

**RAILWAY CONVENTION
COMMITTEE
(1980)**

(SEVENTH LOK SABHA)

NINTH REPORT

**COST OF OPERATION OF RAILWAYS
(STAFF & FUEL COST)**

Presented in Lok Sabha on 26-8-1983

Laid in Rajya Sabha on 26-8-1983



**LOK SABHA SECRETARIAT
NEW DELHI**

August, 1983/Bhadra, 1905 (Saka)

Price : Rs. 2.80

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PART II*

Minutes of the sittings of the Railway Convention Committee (1980) held on 16 September, 1981, 2nd June and 22 November, 1982 and 23 February, 24 and 25 June and 24 August, 1983.

*Not appended (One copy laid on the Table of the House and five copies placed in the Parliament Library.)

**RAILWAY CONVENTION COMMITTEE
(1980)**

CHAIRMAN

Shri D. L. Baitha

MEMBERS

Lok Sabha

- *2. Shri Satyasadhan Chakraborty
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13. Shri Sadashiv Bagaitkar
14. Shri V. Gopalasamy
15. Shri Ram Laxhan Prasad Gupta
- @16. Shri Pranab Mukherjee

* Nominated w.e.f. 19.2.1982 *Vice* Shri Jyotirmoy Bosu died.

** Nominated w.e.f. 19.2.1982 *Vice* Shri R. Venkataraman resigned from the Committee.

% Nominated w.e.f. 18.12.1982 *Vice* Shri P. C. Sethi resigned from the Committee.

@ Nominated w.e.f. 9.3.82 *Vice* Shri Mahendra Mohan Mishra resigned from the Committee.

\$17. Shri (Molana) Asrarul Haq

£18. Shri Ghan Shyam Singh

SECRETARIAT

1. Shri T.R. Krishnamachari—*Joint Secretary*
2. Shri H.S. Kohli—*Chief Financial Committee Officer.*
3. Shri Ram Kishore—*Senior Financial Committee Officer.*

\$ Nominated w.e.f. 29.5.82 Vice Shri F. M. Khan ceased to be a member of Committee consequent on his retirement from Rajya Sabha w.e.f. 2.4.1982.

£ Nominated w.e.f. 21.10.1982 Vice Shri J. K. P. N. Singh resigned from the Committee.

INTRODUCTION

1. the Chairman of Railway Convention Committee (1980) having been authorised by the Committee to submit the Report on their behalf, present this Ninth Report on the 'Cost of Operation of Railways (Staff & Fuel Cost)'.

2. The Committee took evidence of the representatives of the Ministry of Railways on 2 June and 22 November, 1982 and 24 and 25 June, 1983. The Committee wish to express their thanks to the Ministry of Railways for placing before them the material and information they desired in connection with the examination of the subject. The Committee also wish to place on record their appreciation of the valuable assistance rendered to them by the Chairman and Members of the Railway Board, the Financial Commissioner of Railway and their officers and staff.

3. The Committee also wish to express their thanks to S/Shri B.S.D. Baliga, Retd. Chairman, Railway Board, P.N. Kaul, Retd. Member (Mechanical) of Railway Board and R. K. Natesan, Retd. General Manager of Northern Railway for furnishing memoranda to the Committee and also for giving evidence and making valuable suggestions.

4. The Committee also wish to express thanks to all others who furnished memoranda on the subject to the Committee.

5. The Report was considered and adopted by the Committee on 24 August, 1983.

6. A statement showing the summary of recommendations of the Committee contained in this Report is at Appendix.

NEW DELHI;

August 25, 1983

Bhadra 3, 1905 (Saka)

D. L. BAITHA,

Chairman,
Railway Convention Committee.

REPORT
CHAPTER I

OPERATING RATIO & WORKING EXPENSES

Operating Ratio :

1.1 The operating ratio is stated to be a measure of the working results of an organisation during a year in financial terms and is defined as the percentage of total working expenses to total earnings. The ratio undergoes a change due to variations either in the working expenses or in the total earnings or both. The operating ratio is adversely affected if the total earnings do not increase in the same proportion in which the working expenses increase.

1.2 The operating ratio of the Railways since 1950-51 has been fluctuating as follows :

Year	Operating Ratio (per cent)
1950-51	81.00
1955-56	81.93
1960-61	78.75
1963-64	74.85
1965-66	78.30
1969-70	82.67
1970-71	84.13
1971-72	83.11
1972-73	84.47
1973-74	93.39
1974-75	92.41
1975-76	89.32
1976-77	84.41
1977-78	82.99
1978-79	87.51
1979-80	91.49
1980-81	96.07
1981-82	89.40

The reduction in the operating ratio from 96% in 1980-81 to 89.40 in 1981-82 is stated to have been achieved mainly as a result of the following factors :—

- (a) a record increase in originating goods loading of approx. 25 million tonnes in 1981-82 over 1980-81;
- (b) increase in earnings due to increase in fares and freights ;
- (c) adoption of strict expenditure control measures.

1.3 The operating ratio of different zones for the years 1980-81 and 1981-82 are tabulated below :—

Railway	1980-81	1981-82
Central	82.2	75.3
Eastern	121.5	107.6
Northern	94.8	86.2
North Eastern	144.5	155.8
Northeast Frontier	180.6	177.0
Southern	123.1	115.8
South Central	92.8	86.4
South Eastern	81.9	72.0
Western	77.5	76.0

1.4 It will be observed that except on North Eastern Railway there has been an improvement in the operating ratio. According to actuals for 1981-82, Eastern, North-eastern, Northeast Frontier and Southern Railways still continue to be in the red as even the improved Operating Ratio on these Railways is more than 100%.

1.5 During examination of Railway Officials, the Committee pointed out that the Operating Ratio in 1972-73 was 84.47. In 1973-74 it suddenly rose to 93.39 and than came down to 82.99 in 1977-78 whereafter it again started rising and reached 96.07 in 1980-81. When asked about the reasons for the rise in operating ratio, the Chairman, Railway Board, stated :

“One reason was the recommendations of the Pay Commission. Another change was the increase in petroleum prices due to the Arab-Israeli war. From 2 dollars it increased to 35.6 dollars”.

1.6 Asked as to what were the factors that helped in bringing down the operating ratio, the witness stated :—

“It is also due to the productivity increase in the maintenance and repairs which contributes substantially to the operating cost. There also the improvement in the performance of workshops has gone up by as much as 30 to 40%, in the units of repairs with the same manpower. With the result that the manpower ratio to the total number of men employed, to the total units of repairs of coaches, wagons and locomotives has come down. Last year, it was 0.25 and now it is 0.21. It is very unexpected increase in the productivity of labour in the workshops. That is due to better discipline and better power availability in the workshops”.

1.7 When enquired in which zones Railways have succeeded in bringing down the operating ratio, the witness stated that they succeeded in all zones. He further stated :

“Basically only those zones can remain in the blue which have got heavy freight traffic. Those which are passenger-oriented and as passenger fares have not been allowed to be increased proportionate to the costs involved, they are the railways which suffer the most in the losses—except the Eastern.”

1.8 The Financial Commissioner of Railways informed the Committee in evidence that the operating ratio was as high as 91.49 in 1979-80 and it came down to 89.40 in 1981-82. It is expected to be brought down to 88.50 in 1982-83 and in 1983-84 it is further expected to brought down to 87.50. When asked as to what were the main factors responsible for improving the operating ratio, the witness stated :

“More than 80% of the costs are fixed. There is no scope for those costs varying with the volume of traffic. The only method of keeping the cost down is by carrying more traffic. If we use our assets intensively and carry more passengers and traffic, our earnings will improve. That is with the same assets we are arranging for a greater amount of traffic throughout. In these years, our traffic throughout has been very good. Therefore, the operating ratio improved.

With the same level of expenditure and with the same assets, if the volume of traffic goes down, the operating ratio will shoot up like anything”.

Working Expenses

1.9 According to the Ministry of Railways, the overall cost of operation of Railways is indicated by the total working expenses during a given year. The working expenses include expenditure incurred in connection with the administration, operation, maintenance, and repairs of railway assets as well as appropriation to Pension Fund and to the Depreciation Reserve Fund to meet the cost of replacement and renewal of assets which these expenses fluctuate from year to year depending mainly upon the cost of various inputs and, to some extent, on the volume of traffic handled. The working expenses (excluding dividend payments) have risen from Rs. 862.22 crores in 1970-71 to Rs. 3,224.70 crores in 1981-82. While revenue gross receipts have risen from Rs. 1003.95 crores in 1970-71 to Rs. 3627.76 crores in 1981-82. The figures of working expenses for each financial year from 1970-71 to 1981-82 are as follows :-

	(In Crores of rupees)
1970-71	862.22
1971-72	927.89
1972-73	998.34
1973-74	1,082.78
1974-75	1,341.55
1975-76	1,638.48
1976-77	1,749.40
1977-78	1,781.04
1978-79	1,900.48
1979-80	2,177.12
1980-81	2,575.99
1981-82	3,224.70

1.10 The increase in cost of operation on the Railways is mainly due to escalation in the cost of inputs i.e. the total cost of staff, cost of fuel and cost of other materials and supplies. The indices of costs of various inputs for the period 1970-71 to 1981-82 as given by the Railway Board are indicated in the following table :-

Indices with 1970-71 as Base Year

Year	Average Annual Cost per employee	Price of Coal	Price of Diesel	Price of Electricity	Price of Iron Steel & Fer- rous alloys	Price of Cement Lime & Mortar
1970-71	100	100	100	100	100	100
1971-72	105.7	102.2	104.9	102.5	105.8	105.4
1972-73	109.2	110.8	105.9	105.7	117.6	109.5
1973-74	118.7	121.7	119.5	111.3	142.6	112.3
1974-75	152.3	143.0	194.3	137.2	171.3	147.8
1975-76	178.9	184.2	206.4	158.1	183.5	170.7
1976-77	185.8	197.6	213.9	171.6	186.9	173.5
1977-78	190.1	198.8	214.1	182.5	188.2	176.6
1978-79	201.2	212.2	216.7	209.1	212.5	196.2
1979-80	224.0	299.5	243.8	225.6	258.2	229.1
1980-81	248.2	347.6	279.6	239.7	272.4	232.6
1981-82	272.7	432.1	334.3	279.6	331.6	269.5

1.11 Appropriation to Depreciation Reserve Fund has also increased from Rs. 100 crores in 1970-71 to Rs. 220 crores in 1980-81 and Rs. 350 crores in 1981-82. Appropriation to Pension Fund has risen from Rs. 14.85 crores in 1970-71 to Rs. 84 crores in 1980-81 and Rs. 98.50 crores in 1981-82.

1.12 Out of the total ordinary working expenses on the Railways in 1981-82, 45.8% is accounted for by wages to staff, 24.6% by fuel and electricity for traction purposes and 29.6% by other materials and supplies, approximately.

1.13 Indices of increase in fares and freight rates in Indian Railways furnished to the Committee showed that, the average fare rate per passengers K.M. increased from 2.5 paise in 1970-71 to 4.48 paise in 1981-82 (increase of 79.2%) and the average freight rate per tonne K.M. from 5.43 paise to 13.7 paise (increase of 152%).

1.14 The ratio of working expenses to earnings (operating ratio is, a measure of financial performance of railways. The railways are expected to generate surplus to pay dividend on capital-at-charge to General Revenues. The operating ratio for the railways as a whole, which was 74.85 in 1967-64, went up to 94.39 in 1973-74. The ratio improved subsequently but again increased and registered an all time high of 96.07 in 1980-81. It was, however, brought down to 88.5 in 1982-83 and is expected to be 87.5 in the current year 1983-84. Besides non-materialisation of the desired degree of improvement in revenues, vast increase in working expenses has contributed to higher operating ratio. In the opinion of the Committee a stage has arrived where there ought to be an acute awareness of the need for economy in expenses.

1.15 From the figures furnished by the Railways, the Committee observe that the working expenses during the last 12 years have increased nearly 4 times (from Rs. 862.22 crores in 1970-71 to Rs. 3224.70 crores in 1981-82). The rise has been particularly steep during the last 5 years (from Rs. 1781.04 crores in 1977-78 to Rs. 3224.70 crores in 1981-82). The vast increase has been attributed to escalation of the cost of inputs. During the period 1970-82 the average annual cost per employee increased by 172.7 per cent, cost of fuel by 179.6 to 332.1 per cent and cost of other stores by 169.5 to 231.6 per cent. As against this, the average fare rate per passenger-kilometre increased by 79.2 per cent and the

average freight rate per net tonne kilometre has risen by 152.3 per cent. The Committee wish to make it clear in this connection that in view of heavy investments made and several technological innovations and modernisation of traction introduced in railways it should be possible to improve the financial performance by augmenting earnings not by indiscriminate increase in fare and freight rates but by intensive use of assets carrying more traffic and allowing no leakage of revenue. The Committee also wish to emphasise that concerted and effective steps should be taken to control costs.

1.16 Although the overall operating ratio has been below 100, the ratios of the Eastern, North Eastern, Northeast Frontier and Southern Railways ranged between 107.6 and 180.6 during the years 1980-82. Thus huge losses are incurred by these Zonal Railways. Although the position of Northeast Frontier, Southern and Eastern Railways has slightly improved in 1981-82, the position of North Eastern Railway has further deteriorated (from 134.5 in 1980-81 to 155.8 in 1981-82). The Committee desire that particular attention should be paid to these railways in the matter of controlling costs without impairing efficiency of operations.

1.17 There is greater need for replacement and renewal of old assets. The Appropriation to Depreciation Reserve Fund has to be raised. This has already risen from Rs. 100 crores in 1970-71 to Rs. 350 crores in 1981-82 and has to be raised further. The Committee note that 45.8 per cent of the total working expenses is accounted for by staff cost, 24.6 per cent by fuel cost and the rest by other stores. The Committee decided to examine the cost of operation to ascertain the scope for economy in order that the railways may be in a better position to augment the appropriations to various funds and pay reasonable dividend to the General Revenues and yet render better service to the community. The succeeding chapters of this Report cover their examination of the staff and fuel costs.

CHAPTER II

COST OF STAFF

2.1 Indian Railways are stated to be the largest employer in India and one of the biggest employers in the world. Initially, the rate of increase in employment was 3.2 per cent from 1950-51 to 1965-66; there-after, the rate of increase has substantially slowed down to 1.03 per cent. According to Railways' first corporate plan (1974-89) the productivity of manpower has improved by over 50 per cent over last 15 years in terms of traffic units moved per employee. Introduction of changing technology has brought improvement in productivity of manpower, which has been assisted by management inputs and scientific motivation of staff.

2.2 The Indian Railways have now a work force of over 15.7 lakh regular employees and nearly 2.3 lakh casual labour. The wage bill of the regular employees amounted to Rs. 1451 crores during 1981-82.

2.3 The staff position *vis-a-vis* volume of traffic handled during the period from 1970-71 to 1981-82 has been indicated by the Railway Board as under :

Staff and volume of traffic during 1970-71—1981-82				
	1970-71	1978-79	1980-81	1981-82
1. Number of Staff (in '000)	1374	1525 (11.0)	1572 (14.4)	1574 (14.6)
2. Volume) of traffic dealt with :				
(a) Passenger k.m. (millions)	118120	192946 (63.4)	208558 (76.6)	220787 (86.9)
(b) Net tonne k.m. (millions)	127350	154824 (21.6)	158474 (24.4)	174202 (36.8)
(c) Net tonne k.m. Rev. (millions)	110696	143870 (30.0)	147652 (33.4)	164254 (48.4)

Note : Figures within bracket indicates % increase over 1970-71,

2.4 According to the Indian Railways Year Book 1981-82 the employment level on the Indian Railways remained almost static in spite of the phenomenal increase in productivity measured in terms of traffic tonne kilometres. The increase in staff during the year 1981-82 as compared to 1980-81 was marginal at 0.18% while productivity increased by 10.3% from 159.55 billion traffic tonne kms. in 1980-81 to 176.81 billion traffic tonne kms. in 1981-82. The total number of staff increased by 2826 during the year taking the total to 15,74,980 at the end of March, 1982.

2.5 According to the corporate plan the impact of technological change in improving productivity in future may not be higher than in the past 15 years, during which traction-mix has been changing towards better motive power.

2.6 The table giving the staff position during the period 1950-51 to 1981-82 as also the cost thereon—as given at page 110 of the Indian Railways Year Book, 1981-82, is reproduced below :

Year	Number of staff as on 31st March (in '000)			Cost of Staff	
	Groups A & B	Group C	Group D	Total	Crores of Rs.
1950-51	2.3	223.5	687.8	913.6	113.8
1955-56	2.7	373.3	648.8	1024.8	148.2
1960-61	4.4	463.1	689.5	1157.0	205.2
1965-66	6.6	550.7	795.0	1352.3	310.4
1968-69	7.5	562.4	784.0	1353.9	393.3
1973-74	8.8	622.4	801.0	1432.2	570.7
1976-77	9.2	650.5	814.7	1474.4	924.4
1977-78	9.5	662.9	822.5	1494.8	962.1
1978-79	9.9	686.9	828.2	1525.0	1035.8
1979-80	10.5	707.4	832.5	1550.4	1154.8
1980-81	11.2	721.4	839.9	1572.2	1316.7
1981-82	11.6	728.4	835.0	1575.0	1451.5

2.7 Officers (Groups A & B) constitute 0.7 per cent of the total strength, Group 'C' staff 46.3 per cent and Group 'D' staff 53.0 per cent. Out of the total of 15.63 lakh employees under Groups 'C' and 'D' as on 31-3-1982, 4.81 lakhs were workshop and artisan staff; 1.08 lakhs running staff and 9.8 lakhs other categories of staff.

2.8 The number of staff engaged in construction activities was about 15,173 and those employed in production units 39,060. Railway Production/Special Force personnel, who are responsible for guarding the property and goods entrusted to the railways totalled 66,215 and Medical and para medical staff totalled 55,582. The Central Organisations like the Railway Board, RDSO etc. accounted for about 9,032 staff.

2.9 The relatively larger increase in the number of officers under Groups 'A' & 'B' is stated to be due, to a large extent, to the redesignation of doctors in Group 'C' as officers in Group 'B' from January 1966 and creation of the Railway Protection Force with its complement of officers in 1954-55. During 1979-80 certain posts in Group 'C' were upgraded to Group 'B'. This was done to achieve the twin objectives of improving the officers-staff ratio and also creating new avenues of promotion to qualified and experienced senior supervisors. Excluding the medical and RPF, there were 9,060 officers on 31st March, 1982. The officer-employee ratio in departments other than medical and RPF was about 160:1.

2.10 It has been stated in the corporate plan that the backbone of manpower productivity would be through efficient management. The ratio of Administration expenditure to earnings which was 10.5 per cent in 1960-61 has steadily dropped to 8.8 per cent now in real terms. Through various economy measures. The emphasis on economy in administration while desirable should not result in dilution and effectiveness in management. For more effective management to face the challenges in future, the supervision would require to be substantially increased.

Casual Labour

2.11 About 2.3 lakhs casual labourers are also stated to be on the rolls of the Railways of which about 1.5 lakhs are engaged on the

Open line and the remaining on Projects. The casual labour constitutes the main source from which Group D posts/vacancies are filled on the Railways. About 23,500 casual labourers were absorbed against regular Group D posts during 1981-82.

Staff Cost :

2.12 The expenditure on pay and allowance of the regular employees during 1981-82 including those engaged in construction activities, manufacturing units and other Central Organisations like the Railway Boards, the Research Wings, Railway Service Commissions and the Central Training Schools totalled Rs. 1451.5 crores — an increase of about Rs. 135 crores or about 10 per cent over the corresponding figures of the last year. Staff cost accounted for 53.1 per cent of the ordinary working expenses excluding appropriation to Depreciation Reserve Fund and Pension Fund. Including these elements the staff cost to total working expenses was only 45.6 per cent.

2.13 The table below shows the average annual cost per employee as also the cost of living index for some of the years since 1950-51 :—

Year	Average annual cost per employee		Cost of living Index	
	Rs.	Percentage increase over 1950-51	Index (1960=100)	Percentage increase/decrease over 1950-51
1950-51	1,263	—	83	—
1955-56	1,476	17	79	(-) 5
1960-61	1,799	42	102	23
1965-66	2,331	85	139	68
1968-69	2,933	132	174	110
1973-74	4,035	219	250	201
1976-77	6,313	400	301	263
1977-78	6,461	412	324	290
1978-79	6,838	441	331	299
1979-80	7,590	501	360	334
1980-81	8,435	568	401	383
1981-82	9,267	634	451	443

It would be seen from the above table that whereas the cost of living index rose by 443 per cent, the average annual cost per employee increased by 634 per cent since 1950-51.

2.14 The average annual wage bill per employee excluding fringe benefits amounted to Rs. 9,267 during 1981-82 which was Rs. 832 or about 10 per cent more than last year. The increase in the cost of staff was mainly due to grant of certain additional benefits extended to the staff during the year under report by way of grant of eight instalments of dearness allowance, four instalments of pension reliefs, increase in the house rent/city compensatory allowance due to the merger of a portion of the dearness allowance with pay, revision in the rates of conveyance allowance, reclassification of artisan staff and payment of bonus to the staff.

2.15 In a non-official memorandum furnished to the Committee, it has been stated that out of the total cost of operation the cost of staff (regular) is in the range of 55% to 60%. With rising costs and corresponding increase in wages the proportion of cost for staff has been steadily increasing. There is an urgent need for reappraisal of the strength of staff employed in various spheres of work, particularly in offices where the work load has no direct bearing on the traffic handled. Even in the field staff there is need for a review to determine whether a reduced number of multi-purpose staff may replace the present strength of staff where staff of different categories are being utilised even though there may not be full time work for them.

2.16 An Ex-chairman of Railway Board in his memorandum to the Committee has also stated that the increase in Railway staff since 1947 has been phenomenal. While increase in staff to meet the needs of traffic and to improve service conditions reasonably is necessary, the doubling of the strength that we see by today's figures does not appear to be needed for the new conditions, Departmentalisation of catering, creation of new services, ever increasing leave reserve strength and the large number of holidays allowed in India have brought about this state of affairs. Poor law and order conditions also have been responsible to some extent for this increase. Leave reserve, while theoretically necessary, brings about non-seasonal idleness, and inadequacy during festivals and holidays. Unless there is a strong check to limit

absence and leave, no amount of leave reserve can meet the curse of absenteeism and the private medical certificate. The Railways have a rule authorising the supervisor to disallow leave when absenteeism is high, without regard to the medical certificate. If this rule is enforced rigidly, absenteeism can be controlled.

2.17 During his oral evidence, the Ex-Chairman, Railway Board was asked to suggest measures for effecting economy in the cost of staff, he stated :

“If we change some of the procedures, we should be able to make with less staff... We must be very clear in our mind as to whether we want to economise on staff or not... If we want to streamline the procedures and be efficient, we must try to accept the good ideas and try to make use of them on the condition that the present employees will not lose their jobs. If we think that the organisation should be there only to create employment, it will be like our public sector. In the public sector even the highest officers are telling that the public sector is for creating employment, and profit is not much of a motive. If this is the attitude, the morale and efficiency goes down.

“...We changed over to the ten hour rule for running staff. Previously we did not have any limit to the hours of work. At the time of an emergency or when there was accident they worked upto 18 to 20 hours. The American and Russian Trade Union people came and said that we were very funny people. They remarked that they changed over to 12 hours after complete dieselisation.”

2.18 When asked to offer his view on the everincreasing staff strength during 1970-71 to 1980-81 viz. 38.1% increase in Group A & B 23.6% increase in Group 'C' and 7.3% increase in Group 'D', the witness reacted :—

“India has got the lowest percentage of officers in relation to staff in the world. The reason being that we have come out of the colonial experience, the number of low wage people employee is very large without any regard to what may happen when wages go high. You take in Malaysia, Japan and

even Phillipines. The proportion of officers to the men is much higher than in India. I would not say that we should increase the number of officers or decrease the number of workers. I am not going into the social philosophy. I will say to please look at the activity."

219. A retired General Manager has also pointed out to the Committee in his memorandum that the staffing pattern on the Railways required critical examination. There is considerable overstaffing in certain areas, for example in offices and areas not directly connected with operation, while in the field there is a great shortage in certain sections. This is especially so with regard to experienced staff. It is the staff in the field that directly contributes to efficiency of operation. There is considerable over staffing in unskilled categories, the excess often results in counter productive work.

2.20 Another retired General Manager in the memorandum submitted to the Committee has stated that the greatest cost of operation of Railways is 'staff cost'—the Wage Bill. According to him, there is considerable scope for improving the productivity of the staff by increasing the working hours. There is no reason why staff of any category on the Indian Railways, in improved working conditions, cannot do 8 hours duty a day, six day a week. This applies to all categories other than the "Running Staff" who man running trains...The physical strain on running staff (more for drivers and considerably less for guards) particularly on (comparatively slower) freight trains is far less these days on electric and diesel locos than on steam locos in earlier years. And yet, they do in a month or at a single stretch, much less duty hours than before. Their total actual "running hours" hardly average 200 in a month—(not the weighted computed hours for which they are paid). That being so, there should be no reason why they cannot do normally 10 hours at a stretch, and occasionally 12 hours (when they run late) on any single trip. The present sophisticated signalling system has reduced considerably their strain, besides the comfort of driving diesel and electric locos.

2.21 Yet another retired General Manager has pointed out that the cost of staff alone accounts for more than 60% of the working expenses of the Railways and any increase in this area would naturally affect the cost of operation. The deteriorating law and order situation in some parts of the country, acts of indiscipline and some staff such as

the running staff following go-slow methods seriously affect operation. The running staff is meant for running trains and not for sitting idle by reporting sick and producing private medical certificates and drawings average pay and mileage for doing no work. The introduction of 10 hour rule and present system of payment of mileage and overtime allowance have only added to overstaffing and to the existing tendency of detaining the trains deliberately *en route*. Unless they are made to realise that their job is not only to earn overtime but also to produce sufficient kilometrage in their running, the operation will continue to suffer.

2.22 An Ex-Member (Mechanical) of the Railway Board, has also informed the Committee that in the Workshops, the norms for incentives were set up 15 to 20 years ago and these are now out of date and needed re-examination and re-fixation. He had also suggested that work study needs to be made to find out as to how the productivity of the staff could be increased. When the witness was asked to elaborate his point during evidence, he stated :

“This was a suggestion for improving productivity. The norms were set up for incentives that was 20 years ago and things have changed so much new machines have come which are much more efficient but the norms remained the same. I have a feeling that there should be a fresh study made in the workshops to determine fresh norms of productivity.”

2.23 In this connection, the Estimates Committee in their 45th Report, presented to Lok Sabha on 8 April, 1983 have recommended as follows :

“1.36 The Committee would like the Ministry of Railways to update the incentive schemes in the light of the technical sophistication in the machinery and processing introduced in the Production Units from time to time and ensure that the schemes are operated in a manner that leave no scope for any malpractice.”

2.24 The Estimates Committee further recommended in paragraph 1.30 of their 45th Report as under :

“1.30 The Committee recommend that the strength of non-technical staff in the Production Units of the Railways which is admitted to be high, should be got reviewed by an outside agency such as the Staff inspection Unit of the Ministry of Finance and the Staff found surplus to the requirements should be retrained, if necessary and redeployed on new projects of the Railways productivity”.

2.25 During the evidence the Committee pointed out that there had been a considerable increase in the staff strength during the period from 1970-71 to 1980-81 viz. 38.1% in category 'A' & 'B'; 23.6% in Category 'C' and 7.3% in Category 'D'. They desired to know the reasons for larger increase in the higher category of staff. The representatives of the Ministry of Railways stated :

“One factor which has a bearing on Class 'A' and Class 'B' categories of officers is that the doctors who used to be in Group 'B' have been upgraded to Group A Category. So, there is a certain amount of increase..... As a group all the Assistant Medical Officers were made Class I Officers overnight. This is the main factor that has taken place... In the sheds, another qualitative change is taking place. When we go in for more and more sophisticated equipments, higher category percentage would be increased..... In sophisticated engine, we require only one Khalasi and one supervisor. Therefore, as we go in for more and more sophisticated equipment, we will find that the ratio between the supervisors and the working class—basic working class—would go on narrowing.

Similarly, when we go in for machine maintenance of track over 100-men will be replaced by the machine and there will be a technician of higher category. They will be in Group 'C' category. As our sophistication in all spheres keeps on increasing, our proportion will go on getting distorted compared to the old statistics. But that is in the scheme of things. But still the Indian Railways have one of the worst or the lowest supervisor-labour ratio. It is about 1 : 120 men, one supervisor to 120-men. In some departments, it is 1 : 300 and even 1 : 400.....This is a transitional phase

that is going on. In other countries like America and Japan, they have come to 1 : 1 ratio. They were so highly mechanised."

2.26 As to the impact of sophistication on the strength of Operating and Supervisory staff, the Ministry of Railways have in a written note stated :

"The main sophistication that took place in the field of traction was progressive replacement of steam by diesel and electric. As a result of this sophistication, the running staff strength went up only by 17.3% during the period from 1970-71 to 1980-81, though the increase in traffic was much more 80% increase in passenger kms. and 33.3% increase in net tonne kms. of goods. Therefore, with change over to better type of traction, the increase in running staff strength could be kept under control.

The other impact that took place due to change in traction was reduction in the strength of Group 'D' category of running staff by 20.8%. This was due to 2 running staff required on diesel and electric locomotives as against 3 in case of steam locomotives."

2.27 Asked whether there were any norms to determine the strength of different cadres and whether the increase in the staff strength has any direct relationship with the quantum of traffic lifted by Railways, the Member (Staff) of Railway Board stated :

"There are no norms as such for the various categories. This is the very composite situation and each strength is determined by the workload that arises from time to time.....No direct relation can be drawn between the traffic Unit and the number of staff. There are certain areas—if we open a new station, a new booking point, additional booking clerks will have to be there. The traffic may or may not increase... In 1981-82 and 1982-83 we have increased the Traffic Units in a very big way. Due to the increase in the Traffic Units (both in passenger and freight) the staff requirement was much more high, compared to 1976-77. Traffic increase to

a great extent. Compared to 1980-81 figures, there is an increase of traffic units of 15 to 16%, but the total staff strength is less. ... Traffic is one of the factors which will lead to increase of staff, but there is no direct relation, this is no hand and fast rule."

2.28 Keeping in view the total cost of operation, the Committee enquired whether the cost of the staff incurred by Railways is optimal and whether there was any scope to reduce it. The Chairman, Railway Board stated :

"As regards the expenditure on staff 55 to 60 per cent expenditure is on staff alone. This is absolutely a world-wide phenomenon that the cost of staff on railways is of the same order. Although they have got much lesser number of men, their pay scales are 10 to 15 times our pay scales. Their numbers may be 1/10th or 1/15th, but still in percentage cost, it is of the same order."

2.29 The Committee pointed out that whenever there was a drive for economy, it was the lower category of staff which had to suffer and not the higher category. Reacting to this, the witness stated :

"There has been an overall appreciable increasing in staff in the last 10 years. But the increase will not be in the same proportion in all categories, according to the scheme of things. If we have got a machine for track maintenance, then, naturally the man-power requirement is of a different variety altogether. The track is labour intensive. It does not remain labour intensive just by that simple process that we bring a machine. Similarly, as regards the equipments previously there were very ordinary signals, crude old methods. As it becomes electrified signals and all that, we require fitters and mistries to maintain that equipment and not the simple workers. ... If we run suburban trains where there is route relay inter-locking, it required highly skilled trades. These skilled men will not be in Category 'D'. All those skilled men will be in Category 'C' and above."

2.30 When asked whether the Railways have any plan to reduce the staff strength, the witness stated :

“We have got a plan, we do planning. After ten years we will have to lift almost a hundred per cent more traffic if the entire economy goes up, but the staff will be nowhere near the double ; the staff will not increase by a hundred per cent but may increase only by 10 or 15 per cent.”

2.31. Explaining the factors responsible for increase in staff of each category during the period from 1970-71 to 1981-82, the Ministry of Railways have in a written note stated that the overall increase in the staff strength during the period from 1970-71 to 1980-81 was 14.4%. This increase in staff strength is stated mainly due to an alround increase in traffic, both passenger and goods, number of stations, rolling stock and track kilometers. During this period the passenger traffic (passenger kilometres) went up by about 80% and goods traffic (Net Tonne Kilometres) by 33.3%. The number of stations in the Indian Railways system also increased by 5.2%.

2.32. As against the overall increase of 14.4% in the staff strength, the increase in Group 'D' category was only 7.3% while in Group 'C' and Groups 'A' & 'B' categories it was more. This was due to the sophistication in traction and technology. With the replacement of steam traction by diesel and electric, the requirements of Group 'D' Category of staff like Cleaners and Second Fireman required for steam locomotives, went down considerably. Also with the introduction of more sophisticated equipments and methodology in several fields like track maintenance, signalling, etc. there was upgradation of skills and unskilled element in various jobs was cut out. As a result of this, the increase in Group 'C' Category of staff was more than that in Group 'D' category which purely unskilled in nature.

2.33. Other factors stated to be responsible for increase in staff strength during this period 1970-71 to 1980-81 are :

- (i) Higher leave reserve provided in case of running staff and transportation staff. The leave reserve percentages prescribed earlier varied from 15% to 30%. But the Railways in General were working to the minimum leave reserve percentage of 15%. But from experience it was seen that with the minimum leave reserve provided, staff were not able to get leave, etc. and, therefore, it was decided to allow the

maximum 30% leave reserve in the case of running staff and 25% in the case of transportation staff ;

- (ii) Creation of additional posts due to classification of certain categories like Class 'C' Gatemen, Saloon Attendants, caretakers etc. from 'Excluded' to essentially Intermittant' on the basis of the Railway Labour Tribunal, 1969's recommendations. Further additional posts of running staff were also created for implementation of 10-hours rule. Both these together accounted for about 15600 additional staff.

2.34. The Committee during evidence of the representatives of the Ministry of Railways referred to a suggestion according to which there was a considerable scope for reducing the strength of engineering and maintenance staff by switching over to mechanisation of track maintenance. Even without mechanisation, appreciable saving was possible if a mobile gang could go over to their section on trolleys and attend to faults instead of having so many men per kilometer. When enquired whether the suggestion was practicable and if so what bearing it would have on the cost of operation of Railways, the Member (Engineering) the Railway Board stated :

"It is correct that mechanised maintenance will reduce the gang strength. Only ten years ago we started this and we have now about 70 machines although our requirement is much more. We have tried to introduce it gradually. We are introducing mechanised maintenance on those tracks where mechanised maintenance is a must, for instance in the major trunk routes like Delhi-Madras, Delhi-Bombay and Delhi-Calcutta where the intensity of traffic is much and where we are using long welded rails, concrete sleepers and other items. Our experience is that where we have got mechanised maintenance, we can effect a saving. We appointed a Committee of Chief Engineers to go into this. There are various formulas according to which it can be done. We have got the permanent gang strength and sometimes we also engage casual workers to do additional maintenance. As far as maintenance of track is concerned, in 1976-77 we had 2,40,000 people, permanent and casual, and in 1982-83 it has come down to 2,10,000 although during this period

our track length had increased by five per cent because during this period we had done some doubling and added some new lines. We should not also be in a great hurry to introduce it because there are certain pre-requisite for that. There is also the problem of absorption of the surplus manpower. Taking all these into consideration, we will do mechanised maintenance."

2.35. The Committee pointed out that although with the adoption of machanisation the strength of maintenance gang had been reduced, the total cost of staff had not shown any reduction. The explanation of the representatives of the Ministry was :

"With the mechanisation that is going on, we should also have highly skilled staff, The gangmen are more or less of unskilled type. When we are actually setting off some staff from gang, to some extent, we are also introducing skilled staff. After taking these into account, we have arrived at this 10% figure as a return on the capital cost of the machine. We have introduced some skilled category who will come in category 'C' from category 'D'. This is one thing As far as the total increase is concerned, we have to consider the increase in D.A. and various other things....."

2.36. The Committee pointed out that in the overall cost of operation staff bill came to 53.1% and as such the claim that mechanisation had reduced cost appeared to be illusory. The Member Staff of Railway Board stated :

"I cannot agree to that. We have increased productivity of manpower. Physical and mental drudgery is reduced. We are investing in productivity ; we don't have much resources to invest on a large scale. We are in a reasonably good position."

2.37. When asked as to what steps had been adopted to increase productivity of staff and whether any research had been done by Railways' RDSO in this regard, the Member Engineering, Railway Board stated :—

"Work study officers go round and conduct studies and recom-

...and what should be done. They analyse the situation ; they go into various details ; some of their recommendations may lead to more staff. Some recommendations may lead to more investment.....The RDSO have done a lot of work, for example in the field of concrete sleepers. It gives greater productivity less maintenance. They have also developed the welding operations which were the exclusive property of somebody earlier. Similarly, for the signalling equipment and motor power, they have been devising better methods, and the Rajdhani train is the result of their experimentation. RDSO is contributing for better inputs into the various items on the civil engineering and mechanical sides. One of their main concept is to bring down the cost, increase in productivity plus quality control."

2.38. The Member Staff of Railway Board in this connection added :

".....When our officers and supervisors go for inspection, they try to see whether there is any way in which the efficiency or the productivity of the people can be improved. When we find that labour is idle at one place, we shift the staff to another place where they are required. This is one area of activity. The other is identified studies. We have got Work Study Cells in each Railway which go for inspection to various workshops, yards and sheds and suggest a whole range of improvement of productivity including the lay out, the tools; the material, flow of commodities as well as how the staff should be redistributed. This goes on as a regular feature right through the year."

2.39. In reply to a question, he added :

"We have set up Work Study Cells during the last few years. Various heads of Departments say that they want a study to be conducted in this area or that area. Selection is made and the results of studies implemented wherever found feasible. This is one of the measures which is adopted for keeping our staff numbers down in relation to our traffic output. Then essential areas of studies are yards, work-

shops and sheds.....It will have to go back to my own experience as General Manager. In one of the workshops at Bombay we undertook the study. As a result of this we were able to increase the output by about 75% in terms of reduction of coaches undergoing repairs without increasing any workmen"

2.40. When asked whether after the introduction of Productivity Bonus there had been any increase in productivity, the witness stated :

"The basic activity as a Railway is possible only under smooth industrial relations. Now our record in matters of industrial relations have been reasonably good. Except that famous strike of 1974 and some minor agitations here and there, we have been reasonably good in record.....Overall, the productivity linked bonus was introduced from 1978-79. In 1978-79 the staff required per million traffic unit was 4,385. This has gradually come down to 3,988 in 1981-82 ; this is staff in million traffic units ; this is the overall figure. It can only give you an indication. I cannot claim this is the correct scientific measure of productivity. If the traffic carried comes down, this will go up."

2.41. Explaining in detail the steps taken by Railways to improve productivity, the Chairman, Railway Board stated :

"As far as workshops are concerned, we have an incentive scheme introduced somewhere in the Sixties. A number of studies were conducted on the various types of jobs and the time taken for each job, depending upon the type of machine, type of work and so on. After that, we found that we were able to reduce the staff by as much as 33-1/3 per cent. This incentive scheme has been in operation for nearly 23 years. It has stood the test of time, as far as manufacturing activities are concerned, where items are being manufactured in smithy, foundry, carpentry etc. But we have come across certain snags in the repairs, because the quantum of repairs required on each coach, wagon or locomotive varies widely. So, in such cases, incentive scheme sometimes becomes counter-productive. In the case of all new manufacture and pro-

duction in the new workshops it is very useful and it gives us very good results. After a certain stage, 20 to 25 years, the problem comes up in the repair side, where the quantum of work cannot be projected. Take even a simple case of a wagon. The number of man-hours to be put varies very much and there is an element of collusion between the supervisors and the inspecting staff who are to justify or put down the man-hours required, because they get as much as 42 per cent incentive. This is a problem which is not unique to our country. In the British railways they are trying to go over from the incentive scheme to the other schemes, like group schemes. But, otherwise, by and large, this particular scheme which we have introduced in practically all the railway workshops, has stood the test of time and we have had as much as 33 per cent of saving of staff. As a matter of fact, if we take the figures of productivity in 1958-59, based on a 5 per cent increase in productivity, if we take the case of the post-introduction of this incentive, in 1972-73, it comes to as much as 54 per cent.

But some of our biggest problems are on the running of trains because ultimately the efficiency of the railways depends upon the running of trains and carrying of goods. The only way we could increase the productivity of the running staff has been by the change of the running allowance rules. A new system has been introduced as late as about 7 months back, in consultation with labour as well as the running staff, for which negotiations have been going on. We do expect that the scales of payment which we are now going to give will attract the drivers to do much more work within the time than they are doing now and thereby the railways will be in a position to gain.

A little earlier one A Grade passenger train driver was getting Rs. 10.10 paise per 100 km ; under the revised rules, he will get Rs. 14.85 paise per 100 km. The main attraction, the administration expects, will be in the case of goods which, after all, is the bread and butter of the railways. In the case of goods train, originally he was getting Rs. 9.95 for 100 km. Now it has been increased to Rs. 14.70 per 100 km, nearly

Rs. 5 more per 100 km. so that a driver is interested to do 160 to 170 km. While doing that, we have been liberal in the case of steam engine drivers, than diesel and electric, because the physical hardship is more in the case of steam engine. In the case of hill stations, we have made it very attractive, depending upon the severity of the work."

2.42. As regards the steps taken to improve productivity running staff, the Member. (Traffic) then explained :

"The productivity of the running staff goes a long way in improving the cost of operation. It was in this context that we found that the earlier rules were based on the hours of duty. The emphasis was on hours of duty rather than on the kilometerage. So, a full fledged Committee went into it, a comprehensive review was undertaken about the basic rules and a fundamental change was made in the system paying the running allowance to the running staff who contribute the most towards the running of trains. As a result of it, with the consent of the recognised unions, we have been able to get response from the staff, and in the Northern Railway there was 25 per cent improvement. By and large with the additional traffic which we have handled during the past two years, and without any significant increase in the staff, particularly the goods trains running staff, we have been able to achieve a higher level of utilisation.....The duty hours are observed as limited to 12 hours from the time the train starts. So, within these parameters, this is the statutory limit to which we are adhering. Of course, there are exceptional circumstances on certain occasions in which they are getting exceeded, but we are trying our best to contain them. In other words, within the duty hours the emphasis is to see how much the driver is able to run. In fact there was a deliberate attempt on the part of some of the staff to slow down because they could always get more by way of mileage. But that has been stopped. Now, by running more, the driver is able to get more. So, this is the incentive."

2.43. Explaining the advantages of the introduction of '12 hour rule', the Member (Traffic) stated that a driver was now expected to

cover 200-220 kms. within 12 hours whereas previously he used to cover only 50 to 60 kms. and lot of delaying tactics were used.

2.44 Asked whether the old method of paying consolidated mileage to the running staff was an obstacle in the way of improving their productivity, the Chairman, Railway Board, stated :

“This was exactly the bane that stood in the way of improving productivity. The problem arose specially with the introduction of highly sophisticated diesel and electric locomotives. We must see to it that we get very much better utilisation than in the case of steam locomotives. It was from that point of view that we stopped the original minimum mileage which we guaranteed and which actually completely undermined the entire system of operation. It was to get away from that situation that we started giving liberal incentive to see that we get better performance from the costly assets to which we are now tied down, that is, diesel and electric locomotives. Hence, any move at any stage to go back to the guaranteed minimum mileage along with very high rates of overtime will bring down the efficiency of the Indian Railway.”

2.45 In a Memorandum submitted to the Committee, it had been stated that there was an urgent need for reappraisal of the strength of staff employed in various spheres of work, particularly in offices where the work load had no direct bearing on the traffic handled. Even for the field staff there was need for a review to determine whether a reduced number of multipurpose staff could replace the present strength of staff where staff of different categories were being utilised even though there may not be full time work for them. Enquired whether any experiment was made to replace the present staff of different categories with multipurpose staff and if so, what were the results achieved. The Member (Staff) of Railway Board stated :—

“It is a little difficult to say something briefly about it. Suppose we are running 20 trains. Now let us bring down the number to 18 trains. Practically, about 99.9% of the staff will be the same. It is only the crew that makes a difference. It is very difficult to see to it say that staff numbers are adjusted closely with the traffic. As regards multipurpose

activities, we have been trying some experiment. It is a very slow cultural change because it is all over the Indian industry; it is not only in the railways. We have not any major difference from the rest of Industry in regard to industrial practices. In addition, we have to see to the career plans of our existing staff. We have a large percentage of Group D staff. We have to provide avenues for promotion to them.....Group D people look for advancement into Group C, and if we suddenly increase the knowledge expected of Group D workers, he will never be able pass the test. So, we should see that our merger of trade is fair and reasonable to the persons who are expecting advancement to a higher grade. It is a modern practice that people tend to spread over two or three trades. We are, in a limited way, trying to see and work in cooperation with the recognised unions as to how far we could merge one duty with some other duty. For instance, in our coaches, we have asked that coach attendant to keep a register of reservation. Similarly, in some other trains, we are asking them to share the work of distributing dinner, tea and other activities. But he have to go only as fast as circumstances permit us to go. As another example in regard to multi-purpose trade, we used to hope to have clerks-cum-typists. We are trying to persuade some clerks to do the typing work. We are trying all the time, to go slowly but securely."

2.46 The Railways have at present 15.7 lakhs regular employees and 2.3 lakhs casual labourers. The wage bill of the regular employees amounted to Rs. 1451 crores during 1981-82 as against Rs. 1138 crores in 1950-51 when the regular employees were 9.1 lakhs. The staff cost has increased manifold on account of a near doubling of the staff strength and increased emoluments. The average emoluments per employee has increased by 634 per cent from Rs. 1,263 in 1950-51 to Rs. 9,267 in 1981-82 as against the increase of 443 per cent in the cost of living index. While the Committee do not grudge the increased emoluments, they would like to stress that the employees should be productively engaged. In this connection they note the views of an ex-Chairman of the Railway Board that "the doubling of the strength that we see by today's figures does not appear to be needed for the new conditions." The Committee would

subscribe to the view that creation of productive employment opportunities should be our aim. There is, therefore, an urgent need for a scientific reappraisal for the Staff Strength employed in various spheres of work particularly at top levels and in offices where the work-load has no direct bearing on the traffic handled.

2.47 The Committee have been informed that whereas the staff strength had increased by only 14.6 per cent during 1970-71 to 1981-82 the volume of traffic in terms of net tonne Km. had increased by 36.8 per cent. The Committee are unable to conclude from this that the productivity of the employees had gone up to the extent that their strength did not increase in proportion to the increase in traffic. In fact the Railway officials conceded in evidence before the Committee that no direct relationship could be established between a traffic unit and the strength of staff required to handle it. In any case the Committee strongly feel that a critical review of the staffing pattern is urgently called for. This review should not only cover the staffing pattern under the existing procedures and conditions of work but should also help to ascertain what simplification and streamlining of procedures and improvement in conditions of work are possible with a view to effecting economy in expenditure further. It is pertinent to recall the evidence tendered by a retired General Manager that "there is considerable overstaffing in certain areas, for example in offices and areas not directly connected with operation, while in the field there is great shortage in certain sectors." He added that there is considerable overstaffing in unskilled categories and the excess often results in counter productive work. In this context the Committee wish to draw attention to the recommendation of the Estimates Committee in their 45th Report (1982-83) :

"The Committee recommend that the strength of non-technical staff in the production Units of the Railways, which is admitted to be high should be got reviewed by an outside agency such as the Staff Inspection Unit of the Ministry of Finance and the staff found surplus to the requirements should be retrained, if necessary, and redeployed on new projects of the Railways productively."

2.48 Even in the case of skilled field staff there is need for a review to determine whether multi-purpose staff could replace the present

strength of staff where staff of different categories is being utilised even though there may not be full-time work for them. The Committee have been informed that the railways have been making some experiment in this regard and trying in a limited way to see how far with the cooperation of the employees unions, one duty could be merged with some other duty. The Committee desire that a fair and reasonable formula consistent with the need to have promotional avenues for the workmen should be evolved early and extended to as many categories as possible without delay. An incentive in achieving this could be graded higher emoluments for men skilled in more than one trade.

2.49 As regards the running staff, the Committee have been informed by a retired General Manager that the Introduction of 10-hour rule and the system of payment of mileage and overtime allowance have added to overstaffing and to the tendency of detaining trains deliberately enroute. Further, the Committee note that higher leave reserve of 30 per cent and 25 per cent provided in the case of running staff and transportation staff respectively, has increased the staff strength. In general the leave reserve appears to be 15 per cent. The Committee are glad to know that recently fundamental changes have been made in the system of payment of running allowance in shifting the emphasis from hours of duty to kilometerage covered. They hope that with the incentive to earn more by covering more distance the productivity of the running staff will improve considerably and the absenteeism come down.

2.50 In regards to the maintenance gangs, the switchover to mechanised maintenance of track etc. is stated to have reduced the staff strength from 2.4 lakhs in 1975-76 to 2.1 lakhs in 1982-83 even though track length during this period increased by 5 per cent due to doubling and addition of new lines. The mechanised maintenance is reported to have started 10 years ago and today the Railways have 70 machines for the purpose although their requirement is much more. The committee recommend that the process of mechanised maintenance should be speeded up so as to effect maximum possible economy and consequent reduction in operational cost.

2.51 The Committee observe that in the Production Units, the norms for incentives which were fixed about 15 to 20 years ago are now out of date and need re-examination. Even according to the Chairman, Railway Board, there is an element of collusion between the supervisors

and the inspecting staff in pushing up the man-hours required for repair works under the present incentive scheme. The Committee, therefore, desire that a Work Study in this regard should immediately be undertaken and on the basis of that study, fresh norms of productivity determined. In this connection the Committee would like to invite attention to the following recommendation of the Estimates Committee (1982-83) contained in their 45th Report on Railways' Production Units :

“The Committee would like the Ministry of Railways to update the incentive schemes in the light of the technical sophistication in the machinery and processing introduced in the Production Units from time to time and ensure that the schemes are operated in a manner that leaves no scope for any mal-practice.”

CHAPTER III

COST OF FUEL

Fuel Consumption

3.1 The Indian Railways consumed 9.83 million tonnes of coal, 1.18 million kilolitres of HSD oil and 2406 million kilo watt hours of electric energy in 1981-82 for traction purposes. The total fuel bill during the year was about Rs. 690 crores representing 21% of the Railways' total working expenses. In terms of actual fuel consumption it would constitute about 8% of coal, 9% of HSD oil and below 2% of electric energy of the total country's consumption.

3.2 According to the corporate plan of Railway, taking into account the change in traction mix towards better motive power, improvements in operations and other inputs such as long welded rails, etc., the specific consumption of fuel would gradually reduce.

3.3 An index for judging the fuel efficiency of a system is the amount of energy consumed for transporting every 1000 tonnes of goods (including the weight of the motive unit, vehicles and their pay load contents) over a distance of one kilometre. The Zonal Railways are advising their performance in fuel consumption in relation to the gross tonnes kms. carried each month, to the Ministry of Railways. The performance is compared each month and is reviewed periodically analysing to reasons for variations. Based on this analysis suitable directives are issued where necessary to the Railways from time to time to control the factors responsible for deterioration in the performance. The overall specific fuel consumption rates on Steam, diesel and Electric Traction for BG and MG during 1978-79 to 1981-82 is indicated in the following table:

Specific Fuel Consumption Rates
(KG/LITRE/KWH per 1000 GTKM)

	Traction	Pass & Prop. of Mixed.		Goods & Prop. of Mixed.	
		B.G.	M.G.	B.G.	M.G.
STEAM	1978-79	67.1	70.6	74.1	71.6
	1979-80	69.8	73.8	83.0	75.0
	1980-81	75.2	77.8	90.9	81.9
	1981-82	75.9	77.5	91.3	89.9
DIESEL	1978-79	4.91	4.83	3.54	4.31
	1979-80	4.80	5.60	3.55	4.66
	1980-81	5.16	6.00	3.45	4.76
	1981-82	5.23	5.60	3.50	4.69
ELEC.	1978-79	23.4	19.7	11.9	15.5
	1979-80	23.4	20.4	12.9	16.3
	1980-81	22.3	20.5	13.4	16.0
	1981-82	21.3	20.0	12.1	15.5

3.4 The Committee have been informed by the Railway Board that fuel economy on the Railways receives high priority. Instructions are issued from time to time to make the staff economy-conscious. Based on properly conducted trials, trip rations are fixed both for coal and HSD oil and the crew exceeding the targets are suitably taken up. Field monitoring is also done regularly to instruct the crew in proper firing techniques, handling technique, etc. Staff is also required to maintain properly the locomotives to reduce losses of fuel. To check leakage of HSD oil, locking and sealing control valves of oil installations and fuel tank strainer of locomotives is ensured. Strict accountal of both coal and HSD oil is also kept to ensure stringent control against losses. Security measures are taken to check pilferage of coal and HSD oil.

3.5 In view of the fact that coal travels over long distances in open wagons throughout the length and breadth of the country and its general shortage, it is liable to pilferage and theft *en route*. At present

the overall losses of coal are in the region of 5.7%, *i.e.*, higher than the permissible limit of 2%. These figures do not necessarily represent physical losses because Railways receive coal by weight whereas issues are made by volumetric measurement. Railways have, however, taken additional safeguards against the possible pilferage and theft of coal. These safeguards include weighing of all loco coal wagons at the loading points, 5% reweighment in the receiving sheds and escorting of loco coal rakes by RPF staff in vulnerable areas. Joint Committees consisting of State Government officials, representatives of Labour Unions and Railways have also been set up on the Zonal Railways and in major loco sheds to suggest suitable remedial measures. Similar measures have also been taken for HSD oil even though the losses there are well within the permissible limit of 0.2%.

3.6 Electrical energy on the other hand is not susceptible to pilferage. However, the need for control on its consumption has been recognised and targets for performance in terms of units per 1000 GTKMs moved have been laid down for all the Zonal Railways. Steps have been taken by the Railways for optimum utilisation of the capacity in electrified sections by elimination of mixed traffic on these routes.

3.7 The Expenditure Commission appointed by the Ministry of Finance set up a study group to make an indepth study of energy consumption on the Indian Railways with a view to exploring the possibility of effecting economies. Accordingly, the Study Group had undertaken the study and submitted their report which covers energy in the form of coal and electricity.

3.8 In respect of coal, the Study Group recommended a number of measures, implementation of which has potential for considerable direct savings. The Railways have been asked to implement the recommendations, which are at various stages of examination.

3.9 A full-fledged organisation exists at the Zonal Railway headquarters under the charge of a Dy. CME (Fuel)/Addl. CME (Fuel). In view of the importance of the fuel economy, General Managers of the Zonal Railways have also been recently advised that the overall responsibility for efficient fuel utilisation should rest with DRMs and at the Headquarters level it should be dealt with at the G. M.'s level.

3.10 The mode of traction is stated to be another avenue which, if rationalised, can lead to reduction in the cost of operation. At present steam, diesel and electric traction are all being utilised in the Indian Railways. For obvious reasons, mixed traction in any particular route leads to avoidable costs as duplicates arrangements for servicing the different types of locomotives have to be retained. Of the three modes of traction the Electric traction is the most economical.

3.11 As far as the fuel bill, particularly coal is concerned, there is a considerable amount of transit loss due to theft and pilferage *en route* and also at the loading and unloading points resulting in more book consumption of coal by the Railways. The quality of coal supplied by some of the collieries is also far below the requisite standard resulting in more consumption of coal by the steam locomotives which substantially contributes to the increase in the fuel bill.

3.1 The Committee enquired from the representatives of the Railway Ministry about the extent of loss suffered by Railways due to theft and pilferage and its effect on their cost of operation, the Member (Engineering), Railway Board, *inter alia* stated :

“The figures available with us indicate that percentage-wise, the total handling and transit losses in respect of coal have been going up. These are :

1979-80	...	2.9%
1980-81	...	3.8%
1981-82	...	5.7%

We find that there are two principal causes for this ; one under-loading by the collieries and the other is theft and pilferage *en route*. The only way to detect under-loading at the loading point is by carrying out inspections. We have got an organisation in the Bengal coal area — Chief Mining Adviser and his inspectorate— and these people were deputed to carry out checks on the quality and quantity of coal at the loading points. They work directly under the Railway Board. When we found the quality of coal deteriorating, we appointed a Committee and they went into this problem. They came to the conclusion that after nationalisation, the

public sector companies had become somewhat indifferent to the quality of coal and the quantity of coal loaded at the loading point and they recommended that the inspection that we are doing should be increased. They suggested it to be done in three phases. We have executed the first and the second phases. The number of samples which were being checked in the first phase went upto 800 and in the second phase it will go upto 1100. This will be both in respect of quantity and quality. Unfortunately, for the quality of coal and the quantity of coal received at the destination, the collieries do not take any responsibility. We have not been able to make CIL agree to impose penalties on the basis of quality and quantity received at the destination. They insist that the sampling should be done at the loading point. This is what we are having today. The number of cases where we have sampling checks, has gone up from 8% to 15% with the increase in inspectors; and due penalties have been imposed.

The number of case where inferior coal was found, has increased from 3.74% in 1972, to about 11% in 1981-82. The realisation in terms of money has gone up from Rs. 1.45 crores in 1979-80 to Rs. 3.3 crores in 1981-82. No doubt this is not adequate. If we do 100% check, we will certainly realise more penalties, both in respect of under-loading and of quality of coal. We have also increased the number of samples from 500 to 800 and now to 1100.

In regard to transit loss, we are aware that the pilferage of coal is particularly very high in the Eastern and South-Eastern regions, from the open coal wagons. We have really little means to control and check it. It can be done only in a limited way. Since we cannot extent RPF to all the trains, we have to restrict them to only foodgrains and textiles. But to a limited extent, coal wagons are also escorted. There are also certain villages and areas affected by criminal elements who are stopping the trains, cutting hose pipes and doing other things.....short of opening fire, there seems to be no way to check this theft in some notorious areas. However, we are going at it all the time."

3.13 As regards the measures taken to stop underloading by collieries and the theft or pilferage of the Railway coal *on route* ; It was stated :

“We want coal to be weighed at the source, *viz.*, the loading place. That is why we have weigh-bridges, but they are put frequently out of order. Again, if they show any error, it goes only to the consumer, and the colliery does not get any penalty. Now we have decided also that we would go in for electronic weigh-bridges, *i.e.*, while on the run, I put them on certain nodal points, so that I don't have to stop the train, but I will be able to weigh this rake while on the run. I have made out a plan to install electronic weigh-bridges, because otherwise things are very much detrimental to the interests of Railways. The amount we lose is colossal.

When we have the electronic weigh-bridges, the man cannot write the weight. In electronic weigh-bridges, it will be a print-out. So, we will get the actual weight....

The supply of covered wagons that we make to the collieries causes distress to them. They have to go in for mechanised handling. Where collieries are not machinised, the labour problem is there. Previously, they used to have contract labour. The labourers are walking off on some pretext or other by saying that they will do it tomorrow. Now, to counteract that, they are having big pay-loaders. If I give covered wagon, a situation arises where the coal is there, a machine is there, but still coal cannot be loaded because the manual labour is not there. As we go on increasing production, coal has to be carried in open. We have to find out ways and means to counteract all these things.”

3 14 The Committee pointed out that with more and more diesellisation on Indian Railways, diesel has become one of the prime fuels for railway traction. Apart from the pilferage of coal *en route* the pilferage and organised thefts of costly diesel oil also contributed to ever-increasing cost of operation of Railways. Asked about the extent of loss suffered by the Railways due to theft and pilferage of diesel and its effect on cost of operation of Railways and the steps taken to check the

pilferage of diesel oil, the Ministry of Railways have in a written note stated as follows :

“There seems to be generally prevalent view that there is large scale pilferage/theft of diesel oil in the Railways diesel installations and/or by Drivers *en route*. However, there are no reports of such thefts/pilferages of diesel oil either reported to the Railway Administration or detected by security department other than isolated stray cases. This is also borne by the fact that the specific Fuel Consumption of diesel oil on the Railways has shown an improvement over the years on goods services, which is the major diesel oil consuming service. Specific Fuel Consumption rate for the last three years are indicated below :

1979-80	3.55 litres per 1000 GTKM	
1980-81	3.53	—do—
1981-82	3.50	—do—

Consumption of diesel oil for different purposes is closely monitored by the Supervisors/ officers and targets have been laid down for the purpose. Regular verification of the stocks of diesel oil are carried out by the Supervisors, officers and stock Verifiers to keep a check on the transit and handling losses. Generally these losses have been found to be within permissible limit of 0.2%.

Whilst a general watch is kept on thefts/pilferages by taking dipstick reading to establish ground balances, watch on driver's consumption *vis-a-vis* targets, etc., no study as such has been conducted by the Railway Administration to assess the extent of loss suffered by Railways due to theft/pilferage of diesel oil as the consumption trend and the stock verifications do not indicate any such large scale thefts. Some thefts detected by the Security Branch of the Railways amount to only few thousands of rupees in the whole year against the total diesel oil cost of more than Rs. 300 crores. As such there is hardly any effect on the cost of operation of railways due to theft and pilferage.

The following steps are being taken to guard against the possibility of pilferage of diesel oil :

- (i) Tanks of all diesel locos are being sealed after fueling ;
- (ii) Strict vigilance is exercised by RPF on diesel installations and fueling points ;
- (iii) Surveillance is kept over suspected thieves and receivers and also making use of crime intelligence;
- (iv) Regular stock verification and close watch on the consumption trends of diesel oil."

3.15 In a non-official memorandum submitted to the Committee it has been stated that the direct operational expenses per 1000 gross-tonne kilometer are—Steam : Rs. 10/- ; Diesel Rs. 5/- and electric Rs. 4/-. The unit cost of electric traction is thus the cheapest and as such switching over to electric traction should be undertaken as much as possible. As electrification of lines, being a highly capital intensive proposal and could only be done slowly in phased manner, the Committee asked a retired Chairman of Railway Board who appeared before them, to suggest measures for reducing fuel consumption in the Railways. He stated :

"The electrification of railways has to be progressed according to certain norms which may change when some of the parameters change. There was a committee of Directors to decide the basis on which electrification is to be done. They said, sections with traffic above a certain level and sections which have got gradient steeper than a particular level should qualify first. It was on that basis that, the railways were working. But when the prices of oil and coal went up, it became more economical to elec rify the lines. But it all depend upon the avilability of funds and foreign exchange."

3.16 Explaining the comparative advantages of electric and diesel traction over steam traction, the witness stated :

"The steam engines give thermal efficiency of 9 per cent with all improvements possible. In our country, it may come to 8 per cent. An internal combustion engine gives between

25 per cent and 30 per cent of thermal efficiency. Diesel engines thus have got in-built factors for higher efficiency. The only thing is we should have enough oil. If the production capacity of diesel locomotives in the country is meeting the requirements we can avoid imports. That is what, they have been doing. They have stopped import of diesel engines for years now. And they are using steam engines even now in a number of places. But the work of the steam engine is slower than that of the diesel engine. Because, it requires watering, coaling and it requires boiler wash-out once a week. Lots of other things are required and the availability of engine to traffic for actual operation is much less than that of the diesel engines. There is also a complaint of pollution which the steam locomotives are causing."

3.17 Asked about the methods to reduce or to stop the pilferage of coal and diesel oil, a retired member of Railway Board stated before the Committee :

"Pilferage of coal is directly connected with the law and other situation. Here the State's help is necessary.....Regarding the pilferage of diesel oil from running engines, trip rationing should be introduced after carrying out detailed trials."

3.18 About the fuel consumption by Railways, the Comptroller and Auditor General of India in his Report for the Union Government (Railways) for the year 1980-81 has summed up the position as follows :—

" 4.45

* * * * *

2(e) Diesel and steam locomotives continued to be deployed in electrified sections on account of non-electrification of short links and non-elimination of change of traction resulting in additional operating costs.

* * * * *

4. Fuel consumption

(a) The fuel consumption of diesel locomotives was excessive compared to the norms fixed, mainly on account of

non-observance of instructions issued by the Railway Board. On several Railways, particularly Eastern and Northern, 'trip rations' for diesel oil consumption had not been laid down: where laid down the consumption was found to be excessive in relation to the 'trip rations' but the excesses had not been investigated.

(b) Norms for shed consumption of diesel oil for maintenance of locomotives had not been laid down on the Central and Southern Railways; where such norms had been laid down on the Northern and South Eastern Railways, they had not been observed resulting in excessive consumption.

- (c) The coal consumption by goods locomotives per 1000 GTMK had increased from 58.9 Kgs. in 1969-70 to 91.0 Kgs. in 1980-81. In aggregate terms, while the traffic under steam traction decreased by 51 per cent between 1969-70 and 1980-81 the coal consumption decreased by 27 per cent only. The major causes were excessive detentions in shed and yards, drop in average load per train and in speed, increase in engine failures, etc.

3.19 During examination of Railway officials the Committee pointed out that the fuel bill of the Railways annually came to about Rs. 690 crores: Out of it the expenditure on coal came roughly to Rs. 201 crores and on electrification it was Rs. 110.77 crores. Whereas the coal carried only 15% of the entire traffic and the electrified traction carried 30% of the entire traffic. When asked to explain the factual position and also the steps taken for increasing electric/diesel route mileage etc. by updating technology etc. the Chairman, Railway Board stated :

"The steam traction carried only 15-20 per cent of the traffic and the bill is of the order of 15 per cent. Now the whole structure may change. Therefore, the answer to the question is to go in for more and more dieselisation and electrification. All railways the world over have retired the steam engine because it is highly uneconomical. We have got 7000 loco-

motives on the steam side. We are facing the situation by improving diesel and electric uses. We are able to retire steam engines. One category is over-aged engines. The other category of engines has not yet lived its life. So we are retiring them and keeping them in storage. We will have to sell them as scrap, we may also keep them in the museum. In this Plan period, we are going to increase electrification by 15 per cent, we will increase the total electric route mileage by 5 per cent. As far as dieselisation is concerned, even the installed capacity that we have got in this country cannot be utilised because we have not got the resources to manufacture (locomotives) when the money is not given to us. The irony is that even the installed capacity (what to talk of importing locomotives and saving on the energy bill) of the country, both diesel and electric, is not going to be fully utilised."

3.20 As regards the non-utilisation of the installed capacity of Railway Production Units, the recommendation of the Estimates Committee (1982-83) in their Forty-Fifth Report have observed as follows :

"2.25. The Committee note that whereas the installed capacity of the Chittaranjan locomotive Work (CLW) was for the manufacture of 35 diesel locomotive and 60 electric locomotives, the actual production of diesel locomotives during 1977-78 and 1981-82 was 31 and 32 respectively and that of electric locomotives during 1979-80 and 1981-82 was 51 and 50 respectively. The factory's reasons for shortfall in the production of diesel locos was stated to be "lack of demand" and for Ministry of Railways not placing the adequate orders to utilise the capacity to the full was stated to be "lack of fund" provided to them by the Planning Commission for the purpose despite the Railways need for replacing the 7000 steam locomotives still with them whose uneconomic functioning was a considerable drain on the resources of the Railways. The Committee are unable to appreciate the situation where a substantial part of the production capacity of the factory was allowed to go waste for want of funds to procure raw material and components which go into the manufacture of locomotives. They would like the Ministry to undertake a

cost benefit analysis of postponing the investment on replacement of obsolete steam locomotives and keeping the production capacity of diesel locomotives substantially idle and take up with the Planning Commission suitably."

* * * * *

- 2.46 The Committee have been informed that another reason for lower production of locos by DLW as against its installed capacity and the production targets originally fixed was "inadequacy of funds". The Committee have dealt with the idle capacity of the CLW as a result of paucity of funds earlier in the Report. They suggest a similar study as recommended therein for optimum utilisation of the additional capacity of the DLW ensuring adequate funds. The Committee wish to emphasise the need for replacing the obsolete Steam locomotives with more efficient Diesel locomotives early."

3.21 The Committee pointed out that although coal consumption was stated to have been reduced, expenditure on coal consumption had gone up by more than 50 crores. The explanation of the witness was :

"The total difference is of two years. As a matter of fact, this figure is out of date. With the latest hike that has come (1982-83) the figure will be much worst.....Every hike has been costing us Rs. 20 to 25 crores. The only solution is that we must reduce the total consumption of coal. We are proceeding in that direction. Our present consumption is 10 million tonnes. In 1969-80 it was 15 million tonnes; gradually it went down to 14, 13, 12 and so on and for a long time it remained at 11 million. Now we have come to 10 million, because last year we retired a number of old engines."

3.22 Giving the break-up of the expenditure on fuel, the Financial Commissioner of Railways stated that on Diesel it was Rs. 341.68 crores; on coal Rs. 201 crores and on electricity it was Rs. 110.77 crores, making a total of Rs. 653.2 crores. He also added that while Rs. 451 crores spent on diesel and electricity consumption carried more than 80 per cent of the passengers and freight, Rs. 200 crores on coal catered

for less than 20 per cent of the traffic. So, it was more economical to go in for electric and diesel engines and they were using those engines to the maximum.

3.23 The Committee were informed during evidence that the Railways were getting bad quality of coal due to which locomotives were not able to maintain steam. Asked whether the Railways were getting bad quality coal even prior to nationalisation of coal industry, member (Traffic), Railway Board stated :

"In the olden days, we used to get best quality of coal. The failure of locomotives due to coal or bad coal used to be very rare. We used to have selected grade which was to be loaded. Today, the quality is so bad, even on the basis of samples which we have taken, we are able to recover as much as Rs. 4 crores from the bill of Coal India because of the established proven quality of bad coke."

"In olden days steam coal supplies to the Railways used to be of the best quality. The cash content would not be more than 15 to 18 per cent. Nowadays, we consider ourselves lucky if we get moisture and ash content in the coal upto 30 to 36 per cent."

3.24 Asked whether the Minister of Railways had not got any machinery or any agency to ensure the quality of coal supplied to Railways, the witness stated:—

"We have an elaborate inspection wing. It is attached to Dhanbad where the inspectors go and check samples. This machinery which was introduced some years ago was at a time when we were getting a large quantity of good quality coal. But today in the context of bad quality coal that we are getting, this machinery is inadequate. We are taking steps to strengthen the machinery."

3.25 When asked whether the Ministry have taken up the matter of supply of bad quality coal with Coal India Ltd. and if so with what results, the witness stated :—

"We have taken it up with them. But in the total context of inadequate production and availability of steam coal which

the Coal India also accepts, it becomes a matter of choice between two evils, either we take no coal at all or we take some coal which we know is not upto the standard and make the best use of it. Recently, we were forced to accept some coal even though it was not upto our required specifications. But there was no other alternative. Otherwise, we had to cut down coal supplies and cancel the trains. Therefore, unless steam coal production goes up, I am afraid, this will be the situation."

3.26 Asked whether the Ministry of Railways were aware of the fact that good quality coal meant for Railways was diverted to private business houses and bad quality coal meant for others was delivered to Railways in collusion with their staff, the Member (Traffic) stated :

"When we accept the coal-loading programmes, certain collieries are nominated by the Railways from where only coal is to be loaded for the Railways. By and large, this coal comes only to the Railways. Some time ago I am told, there were some cases where due to diversion of some coal to the public and from public to power houses, there was some kind of confusion as to the quality of coal— that which was meant for one having gone to the other. As far as railway coal is concerned, by and large we get the coal from the nominated collieries and diversion of the railway coal to private parties in the recent months has not come to our notice. We keep a very special check on this aspects."

3.27 In a non-official memorandum submitted to the Committee it had been suggested that dieselisation of sections farther away from the coalfields in preference to sections nearer the coalfields should be given greater consideration so as to save the fuel transport charges. There should be a more rational distribution of diesel and steam over the various zones, taking the cost of fuel as the main factor. When asked whether the above suggestion was technically and administratively feasible, the Chairman of the Railway Board stated :

"It is feasible. It has been implemented as far as electrification is concerned. It depends upon the route density. The route

density is highest in the coal-fields. Those routes have to be electrified. We cannot electrify all the routes because the cost is substantial. As far as dieselisation is concerned, today the Southern Railway has got only one steam engine shed left now. That too will be closed in October this year."

3.28 The Committee pointed out that according to the suggestions received by them, the cost of Operation could be reduced by reducing high fuel cost through better efficiency of combustion and in this regard the fuel efficiency studies of National Productivity Council could be tried. Asked whether the Railways had carried out any experiment in this regard, if so, what was the outcome thereof, the Members (Engineering) of Railway Board stated :

"The emphasis today is on fuel economy both in respect of diesel and electric traction. So far as diesel traction is concerned, we find that the scope is maximum. Consequent to this, about a year ago, we had sanctioned a diesel engine and design development organisation in the RDSO at Lucknow. We have sanctioned a project for Rs. 11 crores for design development and improvement in fuel economics. We have got the knowledge that the locomotives that we are using could be improved upto 5 per cent more efficiency in fuel consumption with the existing engines, by having an improvement in its design, that is, an improvement in the design of the piston, fuel injection system, etc. We can improve the existing diesel locomotives and get 5 per cent more economy in fuel consumption. With a view to attaining this, we have sanctioned the project. We hope that in the next two to three years, we should be able to improve our diesel engines performance accordingly.

The future traction of the Indian Railways is electric traction because that is the cheapest and we have got low grade reserves of coal and oil reserves are limited. Therefore, our maximum attention is on electric traction and updating the electric traction technology. The world has gone very much ahead of us as far as consumption of current is concerned, thyristor control and all that. So we have decided that as far as electric locomotives are concerned, we will go in com-

pletely for a new design of the locomotive, that is the next generation engines. We have taken that decision and with the World Bank assistance we would be importing prototypes of 2-3 best locomotives in the world and then try them out in our conditions and then set up the manufacturing capability in our own country, that is in Chittaranjan itself this new type of locomotive will be manufactured. What we are manufacturing now is outdated and is an ancient engine by the world standards. We are taking the same step in diesel traction. But diesel will also be phased out to the extent we can afford it. We do not want to go in for major changes in diesel traction. We want to update the technology of our own locomotive design which is the designed of the American Locomotive Company in whose collaboration we manufacture these engines. They have put in certain modifications on the engines to get the fuel economies and we are in touch with them."

3.29 Explaining the hauling capacity of a diesel engine, the Chairman, Railway Board stated :

"The diesel hauling is much higher than the steam engine. It carried three times the load of the steam engine. We can make more powerful diesel engines whereas steam engines cannot be made that powerful. Steam only can be that size and nothing more can be done. On the other hand, in electric and diesel engine, we can make improvements in the accelerator and make much bigger and power engines and we can have any amount of power generated on the locomotives. Though diesel engine is more sophisticated, it is simpler and manpower required is much less. The cost of maintenance of steam engine is slightly higher while that of electric and diesel is the same."

3.30 The Railways consumed 9.83 million tonnes of coal, 1.18 million kilometres of HSD oil and 2406 million kilo watt. hours of electric energy for traction purposes during 1981-82. The fuel bill for the year was about Rs. 690 crores. The index of 'fuel efficiency' is the amount of energy consumed for transporting every 1000 tonnes (gross

weight) over a distance of one kilometre, i. e. specific fuel consumption. The Railways' 15-year Corporate Plan (1974-89) envisaged gradual reduction in the specific fuel consumption taking into account the change in traction mix towards better motive power, improvement in operation and inputs like welded rail etc. This expectation does not seem to have materialised fully. The specific fuel consumption of coal had gone up in the case of passenger trains from 67.1 kgs. and 70.6 kgs. in 1978-79 for broad gauge and meter gauge to 75.9 kgs. and 77.5 kgs in 1981-82 and in the case of goods trains from 74.1 kgs. and 71.6 kgs. to 91.3 kgs. and 89.9 kgs. The consumption of diesel was the highest in 1980-81 during the period 1978-82 except in the case of BG goods trains. The consumption of electricity did not show improvement during the period except in the case of BG passenger trains. The Committee would, therefore, urge a critical review of the overall position with a view to evolving stricter norms having regard to technological improvements and effecting better control over consumption of fuel in the interest of economy.

3.31 Although the Railways have pleaded that norms have been fixed and performance watched, the Committee are concerned to learn from the Report of the Comptroller and Auditor General of India for the year 1980-81 that fuel consumption of diesel locomotives was excessive compared to the norms. On several Railways 'trip rations' for diesel oil consumption had not been laid down, where laid down the consumption was found to be excessive but the excesses had not been investigated. Same was the case with shed consumption of fuel. The position is thus characterised by lack of control. This should be remedied early.

3.32 The Committee find that although traffic under steam traction decreased by 51 per cent during 1969-81 the coal consumption decreased by 27 per cent only. The present level of expenditure on coal is about Rs. 200 crores out of total fuel bill of Rs. 690 crores, but the coal carried only 15 per cent of the traffic. The Committee also note that the direct operational expenses per 1000 gross tonne kilometer are Rs. 4/- for electricity, Rs. 5/- for diesel and Rs. 10/- for steam traction. This shows how uneconomical steam engines are compared to diesel and electric engines. The Committee need hardly point out that if the Railways are to reduce substantially the cost of operation on account of fuel, there is no alternative for the Railways but to phase out steam engines as far as possible.

3.33 The Comptroller and Auditor General of India has reported that diesel and steam locomotives continued to be deployed in electrified sections on account of non-electrification of short links and non-elimination of change of traction resulting in additional operating costs. This underscores the need for giving priority for electrification in such cases. The Committee recommend that it should be done without delay.

3.34 The losses of coal have been going up. In 1981-82 these were 5.7 per cent as against 2.9 per cent in 1979-80 and 3.80 per cent in 1980-81, the permissible limit being only 2 per cent. The Ministry has advanced two main reasons therefor, viz. the underloading by collieries and theft and pilferage *en route*. The quality of coal also is reported to be poor. The Committee recommend that inspections at the loading points should be intensified and effective steps taken to eliminate losses in transit.

3.35 As regards the underloading at colliery end, the Committee are informed that the weighbridges facilities exist at the loading point but they are often out of order and inconveniently located from the operating point of view. There are also errors in weighment. To get over this problem the Railways now propose to go in for the installation of electronic weighbridges at certain nodal points. With their installation the rake could be weighed while the train is on the run. The Committee would like the Ministry to work out and finalise the scheme for the installation of electronic weighbridges quickly.

3.36 The Committee are concerned at the deterioration of the quality of coal supplied to the Railways which has also contributed to the increased cost of operation. The representative of the Railway Board deposed before the Committee that in olden days steam coal supplied to the Railways was of the best quality containing not more than 15 to 18 per cent ash content. But the moisture and ash content in the coal these days are as high as 30 to 36 per cent. The Committee desire that the Railway Ministry should take up the matter with Coal India Ltd, and short out this problem so as to ensure supply of better quality of coal to the Railways.

3.37 The Committee note that the Expenditure Commission appointed by the Ministry of Finance had set up a Study Group to make an indepth study of energy consumption on the Indian Railways with a

view¹ to exploring the possibility of effecting economies. The Study Group is reported to have submitted their report in which they have recommended a number of measures implementation of which could result in considerable saving of coal. These recommendations are reported to be at various stages of examination by the Railway Ministry. The Committee desire that the examination of the measures recommended by the Study Group be completed at the earliest and steps taken in pursuance thereof communicated to the Committee.

3.38 The Committee were informed that the Railways had sanctioned a project for Rs. 11 crores for design improvement and improvement in fuel economies .. A 5 per cent economy in fuel consumption could be effected in diesel locomotives by an improvement in design. The Committee feel that it is a step in the right direction and would like to be informed of the progress made in the matter.

Conclusion :

3.39 The Committee's examination of the cost of operation with reference to staff and fuel cost has convinced them that there exists a lot of scope for economy granting constant awareness of the need and effective cost control. They would accordingly suggest that a well integrated inter-disciplinary team of officers presided over by the respective Chief Executives at various levels Divisional, Zonal and Railway Board should be engaged constantly on suggesting measures to eliminate waste and effect economy and to evolve better control techniques and systems and monitoring results. Such a concerted institutionalised drive should be initiated forthwith and the results of the endeavours should be published in the Annual Reports for the information of Parliament and the public.

NEW DELHI ;

26 August, 1983
Bhadra 3, 1905 (Saka)

D. L. BAITHA,

Chairman,

Railway Convention Committee.

ANNEXURE

APPENDIX-I

(Vide para 6 of Introduction)

Summary of Recommendation/Conclusions contained in the Report

S.No.	Reference to para No. of the Report	Summary of Recommendation/Conclusions
1	2	3
1	1.14	<p>The ratio of working expenses to earnings (operating ratio) is a measure of financial performance of railways. The railways are expected to generate surplus to pay dividend on capital-at-charge to General Revenues. The operating ratio for the railways as a whole, which was 74.85 in 1963-64, went up to 94.39 in 1973-74. The ratio improved subsequently but again increased and registered an all time high of 96.07 in 1980-81. It was, however, brought down to 88.5 in 1982-83 and is expected to be 87.5 in the current year 1983-84. Besides non-materialisation of the desired degree of improvement in revenues, vast increase in working expenses has contributed to higher operating ratio. In the opinion of the Committee a stage has arrived where there ought to be an acute awareness of the need for economy in expenses.</p>
2	1.15	<p>From the figures furnished by the Railways, the Committee observe that the</p>

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working expenses during the last 12 years have increased nearly 4 times (from Rs. 862.22 crores in 1970-71 to Rs. 3224.70 crores in 1981-82). The rise has been particularly steep during the last 5 years (From Rs. 1781.04 crores in 1977-78 to Rs. 3224.70 crores in 1981-82). The vast increase has been attributed to escalation of the cost of inputs. During the period 1970-82 the average annual cost per employee increased by 172.7 per cent, cost of fuel by 179.6 to 332.1 per cent and cost of other stores by 169.5 to 231.6 per cent. As against this, the average fare rate per passenger kilometer increased by 79.2 per cent and the average freight rate per net tonne kilometer has risen by 152.3 per cent. The Committee wish to make it clear in this connection that in view of heavy investments made and several technological innovations and modernisation of traction introduced in railways it should be possible to improve the financial performance by augmenting earnings not by indiscriminate increase in fare and freight rates but by intensive use of assets carrying more traffic and allowing no leakage of revenue. The Committee also wish to emphasis that concerted and effective steps should be taken to control Costs.

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Although the overall operating ratio has been below 100, the ratios of the Eastern, North Eastern, Northeast Frontier and Southern Railways ranged between 107.6 and 180.6 during the years 1980-82. Thus huge losses are incurred by these

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Zonal Railways. Although the position of Northeast Frontier Southern and Eastern Railways has slightly improved in 1981-82, the position of North Eastern Railway has further deteriorated (from 134.5 in 1980-81 to 155.8 in 1981-82). The Committee desire that particular attention should be paid to these railways in the matter of controlling costs without impairing efficiency of operations.

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1.17

There is greater need for replacement and renewal of old assets. The Appropriation to Depreciation Reserve Fund has to be raised. This has already risen from Rs. 100 crores in 1970-71 to Rs. 350 crores in 1981-82 and has to be raised further. The Committee note that 45.8 per cent of the total working expenses is accounted for by staff cost, 24.6 per cent by fuel cost and the rest by other stores. The Committee decided to examine the cost of operation to ascertain the scope for economy in order that the railways may be in a better position to augment the appropriations to various Funds and pay reasonable dividend to the General Revenues and yet render better service to the community. The succeeding chapters of this Report cover their examination of the staff and fuel costs.

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2.46

The Railways have at present 15.7 lakhs regular employees and 2.3 lakhs casual labourers. The wage bill of the regular employees amounted to Rs. 1451 crores during 1981-82 as against Ra. 113.8

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crores in 1950-51 when the regular employees were 9.1 lakhs. The staff cost has increased manifold on account of a near doubling of the staff strength and increased emoluments. The average emoluments per employee has increased by 634 per cent from Rs. 1,263 in 1950-51 to Rs. 9,267 in 1981-82 as against the increase of 443 per cent in the cost of living index. While the Committee do not grudge the increased emoluments, they would like to stress that the employees should be productively engaged. In this connection they note the views of an ex-chairman of the Railway Board that "the doubling of the strength that we see by today's figures does not appear to be needed for the new conditions." The Committee would subscribe to the view that creation of productive employment opportunities should be our aim. There is, therefore, an urgent need for a scientific reappraisal of the Staff Strength employed in various spheres of work particularly at top levels and in offices, where the work-load has no direct bearing on the traffic handled.

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2.47

The Committee have been informed that whereas the staff strength had increased by only 14.6 per cent during 1970-71 to 1981-82 the volume of traffic in terms of net tonne k. m. had increased by 36.8 per cent. The Committee are unable to conclude from this that the productivity of the employees had gone up to the extent that their strength did not increase in proportion to the increase in traffic. In fact

the Railway officials conceded in evidence before the Committee that no direct relationship could be established between a traffic unit and the strength of staff required to handle it. In any case the Committee strongly feel that a critical review of the staffing pattern is urgently called for. This review should not only cover the staffing pattern under the existing procedures and conditions of work but should also help to ascertain what simplification and streamlining of procedures and improvement in conditions of work are possible with a view to effecting economy in expenditure further. It is pertinent to recall the evidence tendered by a retired General Manager that "there is considerable overstaffing in certain areas, for example in offices and areas not directly connected with operation, while in the field there is great shortage in certain sectors." He added that there is considerable overstaffing in unskilled categories and the excess often results in counter-productive work. In this context the Committee wish to draw attention to the recommendation of the Estimates Committee in their 45th Report (1982-83) :

"The Committee recommend that the strength of non-technical staff in the Production Units of the Railways, which is admitted to be high should be got reviewed by an outside agency such as the Staff Inspection Unit of the Ministry of Finance and the Staff found surplus to the requirements

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should be retained, if necessary, and redeployed on new projects of the Railways productively."

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2.48

Even in the case of skilled field staff, there is need for a review to determine whether multi-purpose staff could replace the present strength of staff where staff of different categories is being utilised even though there may not be full-time work for them. The Committee have been informed that the railways have been making some experiment in this regard and trying in a limited way to see how far with the cooperation of the employees unions, one duty could be merged with some other duty. The Committee desire that a fair and reasonable formula consistent with the need to have promotional avenues for the workmen should be evolved early and extended to as many categories as possible without delay. An incentive in achieving this could be graded higher emoluments for men skilled in more than one trade.

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2.49

As regards the running staff, the Committee have been informed by a retired General Manager that the introduction of 10-hour rule and the system of payment of mileage and overtime allowance have added to over staffing and to the tendency of detaining trains deliberately *enroute*. Further, the Committee note that higher leave reserve of 50 per cent and 25 per cent provided in the case of running staff and transportation staff respectively, has increased the staff strength.

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In general the reserve appears to be 15 per cent. The Committee are glad to know that recently fundamental changes have been made in the system of payment of running allowance in shifting the emphasis from hours of duty to kilometrage covered. They hope that with the incentive to earn more by covering more distance the productivity of the running staff will improve considerably and the absenteeism come down.

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2.50

In regard to the maintenance gangs, the switchover to mechanised maintenance of track etc. is stated to have reduced the staff strength from 2.4 lakhs in 1975-76 to 2.1 lakhs in 1982-83 even though track length during this period increased by 5 per cent due to doubling and addition of new lines. The mechanised maintenance is reported to have started 10 years ago and today the Railways have 70 machines for the purpose although their requirement is much more. The Committee recommend that the process of mechanised maintenance should be speeded up so as to effect maximum possible economy and consequent reduction in operational cost.

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2.51

The Committee observe that in the Production Units, the norms for incentives which were fixed about 15 to 20 years ago are now out of date and need re-examination. Even according to the Chairman, Railway Board, there is an element of collusion between the supervisors and the inspecting staff in pushing up the man-hours required for repair works under the

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present incentive scheme. The Committee, therefore, desire that a Work Study in this regard should immediately be undertaken and on the basis of that study, fresh norms of productivity determined. In this connection the Committee would like to invite attention to the following recommendation of the Estimates Committee (1982-83) contained in their 45th Report on Railways' Production Units :

“The Committee would like the Ministry of Railways to update the incentive schemes in the light of the technical sophistication in the machinery and processing introduced in the Production Units from time to time and ensure that the schemes are operated in a manner that leaves no scope for any malpractice.”

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3.30

The Railways consumed 9.83 million tonnes of coal, 1.18 million kilometres of HSD oil and 2406 million kilo watt. hours. of electric energy for traction purposes during 1981-82. The fuel bill for the year was about Rs. 690 crores. The index of 'fuel efficiency' is the amount of energy consumed for transporting every 1000 tonnes (gross weight) over a distance of one kilometre, i. e. specific fuel consumption. The Railways' 15-year Corporate Plan (1974-89) envisaged gradual reduction in the specific fuel consumption taking into account the change in traction mix towards better motive power, improvement in operation and inputs like welded rail etc.

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This expectation does not seem to have materialised fully. The specific fuel consumption of coal had gone up in the case of passenger trains from 67.1 kgs. and 70.6 kgs. in 1978-79 for broad gauge and meter gauge to 75.9 kgs. and 77.5 kgs. in 1981-82 and in the case of goods trains from 74.1 kgs. and 71.6 kgs. to 91.3 kgs. and 89.9 kgs. The consumption of diesel was the highest in 1980-81 during the period 1978-82 except in the case of BG goods trains. The consumption of electricity did not show improvement during the period except in the case of BG passenger trains. The Committee would, therefore, urge a critical review of the overall position with a view to evolving stricter norms having regard to technological improvements and effecting better control over consumption of fuel in the interest of economy.

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3.31

Although the railways have pleaded that norms have been fixed and performance watched, the Committee are concerned to learn from the Report of the Comptroller and Auditor General of India for the year 1980-81 that fuel consumption of diesel locomotives was excessive compared to the norms. On several Railways 'trip rations' for diesel oil consumption had not been laid down, where laid down the consumption was found to be excessive but the excesses had not been investigated. Same was the case with shed consumption of fuel. The position is thus characterised by lack of control. This should be remedied early.

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13.	3.32	<p>The Committee find that although traffic under steam traction decreased by 51 per cent during 1969-81 the coal consumption decreased by 27 per cent only. The present level of expenditure on coal is about Rs. 200 crores out of total fuel bill of Rs. 690 crores, but the coal carried only 15 per cent of the traffic. The Committee also note that the direct operational expenses per 1000 gross tonne kilometer are Rs. 4/- for electricity, Rs. 5/- for diesel and Rs. 10/- for steam traction. This shows how uneconomical steam engines are compared to diesel and electric engines. The Committee need hardly point out that if the Railways are to reduce substantially the cost of operation on account of fuel, there is no alternative for Railways but to phase out steam engines as far as possible.</p>
14.	3.33	<p>The Comptroller and Auditor General of India has reported that diesel and steam locomotives continued to be deployed in electrified sections on account of non-electrification of short links and non-elimination of change of traction resulting in additional operating costs. This underscores the need for giving priority for electrification in such cases. The Committee recommend that it should be done without delay.</p>
15.	3.34	<p>The losses of coal have been going up. In 1981-82 these were 5.7 per cent as against 2.9 percent in 1979-80 and 3.80 per cent in 1980-81, the permissible limit</p>

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being only 2 per cent. The Ministry has advanced two main reasons therefore, viz. the underloading by collieries and theft and pilferage *en route*. The quality of coal also is reported to be poor. The Committee recommend that inspections at the loading points should be intensified and effective steps taken to eliminate losses ~~in transit~~.

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3.35

As regards the underloading at colliery end, the Committee are informed that the weigh-bridges facilities exist at the loading point but they are often out of order and inconveniently located from the operating point of view. There are also errors in weighing. To get over this problem the Railways now propose to go in for the installation of electronic weighbridges at certain nodal points. With their installation the rake could be weighed while the train is on the run. The Committee would like the Ministry to work out and finalise the scheme for the installation of electronic weighbridges quickly.

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3.36

The Committee are concerned at the deterioration of the quality of coal supplied to the Railways which has also contributed to the increased cost of operation. The representative of the Railway Board deposed before the Committee that in olden days steam coal supplied to the Railways was of the best quality containing not more than 15 to 18 per cent ash content. But the moisture and ash

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content in the coal these days are as high as 30 to 36 per cent. The Committee desire that the Railway Ministry should take up the matter with Coal India Ltd., and sort out this problem so as to ensure supply of better quality of coal to the Railways.

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3.37

The Committee note that the Expenditure Commission appointed by the Ministry of Finance had set up a Study Group to make an indepth study of energy consumption on the Indian Railways with a view to exploring the possibility of effecting economies. The Study Group is reported to have submitted their report in which they have recommended a number of measures implementation of which could result in considerable saving of coal. These recommendations are reported to be at various stages of examination by the Railway Ministry. The Committee desire that the examination of the measures recommended by the Study Group be completed at the earliest and steps taken in pursuance thereof communicated to the Committee.

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3.38

The Committee were informed that the Railways had sanctioned a project for Rs. 11 crores for design improvement and improvement in fuel economy. A 5 per cent economy in fuel consumption could be effected in diesel locomotives by an improvement in design. The Committee feel that it is a step in

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the right direction and would like to be informed of the progress made in the matter.

Conclusion:

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3.39

The Committee's examination of the cost of operation with reference to staff and fuel cost has convinced them that there exists a lot of scope for economy granting constant awareness of the need and effective cost control. They would accordingly suggest that a well integrated inter-disciplinary team of officers presided over by the respective Chief Executives at various levels Divisional, Zonal and Railway Board—should be engaged constantly on suggesting measures to eliminate waste and effect economy and to evolve better control techniques and systems and monitoring results. Such a concerted institutionalised drive should be initiated forthwith and the results of the endeavours should be published in the Annual Reports for information of Parliament and the public.

Corrigenda to the Ninth Report of
Railway Convention Committee, 1980

<u>Page</u>	<u>Para</u>	<u>Line</u>	<u>For</u>	<u>Read</u>
6	1.14	19	7485 in 196 - 64	74.85 in 1963 - 64
17	2.26	(i) 7 (ii) 12	'Praction' 'is'	'traction' 'in'
19	2.32	10 (from bottom)	insert 'is' after the word 'which'	
20.	2.34	19	insert 'of' after the word 'Engineering'	
25.	2.42	7	insert 'of' after the word 'productivity'	
27	2.45	(i) 10 (ii) 19 (from bottom)	insert 'to' after the word 'able' 'he'	 'we'
29	2.51	3 (from bottom)	'age'	'ago'
34	-	15	Para 3.1	Para 3.12
35	(i)	17 (from bottom)	33 crores	3.3 crores
	(ii)	5 (from bottom)	Villages	'Villages'
41	(i) 3.19	12	'hen'	'Then'
	(ii) 3.20	18	delete the words 'recommendation of the' before the words 'Estimates Committee'	
43.	3.23	17	'cash contents'	'cash contents'
48	3.26	5 (from bottom)	'short out'	'sort out'
54	1.15	8	'emphasis'	'emphasise'