

Great Motivators and Impactors on Employees

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ABSTRACT

This Study is first of its kind into the implementation of incentive bonus schemes in the Indian Railways. The study makes an in depth study into two bonus incentive schemes being implemented in the selected workshops of South Central Railway. In the Lallaguda workshop, Secunderabad the payment by results incentive scheme is being implemented and in the Carriage Repair Workshop, Tirupati, the group incentive scheme is under implementation. Both the schemes offer incentives to the employees on continuous basis for the extra efforts they put in. This examined the implementation of the schemes in the two workshops, the advantages of the schemes, the shortfalls and the reforms needed in their implementation. The author feels there is lack of awareness about the incentive schemes in both the workshops at the lower level of employees. He feels the Railways should undertake an intensive awareness programme on incentive bonus schemes currently under implementation in respective workshops.

Keywords - Carriage repair workshop, Compensation, group incentive scheme, Incentive bonus, Lallaguda workshop, payment by results.

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I. INTRODUCTION

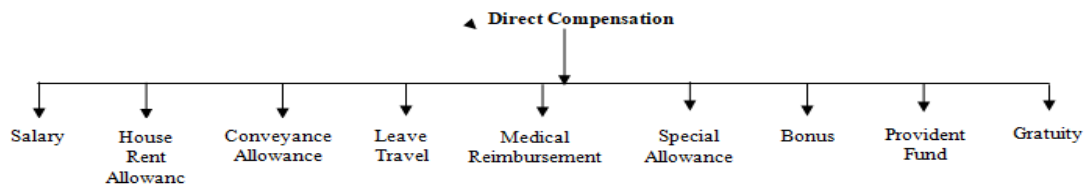
Employees or workers are creators and drivers of value and are no more factors of production. Compensation management has thus evolved into an important aspect of management faculty these days. Compensation varies from job to job depending up on the nature of job, required skills, risks involved and up on the working conditions as well as bargaining capacity of labour unions. Compensation cannot be viewed in isolation as it is one of the components of an organization's human resource system. Further, those dealing with employee compensation have to interact with various groups from the top executives to the workers' unions and the worker himself.

Dessler defined compensation as¹ "all forms of pay going to employees and arising from their employment". However, in this phrase "all forms of pay" does not include non-financial benefits but include only direct and indirect financial compensations. Joseph J. Mortocchio defined compensation as² "rewards which employees receive for performing their jobs".

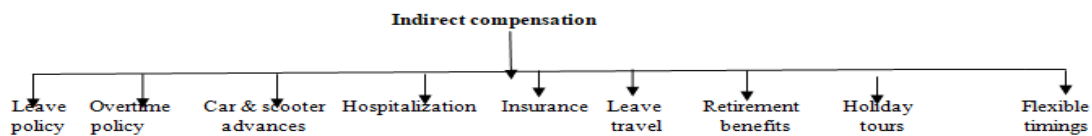
1.1 Objectives of compensation

Compensation includes a plethora of both financial and non-financial benefits offered to the employees for their services. It includes wages, salaries, benefits like insurance, medical reimbursement, leave travel, paid vacation, etc. for services rendered to the organization. Monetary payments are direct form of compensation to the employees and have a lot of impact motivating them. The aims of compensation systems are 1.To attract competent workers to the organization, 2.To motivate the employees for better performance, and 3. To ensure competent workers do not leave their employer for greener pastures. Since compensation to employees includes direct and indirect benefits a package can be planned in various ways.

Direct or Base compensation refers to monetary benefits and includes as many or all from figure below:



* Under the guidance of Prof. Sreenivasa Murthy, DEAN, Institute of Public Enterprise, Hyderabad Indirect or Supplementary compensation is non-monetary benefits to the employees as a welfare measure and may include as many or all in the figure below:



Several compensation systems have been formulated based on the various aspects of compensation components like: Systems with worker's earnings varying in the same proportion as output; Standard hour system; Systems with worker's earnings varying proportionately less than output; Systems with worker's earnings varying proportionately more than output; Accelerating premium systems; Group systems; Department or plant systems; and Systems for indirect workers. While these broadly deal with the compensation package on total, in this study we are concerned with incentive bonus system which is a part of the compensation system. From here onwards this discourse attempts to throw more light on the two principal types of incentive bonus systems and subsequently on the comparison and contrast of two principal incentive bonus schemes in selected workshops of South Central Railway, Secunderabad.

II. REVIEW OF LITERATURE

The process theories of motivation describe how the motivation of employees works and the reward system designers found them more useful. The process theories recognize motivation as a process with identifiable and potentially observable parts³.

Fredrick W. Taylor offered an example of process theory in operation. Taylor convinced Schmiot, a pig iron plant owner that he would load 47 tonnes of pig iron a day instead of 12.5 tons per day he could pay €1.85 per day instead of €1.15. Taylor could accomplish this dramatic increase in output of 376 percent through the four principles of Scientific management⁴ he addressed: i. Analyzing the job ii. Selecting the right person and training him how to perform the assignment properly, iii. Co-operating (means providing necessary tools) with the employees to ensure work is done as per identified assignments and production standards, and iv. Dividing the work to be done by the management and the work to be done by the employees. Taylor's process designed about a century ago is also useful to improve understanding and performance in a knowledge directed work environment. All kinds of modern research support the concept that workers at all levels work in all kinds of jobs believe that pay or at least part of pay should be linked to performance – individuals team, work unit or organizational.

Incentive plans can be broadly classified into three categories: i. Individual, ii. Group and iii. Company – wide incentive plans. These are mostly short term incentive plans and this study deals with the first two principal incentive plans which have a direct bearing on the productivity of railway workshops.

Individual incentive plans are most appropriate under three conditions. First, employee performance can be measured objectively; second, when employees have enough control over work outcome incentives will be successful; and third, incentives will be appropriate if they do not create unhealthy competition among employees leading to poor quality of output. Even if standards are set those employees who meet or exceed the standards set by the employer may be subject to intimidation by workers whose work falls below the standard and unions may use the intimidation tactics to prevent raising plan standards⁵.

There are four common types of individual incentive plans: Piecework, Management, Behavioral encouragement and Referral. Companies generally use one of two piece work plans⁶: based on individual hourly production, and plan with individual performance standards with objective and subjective criteria. PBR systems can be distinguished in a number of ways and there is no satisfactory method of classifying them. The International Labour Organization, Geneva however distinguishes them on the basis of accountability unit for

performance⁷. Most widely used systems vary the worker's earnings on the basis of their individual performance.

In other system the performance of group workers is measured, which forms the basis for calculating bonus to be shared by the group members. In still others, the performance of the organization or enterprise as a whole becomes the basis of performance.

Economists argue that companies using piece work plans will derive two advantages of incentive effect and sorting effect. The incentive effect refers to a worker's willingness to work diligently to produce more quantity of output than just attending the work without putting effort. The sorting effect refers to the employee's choice to leave their employer for another job presumably for one without incentive⁸.

Group or team based plans should emphasize cooperation within and between teams, compensate employees for additional responsibilities which they often have to assume as team members and encourage fellow members to achieve the prescribed objectives of the team.⁹The success of team is attributed to cross-fertilization of ideas. Organizations which use work teams have to change their individualistic compensation plans so as to reward groups for their team work¹⁰.

Gain sharing plans describe group incentive systems that offer the employees involved with incentives based on improved performance of the organization increased productivity, increased customer satisfaction, lower the costs or better safety records¹¹.

Doyle says gain sharing programmes generally have three components. Leadership, philosophy, Employee involvement systems and Bonus¹². First, Leadership philosophy implies a cooperative organizational climate encouraging high level of trust, open communication and participation. Second, employee involvement systems promote the organization's productivity increases. The employees are free to make suggestions and innovative employee involvement ways like problem solving are encouraged. Third, bonus is a gain sharing plan.

Milkovich felt the sharing is usually based on a mutually acceptable formula which employees feel is fair and the employer considers that it would improve organization's performance. The success of gain sharing is attributed to organization's support to cooperation among employees.¹³

Henderson says Incentives are individual team, and situation driven apart from organization and market driven. Incentives are variable costs, they are not fixed. They stimulate increased intellectual, emotional and physical efforts. They lead to improved individual and team performance which in turn increases work and the organizations productivity. Productivity improvement will offer increased and improved output, reduced costs and higher profits¹⁴.

2.1 Indian Railways and employee incentive bonus schemes

The need to improve the productivity in Indian Railway Workshops was recognized even before independence. Since increased productivity leads to better manpower, plant, machinery and workshop utilization, before independence different piece-work bonus incentive systems were implemented in Workshops like Jamalpur, Kancharapara and Perambur. After independence, the Railway Board had decided to introduce some incentive system that would reward workers who outperformed the minimum level with direct financial assistance. The first financial incentive system introduced in December 1954 in Chittaranjan Locomotive Workshop that was successful was extended to the Integral Coach Factory in 1960.

This incentive scheme called System of "Payment by Results (PBR)" was first introduced in Railway Repair Workshops of the Mechanical Department. It was later extended to Signal and Telecommunication Workshops, Civil Engineering Workshops and Electrical sections attached to Mechanical Workshops.

While the PBR is being implemented in several workshops including the age old Lallaguda Carriage Workshop so far no in-depth study has been carried out on the implementation of the scheme. Though PBR in Lallaguda is nearly seven decades old it is worthwhile to study the benefits to the workers as well as to the South Central Railways. With this idea this study is taken up with an intention to find out to what extent the employees are receiving bonus in return for the extra effort they are putting in and also how far the South Central Railway is benefitted by way of increased productivity.

Subsequently, a review of the functioning of Railway Repair Workshops in the country by the Railway Board revealed very poor standards of performance. Hence, in 1958 the Railway Board decided to introduce incentive schemes in the Railway Workshops to improve to control the activity in a better manner, for more systematized flow of work and to encourage increased effort by the individual worker. However, only after establishing Production Control Organization in all workshops, the incentive scheme was introduced in 1960 in all the individual Railway Workshops. Later in the year 1989 the Railway Board undertook a "Review of incentive scheme, Redesign of motivational package/ incentive scheme for maintenance of workshops and production units". For the review a study was conducted by RITES which proposed seven different incentive packages. The Railway Board approved the fourth package which envisaged "Section/shop Group Incentive Scheme (GIS) based on production norms". The board took into consideration the views of recognized Railway

Labour unions which were in fact consulted by RITES while formulating the proposals. After more deliberations, the board asked rites to further study the implementation of the scheme and come out with a blue print for implementation. RITES prepared a detailed study on GIS based on production norms which was approved by the board and this Group Incentive Scheme (GIS) is presently being implemented in Tirupati Workshop.

This study aims to delve deep into the functioning of the two individual incentive schemes in the South Central Railway, namely the PBR in CLW Lallaguda, Secunderabad and the GIS in Carriage Repair Workshop (CRW), Tirupati.

2.2 Main Features of PBR and GIS

Here under are the main features of the two different incentive bonus schemes being implemented in the above two workshops.

2.2.1 Features¹⁵ of PBR at Lallaguda Workshop, Secunderabad

Following are the important features of the PBR incentive bonus scheme:

The incentive workers are classified as: i) Direct Workers: Their work can be assessed through time studies; ii) Essential Indirect Workers: They contribute to the work. While their services are essential it is not possible to assess their work and iii) indirect workers: They do not contribute to production either directly or indirectly. They do not earn incentive bonus;

Basic wages are guaranteed to all workers; Time is the yardstick of measurement of work; Various operations in the workshops are subjected to time study as per standard work measurement; The time standards will be so fixed methods that an average worker will earn 331/3 percent extra wages apart from his normal wages for the time spent on to the job; The basic premise of the scheme is, an average worker while working without any incentive will be working at a rating of 60 units; The same worker would improve his rating to 80 units, i.e. 331/3 percent more if he works under an incentive scheme. An average worker would take only ¾th of the allowed time to complete an operation; the time saved or gained by each worker is calculated separately for each of them; The saved or gained time cannot be carried over and there is a ceiling limit on project which is 50 percent of the time taken for each operation. The individual formula for incentive calculation is:

$$\text{Incentive Received} = \frac{\text{Total time saved} \times \text{individual time taken}}{\text{total time taken}} \times \text{Rate incentive earned}$$

2.2.2 Features¹⁶ of GIS at CRW Tirupati

GIS is applicable to four production oriented shops in CRW Tirupati: These categories are – Production shops; Support shops; Support Departments; and Service Department.

The coverage under the Incentive Scheme will be limited to the defined Incentive Production Groups, Support Shops Incentive Group and Support Departments Incentive Groups; the authorised Manpower Strength for each Incentive Production Group will be derived from the management approved Annual Production Plan; the monthly targets for each month for each Incentive Production group are kept directly proportional to schedule number of working days in the month; idle time booking is permitted only in the event of failure of external power supply, when it exceeds 60 minutes at a stretch for each occurrence in the month. Idle time booking on no other account is permissible; all the on-roll members of the group from unskilled level up to SSE level are included as members of the group and eligible for computed incentive payment; group-wise performance is determined from physical dispatches made by supplying group and accounted for as received by receiving group. All the different products dispatched are converted to standard Production Units to get a common accounting unit; the “No Bonus Limit” is the group Output which is 0.75 of Group Production Norm; a coach Users’ Defect Report Scheme has been incorporated which adversely effects the accountable dispatches when defect reports on Tirupati Workshop turned out coaches are received by the workshop; excessive detention of coaches in individual shops and plant as whole attract negative effect on group performance; defects on products dispatched by supplying group to receiving group caused adverse effect on supplying group incentive performance; effect of Plant Production Index (PPI) for total plant performance gets included in group incentive earning calculations; any time spent away from the individual’s work place adversely affects the concerned individual member incentive earning; individual member incentive earning is directly proportional to member’s own clocked in hours during the month; To assist in getting better attendance at work by group members a group Attendance Factor is included in the scheme; different grades of incentive covered staff have defined Incentive Earning Factor as approved by Railway Board. Incentive amount payable to individual members is derived using the applicable. Incentive Earning Factor in accordance with scheme formulae; there is no ceiling limit on Incentive Earnings in a calendar month period under the scheme; the Gross Production Index (GPI) for

any Incentive Production Group gives a Weightage of 0.7 for Group Production Index (PI) and of 0.3 for Plant Production Index (PPI); the Support Shops Incentive Group has been given a Support Shops Incentive Linkage constant of 0.80 and support departments at 0.50; required adjustment of group on-roll strength can be done freely by needed inter-group manpower adjustments on workload considerations at any time during the month; coaches output account will be done coach type wise only and not by category of repairs executed; the accounting period under scheme is applicable calendar month; the basic principle of self-inspection by workshops has been built in and requisite done in this direction are duly accounted for; Whenever any product is found to have defects as determined by receiving group, then any man-hours deployed to remove the defects by receiving group flow back to supplying group based on reports made by receiving group. This has the effect of increasing the workload on supplying group thus giving an in-built mechanism against making defective product supply by supplying group; the present system of NTXR (Neutral Train Examiner) examination before coach dispatch is retained; A Coach Users Defect Points scheme has been incorporated. The effect of Defect Reports is to deduct coaches for per 50 points of accumulated defects; In the event any coach turned out from Tirupati Shop after repairs is detached within three months enroute when in service then heavy back flow of penalty points is envisaged. This will help for increasing awareness in shop to minimize defects in coaches being turned out from Tirupati Workshop; similarly marking of Tirupati Shop repaired coaches to Sick Lines when in service will attract negative penalty points.

2.2.3 Incentive formulae for production shops of CRW Tirupati

SL. No.	Parameter	FORMULA
1	Staff @135R for 85 coaches +60 IOH Bogies	1020 eGSCN sanctioned Manpower
2	Actual staff strength	Available staff (Excluding long absent)
3	Group standard monthly target	Yearly Target of Coaches & IOH bogies x No. of working days in a month/No. of working days in a year
4	Standard Man hours	Leave Reserve x sanctioned strength x Working hours in a month *Leave Reserve = $100 - 12.5 = 87.5 / 100 = 0.875$
5	Actual clocked in hours	GA card punching hours from Time office
6	Rectification Man hours	Reworks booked from shops
7	Group Attendance Factor	Actual clocked in hours / (Leave Reserve x Actual staff strength x Working hours in a month)
8	Outsourced Booking hours	Contract man power booked
9	Available Man hours	Actual clocked in hours + (3 x Rectification Man hours)
10	Group production Norm	Group standard monthly target x Available Man hours / Standard man hours
11	Group Base output	$0.7778^* \times \text{Group Production Norm}$ $*100 / 135^* 1.05$
12	Group Eligible Dispatches	Group Dispatched coaches in SPUs
13	Group Coach Holding Factor	Target holding days / Actual detention days
14	Group Production Index (GPI)	Group Eligible Dispatches x Group Attendance Factor x Coach Holding Factor / Group Base output
15	Plant Eligible Dispatches	CRS to Traffic Dispatched coaches in SPUs
16	Plant production Index (PPI)	Applicable Weightage Factor x Plant Eligible Dispatch / Group Base output
17	Gross Production Index	70% of GPI + 30% of PPI

Similarly there are other formulae to calculate incentive bonus for the employees in remaining three shops.

III. OBJECTIVES AND HYPOTHESES

This paper aims to study the two different employees Payment by Results (PBR) and Group Incentive Schemes (GIS) being implemented in the two workshops of South Central Railway. While the PBR is being implemented in the Lallaguda workshop, Secunderabad the GIS is under implementation in the Tirupati Workshop. PBR is an individual incentive scheme while GIS is a group incentive scheme. The objective is to study which scheme is beneficial to whom – to the employee or to the Indian Railways. Overall the purpose is to assess which scheme is more useful to the rail users. All these will be done through comparing and contrasting the two schemes – the apparent facts and figures and the inherent advantages and disadvantages besides interactions with the beneficiaries.

Hypotheses: “Skinner and reinforcement theories indicate that a reward will have more motivational influence when the employee understands the direct relationship between activities performed, results achieved and compensation gained. Motivational value also increases and closely approximate to the demonstration of behaviour, completion of the assessment or the achievement of result. The elements of motivational theory support the view that the most powerful short time incentive is one that relates the individual to the overall performance of the organization.”¹⁷

3.1 About Lallaguda and Tirupati workshops

Following is a brief on the two workshops under study

3.1.1 Carriage workshop, Lallaguda

The Carriage Workshop of SCR located at Lallaguda, Secunderabad was established in 1893 as the Locomotive, Carriage and Wagon Workshop of the Nizam State Railway (NSR). The Government of Hyderabad took over direct control of the Railways in 1930 and renamed it as the Nizam Guaranteed State Railways (NGSR).

The oldest surviving example of modern Industrial Architecture in the twin cities of Hyderabad and Secunderabad is the Lallaguda Workshop. It signalled the beginning of major industry in the state of Hyderabad. When the South Central Railway was carved out on 2nd October 1966, the Lallaguda Workshop became a major workshop of the zone. It continued to be a composite workshop for Metre Gauge/Broad Gauge (MG/BG) rolling stock till 1973. As a result of phasing out of steam locos, the Workshop took up Periodical overhaul (POH) of all types of BG coaches and hence rechristened as Carriage Workshop in 1997.

3.1.2 Present Activities of the Lallaguda Workshop

The Workshop carries out Periodical Over Hauling (POH) of Broad Gauge (BG) coaches; Schedules of Link Hoffman Bosch (LHB) coaches; POH of Diesel Electric Multiple coaches; POH of LHB coaches and Intermediate overhauling of Bogies. Manufacturing of all types of locomotive filters; Supply of wheel sets to divisions; Calibration of Instruments; Chemical and Metallurgical testing/analysis of components; Training of Artisan staff covering – a) Refresher courses to Artisan Staff, b) Imparting training to Apprentices engaged against Apprentice Act, 1961, and c) Skill development programmes.

3.1.3 Carriage Repair Workshop, (CRW), Tirupati:

Launched on 25th December 1980, Tirupati Carriage Repair Workshop (CRW) made a beginning with a monthly outturn of 12 coaches in 1986-87 and gradually reached the level of 40 coaches per month in the year 2000-01. The outturn had touched to a level of 60 coaches per month with the introduction of Group Incentive Scheme in January 2002. This was achieved by redeploying existing men. Further, on sanction of additional 390 posts at 135R, the outturn ultimately reached 85 coaches per month since April 2007 and for the current year the revised target is fixed as 90 coaches per month plus supply of IOH bogies to Divisions as per their requirement.

3.1.4 CRW, Tirupati Activities in brief

The workshop carries out: POH of ²BG ³ICF/RCF/BEML coaches; Refurbishes Non-AC coaches; POH of Power & Trailer cars. Supplies Intermediate Over Hauled Bogies (IOH), wheel sets and Overhauled Coach components to divisions; Conducts Basic Training Centre to impart technical education and implementation of Apprentice Act, 1961; Retro-fits Bio-Toilets; Retro-fits CBC in ICF (Screw coupling) coaches.

IV. RESEARCH METHODOLOGY

This study used primary and secondary data to assess the impact of PBR on the employees of Lallaguda Workshop and GIS on the employees of Tirupati Workshop. The primary data comprises of actual verification of the work done by the research scholar. The secondary data is obtained by way of available literature on Indian Railways, Lallaguda Workshop, Secunderabad and CRW, Tirupati besides literature on compensation management.

V. RESULT AND DISCUSSION

A comparison of the earnings of the employees covered under PBR and GIS reveals the advantages of one or the other scheme for the employees. During the month of May 2018 the average earnings per employee under each scheme and the total incentive amounts received together with the number of employees is given in the following table.

Table – 5. 1 Total and average incentive bonus earned by the employees of Lallaguda (PBR) and Tirupati (GIS) workshops.

S.No	Designation	Average incentive earned (Rs.)		Total incentive earned (Rs.)		Total no. of employees	
		GIS	PBR	GIS	PBR	GIS	PBR
1	Sr. Section Engineer (SSE)	2742	3045	21933	39591	8	13

2	Junior Engineer	5119	3182	35834	22271	7	7
3	Sr. Technician (JE)	5728	4078	315037	289516	55	71
4	Technician I	4995	3501	534507	203080	107	58
5	Technician II	4458	4630	89158	115762	20	25
6	Technician III	3370	2758	104481	135129	31	25
7	Helper	2853	1893	105568	49225	37	26

From the above table the GIS appear to benefit the employees more than the PBR. The average incentive earned by five categories of employees is more than the PBR. Naturally the total incentive amount paid to the five categories is more than that of in the PBR. If percentages are taken into consideration the JEs covered by GIS have earned 60.87 % more than their counterparts covered by the PBR followed by Helpers with 50.71%, Technician - I with 42.67% and Senior Technician with 40.46% and Technician III with 22.18%. However, in respect of Technician II and SSE those covered by PBR have earned more average incentive than those under GIS. With regard to SSEs those covered by PBR earned on average 11.05% more than those covered by GIS and with regard to Technician II those covered by PBR earned a increase of 3.85 % over GIS. Overall it can be concluded that the employees covered by GIS are more benefited than those covered by PBR.

Certain comparable parameters of both the schemes indicate the efficacy of one scheme or the other in certain aspects. This has to be studied not only from the physical advantages but also from certain intrinsic and inherent aspects as follows.

5.1 Cycle time (AC coaches): Cycle time is the average number of days which a carriage spends in the workshop to undergo the repairs.

Cycle Time AC coaches (days)		
Year	GIS Tirupati workshop	PBR Lallaguda workshop
2015	15.63	12.45
2017	11.96	10.93

During the last three years AC coaches repaired under the PBR covered scheme workshop of CLW Lallaguda have spent lesser number of days in the workshop than in the GIS covered CRW Tirupati. It has taken 20.34% lesser time in Lallaguda workshop to get a AC coach repaired than Tirupati workshop in 2015. However, by 2017 this time has come down to 8.61% lesser time for a coach to get repaired in Lallaguda workshop than in Tirupati. But clearly the Tirupati workshop is taking more time to repair a AC coach than the Lallaguda workshop.

5.2 Cycle time (Non AC coaches): The same trend of more time for repairing continued in the case of Non AC coaches also. While in 2015 a non AC coach spent 17.38% more time than in Tirupati workshop.

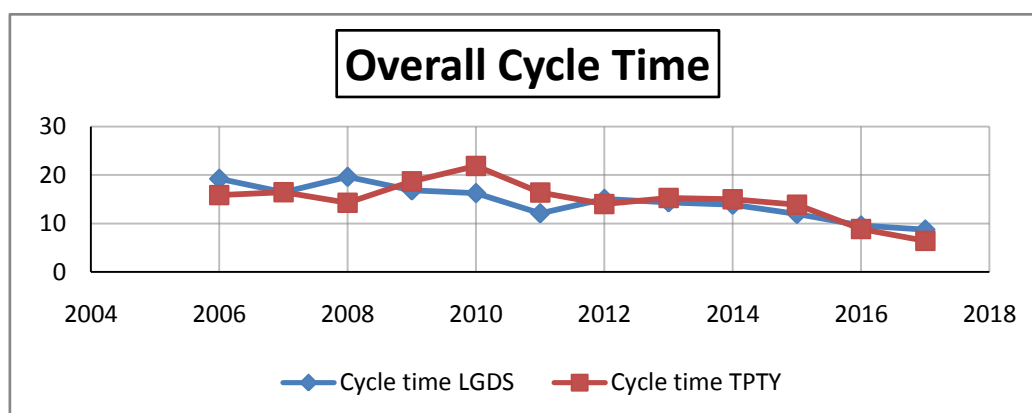
Cycle Time Non AC coaches (days)		
Year	GIS Tirupati	PBR Lallaguda
2015	13.44	11.45
2017	6.40	6.50

In 2017 Tirupati workshop has taken 1.54% less time to repair a Non AC coach than Lallaguda workshop.

5.3 Cycle time (All coaches): All carriages, both AC and Non AC took lesser time to get repaired in Tirupati workshop than in the PBR covered Lallaguda workshop. The trend below shows that the overall cycle time for both the workshops has been coming down from 2006 onwards. But since 2006 CRW Tirupati is taking lesser time to repair coaches than Lallaguda workshop. For example, in 2006 the Lallaguda workshop took 21.19 % more time and in 2017 it has taken 35.82% more cycle time. The table and graph below illustrates the downward trend in overall cycle time in both the workshops.

Year	Cycle time Lallaguda workshop	Cycle time Tirupati workshop
2006	19.21	15.85
2007	16.47	16.44
2008	19.61	14.27
2009	16.81	18.63
2010	16.26	21.82
2011	12.09	16.35
2012	15.05	14
2013	14.35	15.23

2014	13.85	14.98
2015	11.95	13.86
2016	9.56	8.86
2017	8.72	6.42



In 2015, a carriage on average spent 15.98% more time for repairs in CRW Tirupati than in Lallaguda workshop. By 2017 it has come down to 26.37 % less time than Lallaguda workshop.

From tables, 1, 2, 3 above it is clear that it has been taking more time for Tirupati workshop than in Lallaguda workshop.

5.4 Manpower Ratio: The Manpower ratio of PBR covered Lallaguda workshop is more than that of the GIS covered CRW Tirupati in 2015 and 2017. While in 2015 the Manpower ratio of Lallaguda workshop was 80.47 % more than that of Tirupati, it was 46.09% more than Tirupati in 2017.

Manpower Ratio		
Year	GIS Tirupati Workshop	PBR Lallaguda workshop
2015	0.8655	1.5620
2017	0.9035	1.3200

Therefore, the PBR covered Lallaguda workshop is utilizing more Manpower than the GIS covered Tirupati workshop for repairs and servicing of carriages.

5.5 Incentive earned: In 2010 the employees covered under GIS in CRW Tirupati earned 8.29% more than the employees covered under PBR covered Lallaguda workshop. But this was reversed in 2017 as the employees covered by PBR in Lallaguda workshop earned 12.21% more incentive bonus than their colleagues in GIS covered CRW Tirupati workshop.

Incentive Earned		
Year	GIS Tirupati workshop	PBR Lallaguda workshop
2010	57106786	52734503
2017	60603261	68006027

5.6 Incentive percentage: In 2010 the GIS covered employees CRW Tirupati earned 22.26 % more than the PBR covered employees of Lallaguda workshop. But in 2017 it was reversed as the PBR covered employees of Lallaguda workshop earned 9.76% more than CRW Tirupati employees.

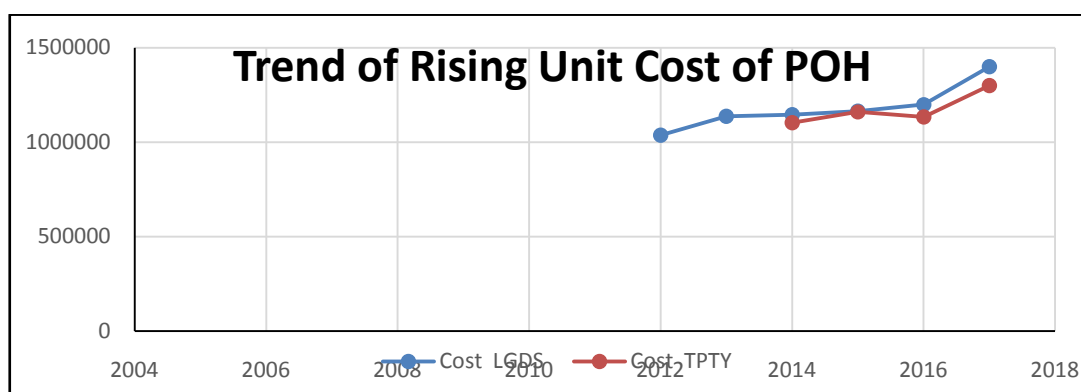
Incentive percentage		
Year	GIS Tirupati workshop	PBR Lallaguda workshop
2010	47.520	38.865
2017	43.841	48.123

5.7 Load Lifted: The PBR covered CLW Lallaguda is clearly ahead of GIS covered CRW Tirupati in the load lifted man hours in 2010 and 2017. While in 2010 PBR Lallaguda achieved 48.07% more load lifted man hours than CRW Tirupati, in 2017 it has again achieved more load lifted man hours to the extent of 42.43% than CRW Tirupati.

Load lifted Man hours per year		
Year	GIS Tirupati workshop	PBR Lallaguda workshop
2010	2658784	3937107
2017	2994808	4265600

5.8 Average Unit cost of POH: The average unit cost of POH from 2014 to 2017 is more for Lallaguda workshop than Tirupati. While in 2014 the average unit cost of POH of GIS covered CRW Tirupati was lesser by 3.74% than Lallaguda workshop. In 2017 the Tirupati workshop has shown 7.13% lesser unit cost than the Lallaguda workshop. The table and the graph below explain the trend in rising cost of POH.

Year	Unit Cost Lallaguda (LGDS) Workshop	Unit Cost of Tirupati (TPTY) Workshop
2012	1037000	
2013	1137000	
2014	1146000	1103111
2015	1165000	1160042
2016	1199000	1134125
2017	1400000	1300250



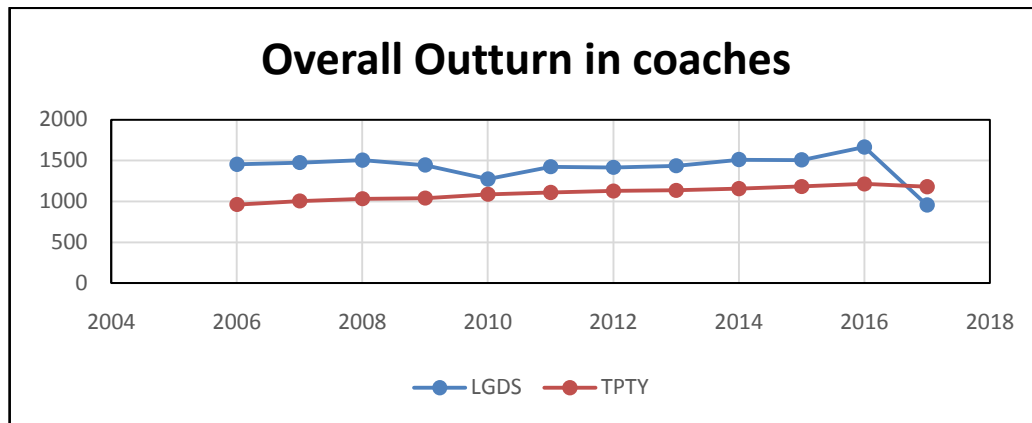
5.9 Corrosion out turn: The Lallaguda workshop employees covered under PBR have achieved 53.65% in corrosion out turn over CRW Tirupati in the year 2014 but in 2017 the GIS covered CRW Tirupati achieved an overwhelming increase of more than 278% than PBR covered Lallaguda workshop.

Corrosion out turn (Coaches)		
Year	GIS Tirupati workshop	PBR Lallaguda workshop
2014	123	189
2017	291	77

5.10 Overall out turn: In 2006 the PBR covered CLW Lallaguda achieved 51.30% more yearly out turn of AC coaches than GIS covered CRW Tirupati. But in 2017, CRW Tirupati achieved 23.81% more out turn than CLW Lallaguda. The table and the graph below illustrate the increase in trend in overall out turn in both the workshops from 2016 onwards. However, in 2017 there was a huge fall in the out turn of Lallaguda workshop and a little fall in the out turn of CRW Tirupati. It was said that the feeding of coaches for repair has come down considerably in both the workshops during the year.

Year	LGDS	TPTY
2006	1454	961
2007	1475	1004
2008	1504	1032
2009	1444	1040
2010	1273	1087
2011	1423	1109
2012	1416	1127
2013	1436	1135
2014	1511	1156
2015	1507	1181
2016	1666	1213

2017 | 953 | 1180

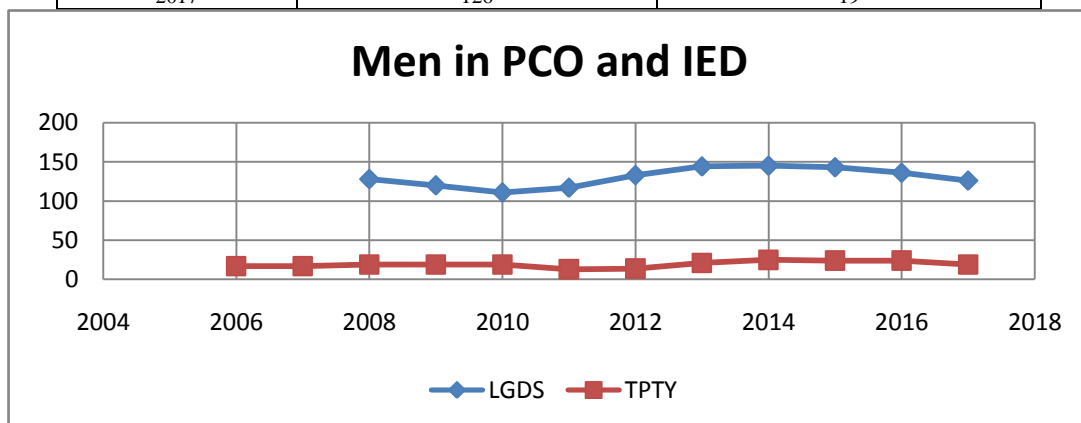


5.11 Yearly out turn of AC coaches: The Lallaguda workshop had achieved an increase of 112.90% and 49.58% more out turn of AC coaches. In 2012 and 2017 respectively, over the CRW Tirupati.

Yearly out turn AC coaches		
Year	GIS Tirupati workshop	PBR Lallaguda workshop
2012	93	198
2017	121	181

5.12 Actual Manpower Available (PCO and IED staff):The Production Controlling Organization chases the work from one shop to other to ensure continuation of work. Besides it carries out stage inspection in the sub-shops and moves the product from one shop to other which passes through inspection. PCO is also responsible for work allocation among the shops. The job of PCO is being attended to by the Industrial Engineering Department (IED) in CRW Tirupati. The table and the graph below depict the overwhelming saving in Manpower to the extent of 573.68 % in 2008 and 563.15% in 2017. The graph and the table below depict how with lesser men the work inspection is being carried out in CRW Tirupati. This is possible because of the self inspection feature of GIS which saves man power as well as documentation work.

Year	Lallaguda workshop(LGDS)	Tirupati Workshop(TPTY)
2006		17
2007		17
2008	128	19
2009	120	19
2010	111	19
2011	117	13
2012	133	14
2013	144	21
2014	145	25
2015	143	24
2016	136	24
2017	126	19



The CRW Tirupati which is covered under GIS has certain exclusive quality control features over the CLW Lallaguda. These features mark out the Tirupati workshop especially over Lallaguda workshop. For example, under GIS over time booking is taboo. But in PBR covered Lallaguda workshop there is over time booking which is coming down over the years. For example, 10424 hours of overtime was booked in 2011 and this has come down to 5111 hours of overtime booking in 2017. At the same time overtime booking in CRW Tirupati is nil because it was not permitted under GIS. Other features which stand out in respect of maintenance of quality of repair are given in the table below.

5.13 Some Exclusive features of GIS in Tirupati workshop

S.No	Parameter	Measure	Performance	
			Year	Year
1	Idle time booked	Hours and days	Nil (2006)	Nil(2017)
2	Incentive deducted due to quality linkage factor	Rupees in the year	1,12,794 (2006)	7,07,986(2017)
3	Incentive deducted due to failure with 100 days	Rupees in the year	3,50,526 (2006)	2,20,3806(2017)
4	Rework	Hours in the year	69,720 (2008)	54,471 (2017)
5	Average group attendance factor	--	0.99697395 (2008)	0.99323378(2017)
6	Coach holding factor	--	1 (2006)	1(2017)
7	Coaches not taken into account due to excess POH	Number	Nil(2006)	Nil (2017)

From the foregoing it is evident that GIS has inbuilt excellent features of self inspection, quality control and penalization for bad work as well as absenteeism and failure of repairs. It is more or less a self administering programme which is to the advantage of the organization as well as the consumers of the public utility. It would make an excellent incentive scheme if certain changes are brought about like, removal of ceiling limit on maximum bonus in respect of CRW Tirupati.

Findings and Recommendations

1. The GIS under implementation under CRW Tirupati appears more advantageous to employees since the incentive bonus earned by employees is more than their colleagues in CLW Lallaguda where the PBR individual incentive scheme is under implementation.
2. Employees in both the schemes are happy with the incentive they are receiving under the schemes – whether PBR or GIS. This is because they are the masters of their work and they need not depend upon the other group members with regard to the assignments allotted to them.
3. However, the grouse against PBR is it requires more documentation, more supervision which is not prevalent in GIS.
4. The quality of the work covered under GIS has gone up in CRW Tirupati because of strict quality control factors. However, the cost of POH under GIS is more because the employees are under the tyranny of quality control factors. The unit cost increases because the employee utilizes more material than in PBR.
5. The ceiling limit of 15% on incentive for supervisors is a dampening factor because it alienates the supervisors from the group whose members earned more when they work more. Similarly the grouse of the group members is the ceiling limit of 50% which they want to be removed.
6. GIS is an employee friendly and pro-organization incentive scheme. It benefits the employees with additional income and the Railways with increased turn over with lesser manpower and even lesser documentation as also very little monitoring.
7. In both the schemes training is not much liked by the employees because they are denied of incentive bonus when they attend the training. However, in a technical organization training is essential for skill up gradation, particularly in the contemporary technology savvy organizations.
8. With the implementation of both the incentive schemes there is considerable savings for the Railways. For example, through the implementation of PBR the net saving and cost of labour was estimated at 2.19 crores which is on average the salary of 566 additional employees. Time saved with the blessing for the Railways because the coaches will be repaired in time. This proves Taylor's example of process theory in operation. Taylor convinced Schmidt, a pig iron plant owner that he would load 47 tonnes of pig iron a day instead of 12.5 tons per day he could pay €1.85 per day instead of €1.15. Taylor could accomplish this dramatic increase in output of 376 percent through the four principles of Scientific management¹⁸.

9. There is deduction in incentive for failure of repairs within 100 days in GIS for nine years from 2006 to 2017. However, this feature is not there in PBR covered Lallaguda workshop. Such a feature is essential to maintain quality of repairs and output.
10. There is lack of awareness among the employees about the incentive bonus schemes being implemented for them in the workshops. The Railways should take up an intensive awareness campaign at the plant level to educate the employees of both the workshops about the benefits of incentive bonus schemes.

VI. CONCLUSION

The study supports Skinner's contention that a reward will have more motivational influence when the employee understands the direct relationship between activities performed, results achieved and compensation gained. Motivational value also increases and closely approximate to the demonstration of behaviour, completion of the assessment or the achievement of result. The two bonus incentive schemes being implemented in two workshops of South Central Railway needs certain modifications which should be addressed at the earliest. There is an urgent need to introduce quality control measures linked to customer's satisfaction in the payment by results incentive scheme. The GIS which is employee friendly can be made more useful by introducing some changes like, removing the ceiling limits and relooking at the quality control factors. Since there is lack of awareness among the employees about the incentive bonus schemes being implemented for them in the workshops the Railways should take up an intensive awareness campaign at the plant level to educate the employees of both the workshops about the incentive bonus schemes. This study is first of its kind on Incentive bonus scheme in Indian Railways. Therefore, it needs more studies and further probe into the schemes before major changes are introduced in them. However, the administration should look into a study like this to reform the Incentive schemes in the Indian Railways.

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