

Wage and Employment of Bharat Coking Coal Limited

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ABSTRACT In 1972 the coking coal industry in Indian economy was nationalized which ultimately formed Bharat Coking Coal Limited at Dhanbad. For the first time, a concentrated effort was put in the Industry for an integrated development of the mines and the worker's welfare was taken up after the formation of Bharat Coking Coal Limited. This study is highly essential because it is an "Economic Analysis" highlighting the performance of Bharat Coking Coal Limited since its inception. This research study is an attempt to high light the behaviour of the Economic parameters of Bharat Coking Coal Limited, through which a clear picture can be achieved about the nature of performance of this public sector since its inception. Therefore, the fundamental objective of the study is to analyse the nature of the performance of different economic parameters analysis can be highlighted and future policies of the management can be formulated relating to Bharat Coking Coal Limited. In this study, time series data will be collected from 1975 to 1998. The data will be collected relating to production, productivity, employment, wage price, welfare measures and profit/loss of Bharat Coking Coal Limited. The trend will be fitted with the help of the equation.

Annual rate of change (%) = $\frac{(Y_t - Y_{t-1}) - (Y_t) \times 100}{Y_t}$

Where,

Y_{t-1} = Variable of Base Year

Y_t = Variable of Current Year

After studying the trend of growth of each economic parameter, attempt will be made to study the nature of there relationship among these economic parameters. While studying the nature of Inter-dependence among the economic parameter, the *Econometric Model* will be fitted with the help of *Co-relation, Analysis and Regression Analysis*. Thus, with the help of econometric modeling, a complete economic analysis relating to the performance of Bharat Coking Coal Limited will be prepared through this research study.

INTRODUCTION

Te public sector company, Bharat Coking Coal Limited, a subsidiary of Coal India Limited, come into being with nationalization of 214 number of Coking Coal Mines and 182 Non-coking coal mines in 1972 and 1973 respectively which have now been reorganized into viable 94 units in Jharia Coalfield 8 units in Raniganj Coalfield as a measure to integrate the entire Coalfield for Scientific and rational exploitation of precessions Coking Coal property. These are

at present Controlled through 13 number of administrative areas each headed by the chief General Manager/General Manager.

At the corporate level the mines and areas are monitored and administered by two Director i.e., Director (Technical) operation, where as Director (Technical) Project and Planning is the Director-in-charge of all the projects and mines which would ultimately be devoted into projects as per reconstruction plan of Jharia Coalfield, the basic concept determining the future of this coalfield, mining area.

The Jharia Coalfield, the only and prime storehouse of Coking Coal property in India is situated in the district of Dhanbad (Jharkhand) and is a part of famous Chotanagpur Plateau.

In this research paper an attempt has been made to highlight the trend of wage and employment of Bharat Coking Coal Limited during the period 1983 – 1984 to 1997-98 and finally the attempt has been made to examine the nature of the behaviour of the economic parameters of Bharat Coking Coal Limited particularly in difference to different categories of the workers working in Bharat Coking Coal Limited during the entire period of study i.e. 1983-1984 to 1997 – 1998.

WAGE AND EMPLOYMENT

A. TREND OF WAGE

Wage System and Its Development

1. Early Days

- (i) In the early days of coal mining in India no guiding principles, laws or systems existed for fixing the wage existed. Rates were set arbitrarily by the employers. It was not uncommon to come across difference in rates for work of same nature being carried out under same conditions in adjoining collieries. Wage rates for different job were looked upon as prices in the manner of prices

for different commodities in the market. Mine owner decided these rates or prices and after these rates were displayed on the collieries notice boards. The list consisted of price-rates without any guaranteed minimum i.e. fall backs. In absence of unions or any form of workers unions mine owners were the sole arbitrators of worker wages. In some collieries leaders of workers gangs who basically were management tools, became the spokesman for workers. Deduction and reduction of wages were arbitrarily done by owners. Also payment of wages was irregular. In some collieries, however, supply and demand to some extent controlled wage rates shortfall in the supply of workers during monsoon and festivals automatically hiked up the rates.

(ii) In the year 1859-60 a miner in Jharia and

Raniganj coalfields was paid 4.16 annas per 3.3 bucket of coal which is approximate equal to the capacity 36 cft tub. In 1860 a miners family consisting of the miner, his wife and three children all working to earn about Rs. 9/- per month.

By 1900 rate per 36 cubic feet tub for a miner had risen to a maximum of about 7.50 annas in Raniganj and 16.65 annas in Jharia Coalfield.

2. Summary of Development of NCWA of Workers in the Coal Industries

At present NCWA – V brings the wage structure for coal mine workers. Though its validity period has been expired on 30-06-96 but till date it not has been revised as NCWA-VI. So NCWA-V is existing at present.

A summary of development of NCWA for coal mines is given below:

<i>Agreement etc.</i>	<i>Salient features of development in wages</i>
(a) NCWA – I (01-01-75 to 31-12-78)	(i) Minimum wage of category – ITR worker to be Rs. 325/- consisting of basic, attendance bonus and fixed DA corresponding to CPI-246 (Base 1960 = 100) (ii) Introduction of variable dearness allowance. (iii) Minimum starting basic of technical and supervisory staff Rs. 274/- (iv) Minimum starting basic of clerical and supervisory staff Rs. 330/- (v) Piece rated workers grouped into six groups with minimum rate of Rs. 10.36 and maximum Rs. 13/- (vi) Excavation cadre formed with minimum daily basic of Rs. 12.20.
(b) NCWA – II (01-01-79 to 31-12-82)	(i) Minimum wage of category-ITR worker to be Rs. 512/- consisting of basic, attendance bonus, fixed DA, VDA and special DA (ii) Minimum starting of lowest group of PR Rs. 15.36 (iii) Minimum starting basic of technical and supervisory staff Rs. 404/- (iv) Minimum daily basis of Rs. 17.20
(c) NCWA - III (01-01-83 to 30-06-87)	(v) Minimum wage of category-ITR workers to be Rs. 801.40 consisting of basic, attendance bonus, fixed DA, VDA and special DA. (vi) Minimum basic wage pre day of lowest group Rs. 21.16. (vii) Minimum starting basic of technical and supervisory staff Rs. 550.16
(d) NCWA - IV (01-01-87 to 31-12-91)	(i) Minimum wage for the lower paid employee on surface to be Rs. 1304.50 per month or Rs. 50.18 per day. This amount consists of Special DA, Attendance bonus, Fixed DA and VDA, special incentive. (ii) Minimum basic wage/pay is Rs. 1002.22 per month or Rs. 38.47 per day. (iii) Attendance bonus is @ 10% of basic wages.
(e) NCWA – V Existing: (01-01-92 to 30-06-96)	(i) Minimum wage of cat. – I TR worker is Rs. 2139.12 consisting of basic, attendance bonus, fixed DA, VDA and special DA (ii) Minimum basic wage/pay is Rs. 1700.40 per month or Rs. 65.40 per day. (iii) Attendance bonus is @ 10% of basic wages.

3. Fringe Benefits Awarded to Coal Mine Workers (From 1947-92)

<i>Item/Year</i>	<i>1947</i>	<i>56</i>	<i>67</i>	<i>75</i>	<i>79</i>	<i>83</i>	<i>87</i>	<i>92</i>
Firmment benefit in Rs.	-	-	-	104.52	73.9	91.0	85.0	85.0
VDA per point rise/month	-	0.78	0.78	1.3	1.3	1.3	1.65	2.20
HRA/month (to those not provided house)	-	-	-	-	12.00	30.00	45.00	60.00
LTC (once a year to home town)	-	-	-	-	One full tickets	Four full tickets	four full tickets	four full tickets upto 750 km
LTC other the a home town (once in block of 4 yr.)	-	-	-	-	3.5 tickt upto 1500km	4 ticket upto 1700km	4 ticket upto 1700km	4 ticket upto 1700 km
Transport sub-sidy/month those not using Co. transport	-	-	-	-	-	30.80	59.80	91.00
Addl. transport subsidy for night shift attd.	-	-	-	-	-	52.00	91.00	130.0
Addl. allownce	-	-	-	-	-	12.00	-	-
U/G allownce	0.5%	0.5%	5%	7%	15%	17.5%	20%	20%

4. Wages in Bharat Coking Coal Limited**Total Monthly Wages of Workers of Bccl (Mining Industries Located in Jharia Coalfield)****(a) Before Nationalisation**

<i>Wage element</i>	<i>Prior to 1947</i>	<i>After concillation board award 1947</i>	<i>Mazumdar tribunal award 1956</i>	<i>Central wage board for mining industries</i>
	<i>RS. P.</i>	<i>Rs. P.</i>	<i>Rs. P.</i>	<i>Rs. P.</i>
Basic wages	15.60	15.00	27.65	130.00
Fixed DA	15.00	22.50	41.43	-
Attendance bonus	5.00	5.00	9.22	13.00
Total	35.00	42.50	78.27	143.00

(b) After Nationalisation

<i>Wage element</i>	<i>NCWA-I 1975</i>	<i>NCWA-II 1979</i>	<i>NCWA – III 1983</i>	<i>NCWA-IV 1987</i>	<i>NCWA-V 1992</i>
	<i>Rs. P.</i>	<i>Rs. P.</i>	<i>Rs. P.</i>	<i>Rs. P.</i>	<i>Rs. P.</i>
Basic wages	260.00	390.00	550.16	1000.22	1700.40
Fixed DA	39.00	75.00	147.36	186.31	238.16
Attendance bonus	26.00	39.00	55.01	100.02	170.04
Total	325.00	504.00	752.53	1286.55	2108.60

5. Expenses as Wages and Incentives

The total expenses of BCCL in wages and

compare to previous year 1992-93 because firm has put on restriction to pay the amount of LTC/LLTC.

Table 1: The total expences of BCCL in wages and incentives during 1983-4 to 1997-98

<i>Year</i>	<i>Expenses in wages and incentives (Crore) (X)</i>	<i>Index number</i>	<i>Consumer price index Base 1960 (Y)</i>	<i>Real Wage = $100(X/Y \times 100)$ in Crore</i>
1983-84	306.45	100.00	548	55.92
1984-85	342.20	111.66	582	58.79
1985-86	344.09	112.28	620	55.49
1986-87	402.21	131.24	651	61.78
1987-88	432.88	141.25	709	61.05
1988-89	503.85	164.41	776	64.93
1989-90	555.24	181.18	835	66.49
1990-91	592.79	193.43	973	60.92
1991-92	680.22	221.96	1072	63.45
1992-93	765.49	249.79	1153	66.39
1993-94	684.29	223.29	1273	53.75
1994-95	692.98	226.13	1396	49.64
1995-96	834.58	272.33	1543	54.09
1996-97	899.48	293.52	1689	53.25
1997-98	958.84	312.89	1804	53.15

incentives during 1983-84 to 1997-98 has been depicted in Table 1.

Total expenses in wage and incentive includes expenses in overtime, leave encashment, incentive, contribution to CMPF, attendance bonus, exgratia, LTC/LLTC/RRF/Pension/Gratuity etc. workman compensation, rewards, DLI, life over scheme, VRS etc.

The amount under head of total expenses in wages and incentives had increased from Rs. 306.45 crores in 1983-84 to Rs. 958.84 crores in 1997-98. It had increased throughout the period of study but not uniformly except the year 1993-94 and 1994-95. The cause of continuous rise in the amount under head salary and wages due to following reasons :

- To contract the effect of inflation, the firm has to pay more money to its employee.
- The firm has adopted liberal attitude towards paying better salaries and incentives to its employee so that employees are motivated to be more effective and efficient.
- In the year 1995-96, it was more because company had also paid the arrears amount of NCWA-V along with wages.

In the year 1993-94 and year 1994-95, the firm has paid less money in incentives and wages

It is clear from the above study that the total expenses under salaries and wages in BCCL having increasing trend.

Table 2: The average annual rate of change in money wage, real wage and consumer price index

<i>Sub Period</i>	<i>% Avg. annual rate of change money</i>	<i>Avg. annual rate of change real wage</i>	<i>Avg. annul rate of change CPI</i>
1983-84 to 1987-88	9.18	2.53	6.66
1987-88 to 1997-98	8.61	1.03	10.65

When rate of increase of money wage is compared with rate of increase of CPI, it is observed that rate of increase in money wage was higher than the rate of increase of CPI in this sub period 1983-84 to 1987-88. But in the sub-period 1987-88 to 1997-98, we observed reverse trend. But when the rate of increase of real wage is compared with rate of increase of CPI, it is observed in both the above sub-period, the rate of increase of real wage was always less, in compare to the rate of increase of CPI. The major reason for enormous increase in salary and wages are inflation, devaluation of rupee, increase in CPI etc.

6. Production of Wage Cost to Total Cost of Production

The value of wage cost divided by total cost of production from 1983-84 to 1997-98 has been given in Table 3.

Table 3: The value of wage cost of production from 1983-84 to 1997-98

<i>Year</i>	<i>Wage cost/total cost of production</i>	<i>Index number (83-84 = 100)</i>
1983-84	57.09	100.00
1984-85	55.60	97.39
1985-86	53.90	94.41
1986-87	52.41	91.80
1987-88	51.31	89.87
1988-89	53.57	93.83
1989-90	52.83	92.53
1990-91	50.37	88.23
1991-92	50.84	89.05
1992-93	48.25	84.51
1993-94	45.64	79.94
1994-95	44.02	77.11
1995-96	48.12	84.29
1996-97	46.39	81.26
1997-98	47.84	83.79

The total cost of production is obtained by adding wage cost, depreciation and interest and other cost. The wage cost is a vital part of total cost of production. It is clear from Table 3, that wage cost/total cost production had gone down till 1994-95 except the year 1988-89. The wage share had increased in the year 1995-96, but it decreased in next financial year (1996-97). In the subsequent financial year it had increased because revision of NCWA-V and company pay the arrears of NCWA-V also. However, in the year 1996-97, the decline in wage share was due to management control on the expenses like overtime, traveling allowances, stationary, telephone bills, POL consumption, social over heads etc.

Table 4: The annual average rate of change (%) in wage share of BCCL in different sub-periods

<i>Sub-period</i>	<i>Average annual rate of change (%)</i>
1983-84 to 1987-88	- 2.63%
1987-88 to 1997-98	- 0.59%

The average annual rate of change (%) of wage share of BCCL during sub period 1983-84

to 1987-88 had declined more steeply in compare to the rate of change (%) of wage share in BCCL in the sub-period 1987-88 to 1997-98.

Thus it is concluded that Bharat Coking Coal Limited, has become successful in eliminating the excess labour expenses by applying various management techniques in the changing ECONOMIC SCENARIO of India.

B. TREND OF EMPLOYMENT

Manpower

The objective of the nationalization of coking coal mines was to ensure rational and co-ordinated development of coking coal production for promoting optimum utilization of coking coal reserves consistent with the growing requirement of the company, fair deal to workers and their welfare were also aimed, while establishing the company like BCCL. Formation of CIL as holding company was envisaged for overall growth and development of coal in the country.

Production of coal has been increasing rapidly and against the production of 7.74 million tones in 1974-75, 30.92 million ton. has been produced in 1997-98. So there had been a continuous increase in production after nationalization. The comparative analysis of production and manpower strength of the company reveals that although there had been sharp increase in production level, the manpower strength has reduced from 1,77,458 on 1st April '75 to 1,35,398 on 1st April '98.

Employment in Different Grades

There are several categories of employee in BCCL. We may categories like Executive, Non-Executive.

Non-Executive further may be subdivided as monthly rated, daily rated, piece rated etc.

Our attempt is to analyse the nature of trend of each categories of employment and ultimately to understand the effect of each type of employment on the productivity of BCCL.

1. Woman Employment

The strength of woman employment in BCCL has been shown in Table 5.

Table 5: The strength of woman employment in BCCL

<i>Year</i>	<i>Total woman worker (in thousand)</i>	<i>Index number 1983-84 = 100</i>
1983-84	16.770	100.00
1984-85	16.940	101.00
1985-86	16.812	100.25
1986-87	15.726	93.77
1987-88	15.198	90.62
1988-89	14.950	89.14
1989-90	14.785	88.16
1990-91	14.543	86.72
1991-92	14.311	85.33
1992-93	14.289	85.20
1993-94	14.262	85.04
1994-95	14.024	83.63
1995-96	11.836	70.58
1996-97	11.270	67.20
1997-98	11.097	66.17

From the Table 5 it is clear that total number of woman worker in BCCL had a decreasing trend. Previously woman worker was also employed in mines. But now attempt are going on to eliminate the woman employee from mines, because of hazards activities. Now woman employment is increasing for official and managerial jobs.

In BCCL, female workers are surplus. So number of scheme are implemented to reduce the female employment in BCCL, these are:

- (i) Voluntary Retirement Scheme (VRS) – By giving the job opportunity to her husband son or son in law.
- (ii) VRS introduction by government (for Male & Female) – After 10 years of service or 40 years of age.

Table 6: Annual rate of change (%) of female employment at different sub-periods

<i>Sub Period</i>	<i>Annual rate of change %</i>
1983 – 84 to 1995 – 86	0.13
1985 – 86 to 1997 – 98	-3.31

It is clear that in sub-period 1983-84 to 1985-86, the trend of change of female employment is positive, where as in sub-period 1985-86 to 1997-98 the trend of rate of change is negative. The reasons have been stated above.

2. Officers Employment

The total population of officers in BCCL has

been shown in the Table 7

Table 7: The total population of officers in BCCL

<i>Year</i>	<i>Total officers employed (in thousand)</i>	<i>Index number 1983-84 = 100</i>
1983-84	2.794	100.00
1984-85	3.001	107.40
1985-86	2.990	107.01
1986-87	3.054	109.30
1987-88	3.269	117.00
1988-89	3.559	127.38
1989-90	3.687	131.96
1990-91	3.761	134.60
1991-92	3.755	134.39
1992-93	3.711	132.82
1993-94	3.637	130.17
1994-95	3.572	127.85
1995-96	3.516	125.84
1996-97	3.377	120.87
1997-98	3.172	113.53

From the above table, it is clear that the officers employed has been gradually increasing upto 1990-91 except year 1985-86. Increasing trend of officers employment was due to requirement of new Engineers for new Mining/Washery project, requirement of more managerial control to increase productivity and emphasis on the research and development activities.

From the year 1991-92, it is clear that officers strength in BCCL had been decreasing till 1997-98. From the year 1991-92 to 1997-98, 583 nos. of officer had been reduced. The reason behind this are: financial crunch, no new projects are coming, retirement of many officers, natural death and transfer to other subsidiaries of CIL.

Table 8: Annual rate of change of officers employment in different sub-period.

<i>Sub-period</i>	<i>Annual rate of change %</i>
1983-84 to 1990-91	4.39
1990-91 to 1997-98	- 2.44

3. Monthly Rated Workers

Total monthly rated workers in BCCL from 1983-84 to 1997-98 has been shown in Table 9.

From the table 9, it is clear that employment of monthly rated had an increasing trend upto 1985-86 after that it had a gradual decline upto 1988-89. The monthly rated workers in BCCL again increased upto 1991-92 and then it has got

Table 9: Total monthly rated workers in BCCL from 1983-84 to 1997-98

<i>Year</i>	<i>Total monthly rated workers (in thousand)</i>	<i>Index number 1983-84 = 100</i>
1983-84	22.359	100.00
1984-85	25.144	112.45
1985-86	25.723	115.04
1986-87	25.576	114.38
1987-88	25.556	114.29
1988-89	25.355	113.39
1989-90	25.721	115.03
1990-91	26.106	116.75
1991-92	26.240	117.35
1992-93	25.872	115.71
1993-94	25.838	115.56
1994-95	25.515	114.12
1995-96	25.409	113.64
1996-97	25.401	113.60
1997-98	24.448	109.34

a declining trend upto 1997-98.

Employment of monthly rated workers seems to be decrease in period of 1985-86 to 1988-89 because of promotion of monthly rated employee as well as due to retirement. The decrease of monthly rated employee from 1992-93 due to change of the government policy and company policy and company had further decided that no new recruitment would be done and work had to be manage within existing manpower.

Table 10: Annual rate of change (%) of monthly rated workers for different sub-periods

<i>Sub-period</i>	<i>Annual rate of change %</i>
1983-84 to 1985-86	7.38
1985-86 to 1988-89	-0.48
1988-89 to 1997-98	-0.39

Hence, it is clear that in sub-period 1983-84 to 1985-86, the annual rate of rise in monthly rated employment was very significant. The happened due to fresh employment in new projects. But from 1985-86 onwards there had been a continuous decrease of monthly rated workers except the year 1990-91 and 1991-92. The reason for such decline was that fresh recruitment had been totally stopped in BCCL.

4. Daily Rated Workers

Total daily rated workers in BCCL from 1983-84 to 1997-98 has been shown in Table 11.

Table 11: Total daily related workers in BCCL from 1983-84 to 1997-98

<i>Year</i>	<i>Total monthly rated workers (in thousand)</i>	<i>Index number 1983-84 = 100</i>
1983-84	75.267	100.00
1984-85	76.068	101.06
1985-86	75.406	100.18
1986-87	75.012	99.66
1987-88	75.544	100.36
1988-89	75.806	100.71
1989-90	75.176	99.87
1990-91	75.689	100.56
1991-92	74.903	99.51
1992-93	73.781	98.02
1993-94	72.084	95.77
1994-95	70.634	93.84
1995-96	69.427	92.24
1996-97	67.133	89.19
1997-98	69.111	91.82

From the table 11 it is clear that number of daily rated workers were more or less constant upto 1990-91. In 1984-85 and 1988-89, there is a maximum daily rated workers, it was due to new employment opportunity given by the management because of new mining/washeries projects were installed. From 1991-92 onwards there was continuous decrease in strength of daily rated workers upto 1996-97.

Table 12: The average annual rate of change (%) of daily rated workers for different sub-periods.

<i>Sub-period</i>	<i>Annual rate of change %</i>
1983-84 to 1985-86	-0.11
1985-86 to 1988-89	0.227
1988-89 to 1997-98	-1.273

Here, it is clear that in sub-period 1983-84 to 1986-87 and 1990-91 to 1997-98, the trend of rate of change of daily rated worker was negative and during sub-period 1986-87 to 1990-91, the trend of this parameter was positive. The trend of rate of change daily rated workers in BCCL was fluctuating. But, however, since 1991-92, it had continuously gone down because fresh recruitment had been totally stopped and as well as some daily rated workers had got promotion to monthly rated.

5. Piece Rated Workers

Total price rated workers in BCCL from 1983-

84 to 1997-98 has been shown in Table 13.

Table 13: Total price rated workers in BCCL from 1983-84 to 1997-98

<i>Year</i>	<i>Total piece monthly rated workers (in thousand)</i>	<i>Index number 1983-84 = 100</i>
1983-84	66.901	100.00
1984-85	64.626	96.59
1985-86	63.407	94.77
1986-87	64.762	96.80
1987-88	63.664	95.16
1988-89	61.750	92.30
1989-90	60.723	90.76
1990-91	60.197	89.97
1991-92	58.137	86.90
1992-93	55.886	83.53
1993-94	54.028	80.76
1994-95	49.384	73.82
1995-96	48.232	72.09
1996-97	45.689	68.29
1997-98	38.061	56.89

It is clear from the above table that number of piece rated worker had been continuously decreasing except in year 1986-87. The continuous decreasing trend of this parameter was due to fact that this system was not suitable for new workers.

Table 14: Annual rate of change (%) piece rated workers for different sub-periods

<i>Sub-period</i>	<i>Annual rate of change %</i>
1983-84 to 1986-87	-1.05
1986-87 to 1997-98	-5.033

Hence, it is clear from the above table that in the sub period 1986-87 to 1997-98, the annual rate of change of piece rated workers in BCCL had declined more steeply in compare to the rate of change of this parameter in the sub period 1983-84 to 1986-87. During 1986-87 to 1997-98, the concept of Intermediate technology was evolved. The loaders were replaced by Load Haul Dumpers and Side Discharge Loaders (face mechanization). Such machine improves the productivity as well as fatality rate went down. That's why the trend of piece rated workers in BCCL had a steep downward trend.

6. Total Employment

Total employment in BCCL from 1983-84 to

1997-98 has been shown in Table 15.

Table 15: Total employment in BCCL from 1983-84 to 1997-98

<i>Year</i>	<i>Total monthly rated workers (in thousand)</i>	<i>Index number 1983-84 = 100</i>
1983-84	172.334	100.00
1984-85	173.287	100.55
1985-86	171.671	99.61
1986-87	173.586	100.40
1987-88	173.034	100.72
1988-89	169.806	98.53
1989-90	167.469	97.17
1990-91	167.423	97.15
1991-92	165.652	96.12
1992-93	160.344	93.04
1993-94	156.576	90.86
1994-95	149.972	87.02
1995-96	147.439	85.55
1996-97	142.436	82.65
1997-98	135.535	78.65

The proportion of monthly rated workers and piece rated workers contributed a major portion of total employment. After 1987-88, the population of monthly rated workers was almost constant. However, the population of piece rated workers were continuously going down. The population of officers had gone up. This had caused total population of BCCL almost constant during 1983-84 to 1987-88. After 1987-88, the trend of rate of change of total employment in BCCL had a decreasing trend. The reduction of employee was due to mechanization, longwall mechanization, computerization, use of HEMM equipment, stopped of fresh appointment etc.

Table 16: The annual rate of change (%) of total employment in different sub period

<i>Sub-period</i>	<i>Annual rate of change %</i>
1983-84 to 1986-87	0.245
1986-87 to 1997-98	-2.213

Hence, it is clear that in sub period 1983-84 to 1986-87, the trend of total employment had an increasing trend. During the above stated period many new projects had been started. So fresh recruitment were made. After 1986-87, the ambitious projects were not giving good result. So, sanction of new projects were stopped. This caused no further employment in BCCL. Consequently, the trend of total employment in

BCCL during 1986-87 to 1997-98 had a decreasing trend.

7. Production/Employee/Year

The production/employee/year in BCCL from 1983-84 to 1997-98 has been shown in Table 17.

From the table 17, it is clear that the trend of production/employee/year had a decreasing trend except marginal fall in 1985-86, 1995-96 and 1996-97. The output/employee/year during 1974-75 was 99.96 Mt which has gone up to 228.13 Mt in 1997-98 (e.g. 2.28 times). This improvement in production/employee/year was due to mechanization of both underground and opencast mines, computerization, adopting modern technology for coal cutting (shearer), loading (side-discharge loaders, load haul dumper, pay-loader rapid loading system) etc.

Table 17: The production/employee/year in BCCL from 1983-84 to 1997-98

Year	Output/employee/ year (in Metric ton)	Index number 1983-84=100
1983-84	125.51	100.00
1984-85	126.03	100.41
1985-86	122.79	97.83
1986-87	138.31	110.19
1987-88	145.11	115.61
1988-89	154.11	122.78
1989-90	158.95	126.64
1990-91	159.48	127.06
1991-92	163.08	129.90
1992-93	174.93	139.37
1993-94	185.47	147.77
1994-95	191.64	152.69
1995-96	188.62	150.28
1996-97	190.54	151.81
1997-98	228.13	171.76

During sub period 1983-84 to 1985-86, production/employee/year had decreased annually at the rate of 1.08%. This happened because production from both underground and opencast mines in BCCL had gone down. However, the total employment in BCCL in above stated period more or less constant. But during sub period 1985-86 to 1997-98, there was a significant increase of this parameter i.e. 4.96% annually due to rise in production from both underground and opencast mines in BCCL.

Table 18: Annual rate of change (%) in production/employee/year during different sub-period

Sub-period	Annual rate of change %
1983-84 to 1985-86	- 1.08
1986-87 to 1997-98	4.96

CONCLUSION

The trends of wages and employment have been studied. It was observed that although there was increase in money wages in BCCL between the year 1974-75 to 1997-98, but the real wages of the colliery workers under BCCL had a declining trend. Another observation is that the manpower strength in BCCL which was 1,77,458 on 1st. April '75 had gone down to 1,35,398 to 1,35,398 on 1st. April, 98. BCCL management had successfully eliminated the surplus manpower.

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