

CHAPTER II

2 Reviews relating to Government companies

2.1 OPERATIONAL PERFORMANCE OF THE KOLAGHAT THERMAL POWER STATION - WEST BENGAL POWER DEVELOPMENT CORPORATION LIMITED

Highlights

Performance of the Kolaghat Thermal Power Station (Station) of West Bengal Power Development Corporation Limited was found to be sub-optimal. Between April 2001 and March 2006, the Station generated 34,636.792 MkwH against possible generation of 45,598.063 MkwH.

(Paragraph 2.1.8)

None of the five units achieved the plant availability norm of 80 per cent in all the past five years. The plant load factor (PLF) remained below the national level by 11 to 17 per cent, due to excess time taken on annual overhaul, planned and forced outages, tube leakages, operation on partial load and backing down of generation.

(Paragraphs 2.1.9 & 2.1.10)

The Station sustained generation loss of 25,984.980 MkwH valuing Rs 1,039.57 crore due to excess outages over the norm, delay in overhauling, poor maintenance, lack of co-ordination and planning, lax monitoring over repair/ replacement work as well as overhauling.

(Paragraphs 2.1.14 to 2.1.24)

The Station consumed excess energy of 236.745 MkwH valuing Rs 36.17 crore over the norm for auxiliary consumption.

(Paragraph 2.1.13)

During 2001-06, the Station backed down generation by 3,551.925 MkwH which had a revenue potential of Rs 127.30 crore due to the State Government's decision not to allow the Station to export surplus power.

(Paragraph 2.1.11)

Against the guaranteed thermal efficiency of 35.96 per cent, the thermal efficiency of the Station during 2001-06 ranged from 29.24 to 30.43 per cent, leading to excess consumption of fuel equivalent to 15.72 lakh tonnes of coal valuing Rs 176.41 crore. The Management did not attempt possible reduction by 1.57 lakh tonnes through fuel additive.

(Paragraphs 2.1.30 to 2.1.32)

Inept implementation of Renovation and Modernisation plans led to delays in completion and cost escalation leading to loss of generation of 273.84 MkwH valued at Rs 11 crore as well as additional expenditure of Rs 10 crore. Besides, although Unit – 3 had completed 1.51 lakh operational hours, no Residual Life Assessment studies had been undertaken.

(Paragraphs 2.1.25 to 2.1.29)

Short receipt of coal by 7.34 to 16.79 per cent against linkage allotment reduced generation by 357.786 MkwH valued at Rs 18.64 crore. Further, in absence of enabling agreements with the coal companies, Rs 28 crore could not be recovered towards grade slippage, stones, shale, breaking and cleaning charges.

(Paragraphs 2.1.33 & 2.1.35 to 2.1.38)

The Station's inventory holding was upto 69 months leading to additional annual inventory holding cost of Rs 5.91 crore.

(Paragraph 2.1.41)

Introduction

2.1.1 The Kolaghat Thermal Power Station (Station) is one of the four thermal power stations of West Bengal Power Development Corporation Limited (Company). It has six coal fired units (210 MW each) with total capacity of 1,260 MW, representing 17 per cent of the total installed capacity of West Bengal. These units were commissioned between July 1984 and December 1993 in East Midnapore district at an investment of Rs 1,623 crore. The Station sells the entire power generated to West Bengal State Electricity Board (WBSEB).

2.1.2 A General Manager (GM) heads the operations of the Station and is assisted by three Deputy General Managers to look after plant operation, maintenance and utilities. The GM reports to the Executive Director at Kolkata who exercises overall supervision over the operation of the Station.

A comprehensive appraisal of the Company was included in the Report of the Comptroller and Auditor General of India for the year ended 31 March 1990 (Commercial), Government of West Bengal. The Committee on Public Undertakings had not selected the appraisal for discussion.

Scope of Audit

2.1.3 The present performance audit, conducted during December 2005 to February 2006, covers the operational performance of Kolaghat Thermal Power Station for the last five years up to 2005-06. The audit findings are based on test check of records at the Company's Corporate Office at Kolkata and the Station at Kolaghat.

Audit Objective

2.1.4 The performance audit of operational performance of the Station was carried out to assess whether –

- the Station fixed the targets for generation realistically considering the actual hours of operation.
- the Station achieved the targeted generation and the Station achieved the Plant Load Factor (PLF) fixed by the West Bengal Electricity Regulatory Commission (WBERC) and the PLF was at par with similar thermal power stations in India.
- the Station complied with the efficiency parameters fixed by the WBERC and the Central Electricity Authority (CEA).
- the preventive maintenance schedule was followed according to the manufacturers'/ CEA norms and monitored regularly to minimise incidence of forced outages.
- the renovation and modernisation programmes were implemented efficiently.
- the Station had achieved the designed thermal efficiency and the auxiliary consumption of power was at par with the national level/ WBERC norms.
- the Station had followed efficient fuel management practices and a cost control mechanism to reduce the cost of generation.
- scientific principles of material management were followed.

Audit Criteria

2.1.5 The performance of the Station was assessed with reference to -

- i) the targeted/ possible generation;
- ii) the efficiency parameters fixed for plant availability, load factor, thermal efficiency, etc.;
- iii) the prescribed norms for planned outages;
- iv) norms for auxiliary consumption;
- v) the maintenance schedule of plants approved by CEA and the time frame laid down by different Committees;
- vi) residual life assessment studies undertaken;
- vii) the norms fixed by WBERC for heat consumption; and

viii) the maximum, minimum and re-ordering levels for inventory.

Audit Methodology

2.1.6 Audit adopted a mix of the following methodologies :

- examination of agenda and minutes of the Board of Directors meetings;
- scrutiny of guidelines of CEA and WBERC;
- scrutiny of targeted and possible generation *vis-à-vis* actual generation;
- examination of plant performance and maintenance reports;
- scrutiny of records relating to repairs, maintenance, renovation and modernisation programme, costing records, coal and fuel efficiency reports; performance of utilities; life extension studies and stores records.

Audit findings

The audit findings were reported to the Government/ Management in August 2006 and discussed at the meeting of the Audit Review Committee for Public Sector Enterprises (ARCPSE) held on 17 August 2006, where the Government was represented by the Principal Secretary, Department of Power, Government of West Bengal and the Management by the Managing Director, West Bengal Power Development Corporation Limited. The review was finalised after considering the views of the Government/ Management.

The audit findings are discussed in the succeeding paragraphs.

Operational Efficiency

2.1.7 The Station constituted 43 *per cent* of the Company's total generation capacity of 2,900 MW. The generation of 34,636.792 Mkw by the Station constituted half of the Company's total generation of 70,551.664 Mkw during 2001-06. The actual running hours, maximum possible generation in the hours actually worked, targeted and actual generation, actual generation per KW of installed capacity, plant load factor, planned and forced outages etc. are given in **Annexure -10**.

In this connection, the following points were noticed in audit.

Shortfall in generation

2.1.8 One parameter for evaluating the efficiency of the Station is the annual power generation in Kwh per KW of installed capacity, against the norm of

4,900* Kwh. During 2001-2006, while Unit - 6 had achieved the norm in all five years, four units had achieved the norm in four¹ out of five years, the remaining one unit² achieved it in only three years.

There was a shortfall in generation of 9,788.938 Mkw valued at Rs 393.32 crore.

Against the possible generation of 45,598.063 Mkw^{**} in 2.17 lakh available hours during 2001-06, the target of 35,300 Mkw fixed was far below the possible generation. The Station, however, generated 34,636.792 Mkw representing 76 *per cent* of the possible generation and 98 *per cent* of the targeted generation. The average auxiliary consumption was 10.68 *per cent* against the norm of 9.50/ 10.50 *per cent* of the actual generation during the same period. Had the Station generated 45,598.063 Mkw, 40,728.190 Mkw of power could have been evacuated to the grid (after adjustment of auxiliary consumption of 4,869.873 Mkw). Actually, 30,939.252 Mkw of power could only be sent to grid due to shortfall in generation of 9,788.938 Mkw valued at Rs 393.32 crore.

The Government/ Management stated (August/ September 2006) that actual generation depended on the real time requirement of the grid, which is controlled by the State Load Despatch Centre. The Management, however, failed to address the shortfall in generation despite the plant remaining operational and there being additional demand, which could not be met due to operation at partial load, low plant availability, excessive outages *etc.* as discussed below :

Low Plant Availability

2.1.9 The Station had 52,560 hours available for yearly operation. The Kulkarni Committee, set up by the Government of India to suggest ways for improving generation in power stations, had recommended (April 1975) that the generating units should be available for operation up to 80 to 85 *per cent* of the total available hours during the year (the remaining time to be utilised for maintenance of the units). Similarly, the Rajadhyaksha Committee had also recommended (September 1980) plant availability of, at least, 80 *per cent* of the available hours. It would, however, be seen from the **Annexure-10** that during the five years from 2001-02 to 2005-06, the plant availability of two units (5 & 6) was below the norm of 80 *per cent* of the available hours in three years, of two units (2 & 3) in two years and of the remaining two units (1 & 4) in one year.

Plant availability was below the norm of 80 per cent.

As analysed in audit the low plant availability was attributable to excess time taken for annual overhauling as compared to the norms, unscheduled maintenance, tube leakages, mechanical and electrical failures *etc.* as discussed in the succeeding paragraphs.

* Paragraph 3.2 of the 'Manual on Generation Planning' by Planning Wing, CEA – March 1992

¹ Unit No. 1 (2001-02, 2002-03, 2004-05 & 2005-06), Unit No. 2 (2001-02, 2003-04, 2004-05 & 2005-06), Unit 4 & 5 (2002-03, 2003-04, 2004-05 & 2005-06)

² Unit No. 3 (2001-02, 2003-04 & 2005-06)

** Aggregate of actual hours of operation of the six units X 210 MW (Installed capacity per unit) / 1,000

Low Plant Load Factor (PLF)

The Station failed to achieve the PLF fixed by WBERC during 2001-03 & 2005-06.

2.1.10 WBERC had fixed the PLF for the Station at 68.5 *per cent* for 2001-02 and 2002-03, which was reduced to 61 *per cent* for 2003-04 and 2004-05 and again increased to 68.5 *per cent* for 2005-06. During the same period, the national level of PLF³ had increased from 69.97 *per cent* in 2001-02 to 74.82 *per cent* in 2004-05. Against this, the Station's PLF rose from 58 *per cent* in 2001-02 to 67 *per cent* in 2005-06. Thus the Station failed to achieve the PLF fixed by WBERC for 2001-02 (58 *per cent*) and 2002-03 (60 *per cent*), and 2005-06 (67 *per cent*) while it was above the reduced PLF norm of 2003-04 (63 *per cent*) and 2004-05 (67 *per cent*). The Station's PLF was however, below the national level by 11 to 17 *per cent* during all the four years.

Further, in 2004-05, PLF of 83 *per cent* (NTPC – Kahalgaon), 81 *per cent* (DVC – Mejia) and 74 *per cent* (MSEB – Sanjay Gandhi TPS) at similar thermal stations was significantly higher than the PLF achieved by the Station.

The main reasons for low PLF as identified by Audit were (i) longer duration of both planned and forced outages, (ii) running of generating units on partial load due to non-availability of load bearing equipment⁴, coal feeding problems, poor coal stock etc., and (iii) backing down of generation.

The Government/ Management stated (August/ September 2006) that PLF was a parameter related to grid demand and not a key performance indicator for measuring the performance of a power station. The reply is not tenable in view of the fact that the performance of power plants had been evaluated (June 2006) by CRISIL and ICRA⁵, on behalf of the Ministry of Power, Government of India, in terms of PLF, availability factor and auxiliary consumption. Moreover, due to low PLF, the Station had failed to recover fixed cost of Rs 69.96 crore during 2001-03.

Backing down of generation

2.1.11 The Station's entire generation (excluding auxiliary consumption of power) is sold to WBSEB. A major factor for low generation was the reduced demand of WBSEB. As a result, the Station had to back down generation by 3,551.925 Mkw which had a revenue potential of Rs 127.30 crore (excluding auxiliary consumption and fuel cost) during 2001-06.

³ CEA's Generation Performance Review 2004-05

⁴ Non availability of coal mill, induced draught fans, forced draft fans, boiler feed and cooling water pumps

⁵ CRISIL Limited and ICRA Limited are two independent rating agencies promoted by financial institutions

The Station could not realise revenue of Rs 127.30 crore through sale of 3,551.925 Mkwk surplus power due to restriction imposed by the State Government.

Audit scrutiny revealed that the State Government had decided (July 2002) to allow the Station to export surplus power to other States and export was also made. However, the decision was reversed in April 2003 and the Company was not allowed to export surplus power to other States because only WBSEB had been authorised by the Government to export power as a distributing unit. Consequently, the Company failed to realise any revenue through sale of 3,551.925 Mkwk surplus power arising out of backing down of generation.

The Management stated (August 2006) that backing down depends on grid requirement and it is beyond the control of the Station. In the ARCPSE meeting, the Government stated (August 2006) that WBSEB had been solely authorised to export power to partly offset the loss on energy sales to the rural and domestic sectors. The fact, however, remains that the Company failed to realise any revenue through sale of 3,551.925 Mkwk due to restriction imposed by the Government to export surplus power.

Running of units with partial load

2.1.12 The Yearly Plant Performance Reports (2001-2006) indicated that the units operated on partial load due to repeated troubles in **i)** coal mill, **ii)** induced draught (ID) and forced draught fans, **iii)** boiler feed and cooling water pumps, as well as generation restriction due to coal feeding problem, *etc.* Though these factors were largely controllable the Management failed to take timely remedial action, resulting in shortfall in generation of 7,224.798 Mkwk valued at Rs 290.29 crore (excluding fuel cost).

The Government/ Management attributed (August/ September 2006) these outages to over running of the units because of grid demand, absence of standby coal mill for Units – 1 to 3 and partial load operation for scheduled maintenance. However, it was noticed that there was no instance of partial load operation for scheduled maintenance during 2001-06.

Auxiliary Consumption

Auxiliary consumption of 236.745 Mkwk power in excess of norm led to non-realisation of revenue of Rs 36.17 crore during 2001-06.

2.1.13 Against the WBERC's norm of auxiliary consumption of 9.50 *per cent* (2001-03) and 10.5 *per cent* (2003-06), and CEA's all-India norm of 9.5 *per cent*, the auxiliary consumption of the Station ranged between 10.12 and 11.48 *per cent* during 2001-06. The excess auxiliary consumption of 236.745 Mkwk over WBERC's norm could have fetched an additional revenue of Rs 36.17 crore (calculated at the average price of each year).

The Management attributed (August 2006) the excess consumption to low PLF and backing down of generation on account of adverse demand pattern that compelled continuous running of the auxiliary equipment. The reply is not tenable since auxiliary consumption of Units - 4 to 6 was higher at 10.81 to 11.33 *per cent*, as compared to 9.67 to 10.38 *per cent* for the first three units during 2001-04, while in 2004-05 the position reversed.

Outages

2.1.14 Thermal stations have outages, which may be 'planned' and/or 'forced'. While planned outages are necessary for maintenance work on boilers, turbo-generators (TG) etc., forced outages are due to unforeseen factors and arise from lack of adequate and timely preventive maintenance. The details of available hours as well as planned and forced outages are given in **Annexure-11**. It would be seen from the Annexure that the percentage of total outages to available hours ranged between 14 and 21 during 2001-06.

In this connection the following points were noticed in audit :

Planned Outages in excess of the norm

2.1.15 Planned outages for annual overhauling and periodical maintenance of boilers, TGs etc. are normally to be scheduled for the off-peak season *viz.* November to February when demand for power is generally low. During 2001-2006, the Station scheduled annual overhauling between July and October in five instances, which was not, however, taken up for want of shut down, while in eight instances unscheduled overhauling was taken up, which indicated lack of planning in taking up periodical maintenance. This led to delays and failure to take up maintenance according to CEA's norms as discussed in Paragraphs 2.1.17 to 2.1.21.

The Rajadhyaksha Committee had also expressed (1980) concern at the progressive dilution of maintenance norms for thermal power stations and postponement of both boiler overhaul and capital maintenance of turbo generators resulting in higher plant outages.

CEA had prescribed a norm for planned outages at 10 *per cent* of the available hours. Audit scrutiny revealed that during 2001-05, planned outages were in excess of the norm as shown below :

Particulars	2001-02	2002-03	2003-04	2004-05	2005-06
Available hours	52,560	52,560	52,704	52,560	52,560
10 <i>per cent</i> thereof	5,256	5,256	5,270	5,256	5,256
Actual Planned Outage (hours)	7,779	7,297	6,417	5,827	4,148
Excess hours	2,523	2,041	1,147	571	-

Planned outages in excess of the norm led to generation loss of Rs 313.53 crore.

The hours lost due to excess planned outages led to generation loss of 7,915.320 MkwH valued at Rs 313.53 crore.

2.1.16 The following table indicates the details of planned outages during 2001-2006 :

(Figures in hours)

Sl. No.	Reasons	2001-02	2002-03	2003-04	2004-05	2005-06
i)	Annual overhauling of boilers and turbogenerators	1,965.17 (1)	791.26 (2)	1,765.16 (1)	708.44 (3)	1,059.59 (2)
		1,793.26 (5)	900.55 (3)	403.36 (4)	1,180.23 (4)	556.11 (4)
				552.48 (5)	906.26 (5)	644.03 (5)
				1,010.57 (6)		679.08 (6)
	Total	3,758.43	1,692.21	3,732.37	2,795.33	2,938.21
ii)	Scheduled maintenance	270.42 (1)	820.33 (1)	320.07 (1)	268.29 (1)	49.06 (1)
		943.08 (2)	1186.19 (2)	16.51 (2)	714.16 (2)	391.49 (2)
		578.33 (3)	218.16 (3)	238.37 (3)	651.57 (3)	156.57 (3)
		250.17 (4)	295.48 (4)	62.14 (4)	238.07 (4)	43.25 (4)
		639.37 (5)	1,174.04 (5)	842.05 (5)	810.27 (5)	178.23 (5)
	1,338.08 (6)	1,909.34 (6)	204.57 (6)	348.28 (6)	390.34 (6)	
	Total	4,020.25	5,604.34	2,684.51	3,031.44	1,210.14
	Total outage	7,779.08	7,296.55	6,417.28	5,827.17	4,148.35

(Figures in brackets indicate the number of the Units)

In this connection the following points were noticed in audit :

Excess time taken for overhauling of boilers and turbo generators

2.1.17 As per the Indian Boilers Act, 1923, boilers are required to be overhauled annually. Further, the Kukde Committee, constituted by CEA, recommended (May 2001) capital maintenance of boilers every alternate year within a period of 30 days with 15 days mini shut down for statutory inspection during the year subsequent to year of capital maintenance. Moreover, the capital maintenance of the turbo generator is to be done once in every five years along with the boilers and should not exceed 50 days. It would, however, be seen from the **Annexure-12** that :-

- Boilers of Units 1, 3, 4, 5 and 6 were taken up for overhauling after lapse of 12 to 36 months. Similarly, the turbo-generators of Units - 1, 5 and 6 were taken up for overhauling after delays of 12 to 36 months. While the turbo-generator of Unit - 3 had not been overhauled since October 1999, the boiler and turbo-generator of Unit - 4 was overhauled twice within a span of three years.
- The boilers and turbo-generators were to be overhauled within periods of 30 and 50 days respectively. The actual overhauling of boilers was completed in extra time of four to thirteen days and extra time of 22 to 32 days when the overhauling of both boilers and turbo-generators was taken up simultaneously. The time overrun was mainly due to delay in arranging materials and mobilisation by the contractor, delay in refractory work of the bottom ash hopper and delay in removal of furnace scaffolding.

Delay in overhauling of the boilers and turbo generators resulted in loss of generation of 513.86 Mkw/h valued at Rs 18.91 crore.

The reasons mentioned indicated management's failure to assess the actual problems/ defects through regular maintenance, as well as lapses of the contractors in mobilising and delay in completion of furnace scaffolding work. Due to absence of penalty clause, the Station failed to recover any damages from the contractor. The excess time taken in overhauling the boilers and turbogenerators resulted in loss of generation of 513.86 Mkw/h valued at Rs 18.91 crore (excluding auxiliary consumption and fuel cost).

Further, non-adherence to the time schedule for maintenance and postponement of overhauling, was also one of the reasons for forced outages as discussed in Paragraph 2.1.22.

While accepting the audit observations, the Government/ Management stated (August/ September 2006) that the entire planning had been jeopardised due to grid demand and outage of other power stations, in the interest of which the shutdown programme had to be sacrificed/ deferred thereby inviting unforeseen outages. The Management, was, however, silent on the reasons for delay in overhauling of boilers and turbogenerators leading to loss of generation of 513.86 Mkw/h valued at Rs 18.91 crore.

Poor maintenance work during planned outages

Poor maintenance during planned outages led to repeated forced outages.

2.1.18 For uninterrupted and efficient operation of the Station, it is imperative that the state of health of the boiler, turbo-generator and accessories be constantly monitored and corrective measures taken. During all planned outages and scheduled maintenance, the problem-prone areas are to be checked thoroughly to obviate recurrence of outages. It was noticed in audit that the Station failed to follow these procedures. As a result there were forced outages on 18 occasions aggregating 1,552 hours within 30 days from the date of restart of the Units after planned outages as detailed in **Annexure-13**. This indicated deficient maintenance and failure to monitor the vulnerable areas during outages and maintenance.

Deficient monitoring and supervision during overhauling led to loss of generation of 66.95 Mkw/h valued at Rs 2.69 crore.

2.1.19 Audit further noticed that on five occasions during July 2001 to August 2005, the Station management failed to examine the inlet/ outlet pipes and valves as well as to supervise and monitor during overhauling before restart of Unit-3, 4 & 5 (**Annexure-14**) leading to shutdown for 319.21 hours. Consequently, the Station sustained loss of generation of 66.95 Mkw/h valued at Rs 2.69 crore (net of fuel cost).

The Government/ Management stated (August/ September 2006) that the overhauling of TGs was undertaken through BHEL, the original equipment manufacturer, and the boilers were overhauled by approved contractors. It was, however, noticed in audit that the failures occurred due to lack of supervision by the Station management.

Lack of co-ordination and planning in maintenance work

Absence of co-ordination between overhauling programme and forced outages led to loss of revenue of Rs 6.01 crore.

2.1.20 Planning to carry out the scheduled overhauling during the periods of forced outages by way of advancing the overhauling work aids in minimising the periods of outages. Audit scrutiny of maintenance records revealed that failure to utilise the periods of forced outages, occurring two to four days prior to planned maintenance, resulted in avoidable outages of 668.26 hours as detailed below :

Unit No.	Period of overhauling	Prior instances of forced outage	Outage hours	Loss of revenue Amount (Rupees in crore)
3	17.10.2002 to 23.11.2002	12.10.2002 to 17.10.2002	89.00	0.68
3	13.11.2004 to 12.12.2004	05.11.2004 to 09.11.2004	97.43	0.93
4	24.08.2005 to 16.09.2005	19.08.2005 to 21.08.2005	46.13	0.41
5	17.10.2003 to 8.11.2003	05.10.2003 to 13.10.2003	187.30	1.72
6	03.07.2003 to 14.08.2003	21.06.2003 to 01.07.2003	248.00	2.27
	Total		668.26	6.01

Had the Station utilised these forced outages to take up the overhauling work by rescheduling the programme, it could have avoided loss of revenue of Rs 6.01 crore (net of fuel cost).

The Government/ Management stated (August/ September 2006) that it was difficult to advance the overhauling programme to synchronise with a forced outage, but occasionally the programme was synchronised. The reply is not tenable because there was nothing on record to show that such synchronisation was undertaken by the Management during 2001-06.

Generator-trouble due to lack of maintenance

Inordinate delay in rectifying a generator caused loss of generation of 495.490 Mkw h valued at Rs 20.50 crore.

2.1.21 Unit - 6 was under repeated shut down (June 2001 - March 2004) for 2,359.48 hours on six occasions, due to trouble in the generator babbitt seal. But the Management could rectify the defect only in March 2004 after five shut downs (1,978.54 hours) had already occurred. While accepting the audit observation, the Government/ Management stated (August/ September 2006) that the defect existed since commissioning (August 1993) of the Unit. The fact, however, remains that the Management rectified the defects only after 11 years of commissioning of the Unit resulting in loss of generation of 495.490 Mkw h valued at Rs 20.50 crore.

Forced Outages

Forced outages led to generation loss of 18,069.66 Mkw h valued at Rs 726.04 crore.

2.1.22 During 2001-06, the six units of the Station were under forced shut down for 14,341.10 hours on 493 occasions mainly due to leakages in the economiser tubes (4,608.44 hours) and other boiler tubes (4,626.58 hours) as well as mechanical failure/ electrical trouble (5,105.28 hours) (**Annexure-11**).

This led to loss of generation of 18,069.66 Mkw (net additional revenue : Rs 726.04 crore).

In this connection, the following points were noticed in audit :

2.1.23 Economiser tube leakage accounted for 32 *per cent* of the total forced outages. Since the outage hours due to economiser tube leakages at Units - 1, 2 and 3 during 2001-03 were high, the Management replaced (November 2002 - December 2003) 50 out of 360 economiser tube elements at a cost of Rs 60.70 lakh. Despite replacement, these units were under repeated shut down for 1,265.15 hours within intervals of 15 days to five months of operation, which was attributed (August 2006) by the Management to partial replacement and high ash content.

2.1.24 The Induced Draft (ID) fans are required to operate at an extra pressure due to use of coal with higher ash content. It is, therefore, imperative to regularly examine their health during outages or overhauling. It was noticed in audit that it was shut down for 402 hours and 226 hours in December 2001/ January 2002 and February 2003 respectively. Despite this long shut down, it was again shutdown for 80 hours and 81 hours in February 2002 and March 2003 respectively to undertake ID fan repair. Similarly, Unit – 4 was shut down for 196 hours in February/ March 2002 for ID fan repair, though the Unit had been overhauled only during October 2001 to January 2002. This indicated lack of monitoring/ inspection of ID fans during overhauling leading to avoidable outage of 357 hours with resultant generation loss of 74.97 Mkw valued at Rs 2.59 crore.

The Government/ Management stated (August/ September 2006) that the Station did not always follow the practice of dismantling the entire auxiliary equipments under the umbrella of once failed equipment and resorted to condition-based monitoring. The contention is not acceptable as the Management should have devised a mechanism to monitor problem prone areas to ascertain the health of the machinery and take remedial action accordingly.

Inept implementation of renovation & modernisation (R&M) programme

Renovation and modernisation programme was not implemented effectively.

2.1.25 To replace several components of Units 1, 2 and 3 with improved versions and modernise the electrostatic precipitator (ESP) system with installation of Ammonia-based Flue Gas Conditioning (AFGC) system, the Station took up (2000-01) 23 jobs at an estimated cost of Rs 96.92 crore. It was observed in audit that-

- Two jobs (*viz.* modernisation of existing analogue control system at Units 1, 2, 3 and installation of scrappers and skirts for conveyors at coal handling plant), estimated to cost Rs 20.25 crore, were not taken up even after lapse of five years due to failure to finalise the specifications.

- Nine jobs, estimated to cost Rs 8.10 crore, were executed (November 2002 – July 2004) at a lower cost of Rs 4.83 crore, while six jobs estimated at Rs 11.36 crore were completed (November 2002 – March 2005) at an escalated cost of Rs 14.86 crore. The main reasons for delays and cost variations (escalation - Rs 3.50 crore and lower expenditure - Rs 3.27 crore) were non-inclusion of all units in the original estimate, delays in placement of orders and saving in expenditure due to less work undertaken than estimated.
- Five jobs, estimated at Rs 22.21 crore, had not been completed even after lapse of five years due to delay in submission of drawings and placement of orders. Expenditure incurred so far amounted to Rs 25.97 crore (March 2006).
- One job viz. installation of AFGC system along with ESP was estimated at Rs 35 crore. The installation of AFGC system was completed in March 2005 at a cost of Rs 3.28 crore, while the work for installation of ESP system was not taken up till September 2006, for reasons not on record.

The Government/ Management stated (August/ September 2006) that R&M cost could be recovered through tariff only if it brings down the heat rate *vis-à-vis* generation cost. Hence, some R&M works were taken as replacement jobs to recover their cost.

The fact, however, remains that CEA had recommended taking up R&M works not only to extend life of the plant but also to enhance operational efficiency. Thus, non-implementation of R&M programme even after the lapse of five years had an adverse effect on the generating efficiency of the Station.

Non-replacement of Economiser tubes of Unit 4 during R&M

2.1.26 Economiser tube leakages led to more than half of the boiler tube leakages. Leakages in the Economiser tubes of Unit - 4 led to shut down on 14 occasions (1,304 hours) during April 2001 to March 2006, with consequent loss of generation of 273.84 Mkw/h valued at Rs 11 crore. Although the Management replaced the Economiser tubes of Units -1 to 3 under R&M programme, it did not take any action to replace the same in Unit 4 under R&M work.

Incomplete Dry Ash Collection System

2.1.27 Against an estimated cost of Rs 15 crore for installation of a dry ash collection system under R&M, the Station issued (July 2002) a work order on Mahindra Ash Tech Limited for Rs 24.25 crore to be completed by October 2003. The work was actually completed in August 2006 after delay of 34 months due to delays in finalisation of location/ drawings, receipt of materials, lack of deployment of manpower by the contractor, non-availability of shut down and change in scope of work. Consequently, the Station had to

Inordinate delay in completion of dry ash collection system led to additional expenditure of Rs 9.74 crore on ash disposal.

incur additional expenditure of Rs 9.74 crore towards ash disposal from ash ponds till March 2006.

The Government/ Management accepted (August/ September 2006) the audit observations.

Additional expenditure on renovation of De-mineralisation (DM) plant

2.1.28 The DM Plant for Units – 1 to 3, commissioned in 1983, was in bad condition. Hence, the Station obtained (September 2002) an offer from Ion Exchange Limited (IEL), the original manufacturer of the plant, for supply and erection of the plant at a negotiated price for Rs 3.23⁶ crore. The Management, however, did not accept the offer due to subsequent change in the scope of work.

In October 2002, the Management decided to finalise the contract after inviting open tenders. The order was placed (June 2003) on IEL, the lowest bidder, at their negotiated price of Rs 3.49 crore with scheduled completion of the work by April 2004. The work was completed in October 2004 after a delay of six months due to non-availability of shut down. The delay in placement of the order led to an additional expenditure of Rs 26 lakh.

Residual Life Assessment studies

2.1.29 As per the CEA's guidelines, 'Residual Life Assessment' (RLA) studies of the generating units are required to be taken up to improve the operational efficiency of the thermal power stations. This is to be done through agencies approved by the Directorate of Boilers, Government of West Bengal, on completion of 20 years of service or one lakh hours of operation. Accordingly, out of six units, Units 1, 2 & 3 were due for RLA studies.

No RLA study was taken up for Unit-3 although it had completed 1.51 lakh operational hours.

The Station engaged (December 2003/ June 2005) Alstom Power Boiler Services Limited and NTPC Alstom Power Services Limited to conduct the RLA studies of the boilers of Units – 1 and 2 respectively at an expenditure of Rs 24.25 lakh. Another RLA study of the turbo-generator (Unit 1) was taken up (November 2003) by BHEL at an expenditure of Rs 21 lakh, to assess the condition of Intermediate Pressure rotor which was facing problems. But no RLA study for turbo-generator of Unit – 2 was taken up. Although Unit - 3 had completed 1.51 lakh operational hours, no RLA study was conducted (June 2006).

Recommendations of RLA studies for Units-1 & 2 were not acted upon even after expenditure of Rs 45.25 lakh.

Though the RLA studies of Units – 1 and 2 suggested action to improve the life/ performance of the boilers/ turbo generators (**Annexure-15**), the Management did not take any remedial action, for no reason on record. Since the management did not act upon the recommendations, the entire expenditure of Rs 45.25 lakh proved unfruitful. This also had an adverse impact on the performance of these two boilers and turbo generators leading to frequent shutdowns of the Units.

⁶ Supply –Rs 2.55 crore, Erection – Rs 67.50 lakh

Poor thermal efficiency and high consumption of fuel

2.1.30 Thermal efficiency of a thermal power station indicates the efficiency of converting thermal energy into electrical energy and is the aggregate of the boiler and the turbine efficiencies. Against guaranteed efficiency of 35.96 per cent, the actual thermal efficiency of the Station marginally increased from 29.24 per cent in 2001-02 to 30.43 per cent in 2004-05 and again reduced to 29.42 per cent during 2005-06 (**Annexure-16**). Reasons for poor thermal efficiency were absence of high pressure heater, flue gas temperature at air pre-heater in excess of the norm of 140°C, lower intake of air for combustion leading to higher unburnt fuel and carbon monoxide etc. which were controllable by improving boiler and turbine control settings. This translated into higher consumption of fuel, as discussed below.

Poor thermal efficiency led to excess consumption of 15.72 lakh tonnes of coal valued at Rs 176.41 crore.

2.1.31 Light Diesel Oil (LDO) and coal are the two fuels required for running a thermal plant. While LDO is required at lighting up, coal feeding is needed on stabilisation. After stabilisation, occasional LDO firing is required if the coal supply is reduced due to poor coal quality, coal mill outages, jamming of coal mills, presence of excess moisture in coal etc. While finalising the tariffs, WBERC fixed the norms for heat rate, gross calorific value of coal etc. The details of the total energy generated, fuel consumed, heat consumption in excess of norms together with the value thereof for the past five years up to 2005-06 (**Annexure-17**) indicated that the Station could not achieve the norms in any of the years. This led to excess consumption of 15.72 lakh tonnes of coal valued at Rs 176.41 crore during this period due to poor thermal efficiency, lower calorific value of coal, repeated failure of super heaters, economiser and condenser tube leakages etc. leading to heat loss in the furnace.

While accepting the audit observation, the Government/ Management stated (August/ September 2006) that action had been taken to control combustion loss, stack loss, addition of an additive etc. and attempt was being made for more captive mines and supply of washed coal.

Non-introduction of fuel additive resulted in excess consumption of 1.57 lakh tonnes of coal valued at Rs 8.29 crore.

2.1.32 The excess consumption of coal could have been reduced by using “Thermact”, an additive with coal. The additive was developed (January 1999) by The Indian Institute of Technology, Bombay for improved combustion and reduced pollution. Abhitech Energycon Limited, Mumbai (AEL) was manufacturing and supplying *Thermact* to thermal power stations of Maharashtra State Electricity Board (MSEB) since 2003. Based on AEL’s offer (February/ April 2004), officers of the Station visited (June 2004) MSEB to assess utility of *Thermact*. Thereafter, the Company successfully tested (November – December 2004) *Thermact* in Unit – 4 and found that use of the additive resulted in savings of 2.44 per cent in the unit heat rate⁷ even with low grade coal. Despite this, the Station failed to introduce the additive. After one year it initiated another trial (October/December 2005) in Unit – 1. Again, the heat consumption was reduced by 2.6 per cent with decrease in

⁷ Number of calories of coal and oil required to generate one kilowatt-hour of electricity

coal consumption. But the Station was yet to start using *Thermact* to reduce the heat consumption.

Had the Station introduced the additive from January 2005 itself, it could have reduced excess consumption of coal by 1.57 lakh tonnes valued at Rs 8.29 crore (after adjustment of cost of *Thermact* of Rs 12.45 crore).

Procurement of Coal

2.1.33 The Station receives coal from different collieries of Eastern Coal Fields Limited (ECL), Bharat Coking Coal Limited (BCCL), Mahanadi Coal Fields Limited (MCL) and Bengal Emta Coal Mines Limited (BECML) according to allotment by the Linkage Committee of the Ministry of Energy, GOI. The Company had no agreement with coal suppliers except with BECML to ensure supply of coal of requisite grade, settlement of claims towards grade slippage and short supply.

Receipt of coal against the linkage allotment during the last five years ended 2005-06 fell short by 7.34 to 16.79 *per cent* which restricted the generation by 357.786 MkwH valued at Rs 18.64 crore. The Management did not make efforts to obtain coal according to the allotted linkages.

Variations in calorific value of coal

2.1.34 The required calorific value of coal varies according to the boiler design. The required calorific value of coal was 4,450 KCAL/Kg (BHEL-make) and 4,243 KCAL/Kg (ABB-make). The details of average calorific value of coal received and quantity of coal received in terms of desired minimum calorific value (**Annexure-18**) indicate that the average annual calorific value of coal received was one to nine *per cent* below the design parameters resulting in higher consumption of coal valuing Rs 188.27 crore.

The Government/ Management stated (August/ September 2006) that attempts were being made for more captive mines and supply of washed coal from washeries.

Grade Slippage

2.1.35 The Station preferred claims aggregating Rs 68.45 crore towards variation in quality (grade) of coal received from April 2001 to March 2006 from BECML (Rs 9.85 crore), ECL (Rs 39.06 crore), BCCL (Rs 7.31 crore) and MCL (Rs 12.23 crore). According to the Management, if the variation between the grade slippage measured at loading and unloading points was within five *per cent*, it was settled at average value, whereas if the variation was in excess of five *per cent*, the referee sample was analysed by a mutually agreed independent body. Audit scrutiny revealed that -

- The agreement (May 1997) with BECML provided for joint sampling of coal at the Station and in the event of dispute, sample analysis done by Central Fuel Research Institute, Dhanbad would be binding on both the Company and BECML. BECML disputed the claims of

Rs 5.06 crore (May 2003) and Rs 3.47 crore (June 2004) towards grade slippage and proposed (January 2005) to settle the claim of May 2003 at Rs 3.24 crore on the basis of average grade slippage of remaining 11 months of the respective financial year. Although the proposal contravened the terms of the agreement, the Station accepted (July 2005) the same, thereby extending undue favour of Rs 1.82 crore to BECML. The balance claims of Rs 4.79 crore were yet to be settled (September 2006).

- Out of the total claim of Rs 39.06 crore, ECL adjusted Rs 31.45 crore against coal bills while the Company withdrew the claim of Rs 1.61 crore. The balance claims of rupees six crore were yet to be settled (September 2006).
- Out of the total claim of Rs 7.31 crore, BCCL accepted (August 2006) the claims at lump sum of rupees three crore. The balance claims of Rs 4.31 crore were withdrawn by the Company.
- Similarly, out of total claims of Rs 12.23 crore, MCL accepted (2004-05) claim of Rs 7.70 crore. The balance claims of Rs 4.53 crore were disputed by MCL, which were yet to be settled (September 2006).

The Government/ Management stated (August/ September 2006) that the Station preferred to lodge claim with the coal companies as early as possible. Subsequently, the value of the claim was reduced to accommodate variations in measurements and settled after interaction at Corporate level. The reply is not tenable as the Station was unable to realise the claimed amount of Rs 12.27 crore from the coal companies due to non-enforcement of the terms of the agreement in case of BECML and absence of any agreement with other coal suppliers.

Stones/ Shale

2.1.36 During 2001-06, the Station raised claims on the coal suppliers for refund of Rs 19.01 crore against supply of 1.18 lakh tonnes of stones/ shale along with the coal. None of the suppliers except BCCL and ECL accepted the claim of the Company. MCL disputed (August 2005) the claim of Rs 1.21 crore on the ground that the system of mining followed by them, offered no scope to supply stones/ shale. The Station did not rebut MCL's contention. The Station did not also periodically dispose the accumulated stones/ shale which occupied space in the coal yard.

The Government/ Management stated (August/ September 2006) that it was very difficult to measure the quantity of stone/ shale while unloading. Stones were segregated manually from the conveyor belt, weighed and claims lodged with the coal companies on weighted average basis. The contention is not acceptable as the Station could have devised some mechanism to measure the quantity of stones at unloading point so as to be able to lodge claims towards supply of stones on realistic basis or could have evolved some mutually agreed norms.

The Management of ECL and BCCL accepted (March 2005/ August 2006) the claims aggregating Rs 1.64 crore as a 'package deal' out of the total claim (April 2000 to October 2004) of Rs 6.47 crore and the Company agreed to forgo its balance claim of Rs 4.83 crore.

Even after payment of Rs 3.34 crore to WBMDTC for ensuring loading of coal free from stones, 27,275 tonnes stones were received leading to loss of Rs 6.73 crore during 2001-06.

2.1.37 Audit noticed that the Station had engaged (February 2003) WBMDTC⁸, a Government company, as its' agent for monitoring and ensuring the loading of coal, free from stones, on payment of Rs 10.30 to 10.80 per tonne. During 2003-06, though the Station paid Rs 3.34 crore to WBMDTC, it received 27,275 tonnes of stones from ECL leading to loss of coal valued at Rs 6.73 crore. The Company neither called for reasons from WBMDTC for loading of stones nor did it impose any penalty in the absence of any provision in the agreement. Thus, even after spending of Rs 3.34 crore, the intended benefit could not be derived in the absence of an enabling penal provision.

While accepting the audit observation, the Government/ Management stated (August/ September 2006) that WBMDTC was primarily engaged to reduce transit loss and their charges were less than the transit losses reduced. The contention is not acceptable as WBMDTC was contractually bound to ensure loading of coal free from stones.

Unrealised coal breaking and cleaning charges

2.1.38 The Station spent (April 2001 – March 2006) Rs 4.17 crore for breaking lumpy coal as well as cleaning muddy coal. But in the absence of any agreement, no claim could be raised on coal suppliers resulting in loss of Rs 4.17 crore.

Excess consumption of de-mineralised (DM) water

2.1.39 DM water is obtained by purifying the available water with caustic soda, hydrochloric acid *etc.* to eliminate suspended and soluble solids as well as gases of acidic or alkaline nature. DM water is converted into steam to drive the turbines of the turbo-generators and is also needed to make-up for the water loss arising from the bleeding of blowdown⁹ water from the boilers as well as evaporation, wind and splash loss from the cooling towers. At full capacity, each unit of the Station requires 700 tonnes of DM water at the time of start-up that would be cooled and recycled again and again. The equivalent of two *per cent* of this water is, however, required to make up for normal losses.

It was noticed in audit that during April 2001 to March 2006, the make-up exceeded the norm by 0.7 to 22.5 *per cent*, leading to excess consumption of three lakh Kilolitres (KI) of DM water valuing Rs 25.25 lakh. Further, the Station had produced 31.61 lakh KI of DM water at an expenditure of Rs 2.72 crore during the same period, while consumption was only

⁸ West Bengal Mineral Development and Trading Corporation Limited

⁹ Steam boilers must be blown down periodically to prevent the amount of solids in the steam boilers from getting too high

24.90 lakh KI and 6.68 lakh KI valued at Rs 57.54 lakh was used for unit start-up and shut down. The balance of 2,980 KI remained in stock.

The Government/ Management attributed (August/ September 2006) the excess consumption of DM water to leakages as the quality of valves supplied (1983) by BHEL was not up to the mark and stated that the matter had since been taken up with BHEL. It was not stated as to why the Management took up the matter only in August 2006 when excess consumption had been occurring since inception (1983).

Purchase of materials

Ill-planned procurement resulted in blocking up of fund of Rs 16.35 crore.

2.1.40 The Company had not prepared any purchase manual. It had been centrally procuring generic materials through open or limited tenders and proprietary items from the original equipment manufacturers. The Company had not also fixed any monetary limits for inviting open, limited or single tenders. The following deficiencies in the purchase procedure were noticed in audit -

- The Deputy General Manager (Maintenance) initially placed (July 2003) an indent for two sets of 'Duocast' grinding rolls for use within two months, while one set was already available in stock since 2001. The quantity required was increased (September 2003) to six sets, without any supporting indent on record. The Station placed (December 2003) an order on BHEL for six sets at Rs 47.70 lakh. The rolls were received (April 2004) and since then all the seven sets were lying unutilised (September 2006) indicating that the purchases had been made without requirement. This led to blocking up of Rs 60.90¹⁰ lakh and loss of interest of Rs 10.35 lakh up to 31 March 2006. The Management stated (August 2006) that the fresh rolls would be utilised when the existing grinding rolls break.
- The Boiler & Accessories department annually consumed (2000-04) one coal mill gear box. The department indented four gear boxes in February 2004. Orders were placed (March/ August 2004) for procurement of two each on Flenders Limited and Premium Energy Transmission Limited at Rs 96 lakh, and the gear boxes were delivered in December 2004 and April 2005. Two gear boxes were issued to the department during April 2005. The original gear boxes were, however, not returned to the Stores.

Though two gear boxes were available in stock, the Station ordered (September 2004) and received (January 2006) one more set for Rs 24 lakh from Greaves Cotton Limited, which remained unutilised (September 2006). This led to blocking up of Rs 24 lakh. The Management stated (August 2006) that to reduce the prices of gear boxes, it decided to go in for vendor development to bring in competition.

¹⁰Landed cost including freight, taxes etc. of Rs 8.70 lakh per set

- The Station decided (February/ August 2003), in view of the poor condition of the low pressure (LP) and intermediate pressure (IP) rotors, to procure LP and IP rotors from BHEL for uninterrupted operation of turbine of Unit - 1. Two purchase orders were placed (July/August 2003) on BHEL at Rs 10.15 crore (excluding taxes and duties) for supply by 15 October 2004. The Station could not replace the rotors due to six months' delay in supply of rotors by BHEL. The Station, however, did not impose liquidated damages of Rs 47.37 lakh on BHEL though provided for in the agreement. It extended the delivery schedule up to 15 April 2005. Even after receipt of rotors within the extended schedule, the Station did not replace the rotors till September 2006. Reasons for non-replacement were not on record. Thus, procurement of rotors without immediate requirement led to blocking up of Rs 15.50 crore and loss of interest of Rs 1.32 crore thereon up to 31 March 2006.

The Management stated (August 2006) that BHEL did not accept the liquidated damage clause subsequently. The reply is not tenable since BHEL had accepted the offer including the liquidated damage clause and hence the Management's inaction to impose LD lacked justification.

Inventory control

Excessive inventory holding at 26 to 69 months' consumption resulted in additional holding cost of Rs 5.91 crore per annum.

2.1.41 During 2001-02 to 2005-06, the Station's expenditure on purchases (excluding fuel) was Rs 169.04 crore through 5,882 orders. The average inventory held by the Station was Rs 78.94 crore during the same period.

The management had neither prescribed any norms for inventory holding nor had it adopted the norms of similar generating units of National Thermal Power Corporation Limited which follow the norm of four months' inventory holding. It would be seen from **Annexure-19** that the Station had high inventory holding of upto 69 months. This resulted in additional inventory holding cost of Rs 5.91 crore *per annum*.

In this connection the following points were noticed in audit :

- Although the Stores were operating since 1984-85, the Station had not prepared any Material Manual for effective control over the stores.
- The Station had not determined maximum, minimum and re-ordering inventory levels for any item of stores.
- There was no system to periodically identify slow moving, non-moving and idle materials in store for their utilisation/ disposal. The Management intimated (August 2006) that 13,033 items of stores valued at Rs 24.35 crore remained non-moving for the past five to ten years thereby increasing the idle inventory.

Stores items valuing Rs 80.21 lakh were not traceable.

- The Station had not formulated a system of regular physical verification of stores. There were 43,765 items in the stores, all of which were last verified in August 2002. It was noticed in audit that out of 200 high value items, the Station could not trace out (September 2006) nine items valuing Rs 80.21 lakh.

Cost of generation

2.1.42 The cost of generation and cost per Kwh of power sent out during 2001-06 is given in **Annexure-20**. It would be seen from the Annexure that the cost of per unit generation increased from Rs 1.48 per Kwh in 2001-02 to Rs 1.56 per Kwh in 2004-05 and the cost of power sent out increased from Rs 1.66 per Kwh in 2001-02 to Rs 1.74 per Kwh in 2004-05 due to failure of the Management to control different components of generation cost within the limits approved by WBERC as analysed below:

- Low capacity utilisation (Paragraph 2.1.8).
- Excess consumption of coal and low thermal efficiency leading to higher fuel cost (Paragraphs 2.1.30 to 2.1.32).
- Repeated outages of the Station and increase of Repairs and Maintenance cost by 58 *per cent* from Rs 44.37 crore in 2001-02 to Rs 70.03 crore in 2004-05 due to charging of Renovation and Modernisation expenses to repairs.
- Rise in administrative and general expenses by 37 *per cent* in 2004-05 over 2001-02.
- Excess expenditure of Rs 9.74 crore towards excavation of fly ash from ash pond due to non-completion of Dry Ash Collection System.

As the cost of power sent out was higher by six to 23 paise per KWH than the realisable cost (Rs 1.42 to Rs 1.68 per Kwh) fixed by WBERC, the Company sustained loss of Rs 378.40 crore on sale of power during 2001-05. The cost of generation per unit and the cost of power sent out reduced to Rs 1.49 and Rs 1.68 respectively in 2005-06 due to charging of depreciation on assets at lower rates and reduction in rates of interest from 12/13 to 8.50 *per cent per annum*.

The Government/ Management stated (August/ September 2006) that steps were being taken to reduce generation cost through reduction in secondary oil consumption, combustible loss, DM water consumption; improvement in combustion efficiency and condenser vacuum; recycling of plant effluent; coal stock optimisation, coal purchased at lower prices, coal blending and captive mines.

Conclusion

The performance of the Kolaghat Thermal Power Station was found to be sub-optimal due to fixation of generation targets below the available

hours, low plant load factor, low thermal efficiency, high auxiliary consumption, inefficient fuel management, high inventory costs, failure to follow the prescribed preventive maintenance schedule, high incidence of forced outages coupled with weak implementation of renovation, modernisation and life extension schemes, leading to higher cost of generation.

Recommendations

The Management needs to :

- **fix higher achievable generation targets to increase the plant load factor as well as sell surplus generation to other regions.**
- **enhance thermal and fuel efficiencies with improved technology, using coal additive as well as enter into agreements with coal suppliers for ensuring receipt of adequate coal of requisite grade, free of stones, shale, mud and oversize lumps.**
- **chalk out and follow a schedule for periodic maintenance of boilers and turbo-generators to ensure timely overhauling.**
- **speed up action on life extension studies and the renovation and modernisation programme.**
- **strengthen the cost control mechanism for inputs to minimise the loss on sale of power.**

While accepting the recommendations, the Government/ Management assured (August/ September 2006) to honour all the audit observations as highlighted.

2.2 PRODUCTION AND MARKETING PERFORMANCE- WEST BENGAL DAIRY AND POULTRY DEVELOPMENT CORPORATION LIMITED

Highlights

Performance of West Bengal Dairy and Poultry Development Corporation Limited (Company) with regard to production and marketing activities was found to be sub-optimal due to low level of production at feed milling plants (FMPs), inept implementation of the modernisation programme, lack of marketing efforts, absence of quality control etc.

(Paragraphs 2.2.11, 2.2.12, 2.2.13, 2.2.15, 2.2.16, 2.2.18 & 2.2.21)

Out of five FMPs, the capacity utilisation of four FMPs was poor ranging between 14 and 49 per cent during 2001-06 due to failure of the Company to make the farmers aware of the benefits of balanced nutritional diet for better animal health, combating competition from the Co-operative, lack of demand due to poor quality and locational disadvantage of the FMP to meet the requirement of farmers.

(Paragraphs 2.2.10, 2.2.11, 2.2.12, 2.2.13 & Annexure-21)

To meet the customers' demand of pelletised feed the Company undertook (2002-05) the modernisation of existing FMPs at Siliguri and Kalyani for production of pelletised feed. While the modernisation of Siliguri FMP was completed after a delay of 19 months, the same for Kalyani was not taken up due to management's apathy to utilise the internal fund for modernisation programme. The Company diverted Rs 50 lakh earmarked for modernisation of Kalyani FMP for working capital requirements. This also resulted in loss of production of 10,558 MT of pelletised feed valued at Rs 11.33 crore.

(Paragraphs 2.2.15 & 2.2.16)

Though the consumption of raw ingredients for production of animal feed was in excess/ short of the prescribed feed formulation by 10 to 50 per cent the Company did not monitor the consumption and assess its impact on the quality of feed.

(Paragraph 2.2.17)

None of the FMPs could achieve the desired level of Digestible Crude Protein and Total Digestible Nutrient fixed by the Bureau of Indian Standards, for balanced concentrated cattle feed. The Company did not devise any mechanism to test the quality of finished feed though directed by the Board of Directors (March 1998) to do so.

(Paragraph 2.2.18)

Delay in paying suppliers' bills within the specified time schedule resulted in excess expenditure of Rs 1.78 crore towards procurement of raw ingredients during 2001-05.

(Paragraph 2.2.19)

Due to absence of an effective marketing strategy and inadequate dealer network the Company's market share was less than one per cent. Faulty pricing policy resulted in over recovery of Rs 7.68 crore from the farmers, besides the product becoming more uneconomical and non-competitive.

(Paragraphs 2.2.21 & 2.2.22)

Introduction

2.2.1 West Bengal Dairy and Poultry Development Corporation Limited (Company) was incorporated (February 1969) as a wholly owned Government Company to develop dairy and poultry in the State by establishing dairy and poultry farms, and production of balanced cattle, poultry, fish and other animal feed.

The activities of the Company are at present confined to production and sale of different types of animal feed, under the brand name 'EPIC'¹, for increasing production of milk, meat, eggs and fish through the use of quality feed as well as by maintaining better health and quick breeding of animals and birds. Between 1973-74 and 1994-95, the Company established five feed milling plants (FMPs) located in five districts² with aggregate installed capacity of 312 MT per day on three shift basis. The share of production of cattle feed, poultry feed and other feed to its total production was 67, 26 and 7 per cent respectively.

2.2.2 The management of the Company is vested in a Board of Directors with the Minister-in-charge, Animal Resource Development Department (ARDD), Government of West Bengal as the Chairman of the Board. The Managing Director is the Chief Executive of the Company and is assisted by the Secretary, Executive Officer (Headquarters), Deputy Manager (Finance & Accounts) and Deputy Manager (Purchase) in its day-to-day affairs. Besides, there are Plant Managers to look after the production and sale of animal feed. The post of Manager (Marketing) had been lying vacant since July 2005.

2.2.3 During 2001-05, the Company incurred losses in all the four years which increased from Rs 24.40 lakh in 2001-02 to Rs 1.10 crore in 2004-05. The accumulated losses of Rs 4.04 crore as of 31 March 2005, representing 78 per cent of its paid up capital (Rs 5.20 crore) were attributable to poor production performance of FMPs, poor quality of products, lack of marketing efforts and strategy and unrealistic pricing structure.

¹ Essential for poultry and indispensable for cattle

² Nadia, West Medinipore, Burdwan, Malda and Darjeeling

Scope of Audit

2.2.4 The performance audit, conducted during April to May 2006 covers the production and marketing performance of the Company for the last five years up to 2005-06. The audit findings are based on test check of records at the Company's Headquarters' office at Kolkata and four³ out of five feed milling plants.

Audit objectives

2.2.5 Performance audit of the production and marketing performance of the Company was carried out to assess whether and to what extent :

- an efficient production plan for different feed milling plants (FMPs) was devised and implemented;
- the production capacity was utilised optimally;
- the modernisation programme of different FMPs was implemented efficiently;
- the funds meant for modernisation of FMPs were put to effective use in a time bound schedule and that there were no diversions;
- the consumption of raw ingredients for production of animal feed followed the norms of prescribed feed formulation;
- an effective mechanism was devised to evolve uniform feed formulations amongst the FMPs for different types of feed and to prescribe the desired level of nutritional value of animal feed produced by FMPs;
- a well-coordinated marketing strategy was devised and put in place and was working satisfactory; and
- the price structure of animal feed was fixed as per the directions issued by the Board of Directors and the same was reviewed periodically to assess their efficacy.

Audit Criteria

2.2.6 Production and marketing performance of the Company was assessed against the :

- objectives of the Company;
- Board Minutes and agenda notes;
- guidelines issued by the Bureau of Indian Standards;

³ Kalyani, Siliguri, Durgapur, Salboni

- report of West Bengal University of Animal and Fishery Sciences (2000-2001),
- norms of feed formulation;
- livestock Census Report;
- instructions issued by the Board of Directors; and
- laboratory test reports of raw ingredients and finished animal feed.

Audit Methodology

2.2.7 The methodology adopted for attaining audit objectives with reference to audit criteria was examination of-

- production and sales records;
- agenda and Board minutes, modernisation files and correspondence files;
- records relating to feed formulation at feed milling plants;
- laboratory test reports;
- pricing policy; and
- interviewing the dealers.

Audit findings

The audit findings were reported to the Government/ Management in July 2006 and discussed at the meeting of the Audit Review Committee for Public Sector Enterprises (ARCPSE) held on 18 September 2006, where the Government/ Management was represented by the Principal Secretary, Department of Animal Resources and Development (ARD), Government of West Bengal and the Managing Director of the Company. The review was finalised after considering views of the Government/ Management.

The audit findings are discussed in the succeeding paragraphs.

Non utilisation of borrowed funds/ equity capital

2.2.8 The Company borrowed (June 1999) Rs 1.12 crore from WBIDFC⁴ at an interest rate of 16 *per cent per annum* for setting up of 15 animal husbandry and dairy projects at different locations. But, due to the decision of the State Government to implement the projects through District Zilla Parishads, the entire fund remained unutilised.

⁴ West Bengal Infrastructure Development Finance Corporation Limited

Instead of utilising the borrowed funds of Rs 1.12 crore for setting up dairy projects, Rs 43.21 lakh were blocked in the State-owned poultry farm while Rs 68.48 lakh were invested in bank deposits.

Instead of refunding the loan, the Managing Director, without the approval of the Board of Directors, invested (June 1999) the entire fund in short-term deposit with a bank at an interest rate of 10.25 *per cent per annum* for the period upto June 2001. Thereafter, on the direction of the Chairman, the Company invested Rs 43.21 lakh in a composite State owned poultry farm at Domkol without getting any return on its investment. The balance fund of Rs 68.48 lakh was again invested in fixed deposits with banks at interest of eight *per cent per annum*. The Board's approval was again not taken.

It was noticed during audit that even after this matter was discussed by the Board (June 2004 meeting), no action was taken to refund the loan taken at a high rate of interest of 16 *per cent*. The Company had approached the State Government for release of grant to repay the loan along with interest, but this was not accepted by the State Government (September 2004). Management's efforts (January 2006) to get waiver of interest also did not evoke any response from WBIDFC. The Company has not repaid the dues so far (July 2006). The Management stated (August 2006) that it did not take any initiative to refund the loan because it was under the impression that the loan would be converted into grant. The reply is not tenable as at no stage had the Government indicated its plans to convert the loans into equity. There was no justification for the Company not to have refunded the loan taken at 16 *per cent* when it was not required and to have invested it in bank deposits at a substantially lower rate of interest.

Thus, unjustified investment of the borrowed funds in short term deposits as well as in a project not owned by the Company, resulted in blocking up of funds of Rs 43.21 lakh as well as loss of interest of Rs 1.66 crore during 1999-2006 due to differential rate of interest between the borrowing rate and the rate of return on investment.

2.2.9 During 2001-06, the Company received Rs 1.91 crore from the State Government towards share capital of which Rs 95 lakh were received during February 2006. The Company spent only Rs 36.50 lakh towards procurement of laboratory equipment, installation of crumbler unit, electrical installation at FMP, Kalyani, construction of godown at FMP, Salboni and the balance fund (Rs 1.54 crore) remained unspent (March 2006). The Management stated (August 2006) that the balance fund would be utilised to undertake the work of converting mash producing plants at Kalyani and Salboni to pellet producing units. The Principal Secretary, ARD department, however, intimated in the ARCPSE meeting (September 2006) that as a part of the restructuring process, a consultant, Ernest & Young had started studying the viability of FMPs and until that study was completed, no decision for modernisation of FMPs would be taken.

Poor production performance of Feed Milling Plants (FMPs)

2.2.10 The Company had five feed milling plants (FMPs) at Kalyani, Salboni, Durgapur, Gazole and Siliguri. These FMPs, except Durgapur are having facilities of producing animal feed both in mash and pellet form, while Durgapur FMP produces mash form of animal feed.

The State had an annual demand of 27.86 lakh MT animal feed for cross breed cattle population. The Company did not prepare any long-term plan so as to capture this huge demand. It also did not fix any annual target for production.

The Board had directed (March 1998) the Management to operate the FMPs at 75 per cent capacity to achieve the break even point (BEP) of production. None of the four FMPs covered in the performance review could, however, achieve 75 per cent capacity utilisation. It would be seen from **Annexure - 21** that the overall capacity utilisation of the four FMPs ranged between 14 and 49 per cent. The plant wise production performance is discussed below-

FMP at Kalyani

Capacity utilisation was low due to lack of demand and failure to make the farmers aware of the benefits of balanced nutritional diet.

2.2.11 Against the installed annual production capacity of 28,500 MT mash and 14,250 MT pellet, the actual capacity utilisation ranged between 24 and 28 per cent (mash) and between 19 and 52 per cent (pellet) during 2001-2006. The unit covered a large urban and 'peri-urban' demand area in the districts of North and South 24 Parganas, Kolkata, Hoogly and Howrah. However, a survey conducted (July 2001) by the West Bengal University of Animal and Fishery Sciences (WBUAFS) revealed that the majority of medium and large farmers of these areas used concentrate feed mixture, prepared by themselves from the raw ingredients⁵ available in the local market at cheaper prices. This led to low demand of the balanced feed manufactured by the Company. WBUAFS also observed that under this unscientific feeding system the livestock were in general underfed, malnourished and were prone to several metabolic disorders and diseases. Even after this survey, the Company did not attempt to make the farmers aware of the benefits of balanced nutritional diet for better animal health and improved milk production. Such awareness promotion would have ensured optimum utilisation of the Company's plant as well as enhanced milk production in the State.

While accepting the audit observation, the Government/ Management assured (August 2006) to take care of this aspect through interaction with the dealers, farmers and milk unions in their area of operation.

FMP at Siliguri

High prices and competition from the co-operatives led to under utilisation of the capacity.

2.2.12 Against the annual production capacity of 8,550 MT of mash and pellet, the plant utilisation ranged between 18 and 29 per cent only during 2001-2006. As analysed in audit, poor production was attributable to stiff competition from HIMUL⁶, a co-operative, and other private manufacturers in North Bengal. These producers sold the cattle feed at prices ranging from Rs 4.87 to Rs 7.19 per Kg against the prices of the Company ranging between Rs 5.70 and Rs 9.50 per Kg. During interview in the presence of representatives of the Company, 11 dealers/ retailers in the North Bengal intimated (May 2006) that HIMUL offered free transport facility to the dealers as well as operated chain activities of supplying feed and purchasing of milk from the farmers in turn. The Company did not take any action to make its price competitive nor did it chalk out effective marketing strategy to combat

⁵ A mixture of maize, wheat bran, rice bran, gram chuni etc.

⁶ The Himalayan Co-operative Milk Producers' Union Limited

competition. While accepting the audit observation, the Government/ Management assured (August 2006) to sell feed at affordable prices through Milk Unions/ Societies/ Co-operatives on credit basis which would in turn supply feed to farmers on credit, to be adjusted with the cost of milk supplied by the farmers.

FMP at Durgapur

2.2.13 The Plant had been operating since inception (1989) without the required license from the Inspector of Factories. The Government/ Management stated (August 2006) that the infrastructure of the plant was not adequate to meet the requirement of obtaining a licence. The fact remains that even after 17 years of operation, the Company failed to create adequate infrastructure to be eligible for a licence (September 2006).

Under utilisation of capacity was due to locational disadvantage of the plant.

Against the annual production capacity of 5,985 MT of mash feed, the actual utilisation ranged between 14 and 24 per cent mainly due to locational disadvantage of the plant. The plant was expected to mainly cater to the demand of farmers of Burdwan district having high cattle population around the eastern part of the district. As the plant is situated in the western part of the district, it failed to attract the prospective customers due to high transportation cost. Audit noticed that seven dealers of Burdwan district were lifting stock from FMP, Kalyani instead of from FMP, Durgapur.

In the absence of any facility for production of pelletised feed, the FMP, Durgapur had to transport 2,371 MT pelletised feed (28 per cent of its total sales) from FMPs, Kalyani and Salboni during 2001-06 incurring Rs 7.65 lakh towards road transportation charges to meet the farmers' demand in Burdwan district.

The Board had observed that the FMP lacked facilities to run at optimum scale of operation and had directed (September 2004) the Management to assess the economic benefits of conversion of Durgapur Feed Plant into a finished product godown as well as to take action to increase production and sale of FMP, Siliguri. The Management did not, however, take any action to convert the FMP into a godown nor did it take any effective step to increase the production of Siliguri FMP, resulting in continued under-utilisation of the plant, as discussed in paragraph 2.2.12 *supra*. While accepting the audit observations, the Principal Secretary stated (September 2006) in the ARCPSE meeting that presently there was no plan to convert the FMP to a godown.

Modernisation of FMPs

2.2.14 Since 2001-02, the customers' preference had shifted from mash to pellet type feed due to lower wastage, better palatability, lower chance of contamination, higher nutritive value etc. In order to meet the consumers' demand of pelletised feed, the Company, during 2002-2005 undertook modernisation of the existing FMPs at Siliguri and Kalyani for production of pelletised feed. Deficiencies noticed in implementation are discussed in the succeeding paragraphs.

FMP at Siliguri

Inordinate delay in implementing modernisation programme led to loss of production of 1,558 MT feed valued at Rs 1.43 crore.

2.2.15 The Company placed (January 2002) an order on Precision Products, Ahmedabad for supply, erection and commissioning of additional plant and Machinery on turnkey basis as well as repair of existing plant and Machinery at a total cost of Rs 31.77 lakh. The order included modernisation of existing mash plant having 10 MT per day per shift capacity, to be enhanced to 15 MT for production of mash and pellet form of feed. The project was scheduled to be completed by August 2002. The modernisation work was completed after delay of 19 months in March 2004 due to delay in finalisation of design and drawings by the contractor, undertaking of soil testing not envisaged earlier and delays of 22 to 380 days in liquidating contractors' bills resulting in slow progress of work. This inordinate delay resulted in loss of production of 1,558 MT of pelletised feed valued at Rs 1.43 crore with consequential loss of contribution of Rs 14.73 lakh. The Government/ Management assured (August 2006) to take corrective action in subsequent modernisation schemes to be undertaken.

FMP at Kalyani

2.2.16 With a view to achieving additional production of 300 to 400 MT of pelletised feed per month, the Company decided (January 2001) to install additional plant and machinery for conversion of existing 100 MT capacity mash plant for production of both mash and pelletised type feed at an estimated cost of Rs 66 lakh, to be funded by the State Government. The funds of Rs 66 lakh in the form of share capital from the State Government were received after a delay of more than an year. Meanwhile, the Company had sent (November 2002) a revised proposal of Rs 83 lakh. The proposal for additional fund was, however, turned down (March 2003) by the State Government.

Management's apathy to undertake the modernisation programme failed to achieve the additional production of 9,000 MT of feed valued at Rs 9.90 crore.

Though the Company had internal fund aggregating Rs 3.94 crore to meet the requirement of the balance revised cost (Rs 17 lakh) of the project, it did not take any action to implement the project. The Company spent Rs 16 lakh for installation of crumbler unit at the existing pellet plant to meet the demand for crumbler feed and diverted the balance Rs 50 lakh for meeting working capital requirement. After a lapse of three years the Company again submitted (December 2005) a proposal to the State Government for a revised cost of Rs 95 lakh. The State Government released (February 2006) the entire fund of Rs 95 lakh in the form of equity. The Company was yet to take up the modernisation work (September 2006). The Principal Secretary, ARD department intimated in the ARCPSE meeting (September 2006) that no modernisation would be taken up till the viability analysis, presently being conducted by a consultant, was completed.

Thus due to management's apathy for timely implementation of the project the Company failed to achieve additional production of 9,000 MT of pelletised feed valued at Rs 9.90 crore with consequential loss of contribution of Rs 96.70 lakh. The Government/ Management accepted (August 2006) the audit observation.

Consumption of Raw ingredients

The consumption of raw ingredients was in excess/ short of feed formulation by 10 to 50 per cent.

2.2.17 The Company produces a wide range of animal feed by mixing 19 different types of raw ingredients, which are mostly agricultural products or their by-products, different cereals, brans and oilcakes. The quality of feed depends on the use of raw ingredients as per the formulation fixed and revised from time to time by the plant managers. The Company did not, however, devise any monitoring mechanism to oversee consumption of raw ingredients as per the prescribed formulation and to assess the impact of such excess/ short consumption of raw ingredient on the quality of feed. Audit analysis of excess/ short consumption of nine prime ingredients over a period of December to March for each of the years 2003-2006⁷, as compared to the formulations fixed, revealed as under :

Name of the plant	No. of ingredients test checked	No. of ingredients consumed as per the norms	No. of ingredients consumed in excess of the formulations (Range in percentage)		No of the ingredients consumed less than the formulations (Range in percentage)		
			10-35	36-50	10-35	36-50	Excess of 50
Kalyani	8	2	3	-	3	-	-
Salboni	9	1	3	1	2	-	2
Durgapur	8	1	3	1	2	-	1
Siliguri	8	3	2	1	-	1	1

It would be seen from the table above that there was excess as well as short consumption as compared to the standard consumption as per the prescribed feed formulations in all the plants. Audit noticed that only one out of 18 State owned livestock farms, where the animal feed produced by the Company was used, had analysed the impact on nutritional value of finished feed for non-adherence to prescribed feed formulations and deducted Rs 9.74 lakh towards quality variation.

The Government/ Management attributed (August 2006) the variances in consumption of raw ingredients to transitory substitution/ alterations in the feed formulation during production process. No evidence in support of such transitory substitution during production process duly certified by Nutritionist/ Managers of FMP was, however, documented in order to ensure production of feed with requisite nutritional value.

Maintenance of desired quality standard of the feed

2.2.18 The quality of finished cattle feed is assessed in terms of total Digestible Crude Protein (DCP) and Total Digestible Nutrient (TDN). As per the Bureau of Indian Standards, the minimum level of DCP and TDN contents in balanced concentrated cattle feed should be 14 to 16 per cent and 68 to 74 per cent respectively.

The Company had, however, not fixed any uniform feed formulations for different types of feed nor did it prescribe the desired level of nutritional value

⁷ For the earlier two years complete records were not available

for each variety of feed to be achieved. Instead, each plant management resorted to its own feed formulations which were never examined by the Nutritionist in case of Durgapur, Siliguri, and Salboni plants.

Audit scrutiny of formulations of three varieties of cattle feed (*viz.* Milch Ration, Nutri-feed and Super Epic Dana) over a four- month period (December to March) for each of the years 2003-2006 revealed that DCP & TDN contents of the same variety of feed varied from plant to plant though the sale prices were uniform, as shown in following table:-

None of the FMP achieved the desired level of DCP and TDN in balanced concentrated feed.

Name of the plant	Milch Ration		Nutri -feed		Super Epic Dana ⁸	
	(P e r c e n t a g e)					
	DCP	TDN	DCP	TDN	DCP	TDN
Durgapur	10.56	65.02	16.12	65.57	-	-
*Kalyani	12.34	66.18	15.41	69.76	11.87	62.69
Siliguri	11.70	65.91	15.98	73.32	10.21	72.25
Salboni	9.81	63.10	13.81	65.81	10.65	62.42

The Company had no testing mechanism to ascertain the quality of feed.

It was noticed in audit that though all the varieties except Nutri-feed failed to achieve the desired level of DCP and TDN, none of the plants tested the quality of finished feed, in violation of the Board's directives (March 1998) in this regard. The Plant Management at Durgapur, however, intimated (March 2006) that the quality of feed produced was tested on live animals. Test results were not, however, produced to Audit, when called for.

The Government/ Management stated (August 2006) that while designing formulations at different plants, in addition to adherence to specifications, the local market demand, quality of the competitors' feed, food habits of the animals etc. were taken into consideration. The contention is not acceptable as the Company had no data-base in support of the contention nor did it devise any mechanism to document the laid down policy of designing feed formulation. Further, the objective of the Company was to produce high quality feed conforming to BIS standards to ensure high yield and better health of animals, which the Company failed to achieve.

Further, the FMPs had never assessed the impact of using 'EPIC' feed on production of milk. The production of milk in respect of Jersey variety of cattle in the State Livestock farms at Kalyani and Salboni during 2005-06, where only EPIC cattle feed of the Company were used, had been in the range of 3.73 Kg. to 4.32 Kg. (Kalyani) and 5.5 Kg. (Salboni) per day per cattle on an average as against the average achievable production of 8 Kg milk per day per cattle, fixed by the Company. The failure to produce cattle feed of desired nutritional value had resulted in production of milk at 47 to 69 *per cent* of the norm fixed.

The Government/ Management stated (August 2006) that methodical and scientific feeding approach optimises milk production and the absolute requirement of an individual animal could be fulfilled by adjusting the

⁸ Super Epic Dana not produced in Durgapur FMP

* Feed formulation for Kalyani for 2003-05 was not available

allowance of different raw ingredients. The contention is not acceptable because : (i) the attainable production of 8 kg per day per cattle by feeding 'EPIC' brand was fixed by the management itself, (ii) livestock farms at Kalyani and Salboni had followed the scientific feeding schedule for milch cows.

Extra expenditure on purchase of raw ingredients

2.2.19 The cost of raw materials constitutes 71 to 81 *per cent* of the total cost of production of cattle feed. On receipt of monthly demand from the FMPs, the Company procures raw materials from its suppliers empanelled after inviting tenders. Out of 30 items of raw ingredients, 10 to 14 items are regularly used in the production process, while other items are not used regularly and are also of substitutable in nature.

In this connection the following deficiencies were noticed in audit-

The Company failed to save Rs 1.78 crore on procurement of raw ingredients due to delay in paying suppliers' dues.

➤ On scrutiny of quoted rates in respect of rice-bran, yellow maize, rice polish and fish meal during 2004-05 and 2005-06, Audit noticed that the quoted rates were higher by eight to 30 *per cent* than the market rates. According to the management (May 2006), the suppliers' bills were liquidated after 45 days from the date of submission which induced the suppliers to quote higher rates by 5 to 7 *per cent*, as compared to rates for payment within 10 to 15 days. The management, however, had not analysed the reasons for higher quoted rates compared to the market rates in excess of seven *per cent*. Audit further observed that in 530 cases, payments were delayed and were sometimes released after 60 or more days from the date of submission of bills. Since 90 *per cent* of the total sales were made in cash, the Company could have cleared the suppliers' dues within 15 days and thereby saved Rs 1.78 crore during 2001-2005. The Government/management stated (August 2006) that efforts were being made to minimise the gap so that the payments to the suppliers would be made strictly as per the schedule.

Raw materials were being consumed before receipt of their quality reports.

➤ The moisture, protein and fibre contents of raw materials received at different feed plants were tested at the centralised laboratory in FMP, Kalyani. Audit scrutiny of 325 test reports during 2004-2006 revealed that there were delays ranging between 30 and 75 days from the date of receipt of samples of raw materials and receipt of quality report by the FMPs, while raw materials were consumed within 27 to 32 days from the date of receipt. Thus, testing was rendered perfunctory and the test results had no effect on monitoring of the feed formulations to ensure quality. The Government/ Management stated (August 2006) that steps were being taken to conduct laboratory analysis and to publicise the reports expeditiously.

Payment of idle wages

2.2.20 The Company had not carried out any work study to fix the norms of production for direct workers. The table below indicates the number of direct workers, average production per direct worker during 2003-2006 in respect of four feed plants.

Name of the Plant	Average annual production (MT)	Average Nos. of direct workers (No)	Average production per workers (MT)
Salboni	8646	36	240
Kalyani	13957	91	153
Siliguri	2759	14	197
Durgapur	1313	9	146

It would be seen from the table that while the average production per direct worker in Salboni feed plant was 240 MT per annum, the average production per direct worker in other feed plants ranged between 146 MT to 197 MT per annum. Considering the achievable average production of 240 MT per direct worker per annum in Salboni, low productivity of direct workers in other three feed plants resulted in payment of idle wages aggregating Rs 88.36 lakh during 2003-2006.

The Government/ Management attributed (August 2006) the idle labour cost to low production arising out of low demand and low profile marketing wing. The reply is not tenable as the management did neither identify the idle labour nor did deploy them in the marketing wing so far, as directed (September 2001) by the Board.

Marketing activities

The Company did not have any effective marketing wing/ strategy.

2.2.21 The Company had a marketing wing headed by the Manager (Marketing). The post of Manager (Marketing), however, had been lying vacant since July 2005. The Managers/ Deputy Managers in charge of the plant are responsible to monitor the marketing activity. In order to strengthen the marketing efforts, the Board directed (September 2001) the management to identify surplus manpower in each plant for deployment in marketing, frame the marketing programme in consultation with the marketing-in-charge of the plants and to submit regular reports to the MD for improvement in marketing effort. The Management had not, however, acted on the Board's direction so far. The Board had also not reviewed action taken on its directive issued as far back as in 2001.

The Company sold animal feed to different State Livestock Farms directly on credit, while it appointed 270 dealers to sell its products in the particular command areas against a commission of 10 to 12 *per cent* on sales with a periodical incentive of one to two *per cent* on sales. The Company sells the products to dealers on cash basis.

In this connection the following points were noticed in audit-

- The Company had no database with regard to the total demand of concentrate feed in the State, its market share, and its competitors' pricing, quality etc. Besides, it did not fix any target except for 2004-2005 (41,200 MT) and 2005-2006 (40,350 MT), against which the actual achievement was 70 *per cent* (2004-05) and 74 *per cent* (2005-06).
 - The Company set-up block-wise dealer network to market its products. It was noticed in audit that out of 343 blocks/ Municipalities in 11 districts the Company had not appointed any dealer in 203 blocks/ Municipalities so far.
 - Against the requirements of lifting minimum 10 MT of feed per month, 33 *per cent* dealers fulfilled the condition, while 23 *per cent* lifted between 5 to 9 MT and balance 44 *per cent* had lifted less than 5 MT. The Company had no system of periodically reviewing the performance of dealers except for FMP, Salbani, so as to take corrective measures for increasing sales.
- The dealer network in 203 out of 343 blocks was absent.**
- The Company did not review periodically the performance of dealers.**

During interview in the presence of representatives of the Company, 44 dealers intimated that poor demand of EPIC was attributable to inadequate publicity, absence of direct interaction of Company's representatives with farmers, recommendation by some Government Veterinary Doctors for using feeds manufactured by the private manufacturers, non-maintenance of uniform quality, lack of uniformity of pellet size and absence of credit facilities to the dealers as followed by private manufacturers etc.

The Company enjoyed not even one per cent of the market share in the State.

Thus, due to poor marketing strategy the Company was yet to penetrate the market and as against the demand of 27.86 lakh MT *per annum* for cross breed cattle population of the entire State, the sale of the Company was negligible at 0.30 lakh MT, representing not even one *per cent* of the market share. Since the arable land available in the State for cultivation of fodder is only 1.18 *per cent* against the national average of four *per cent*, the Company failed to tap the vast unexplored potential due to lack of marketing activities.

The Government/ Management stated (August 2006) that marketing was a weak area of the Company and action like holding seminars, health camps, free samples etc. were being taken up to expand the dealer network.

Unrealistic pricing structure

2.2.22 The Board directed (March 1998) the management to fix the feed prices after considering the Break Even Point (BEP) of production at 75 *per cent* capacity utilisation of its plants as well as after evaluating the prevailing market price so as to ensure higher sales at lower margin. The Board had also directed (March 1998) to adopt the practice of collecting market feed-back as regards the price, quality, market share etc. of its competitors so as to enable it to change its price accordingly. No such

database was, however, has been developed by the Company till date (September 2006).

The price of cattle feed was last fixed (October 2002) on *ad-hoc* basis. Neither was any cost analysis done nor was the price compared with that of the competitors, while computing/revising such prices.

Unrealistic price structure led to 'over recovery' of Rs 7.68 crore from the farmers.

Considering the overall contribution analysis during 2001-05, it was noticed in audit that the sale prices were fixed at production level of 34 *per cent* of the installed capacity instead of at BEP production level of 75 *per cent*, as directed by the Board. Thus, instead of strengthening marketing to achieve the desired level of production at 75 *per cent*, the Company resorted to increasing the selling price by 11 *per cent*. This led to 'over recovery' of Rs 7.68 crore from the farmers, besides the products becoming more uneconomical and non-competitive.

The Government/ Management stated (August 2006) that over recovery from the farmers was only apparent and not linked to the ground realities. The fact, however, remains that the present price structure frustrated the objective of selling quality cattle feed at reasonable prices to the farmers.

Conclusion

The performance of the Company with regard to production and marketing activities was found to be sub-optimal due to low level of production at feed milling plants, inept implementation of the modernisation programme, lack of marketing efforts, absence of quality control etc. The Company also failed to economise the purchase of raw ingredients. In the process the Company failed to supply quality feed at reasonable prices to farmers of the State.

Recommendation

The Company needs to :

- **increase production so as to reduce the cost of production for making its price competitive and acceptable to farmers;**
- **take up modernisation programme at its units in order to meet the customers' preference of pellet feed;**
- **ensure uniform feed formulation at all units;**
- **ensure quality of its products;**
- **strengthen its marketing wing through extensive publicity, frequent meetings with dealers and farmers; and**
- **take the services of experts like veterinary doctors to increase awareness among farmers about the need of balanced concentrated feed.**

Government/ Management accepted (August 2006) the recommendations.