignment of track
- Gauging of track
- Packing of sleepers
- Repacking of joint sleepers
- Boxing ballast section and dressing etc.

Systematic overhauling of track should normally commence after completion of one cycle of through packing. It consists of the following operations in sequence:

- Shallow screening and making up of ballast section
- Replacement of damaged or broken fittings
- All items including in through packing
- Making up the cases
- Adjustment of gap after joint gap survey and also adjustment of creep.

Picking up slacks- Slacks are normally those particular points in the track where running is bad due to poor maintenance.

In addition to the above manual maintenance works, the gangs attend the emergency work as well as accidental cases as and when required.

2.4 The mechanized maintenance of track implies the deployment of track machines for day to day track maintenance works, normally being done by manual labor. The system has also enabled the P.Way men to maintain the modern track more economically and effectively to cater for higher speeds and heavier axle loads. There is no doubt that for modern track structure having LWR and concrete sleepers, the mechanical maintenance of track are considered a technical necessary. Now-a-days, the major track maintenance works are carried out by contractual agencies and track machines. At present the different types of track machines are working over Eastern Railway. The type of machine vis-à-vis output/effective hours is detailed as under:

Type of Machine	**Output/Effective hour**
CSM	1.2 KM
TXP	1.6 KM
DUOMATIC	0.78 KM
UNIMAT	1T/O per 1 Hr block
MPT	1T/O per 1 Hr block
BCM	0.2 km
FRM	0.4 km
PQRS	0.2 KM
T-28	1 T/O per 3 Hrs block
BRM	1.5-3 km as per site condition
DGS	0.45 KM

2.5 **TRACK MAINTENANCE ACTIVITIES:**

Track maintenance means the total process of maintenance and renewal required to ensure that the track meets safety and quality standards at minimum cost. For keeping any asset in the good fetal it is utmost necessary to monitor the health of the asset and to maintain it to the required level**.**
Activities involved in the track maintenance are as follows:

1. Tamping of track for correction of track geometry;
   - Tamping of plain track.
   - Tamping of turnouts.

2. Need based spot attention;

- Attention to bad spot generally on approaches of bridges, level crossing and at turnouts.
- Packing of glued joints, welded joints.
- Attention of switch expansion joints (SEJ).
- Minor rectification of alignment.

- Casual renewal of track components viz. rail, sleeper, fittings etc.
- Systematic over-hauling.
- Ballast profiling.
- Emergency repairs viz. rectification of rail /weld fractures etc.
- Distressing of LWR tracks.
- Transportations, loading and unloading of P.Way material.
- Ultrasonic testing of rails.
- Lubrication of elastic rail clips.
- Maintenance of level crossings;
- Overhauling of level crossing
- Improving visibility by removing trees, bushes etc.
- Maintenance of road surface.

- Patrolling
- Monsoon patrolling.
- Hot weather patrolling.
- Cold weather patrolling
- Security patrolling
- Key man daily patrolling

- Manning caution and speed restriction boards.
- Tree cutting for improved visibility.
- Lubrication of rails and fish plated joints
- Resurfacing of switches and crossings
- Pre monsoon attention to drains /waterways
- Pulling back of creep and gap adjustment
- Attention to level crossings
- Periodic deep screening
- Rail welding
- Rail cutting /drilling and chamfering
- Minor cess repairs
- Rail grinding

2.6 P.way units of Engg. Department perform the above activities to maintain the track structure in good condition. The study team has conducted the subject work study on the activities performed by the Trackman who are the prime for the above maintenance activities. Due to introduction of modern track machines, the activities of the Trackman categories have gradually been reduced.

2.6.1 Unit wise sanctioned and men on roll position of the Trackman category is tabulated below-

Sl No	Unit	Sanctioned Strength	MOR	Vacancy
1	SSE/Pway/HWH	286	253	33
2	SSE/Pway/BMG	229	169	60
3	SSE/Pway/LLH	242	161	81
4	SSE/Pway/HGY	336	290	46
5	SSE/Pway/DKAE	190	125	65
6	SSE/Pway/KQU	155	121	34
7	SSE/Pway/GRAE	225	193	32
8	SSE/Pway/BWN/E	242	184	58
9	SSE/Pway/BWN/W	332	275	57
10	SSE/Pway/RPH	356	330	26
11	SSE/Pway/BHP	209	244	-35
12	SSE/Pway/NHT	230	163	67
13	SSE/Pway/PKR	229	203	26
14	SSE/Pway/KWAE/BG	185	124	61
15	SSE/Pway/KWAE/NG	135	89	46
16	SSE/Pway/NDAE	227	217	10
17	SSE/Pway/AZ	284	172	112
18	SSE/Pway/PDA	219	182	37
19	SSE/Pway/BDC	209	210	-1
20	SSE/Pway/TD/KAN	8	8	0
TOTAL		**4528**	**3713**	**815**

2.7 The work load of P-way units in terms of ETKM is tabulated below- (**ANNEXURE-A**)

Unit	**ETKM**
SSE/Pway/HWH	237.63
SSE/Pway/BMG	203.36
SSE/Pway/LLH	222.52
SSE/Pway/HGY	305.63
SSE/Pway/DKAE	154.76
SSE/Pway/KQU	142.23
SSE/Pway/GRAE	209.31
SSE/Pway/BWN/E	197.14
SSE/Pway/BWN/W	323.69
SSE/Pway/RPH	222.11
SSE/Pway/BHP	205.72
SSE/Pway/NHT	189.56
SSE/Pway/PKR	178.04
SSE/Pway/KWAE/BG	148.89
SSE/Pway/KWAE/NG	127.4
SSE/Pway/NDAE	285.74
SSE/Pway/AZ	237.01
SSE/Pway/PDA	178.24
SSE/Pway/BDC	232.65
TOTAL	4214.12

2.8 The conventional track has yielded its place to new modern track of concrete sleepers with elastic fastenings which does not tolerate manual maintenance. Every year about 3000 km of our track are getting replaced by concrete sleepers track. There is high strength and reliability on the performance of these tracks. By and large these tracks should not require frequent attention provided they are machine packed properly and the ballast and formation are sound. The high performance of modern track can be reaped fully only when management of machine maintenance is sound. The thrust of introduction of mechanized track maintenance in the Indian Railways was to improve the quality of track maintenance and to cut down track maintenance time.

2.9 **PRESENT SYSTEM OF MECHANIZED TRACK MAINTENANCE:**

As per the instructions laid down in Para 228 of IRPWM three-tier system of track maintenance shall be adopted on sections nominated for mechanized maintenance. This mechanized system of track maintenance shall consist of the following 3 tiers of maintenance:

(i) On track machines unit (OMU)
TTM, BCM, FRM, DGS, BRM, etc. for planned on track maintenance.

(ii) Mobile maintenance units (MMU)

MMU-I: Rail cum road vehicle based, for spot tamping, welding, de-stressing, casual renewal etc.

MMU-II: Road vehicle based, for reconditioning of turnouts, repair of small track machines.

(iii) Sectional gangs (SG) Regular track maintenance activities such as patrolling, pre & post tamping attention, attention to loops & bridge approaches, greasing of ERC & fish plated joints, minor cess repair and assistance to OMU & MMU

2.9.1 The mechanized maintenance of track implies the deployment of track machines for day to day track maintenance works, normally being done by manual labour. The system has also enabled the P.Way men to maintain the modern track more economically and effectively to cater for higher speeds and heavier axle loads. There is no doubt that for modern track structure having LWR and concrete sleepers, the mechanical maintenance of track are considered a technical necessary. Now-a-days, the major track maintenance works are carried out by contractual agencies and track machines. At present the different types of track machines are working over Eastern Railway. **The type of machines vis-à-vis performance/progress from 01.01.2019 to 19.06.2019 (170 days) in HWH division is as under: (ANNEXURE-B).**

Machine Type & No.	Progress of Machine	
	Km	T/O
3x (S-3x-9005)	253.87	
Total	**253.87**	
BCM (356)	30.83	

BCM (388)	26.68	
BCM (718)	44.43	
Total	**101.94**	
BRM (PBR-18)	178.54	
Total	**178.54**	
CSM (905)		
CSM (969)	271.12	
Total	**271.12**	
DTS (338)		
DTS (378)	268.9	
DTS (389)	146.58	
DTS (412)	118.14	
Total	**533.62**	
FRM (1890)	17.01	
Total	**17.01**	
PQRS (15031,15032)	9.55	
PQRS (88233,88234)	9.13	
Total	**18.68**	
RGM (RGI-6)	267.02	
Total	**267.02**	
T-28 (9909,9910)		16
Total		**16**
UNIMAT (8307)	31.66	244
UNIMAT (8426)	27.71	183.3
UNIMAT (8405)	3.22	15
Total	**62.59**	**442.3**
UTV (2003 12 006)		3829
UTV (2007 02 029)		
UTV (2009 06 020)		6296
Total		**10125**

2.9.2 Presently major maintenance works under P.Way units have already been given to private agency. Now the contractual work has been processed through special work and yearly contract basis i.e. Zonal work. Besides of the above, some of the major maintenance works are executed by the department track machines. Existing gang are deployed to cater the regular maintenance work such as lubrication of rails, greasing of ERTC, patrolling works and slack packing etc etc. as per routine programme made by sectional PWI. The following item of works is carried out by the department gang.

- Through fittings renewal(TFR)
- Ballasting
- Formation treatment
- Through bridge treatment renewal(TBTR)
- Strengthening of major bridge approach
- Painting of rail/painting of weld
- Toc load measurement
- Distressing
- Renewal of points and crossing
- Renewal of diamond crossing
- Through weld renewal
- Deep screening
- Through rail renewal (primary/secondary)
- Through sleeper renewal (primary/secondary)

2.10 **Excerpts of the reviewed result:**

The conventional track has yielded its place to new modern track of concrete sleepers with elastic fastenings which does not tolerate manual maintenance. Every year about 3000 km of our track are getting replaced by concrete sleepers track. There is high strength and reliability on the performance of these tracks. By and large these tracks should not require frequent attention provided they are machine packed properly and the ballast and formation are sound. The high performance of modern track can be reaped fully only when management of machine maintenance is sound. The thrust of introduction of mechanized track maintenance in the Indian Railways was to improve the quality of track maintenance and to cut down track maintenance time. The review has revealed that these objectives remain to be achieved to a very large extent. Despite availability of machines in excess of requirement, there has been gross under-utilization of the machines even with reference to scaled down capacities fixed by Railway Board. The under-utilization is mostly on account of the Operating Department not making available blocks for undertaking of track maintenance.

The effect of modernization of track has increased volume of traffic, higher speeds and heavier axle loads demanding heavy track structure which requires Machine maintenance. During physical observation, the study team observed that major track maintenance work is performed by Track Machines and for this purpose a separate TMO (Track Machine Organization) wing has been introduced in Railways. The departmental gang basically assists pre & post Machine operation and minor maintenance work mentioned in the previous para. It is observed that various small track machines are utilized for maintenance of Track by the departmental gang. These small track machines are more effective in precession work and are useful to withstand the present need of the track. The list of small track machines used by the departmental gang in HWH division is listed below.

SN	Description of small track machines
1	Heavy duty Hydraulic Extractor for jammed pandrol clips
2	Hydraulic rail jam crow
3	Safety clamps & locking nut for lifting of rail panel
4	Toe-Load measuring device for ERC
5	Portable DC welding generator
6	Hydraulic jack 15 tone
7	Jack mechanical infringing type 8 tone
8	Rail creep adjuster
9	Portable track lifting & slewing device
10	Rail dolly
11	Mechanical jib crane attachable to BFR for loading/unloading PSC sleepers
12	Rail lifting hoist attachable to BFR
13	N.I. Track jack
14	Rail cutting machine
15	Grinding machine
16	Rail drilling machine
17	Insulated push trolley wheel
18	Abrasive rail cutter
19	Hydraulic Rail tensor
20	Electronic Toe Load measuring device
21	Magnetic base Rail thermometer
22	Track lifting & slewing machine
23	Bosh off track hand Tie Tamping machine
24	Self propelled light weight trolley
25	Hy. Track Jack (15 tone capacity)
26	Mechanized track jack (15 tone capacity)
27	Digital AT weld tester
28	Electronic weigh machine (15 tone capacity)
29	USFD single rail tester

30	Rail profile weld grinder
31	Mono cum road trolley
32	Roometer
33	Hooter

2.10.1 It is discussed in previous chapter that in past with older track structure manual maintenance was relevant, however with the introduction of concrete sleeper and LWR/CWR there is no alternative to maintain the track with Track Machines. In Eastern Railway, presently main lines/passenger lines are maintained by machines and yard lines, loop lines are maintained manually.

Total track Km under Machine maintenance = 4819.13
Total track Km under manual maintenance = 2618.96

2.10.2 **Utilization of Trackman.**

At present all yard lines and loop lines are maintained by departmental gang. Besides this all miscellaneous work as described in para 2.6.2 are carried out by the Track man. It is prescribed that a Track Machine should be worked in every alternate year in a particular section. But, in SDAH & HWH division a dense population is residing nearby railway line and their through movement over track makes the track parameter disturbed. Hence manual maintenance is essentially required in between machine operation in suburban section. After introduction of more and more Track machines and heavier track structure, the railway Board has guided the zonal railway to ascertain the requirement of trackman on the basis of Rational Formulae which have been evolved by the MCNTM committee rather than Special Committee Formula which is in vogue.

2.10.3 **List of items of works to be executed by Permanent Way Gangs.**

- Overhauling of 1/3 rd of gang beat which includes through packing of this length.
- Systematic through packing to cover the full gang beat in addition to item (i) above.
- Picking up of slacks, generally one round before monsoons and one round during monsoons.
- Lubrication of rail joints.
- Minor attention to cess.
- Cleaning of catch water drains, side drains and water ways of bridges.
- Casual renewals of rails and sleepers.
- Adjustment of minor creep.
- Opening, examining and overhauling of level crossings.
- Special attention to points and crossings.
- Miscellaneous petty items i.e. renewal of bridge timbers, clearing weeds from track, cleaning station yards, etc.

2.10.4 Items of works beyond the scope of permanent way gangs. These have to be done through contractual agency or by engaging casual labour.

- Loading and unloading of materials.
- Lorrying out of materials other than for casual renewal of rails and sleepers.

- Monsoon patrolling.
- Security or special patrolling.
- Repairs to bridges.
- Cleaning of goods sheds/platform shelters.
- Stock verifications.
- Attention to ash pits, water columns, C.C. aprons, etc.
- Painting of rails in station yards and in corrosive areas such as East Coast lines.
- Deep screening of ballast.
- Resurfacing of points and crossings.
- Watching of materials.
- Painting of bridges.
- Heavy repairs to track including lifting.
- Complete renewal of points and crossings.

2.11 It is also noticed that several contractual works in track maintenance work and track renewal works are going on in HWH division. Contractual works can be broadly classified in 03 categories viz. (1) Capital work (2) Special work & (3) Zonal work. Zonal works & Special works are executed in connection with the maintenance of existing Track through revenue head. All new types of project in construction of newly linked track from one end to other end, is generally made by construction wing/ Howrah under CAO/NKG. This type of project is known as capital work and it is processed through works programme special work and zonal works are executed in connection with the maintenance of existing track through revenue head. A list of different contractual works which are going on in HWH division is annexed in **ANNEXURE-C.**

The work contract for the year does not reveal that the work is completed within the same year. However, the study team has formulating the data of contractual work in year wise to ascertain the volume of work outsourced in the specific year. From the above **ANNEXURE-C,** it can be assumed that huge volume of track maintenance work has been outsourced. During discussion with concerned officials regarding the outsourcing of maintenance work, they have given clear view that short fall percentage of trackman category is required to be outsourced to cope up with the vacuum of required work force for maintenance of specified track parameter. The above list of contractual work reflects the truth that divisions have awarded the maximum contractual work where the work load is more as well as its vacancy position is higher.

2.12 Presently 20 PWI units over Howrah Division are working to make the track in safe running of traffic. The nature of maintenance work of PWI units is more or less same except PWI/TD/KAN which used to supply the p-way materials to 19 units of Howrah division. However, the study team has undertaken PWI units for assessment of manpower after considering the quantum of manual maintenance work catered by the department gang.

2.13 Manual maintenance of Track has already been discussed in the physical chapter. But this type of manual maintenance has been changed due to modernization of track. This consists of following four heads.

2.13.1 Heavier Track Structure:

- Use of wear resistant 90 UTS rails and heavier rail sections i.e. 50 KG/60 KG to increase the service of life.
- Use of PSC sleepers, elastic fastenings and rubber pads and increased the ballast cushion and sleeper density resulting minimum maintenance.
- Use of LWR/CWR and SEJs to provide smooth and fast rail travel.

- Use of curved switches of 1 in 8½ & 1 in 12 on Fan shape3d layout for higher speed potentials.

2.13.2 Modern track maintenance methods.

(i) Improved in convention maintenance.
(ii) Directed Track maintenance.
(iii) Measured shovel packing.
(iv) Mechanical maintenance.

2.13.3 Modern Methods of Track Renewal and Track Laying.

(i) Use of PQRS to get increased output of track renewals with better standards of Track parameters.

2.13.4 Modern Methods of Track Inspection and Track monitoring.

(i) Portable accelero meter to record horizontal and vertical accelerations.
(ii) Amsler car for recording track parameters.
(iii) Track recorded –cum-research car including use of computers.
(iv) Ultrasonic testing of rails and use of SPURT car for detection of rail flaws.

The effect of modernization of track has increased volume of traffic, higher speeds and heavier axle loads demand heavy track structure which can provide better service and require less maintenance.

2.13.5 In view of the above, others manual maintenance work catered annually by the sectional gang are stated herein under.

- Cleaning of longitudinal and cross drains.
- Deseeding and cleaning of jungle in between or outside the Main/Loop line track.
- Gang engaged during hot and cold weather patrolling.
- Lubrication of rail joints.
- Greasing of ERC.
- Attention to bridge approach/Level Crossing/Pts. & Xing.
- Packing of glued joints and switch expansion joints (SEJ).
- Repairing of case after rainy season.
- Scattered renewal of rails and sleepers as and when required.
- Painting of rails/weld collars.
- Pre/Post tamping operation made by existing gang.
- Gang also engaged for design mode operation.
- Measurement of rail temperature during maximum hot/cold period.

2.13.6 Existing gang also engaged in emergency work as well as store work in association with contractual agency are as under.

- Loading/Unloading of materials (in Rail/Sleepers etc.) in the main line.
- Placement of Lay out such as 1 in 8½ or 1 in 12 in the M/Line, Loop line or Yard line.
- Conversion of new rail i.e. 52 KG from old rails i.e. LWR from SWR.
- To take action as well as repair the track and restore the traffic at the time of accidents or derailments.

- Mechanical maintenance of track by the help of different track machines under traffic block.
- To attend the maintenance failure at night time (i.e. Rail fracture, SEJ fracture or Points & Crossings failure etc. etc.)
- Patrolling of line during heavy rains, storms.
- Procurement of p-way materials from divisional store i.e. TD/KAN.
- Unloading of p-way materials including small fittings at sectional store.
- Stacking of p-materials in the store.
- Involvement of trackman at the time of disposal of scrap.

2.14 A huge vacancy of Track man in HWH Divisions can be seen in para 2.6.1. It reveals that without the utilization of this trackman, Divisions are maintaining the track parameter effectively. This is happening only due to engagement of contractual agency and Track machines. The work load of track man is outsourced in different volume in different divisions. Depending on the short fall of trackman, divisions are engaging contractual agency in various maintenance works as per requirement of different P.way sections.

2.14.1 From the above facts and figures the study team thinks that the parameter of track structure of the division is well maintained even though a huge vacancy in track man category. This is happened due to the engagement of out sourcing agencies in various track maintenance activities. On the other hand, the maintenance of track by track machines has improved the maintenance quality of track. The engagement of trackman on pre & post functioning of track machine is unavoidable. The study team opines that 8-10% of the huge existing vacancy of trackman (para reference 2.6.1) can be surrendered due to outsourcing of huge track maintenance work. Moreover, Track Machines are the future bread and butter of the Indian Railway, as the heavy track structure cannot be maintained without Track Machines. There is no other alternative to switch over to mechanized track maintenance considering the heavy track structure and depleted Track man strength which warrants the use of Track Machines.

2.15 **RECOMMENDATION:**

It is recommended by the study team that the revised sanction strength of Trackman in HWH division after reducing 8% of the existing vacancy would be 4463 as against the existing sanctioned strength of 4528, thus, rendering surplus of (4528-4463)=65 posts of Trackman.

CHAPTER-III

3.0 **FINANCIAL APPRAISAL:**

3.1 According to recommendation made in para-2.15 the financial savings thus achieved on account of surrendering of 65 posts of Trackman is tabulated below. For easier calculation, the bottom most GP on lower Grade pay is considered.

LEVEL	G.P	PAY	MEAN PAY	D.A	NO OF POSTS	MONEY VALUE	
				12%		MONTHLY	ANNUAL
2	1900	19900-63200	41550	4986	65	3024840	36298080

Thus, consequent upon implementation of recommendation, **the annual savings will be Rs 3,62,98,080/- ≈ Rs.3.62 Cores.**