

Chapter II

2. Performance reviews relating to Government companies

2.1 Rajasthan State Seeds Corporation Limited

Production, processing and distribution activities of seeds

Highlights

In the absence of penal clause in the agreement with the seed growers, the Company failed to obtain foundation and certified seed valuing Rs.71.66 crore from the seed growers during 2000-05.

(Paragraph 2.1.10)

In spite of budgetary support in the form of subsidy of Rs.45.86 crore, the market share of the Company in seed distribution declined from 40.5 to 35.2 *per cent* during 2000-05 due to lack of an appropriate marketing strategy and efficient production planning.

(Paragraph 2.1.17)

Excess levy of overhead charges of Rs.9.45 crore in fixation of sale price of certified seed defeated the primary objective of the Company to provide seed to farmers at reasonable rates.

The Company did not pass on the benefit of marketing subsidy of Rs.4.20 crore to the farmers and appropriated the same towards its profit.

(Paragraph 2.1.20)

Deficient planning for distribution of entire available quantity of breeder and foundation seed for multiplication resulted in consequential production loss of 7.40 lakh quintal of certified seeds during 2000-05.

(Paragraph 2.1.9)

The Company's continued production of old varieties instead of development of new varieties of cereal crops not only defeated the Government aim to increase agricultural production but also deprived the Company of availing subsidy of Rs.5.82 crore during 2000-05.

(Paragraph 2.1.14)

Excess purchase of Bajra seed without sale potential led to carry over of unsold stock of Rs.1.62 crore which was fraught with the risk of failure in revalidation in the subsequent year.

(Paragraph 2.1.12)

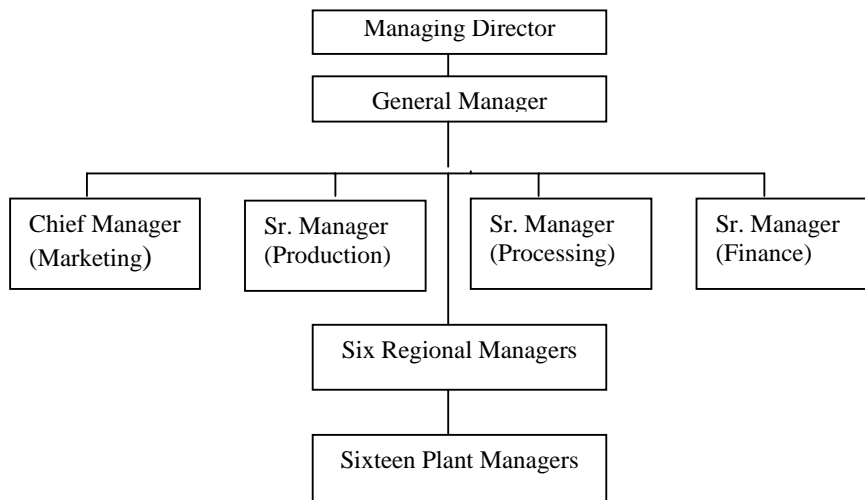
Unscientific storage of seeds and inadequate fumigation and spraying resulted in loss of Rs.21.77 lakh due to infestation.

(Paragraph 2.1.16)

Introduction

2.1.1 Rajasthan State Seeds Corporation Limited (Company) was incorporated in March 1978 with the main objective of production of certified seed and marketing it at reasonable price to the farmers. For this, it organises seed production programmes through seed growers for more than 25 crops of cereals, oilseeds, pulses, cash crops *etc.*

The management of the Company is vested in a Board of Directors consisting of maximum of 12 directors, out of which one third each are nominated by the State Government and National Seeds Corporation (NSC) and rest are elected by other shareholders. The organisational chart relating to production, processing and marketing activities of the Company is given below:



The Managing Director appointed by the State Government is the Chief Executive. There were 11 directors on the Board as on 31 March 2005. The working of the Company was last reviewed in the Report of the Comptroller and Auditor General of India for the year 1998-99 (Commercial) Government of Rajasthan. The Committee on Public Undertakings discussed the report (January 2005).

Scope of Audit

2.1.2 The present review conducted during September 2005 to February 2006 covers performance of the Company with regard to production, processing and distribution of seeds during 2000-05. The audit findings are based on test check of records of the Head Office and six* out of 16 unit offices selected on the basis of geographical distribution and quantum of transactions.

Audit objectives

2.1.3 The audit objectives of the review were to assess as to what extent:

- the targets for production of seeds were fixed with reference to demand for sale and whether these were achieved effectively and efficiently;
- the expected yield from breeder and foundation seeds estimated by Rajasthan State Seed Certification Agency (RSSCA) was achieved;
- seed processing plants were utilised to their optimum capacity;
- sale prices of certified seeds of various crops were fixed correctly so as to be reasonable to farmers;
- the Company made substantial contribution in sale of seeds in the State; and
- the Company has undertaken research for development of new varieties of seeds.

Audit criteria

2.1.4 The following audit criteria were adopted:

- targets for production and sale of seeds;
- availability of breeder and foundation seeds for multiplication;
- expected yield estimated by RSSCA from breeder and foundation seeds;
- installed capacity of seed processing plants;
- fixation of sale price;
- marketing policy of the Company; and
- scientific storage procedures of seeds in godowns at processing plants.

* Bharatpur, Jaipur, Jodhpur, Kota, Sri Ganganagar and Udaipur.

Audit methodology

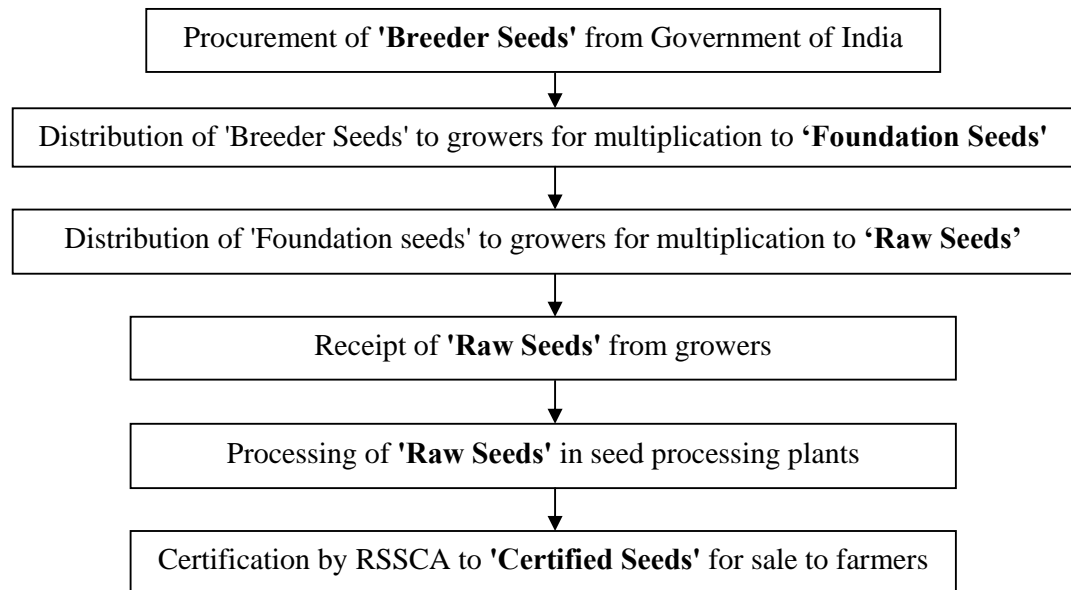
2.1.5 Audit followed a mix of the following methodologies:

- review of the agenda and minutes of the meetings of the Board of Directors, analysis of details received from the Company regarding fixation of targets and production of seeds, yield expected by RSSCA, crop wise availability and sale of seeds in each year;
- review of data on actual quantity of seeds processed in the seed processing plants called for from the units and details of certified seeds subjected to revalidation; and
- review of records relating to fixation of sale price of certified seeds.

Seed development process

2.1.6 Breeder seed[©] constitutes the basis of all seeds production and is used in production of foundation seeds[£]. The foundation seed is ultimately used for multiplication/production of certified seeds[¥], which are sold to farmers for raising crops on a large scale. RSSCA inspects the fields of the seed growers before harvesting and submits reports to the Company showing the expected yield (raw seeds) based on condition of the crop.

The seed development process is narrated below:



[©] Breeder seed is genetically pure seed used for producing foundation seed.

[£] Foundation seed has genetic purity of 99 per cent and is used for producing certified seed.

[¥] Certified seed has genetic purity of 99 per cent and is used for agricultural production for human consumption.

Audit findings

2.1.7 The audit findings were reported to the Government/Company in March 2006 and discussed at a meeting of the Audit Review Committee for State Public Sector Enterprises (ARCPSE) held on 6 July 2006 where the Secretary to the Government of Rajasthan, Agriculture Department represented the Government and the Managing Director represented the Company. The review was finalised after considering the views of the Government/Management. The audit findings are discussed in the succeeding paragraphs.

Production performance

Selection of seed growers for multiplication

2.1.8 The production programme of seeds is given to the seed growers who have their own agriculture land of two to 20 hectares area with proper irrigation facilities, after their registration for each season on first-come-first-served basis. Before disbursement of seeds, an agreement is executed with these growers incorporating the conditions of supply to the Company which *inter alia* include that the whole quantity of seeds produced is required to be supplied to the Company. It was observed in audit that the Company did not adopt any scientific method for selection of seed growers by publicising its production programmes.

The Management assured (July 2006) to maintain a database of seed growers relating to area available, type of soil, irrigation facilities *etc.* to have wider choice for selection of growers.

Distribution of 'breeder and foundation seeds' for multiplication

2.1.9 The breeder seeds purchased during the year are distributed to seed growers for production of foundation seeds which are subsequently distributed to seed growers for production of certified seeds. The quantities of breeder and foundation seeds of major crops available and distributed for the multiplication programme during the last five years ended 2004-05 are given in **Annexure-10**.

Improper planning resulted in non-distribution of breeder and foundation seeds and consequential production loss of 7.40 lakh qtls of certified seeds.

It would be seen from the annexure that the percentage of distribution to availability of breeder and foundation seeds progressively declined from 91.74 and 61.49 in 2000-01 to 71.21 and 43.38 respectively in 2004-05. It was noticed in audit that the Company did not properly plan the distribution of breeder and foundation seeds for multiplication; as a result it could not distribute the whole quantity of the available breeder and foundation seeds in any of the years under review. Low distribution of breeder and foundation seeds resulted in consequential production loss of 7.40 lakh qtls of certified seeds.

It was further noticed that due to non distribution of foundation seeds and subsequent carry over of available seeds to the next season, 3,141.42 qtls of foundation seeds valuing Rs.41 lakh and 80.28 qtls of breeder seeds failed in the germination test during 2000-05 and had to be sold as grain. In the absence of centralised data, the actual loss suffered by the Company on this account could not be worked out. Further, 16,680 qtls of foundation seeds valuing Rs.2.16 crore remained in stock at the end of 2004-05. The carried over seeds lose germination potential and thereby are required to be revalidated from RSSCA after a period of nine months. Thus, the stock carried the risk of failure in revalidation.

The Government stated (July 2006) that due to non-availability of isolation distances to maintain genetic purity of farmers' fields, the entire available breeder seeds could not be distributed and that distribution of foundation seeds was near the targets. The reply is not tenable as these conditions were known to the Company and it should have decided the quantity of breeder seeds to be purchased keeping in mind the above facts. In case of foundation seeds also, the Company had fixed the targets of distribution much lower than the available quantity of seeds.

The Government further stated (July 2006) that there is a vast time gap between availability of breeder seeds and production of foundation seeds and certified seeds, during which the demands of farmers get shifted from one crop to another crop. However, the Company while preparing its production plan did not assess and factor in the change in demand due to change in preference by the farmers.

Yield from breeder and foundation seeds

2.1.10 The details of distribution of breeder and foundation seeds, expected yield as assessed by RSSCA and actual raw seeds received there against during the last five years upto 2004-05 are given in **Annexure-11**.

It would be seen from the annexure that the actual yield from the breeder and foundation seeds invariably fell short of the expected yield. The percentage of actual yield to expected yield from breeder seeds ranged between 51.14 and 68.31 in Kharif and 76.48 and 86.81 in Rabi season. Similarly, the percentage of actual yield to expected yield from foundation seeds during 2000-05 ranged between 54.40 and 66.02 in Kharif and 53.70 and 85.50 in Rabi season. Audit analysis revealed that the Company did not have any system of inspection and monitoring of grower's fields to ensure expected production of seeds.

Against the expected yield of 1,38,170 qtls of foundation seeds and 18,10,824 qtls of certified seeds as assessed by RSSCA, the actual raw seeds received were 1,03,903 qtls (75.2 per cent) and 12,25,153 qtls (67.7 per cent) only during 2000-05. There were, thus, shortages of 34,267 qtls of foundation seeds and 5,85,671 qtls of certified seeds valuing Rs.71.66 crore. Audit scrutiny revealed that due to absence of a penal clause in the agreement with the growers, the Company could not take any action against defaulting growers. It was further noticed that in view of shortage of certified seeds, 13,836.35 qtls

Absence of penal clause in the agreement led to short delivery of seeds valuing Rs.71.66 crore.

of high value foundation seeds were down graded to low value certified seeds and sold to farmers during 2000-05 at a loss of Rs.24.72 lakh.

The Government stated (July 2006) that estimation of yield by RSSCA is done for standing crops about a fortnight prior to their harvesting and unprecedented rain and high temperature during this period lead to poor yield. The reply is not tenable as the yield estimates made by RSSCA, a specialised agency, just a fortnight prior to harvesting could not have been grossly inaccurate. The Company, however, invariably received substantially less quantities of seeds than the estimated quantities.

Production of certified seeds

2.1.11 Certified seeds are obtained from foundation seeds. The table below indicates the targets of production of certified seeds and achievement there against during the last five years ended 2004-05.

(Qty. in qtls)

Year	Rabi			Kharif		
	Target	Achievement	Percentage	Target	Achievement	Percentage
2000-01	1,87,447	1,41,293	75.38	79,576	44,918	56.45
2001-02	1,79,150	1,38,612	77.24	77,158	34,315	44.47
2002-03	1,75,533	1,14,671	65.33	59,541	16,399	27.54
2003-04	1,96,491	1,66,214	84.59	87,375	39,962	45.74
2004-05	2,55,647	1,69,108	66.15	94,958	52,422	55.21
Total	9,94,268	7,29,898		3,98,608	1,88,016	

It would be seen from the table above that the production of certified seeds in both the seasons of each year was below the target. Against the target of 13.93 lakh qtls certified seeds for both the seasons during 2000-05, only 9.18 lakh qtls of certified seeds were received resulting in shortage of 4.75 lakh qtls certified seeds.

The shortfall was attributed by the unit offices to inclement weather conditions. The attribution is not correct as the targets were fixed after considering the weather conditions of the State. Audit analysis revealed that the main reason for shortfall was non supply of the entire estimated quantity of the certified seeds produced by the seed growers and inaction by the Company against such defaulting growers as brought out in Para 2.1.10.

Loss due to purchase of seeds in excess of requirement

2.1.12 In order to enhance the Seed Replacement Rate[@] (SRR), the Company decided (October 2004) to purchase from outside the State, 25,000 qtls of bajra seeds of seven hybrid varieties* for distribution in Kharif 2005. The Company placed orders (December 2004) for supply of 22,500 qtls of bajra seeds against which 17,674 qtls seeds were received. Out of the total availability of 18,100 qtls seeds, including 426 qtls seeds already available, the Company could sell only 11,700 qtls (64.6 per cent) seeds in Kharif 2005. The balance quantity of 6,400 qtls of bajra seeds costing Rs.1.62 crore remained unsold.

Excess purchase of seeds due to unrealistic assessment of sale resulted in unsold seeds stock of Rs.1.62 crore and consequential extra expenditure of Rs.13.04 lakh on revalidation charges.

Audit analysis revealed that the Company could sell only 5,425 qtls and 4,786 qtls seeds of these varieties in the previous seasons *i.e.* Kharif 2003 and Kharif 2004 respectively. Despite these modest sales volumes during the past two years and a declining trend, the Company procured 18,100 qtls of bajra seeds for sale in Kharif 2005. Audit further noticed that the Board of Directors, while approving the purchase had resolved (December 2004) not to accept the supply of bajra seeds after 14 May 2005 but the Company in defiance of the Board's decision accepted supply of 5,921 qtls seeds after the above date which added to the unsold stock. Thus, purchase of excess seeds without demand coupled with purchase beyond the date fixed by the Board of Directors led to unsold seeds of 6,400 qtls. Apart from chances of failure of seeds in revalidation in the subsequent season, the Company would have to incur extra expenditure of Rs.13.04 lakh on carry over and revalidation charges.

The Government stated (July 2006) that the increased programme was planned to ensure availability of bajra seeds to the farmers so as to enhance SRR. The reply is not tenable as there was nothing on record to indicate sudden spurt in demand to over five times of the previous years' actual sale. The unrealistic procurement resulted in loss to the Company.

Purchase of infested raw cotton

2.1.13 The Company purchased (December 2004 and January 2005) 3,352.46 qtls of raw cotton seeds at Bilara, Jodhpur for Kharif 2005. After ginning[£] and delinting[@], 1,945.16 qtls delinted seed was received out of which 191.72 qtls seed was sent to Suratgarh unit for grading and the remaining 1,753.44 qtls seed was graded at Ajmer. Out of the seeds graded at Ajmer, 1,236.34 qtls graded seeds were finally received by the Company. The seeds failed in the quality test (April-May 2005) showing low germination and excess insect damages. Despite the Company being fully aware of the unsuitability of the seeds, 212.96 qtls of these grains were sold as 'truthful label seeds'. **Thus, the Company not only violated its mandate of supplying quality seeds to the farmers, but also misrepresented the seeds**

[@] Percentage of certified/quality seed used in sowing to total seed sown.

* ICTP 8203, HHB 67, ICMH-356, HHB-94, MH-169, RHB-121 and RHB-127.

£ The operation by which cotton is separated from its seed.

@ The operation by which soft flax material is removed from cotton seed after ginning.

as 'truthful'. The balance quantity of 1,023.38 qtls of seeds lying in stock was sold in auction as 'non-seed'. The Company had to suffer loss of Rs.9.25 lakh at the rate of Rs.904 per qtl (procurement price Rs.1,805 per qtl – actual realisation of Rs.901 per qtl) in its disposal as 'non-seed'.

It was noticed in audit that high moisture in raw cotton caused low germination in the seeds which could have been checked at the time of procurement of seeds. However, the management had not taken any action to investigate the matter to find out the lapses in procurement of cotton seeds.

The Government stated (July 2006) that unprecedented rains at the time of procurement of raw cotton seeds affected the germination of seeds due to heat effect and high percentage of insect damage which are not visible to the naked eye. The reply is not tenable as the rains at the time of procurement in December were not unprecedented and the Company failed to make proper storage arrangements for raw cotton and also failed to identify the infested raw cotton seeds at the time of procurement.

Non- development of new varieties of seeds

The Company did not initiate action to undertake and promote research in seeds production, processing, preserving and storage techniques during the first 25 years since its incorporation.

2.1.14 One of the main objectives of the Company is to undertake and promote research in general and seed production, processing, preserving and storage techniques in particular. It was noticed in audit that till March 2003 the Company had not initiated any action (since its incorporation) towards achieving this objective.

In March 2003, the Company decided to develop new varieties of Groundnut, Urd, Methi and Cotton seeds and executed Memoranda of Understanding with Maharana Pratap University, Udaipur (March 2004) and Rajasthan Agriculture University, Bikaner (April 2004) for this purpose.

Sale of old varieties of seeds defeated the Government's aim to increase SRR and also deprived the Company of subsidy of Rs.5.82 crore.

The Government provides production subsidy on varieties of cereal seeds notified in the last 10 years. But the Company did not initiate steps to develop new varieties of cereal crops and continued production of more than 10 years old varieties. Production of old varieties not only defeated the Government's aim to increase SRR and consequently increase agricultural production but also deprived the Company of subsidy of Rs.5.82 crore during 2000-05.

The Government stated (July 2006) that efforts were being made to popularise new varieties to utilise subsidy and Rs.26 lakh have been sanctioned during the current year for development of new varieties of seeds.

Processing performance

Underutilisation of installed capacity

2.1.15 As on 31 March 2005, there were 15 seed processing plants having annual processing capacity of 3.91 lakh qtls located at different places. Out of total 15 processing plants, five plants have a capacity of 47,000 qtls each,

eight plants of 17,000 qtls each and two plants of 10,000 qtls each. The overall capacity utilisation of the plants during 2000-05 is given below:

(Quantity in lakh qtls)

Year	Capacity	Utilisation	Percentage of utilisation
2000-01	3.34	2.68	80.24
2001-02	3.34	2.52	75.45
2002-03	3.91	1.94	49.62
2003-04	3.91	3.10	79.28
2004-05	3.91	3.28	83.89

The Company failed to provide adequate production programmes for optimal utilisation of seed processing plants.

It would be seen from the table above that the utilisation ranged between 49.62 and 83.89 *per cent* during 2000-05. A review of the performance of five[‡] plants, where the capacity utilisation was less than 50 *per cent* revealed that the Company did not provide adequate production programmes in the field areas of these plants and also failed to obtain full production from the seed growers which caused under utilisation of the plants. It was also noticed in audit that the utilisation of these plants during the last 10 years remained low. Although these seed processing plants continued to run at sub-optimal level, the management did not review their functioning to take appropriate remedial action.

Unscientific storage of seeds

2.1.16 For safe storage and preservation of seeds, periodical assessment of condition of stored seeds, regular monitoring of relative humidity and temperature of each godown and fumigation and spraying of insecticides at regular intervals is a must. The Company, however, has not prescribed any norms for these items of work. Audit scrutiny revealed that unit offices failed to take effective steps to preserve the seeds in their warehouses through fumigation and chemical treatment of stored seeds. As a result, large quantities of seeds were affected by insects which were subsequently rejected by the Seed Testing Laboratories (STL) and had to be disposed off as grain through auction. Audit analysis revealed that 4,871.59 qtls seeds of various crops were damaged by insects during 2000-05 on which the Company suffered loss of Rs.21.77 lakh.

The Government stated (July 2006) that strict directions had been issued to all the units to take care of the stored seeds.

Declining share of the Company towards sale of seeds in the State

2.1.17 Seed is a vital input for agricultural production and yield of crop is largely influenced by use of certified/quality seeds. The Government fixes yearly targets of sale of certified/quality seeds. The targets fixed by the Government for distribution of seeds in the State and by the Company and achievements made there against during last five years up to 2004-05 are given in **Annexure-12**.

[‡] Ajmer, Alwar, Bhilwara, Mandore and Shivgunj.

Market share of the Company in seeds distribution declined from 40.5 per cent to 35.2 per cent during 2000-05 inspite of Government subsidy of Rs.45.86 crore.

It would be seen from the annexure that the Company could not achieve its targets of distribution of certified seeds during 2000-05. Resultantly, the targets fixed for the State as a whole were also not achieved except for the year 2000-01. In order to maximise distribution of seeds by the Company, the Government provides subsidy for production and marketing of seeds. In spite of availing revenue subsidy of Rs.41.29 crore and capital subsidy of Rs.4.57 crore during 2000-05, the market share of the Company in total seed distribution in the State declined from 40.5 per cent in 2000-01 to 27.8 per cent in 2003-04; though it increased to 35.2 per cent in 2004-05, this still remained lower than the level of 2000-01. It was noticed in audit that the Company lost its market share mainly due to its failure to distribute the entire available quantity of breeder and foundation seeds for multiplication (Para 2.1.9), shortfall in production of certified seeds (Para 2.1.11), delay in price fixation (Para 2.1.19), higher sales prices (Para 2.1.20) and lack of publicity (Para 2.1.25).

The National Seed Policy, 2002 emphasised the need for enhancement of SRR of various crops to achieve the food production targets. The Planning Commission also, in its mid term appraisal of the Xth five year plan (2002-07), concluded that availability of good quality seeds continues to be a problem for the farmers and SRR continues to remain much lower than the desired level. The State Agriculture Department prescribed SRR of 25 per cent for self pollinated crops, 33 per cent for cross pollinated crops and 100 per cent for hybrid crops.

Audit analysis of 19 crops (13 self pollinated, 5 cross pollinated and one hybrid) for the period 2000-05 revealed that the SRR of all the self-pollinated crops ranged between 0.47 to 21.84 per cent, against the norm of 25 per cent. In case of 5 cross-pollinated crops, against the norm of 33 per cent, it ranged between 0.09 to 18.48 per cent in respect of 3 crops and was more than the norm in 2 crops. In case of hybrid crop, against the norm of 100 per cent, the SRR ranged between 31.87 and 40.52 per cent. The decline in market share of the Company resulted in short distribution of quality/certified seeds and consequent non-achievement of the desired level of SRR.

The Government stated (July 2006) that the Company was making sincere efforts to increase the market share to 50 per cent by the year 2007-08.

Sale performance

2.1.18 The Company sells the certified seeds through its wholesale committed dealers, authorised dealers and Rajasthan State Co-operative Marketing Federation (RAJFED). Besides, the Company supplies certified seeds to various Government agencies viz. Department of Agriculture, Watershed Department and Horticulture Department for demonstration and distribution of mini kits. The Company fixes the targets of sale of certified seeds while preparing the budget. The table below indicates the targets of sale, availability of seeds and their actual sale during the five years ended 2004-05:

(Quantity in qtls)

Year	Crop	Target of sale	Total availability	Total sale	Percentage of total sale to	
					Total availability	Target
2000-01	Kharif	NA	51,119	46,998	91.94	
	Rabi	NA	1,77,732	1,58,790	89.34	
	Total	2,54,335	2,28,851	2,05,788	89.92	80.91
2001-02	Kharif	NA	73,234	60,217	82.23	
	Rabi	NA	1,73,273	1,66,257	95.95	
	Total	2,46,204	2,46,507	2,26,474	91.87	91.99
2002-03	Kharif	NA	59,744	53,637	89.78	
	Rabi	NA	1,48,353	1,33,872	90.24	
	Total	2,26,078	2,08,097	1,87,509	90.11	82.94
2003-04	Kharif	NA	41,863	37,837	90.38	
	Rabi	NA	1,29,541	1,13,366	87.51	
	Total	1,76,900	1,71,404	1,51,203	88.21	85.47
2004-05	Kharif	NA	60,711	51,421	84.70	
	Rabi	NA	1,80,486	1,66,839	92.44	
	Total	2,76,226	2,41,197	2,18,260	90.49	79.02

It would be seen from the table above that the Company did not make arrangement for availability of seeds according to the sale targets except in 2001-02. Even the short quantities of available seeds were not fully sold. The percentage of total sale of seeds to total availability ranged between 82.23 and 95.95 per cent. Further, the Company could not achieve the targets of sale in any of the years during 2000-05. The percentage of total sale to targets ranged between 79.02 and 91.99 during the above period.

The main reasons for shortfall in sale attributed by the units were drought conditions in 2002-03 and lesser sowing area due to less rain in other years. Audit analysis, however, revealed that the shortfall in sale was due to delay in processing of raw seeds, delay in finalisation of sale prices of certified seeds, fixation of sale prices on higher side and other deficiencies in sale policy of the Company and its implementation as discussed in subsequent paragraphs.

The Government stated (July 2006) that sale of seeds is dependent on its availability for which the Company has initiated action for installation of three new plants and modernisation of existing plants. The reply does not explain why the Company failed to sell even the available seeds.

Delay in fixation of sale price of certified seed

2.1.19 The Company fixes sale prices of certified seeds of various crops on season to season basis. For good marketing management, the sale prices of seeds should be fixed well in advance to take a lead on other players in the

field. The Company, however, did not prescribe any time frame for fixation of sale prices in each season. It was noticed in audit that the farmers started approaching the dealers in the first week of September for purchase of seeds for the Rabi season and in the first week of March for purchase of seeds for the Kharif season. A comparative position of appropriate time for declaration of sale prices based on the above considerations and dates of actual declaration of sale prices of six major crops during the last five years ended 2004-05 is tabulated below:

Crop	Appropriate time of declaration	Actual dates of declaration				
		2000-01	2001-02	2002-03	2003-04	2004-05
Rabi						
Gram	1-7 September	27-09-00	31-08-01	24-09-02	16-09-03	28-09-04
Mustard	1-7 September	22-08-00	03-08-01	26-08-02	03-09-03	13-09-04
Wheat	15-21 September	13-10-00	19-10-01	09-10-02	14-10-03	20-10-04
Barley	15-21 September	27-09-00	31-08-01	03-10-02	16-09-03	16-10-04
Kharif						
Cotton	1-7 March	02-03-00	16-03-01	23-03-02	01-04-03	23-03-04
Bajra	1-7 March	26-04-00	28-04-01	17-04-02	02-05-03	07-05-04

It would be seen from the table above that in most of the cases there were delays in declaration of sale prices of certified seeds by the Company which adversely impacted the sale of seeds. Audit analysis revealed that the Company had not published its sale prices in the print media to inform the farmers as done by other Corporations *e.g.* Punjab State Seed Corporation. Thus, lack of publicity and dissemination of information also contributed to the Company's low share in distribution of seeds.

The Government stated (July 2006) that the sale prices of certified seeds were fixed in time as per crop calendar prescribed by the Government. The reply is not tenable as the crop calendar prescribed the last dates and not the starting dates for making available the seeds at the sale point. The Company should have taken a lead in declaration of sale prices well in advance.

The Management stated (July 2006) that this year the Company has declared the sale prices of certified seeds earliest in the market.

Fixation of high/low sale prices

2.1.20 One of the main objectives of the Company is to provide certified seeds to farmers at reasonable rates. The sale prices of seeds of various crops are fixed after taking into account, the procurement price plus predetermined estimated overheads (39 *per cent*), dealer's commission at 20 *per cent*, profit margin at 10 *per cent* less subsidy per quintal as available. In case of direct purchase of certified seeds, estimated overheads are not added. The Pricing policy of the Company also provided that against the standard profit margin of 10 *per cent*, the actual profit margin to be included in the sale price would be decided by the Managing Director based on availability, demand and the

prevailing market rate of that seed. Audit analysis of sale prices fixed during 2000-05 revealed as under:

Due to wrong fixation of sale prices, the Company charged excess overheads to the tune of Rs.9.45 crore from the farmers.

- The Company never compared the estimated overheads with actuals so as to fix the sale price on a realistic and reasonable basis. Actual overheads during 2000-05 ranged between 30.49 and 35.19 *per cent* against which the Company charged a predetermined rate of overheads at 39 *per cent* while fixing the selling prices of seeds. Excess charging of overheads resulted in supply of seeds to farmers at higher rates to the tune of Rs.9.45 crore during the above period. The management assured (July 2006) to review the pricing formula.
- The Government provides marketing subsidy for increase in agricultural production by use of new varieties of seeds. In case of Bajra and Cotton seeds the subsidy was not available on varieties of more than 10 and 15 years old, respectively. It was, however, noticed in audit that the Company purchased two varieties* of Bajra seeds, which were more than 10 years old, without assessing the market potential, and sold these at prices lower than the actual cost during 2000-01 and 2003-04. Similarly, during 2000-03, the Company took up production of B.narma and G.ajeti varieties of cotton seeds, which were more than 15 years old and sold them at prices much lower than their cost price due to low demand. Production of old varieties of cotton seeds was not only inconsistent with the objective of increasing agricultural production by use of new varieties of seeds but also resulted in the Company losing Rs. 71.66 lakh due to sale at lower than cost prices.
- The Company sold new varieties of certified seeds of soyabean, mustard and gram crops on which marketing subsidy was available during 2000-05. The Company, however, did not pass on full subsidy to the farmers and fixed the sale prices on the higher side stating that fixing of lower sale prices would lead to black marketing of seeds by the dealers. The Company could have checked the black marketing of seeds by publicising the sale prices and by closely monitoring the activities of its dealers. Fixing of sale prices on the higher side deprived the farmers of the benefit of subsidy of Rs.4.20 crore on soyabean (2002-05), mustard (2004-05) and gram (2000-05) seeds.

Company failed to pass on subsidy of Rs.4.20 crore to the farmers.

The management stated (July 2006) that the subsidy was sometimes adjusted in other crops/varieties as per need. The Company has, however, neither maintained crop/variety wise subsidy records nor did it obtain Government approval for diverting subsidy to other than the specified crop/variety.

It was further observed that in case of soyabean seeds, the marketing subsidy was available at the rate of 30 *per cent* of cost per qtl or Rs.800 per qtl whichever was less. During 2002-05 though 30 *per cent* of the cost per qtl of soyabean seeds was less than Rs.800 per qtl, yet the Company claimed subsidy

* HHB-67 and ICTP-8203

at the rate of Rs.800 per qtl. Resultantly, the Company claimed excess subsidy of Rs.26.16 lakh from the State Government during 2002-05.

Thus, the subsidy which was meant to provide seeds to farmers at reasonable rates was appropriated by the Company towards its profit thereby defeating the very purpose of subsidy and the Government's aim to increase SRR. The ultimate adverse impact on agricultural production cannot be ruled out.

Appointment of committed dealers

Due to non-appointment of committed dealers in 2003-04, the Company failed to distribute available seeds and was deprived of additional margin of Rs.43.55 lakh.

2.1.21 The marketing policy (1996) of the Company did not specify the period for which the committed dealers were to be appointed. Although the Company appointed committed dealers on year to year basis upto 2002-03, it did not appoint committed dealers for the year 2003-04 though the sowing area in the State had increased by more than 80 lakh hectares as compared to the previous year.

Audit scrutiny revealed that the market share of the Company reached the lowest level of 27.8 *per cent* during 2003-04. Thus, due to non-appointment of committed dealers in 2003-04, the Company not only failed to fully sell the available quantity of seeds but also lost additional margin of Rs.43.55 lakh at 10 *per cent* on 20,201 qtls unsold seeds calculated at an average sale price of Rs.2,155.76 per qtl.

The Government stated (July 2006) that due to low production of certified seeds during 2002-03 and consequent short availability of certified seeds in 2003-04, committed dealers were not appointed which benefited the Company by way of savings in the commission to authorised dealers. The reply is not tenable as the Company's objective is not to save commission but to meet the seeds requirement of all the farmers of the State. As already mentioned, due to non-appointment of committed dealers the Company was not able to sell even the available seeds.

Non recovery of penalty

2.1.22 According to the terms of appointment of committed dealers, the dealers have to achieve the committed turnover by sale of certified seeds available with the Company and in case of non-achievement of committed targets, penalty on shortfall shall be charged. In case of achieving the turnover in excess of the committed target, additional commission of 0.5 to one *per cent* would be paid to the dealers. Advance reservation of seeds by the dealers, entitle them to additional commission of two to four *per cent* of sale value of seeds.

It was noticed that in 34 cases, the dealers had not achieved the committed targets and penalty of Rs.55.12 lakh was recoverable from them as detailed below:

(Amount: Rupees in lakh)

Year	No. of defaulting dealers	Turnover committed	Turnover Achieved	Short - fall	Penalty for short-fall	Penalty Waived	Penalty Recoverable	Penalty recovered	Penalty un - recovered
2000-01	12	542	378.12	163.88	12.02	2.14	9.88	Nil	9.88
2001-02	7	361	282.43	78.57	5.73	-	5.73	0.36	5.37
2002-03	9	931	478.44	452.56	35.87	29.63	6.24	2.01	4.23
2004-05	6	462	242.55	219.45	1.50	-	1.50	-	1.50
Total	34	2,296	1,381.54	914.46	55.12	31.77	23.35	2.37	20.98

Audit analysis revealed that while the Company promptly made payment of additional commission of Rs.46.35 lakh to the dealers who had achieved turnover in excess of the committed targets, it did not recover the prescribed penalty for shortfall in their turnover. The Company waived Rs.31.77 lakh out of the total recoverable penalty of Rs.55.12 lakh. Out of the remaining penalty of Rs.23.35 lakh it had recovered only Rs.2.37 lakh and the balance (Rs.20.98 lakh) remained unrecovered for periods ranging from two to four years.

The Government stated (July 2006) that during 2002-03, the penalty was waived due to severe drought conditions in the State and that for the balance amount of penalty action for recovery was in progress. The waiver for the year 2000-01, however, lacked justification, as there were no drought conditions in that year.

From 2004-05, the Company changed its marketing policy and appointment of committed dealers was made for three years with provision for recovery of a token penalty of Rs.25,000 only irrespective of the extent of shortfall. The Company, however, retained the incentive clause of the existing policy.

The Government stated (July 2006) that seed market is a buyers market and the policy for levy of penalty and receipt of security deposit was changed after discussions with the dealers. The Company had not, however, considered the carry over cost of seeds while changing the policy for recovery of token penalty only from the defaulter dealers.

Disposal of rejected/undersize seed

2.1.23 During the period of five years ended 2004-05, the Company sold 36,439 qtls of rejected seeds worth Rs.4.61 crore through 42 auctions as tabulated below:

Year	Quantity (quintals)	Value (Rupees in lakh)
2000-01	14,622	161.57
2001-02	4,663	131.16
2002-03	7,903	86.15
2003-04	2,983	26.95
2004-05	6,268	55.31

Audit scrutiny revealed the following:

- Against the provision of publication of auction notice in two State level daily newspapers, the notice was published only in one newspaper in 12 cases during 2000-05 involving material valuing Rs.60.81 lakh. There was thus, inadequate publicity/transparency.
- The Company is required to fix reserve prices of the seeds before putting them to auction (as per the norm the reserve prices can not be lower than 60 *per cent* of the prevailing prices in the local *mandi*). The Company, however, did not fix the reserve prices of auctionable seeds in the absence of which reasonability of tendered rates could not be verified in audit.
- As per the terms of disposal of auctionable material, offers received in tender/auction are to be finalised by the Head office within 15 days. It was, however, noticed in audit that in 14 cases the time taken by the Head office in approval of selling rates ranged from 33 to 144 days. Such delays are fraught with the risk of the bidders loading their rates with the risk associated with delays.

Loss due to supply of minikits without execution of agreement

In absence of formal agreement, the Company failed to recover Rs.30.62 lakh from NSC.

2.1.24 The Company agreed (August 2002) to supply seeds of various crops in minikits to NSC at the rates fixed by the Government of India (GOI) less 5 *per cent* discount. The Company, however, did not execute any agreement with NSC for confirmation of rates and supplied 76,390 minikits of various seeds and raised bill of Rs.1.44 crore after allowing 5 *per cent* discount on the rates prescribed by the GOI. NSC, however, paid only Rs.1.14 crore in full and final settlement based on the rates of the seeds for general sale by the Company (which were lower than the GOI rate).

Thus, in the absence of any formal agreement with NSC for confirmation of rates; the Company could not recover the balance amount of Rs.30.62 lakh from NSC. The Company decided to put up the matter before a committee for write off of this doubtful debt.

The Government stated (July 2006) that efforts were being made to recover the amount from NSC.

Business promotion and publicity

2.1.25 Business promotion and publicity play a vital role in sale of seeds in a competitive market. The Company is selling its certified seeds under the brand name “Rajseed”. In order to popularise the brand, aggressive promotional activity was required. The Company decided to organise marketing seminars and publicity campaigns with the objective of popularising its brand and to create awareness among farmers about the benefits of certified seeds particularly “Rajseed”. The scheme, *inter alia* provided that:

- Every year an annual publicity plan will be prepared by the Company.
- Marketing seminars shall be held each year at the regional level before start of the kharif season and at the head office level before the Rabi season.
- Every plant manager shall organise minimum one field day in his area in every season to exhibit superiority of Rajseed over other brands sown in the area.

It was, however, noticed in audit that neither was any annual publicity plan prepared nor were marketing seminars organised during 2000-05. No field days were organised by plant managers. Thus, adequate efforts to popularise Rajseed and to increase awareness about use of certified seeds were not made by the Company, which contributed to decline in the market share of the Company.

The Government stated (July 2006) that henceforth annual publicity plan would be prepared.

Internal control and internal audit

2.1.26 Internal control is a management tool to ensure that the objectives are achieved in an effective and orderly manner, assets are safeguarded and rules and procedures are complied with.

For documentation of rules and procedures of various activities of the Company and duties and responsibilities of the employees executing such activities, the Company had not formulated manuals particularly the Accounts manual, Seed production manual, Purchase manual, Seed storage manual and Marketing manual. The Company obtained ISO 9002 certificate in July 1999 which was valid for three years. After expiry of validity of ISO certification in July 2002, the Company did not get it revalidated.

The Government stated (July 2006) that they were again trying to get the ISO certification.

The Company did not have an Internal Audit wing or an Internal Audit Manual nor had it prescribed any Internal Audit Standards. The internal audit

is meanwhile being got conducted from Chartered Accountants firms. It was observed in audit that internal audit done by these firms was deficient as it did not cover examination of records relating to inspection of fields by RSSCA/Company and supply of raw seeds produced by the seed growers to the Company according to the expected yield. It was also observed in audit that the paras contained in the internal audit reports were of routine nature and no important irregularity was reported by the internal auditors.

The Statutory auditors in their audit reports had repeatedly commented that the internal audit system needed further improvement. Though the internal audit reports were discussed by the Audit Committee, yet the Committee as well as the Management has not taken action for improvement of the internal audit system.

Monitoring

2.1.27 The Board of Directors of a Company is the apex body for policy decisions and for prescribing procedures to achieve the Company's objectives. For this purpose, every Company holds meetings of its Board at regular intervals. Each Director is required to attend these meetings to share the expertise and knowledge.

It was noticed in audit that two Government nominee directors did not attend any Board Meeting held during March 2000 to March 2001 and December 2004 to September 2005 respectively. Further, one nominee director attended only two out of 14 meetings (April 2002 to December 2003), one director attended only one out of five meetings (March 2004 to December 2004) and one director attended six out of nine meetings held (December 2001 to March 2004) during their tenures.

Thus, the Directors who remained absent in the meetings failed in fulfilling their fiduciary duty and the Company was deprived of their independent views on issues of strategy, performance and standards of conduct.

Conclusion

The performance of the Company with regard to production, processing and distribution of quality seeds to the farmers at reasonable prices was found to be deficient. Due to lack of an appropriate marketing strategy the market share of the Company declined during 2000-05 despite subsidy of Rs.45.86 crore. The production as also the sales target could never be achieved. In the absence of any effective monitoring the actual yield from breeder and foundation seed invariably fell short of the expected yield. Low utilisation of seed processing plants, non-development of new varieties of seeds, excess levy of overhead charges and not passing the entire benefit of marketing subsidy to the farmers also contributed

towards non-achievement of Company's objective to provide sufficient and quality seeds to the farmers at fair prices.

Recommendations

The Company needs to:

- **Strengthen the system of distribution of breeder and foundation seeds;**
- **Ensure receipt of full production from seed growers to enhance the production of certified seeds;**
- **Improve its marketing strategy to increase its market share in the production and sale of seeds;**
- **Devise a mechanism for timely and correctly fixing sale prices of seeds by absorption of actual overheads and giving effect of entire available subsidy;**
- **Formulate and implement a long term Corporate plan to develop new varieties of seeds to achieve higher SRR as envisaged in the State Agriculture Policy; and**
- **Strengthen its Internal Control System.**

2.2 Rajasthan State Mines & Minerals Limited

Mining, Grinding and Marketing of Gypsum

Highlights

The contribution of gypsum to the operating profit of the Company declined from 21.55 per cent in 2001-02 to 11.52 per cent in 2005-06.

(Paragraph 2.2.8)

Excess handling losses of Rs.1.60 crore were got written off by the Company without any investigation by obtaining approval of the Board based on misrepresentation of facts and information.

(Paragraph 2.2.22)

Due to acceptance of mines on agency basis without effective planning for excavation, the Company paid avoidable minimum premium charges of Rs.1.10 crore in 2004-05.

(Paragraph 2.2.11)

Sale of gypsum from ex-railway siding led to undue benefit of Rs.91.33 lakh to the customers on account of incidental charges.

(Paragraph 2.2.18)

Mining operations in 11 leases had to be stopped as statutory environmental clearance had not been obtained, leading to avoidable payment of dead rent of Rs.54.29 lakh for the years 2004-05 and 2005-06.

(Paragraph 2.2.10)

Due to delay in inviting tenders for excavation of gypsum, the Company incurred extra expenditure of Rs.22.67 lakh.

(Paragraph 2.2.14)

Delay in filing and failure to pursue claims of duty draw back resulted in blocking of Rs.49.37 lakh.

(Paragraph 2.2.21)

Introduction

2.2.1 Rajasthan State Mines & Minerals Limited (Company), was incorporated in June 1973 and is involved in mining of Rock Phosphate, Gypsum, Limestone, Lignite and other minerals in the State. The erstwhile Rajasthan State Mineral Development Corporation Limited (another State Government Company) was amalgamated with the Company in the year 2001-02 in public interest with the objective of achieving economy of scale and reduction in overheads.

Gypsum is Hydrous Calcium Sulphate ($\text{Ca SO}_4 \bullet 2 \text{H}_2\text{O}$) having a composition of 79 *per cent* Calcium Sulphate and 21 *per cent* water. It is available both in natural and by-product form. Gypsum mined from land deposits is known as natural/ mineral gypsum. Gypsum is an important industrial mineral mainly used in cement, fertilizer & Plaster of Paris industries, and also in manufacture of sulphuric acid and as filler in paint, rubber, paper industries *etc.* Gypsum in powder form is used as a soil conditioner for land reclamation. Rajasthan is the main producer of mineral gypsum in India and the Company is mining the mineral from deposits in Bikaner, Churu, SriGanganagar, Jaisalmer, Nagaur and Pali Districts of Rajasthan.

The management of the Company is vested in a Board of Directors consisting of eight directors including a Chairman and a Managing Director (as on March 2006). Mining, grinding and marketing of 'Gypsum activity' is headed by the Group General Manager under overall supervision of the Managing Director. Group General Manager is assisted by Sr. Managers/Managers.

The working of the Company including 'Gypsum activity' featured in the Report of the Comptroller and Auditor General of India for the year ended 31 March 2001 (Commercial). The review has been discussed by the Committee on Public Undertakings (October 2006).

Scope of Audit

2.2.2 The present performance review covers Mining, Grinding and Marketing of gypsum by the Company during the five-year period 2001-06. The audit findings are based on test check of records of the Strategic Business Unit & Profit Center (SBU&PC) Gypsum, Bikaner. During the period covered under performance audit, there were 16 to 31 mines in operation in different time periods. Fifty *per cent* of mines in operation were selected for test check based on financial materiality and significance of the transactions.

Audit Objectives

2.2.3 The Performance review has been carried out to evaluate and assess whether:

- the management was following legislative procedures/provisions as envisaged by the Government of India (GOI) and Government of Rajasthan (GOR);
- the Company had prepared its planning strategies like Annual Plan and Mining Plan so as to ensure effective exploitation of available mineral reserve;
- the management was efficient to safeguard its interest against possible risk of penal freight/dead freight to Railways and awarded contracts for excavation, transportation, grinding and loading on competitive rates;
- an effective monitoring system was in place for optimum utilisation of its Gypsum Grinding Unit as also for handling losses/transit shortages to avoid revenue losses;
- the management had devised and made operational an effective price mechanism for the sale of gypsum; and
- the management of the Company has a sound, aggressive and transparent marketing strategy/policy to increase its market for gypsum in the paint, rubber and paper industries.

Audit criteria

2.2.4 The following audit criteria were adopted:

- rules & regulations prescribed in the Mines & Minerals (Development & Regulation) Act 1957, Mineral Concession Rules 1960 and National Mineral Policy 1993;
- orders issued by the Department of Mines, GOI and GOR;
- orders issued by the Ministry of Environment & Forest (MOE&F), GOI;
- directions/guidelines of the Board;
- annual Mining/Corporate plan of the Company; and
- terms & conditions of the Contracts executed by the Company.

Audit Methodology

2.2.5 Audit followed a mix of the following methodologies:

- examination of Mining and Environmental Rules, Regulations and orders of the Director of Mines and Geology with reference to lease management;
- examination of records relating to assessment of demand and actual excavation of gypsum;
- examination of feasibility/project reports and other records relating to erection of Centralized Gypsum Grinding (CGG) Unit, its utilisation and comparing the cost of grinding with that of private grinders hired by the Company;
- examination of records relating to sale, delay in billing and fixation of sale price and its implementation; and
- examination of records relating to quality of product and its acceptance by the customers.

Regulatory framework of Minerals

2.2.6 Section 4 (1) of the Mines and Minerals (Development and Regulation) Act, 1957, provides that no person shall undertake any reconnaissance, prospecting or mining operations in any area, except on conditions of a reconnaissance permit or of a prospecting license granted under the Act and Rules. Section 5(2)(b) of the Act *ibid* and Rule 22A of the Mineral Concessions Rules, 1960 provides that no mining lease shall be granted unless mining plan is approved by the State Government. Any further modification in the approved mining plan, during the operation of a mining lease, also requires prior approval of the State Government.

Audit Findings

2.2.7 The audit findings were reported to the Government/Management in July 2006 and discussed with the Government/Management in the meeting of the Audit Review Committee for State Public Sector Enterprises (ARCPSE) held on 31 August 2006 where the Secretary, Mines represented the Government and the Managing Director represented the Company. The review was finalised after considering views of the Government/Management. The audit findings are discussed in the succeeding paragraphs.

Working results

2.2.8 The table below indicates the working results of the SBU&PC Gypsum and operating profit (before depreciation & interest) of the Company for the last five years ended 31 March 2006:

(Amount: Rupees in lakh)

S.No.	Particulars	2001-02	2002-03	2003-04	2004-05	2005-06
1	Operational Revenue	3,694.42	7,765.18	6,781.79	8,751.31	7,919.73
2	Operational Expenditure	2,894.54	6,326.21	5,498.18	6,933.56	6,133.81
3	Operating Profit before depreciation and interest of SBU&PC Gypsum	799.88	1,438.97	1,283.61	1,817.75	1,785.92
4	Operating Profit before depreciation & interest of the Company as a whole	3,711.06	5,972.96	6,983.54	13,060.33	15,506.31
5	Contribution of SBU&PC Gypsum in Company's operating profit (in percentage)	21.55	24.09	18.38	13.92	11.52

Contribution of gypsum to operating profit of the Company declined from 21.55 to 11.52 per cent during 2002-06.

It would be seen from above table that operating profit of the SBU&PC Gypsum increased from Rs.8 crore in 2001-02 to Rs.17.86 crore in 2005-06. Its contribution to the operating profit of the Company had, however, declined from 21.55 per cent in 2001-02 to 11.52 per cent in 2005-06.

Mining leases & their operation

2.2.9 The Company is required to pay royalty for the minerals extracted from mines and pay dead rent where minerals extracted fall short of minimum rent. The mining lease/working permissions held by the Company during the last five years ended on 31 March 2006 are as under:

(In numbers)

Sl. No.	Particulars	2001-02	2002-03	2003-04	2004-05	2005-06
1	Mining Lease (ML)	13	11	39	37	26
2	Working Permissions (WP)	9	6	-	-	-
	Total	22	17	39	37	26
3	ML/WP in operation	16	16	31	19	10
4	ML/WP not in operation	6	1	8	18	16

Non-excavation of minerals and non-surrendering of mining leases led to avoidable payment of dead rent of Rs.38.51 lakh.

It would be seen from the above table that upto 18 mines (50 per cent) were not in operation during 2001-06. It was further noticed in audit that the Company did not excavate enough minerals to cover the minimum dead rent from 21 different mining leases (including these mines) and paid dead rent of Rs.23.74 lakh during 2001 to 2006.

The Management stated (September 2006) that the farmers prevented the exploitation of gypsum from the mines and hence the Company had no option except to pay dead rent.

The reply is not tenable as the Company did not maintain records in respect of those mines which were not operated at all on account of resistance of land owners for excavation of gypsum from their areas. In respect of other areas, it did not excavate enough gypsum to avoid payment of dead rent.

The Mineral Concession Rules, 1960 provide that the lessee can apply for surrendering the lease at least six months before the intended date of surrender. Audit scrutiny revealed that though minerals in four mining leases* had depleted in 2003-04, the leases were surrendered after delay of two years, due to which the Company paid avoidable dead rent of Rs.14.77 lakh for the period 2004-05 and 2005-06. Audit scrutiny also revealed that due to lack of monitoring the level of excavation for individual mines was not checked during the period in which they were in operation, resulting in the Company not taking advance action for surrender of the leases.

The Management while accepting (August 2006) delay in surrender of mines stated that farmers did not allow excavation of gypsum and hence mines remained unexploited which could not be surrendered.

The reply is not correct as these mines had already been excavated upto 2003-04 and there was no more gypsum left for excavation.

Mining without environmental clearance

Non-obtaining of environment clearance led to suspension of mining operation and avoidable payment of dead rent of Rs.54.29 lakh.

2.2.10 The MOE&F, GOI vide their notification (January 1994) directed that mining operations including expansion or modernisation of any mining activity shall not be undertaken in any part of India unless it has been accorded environmental clearance by the Ministry. The Company, however, without obtaining environmental clearance in respect of 11 leases (having 196 lakh MT mineral reserves) continued mining activities for ten years in violation of the notification. No reasons for this were found on record. In April/May 2004, the GOR, in pursuance of the said notification, directed the Company to stop mining in these 11 leases. It was noticed in audit that the mining operation in these 11 leases remained suspended (July 2006) and the Company paid avoidable dead rent of Rs.54.29 lakh for the years 2004-05 and 2005-06. The Company belatedly applied (October 2005 - April 2006) for Environmental Clearance for only four leases and will continue to pay further avoidable dead rent till environmental clearance is applied and obtained for the remaining seven mines.

* Bhadwasi-II, Bhadwasi-III, Bhadwasi-ACC and Dhandu

The Management stated (September 2006) that the process of obtaining environment clearance is very long and it is difficult to get the clearance simultaneously for all mines. The reply is not tenable as the Company had failed to apply for environment clearance even after lapse of more than 10 years of issuance of the notification.

Mining operation on agency basis

2.2.11 The Company applied, between September 2003 and October 2004 to the Department of Mines & Geology, GOR for grant of mining lease of five hectare each in 27 locations in Bikaner, Sri Ganganagar, Hanumangarh, and Nagaur Districts. The GOR, instead of granting mining lease, offered (April 2005) that the Company undertake mining operation as its agent in 27 mines. The terms & conditions of the agency *inter alia* provided that in addition to statutory levies, the Company shall pay Rs.20 per tonne as premium charges on gypsum dispatched every month subject to a minimum monthly premium charges of Rs.40,000 for 2000 MT. Audit scrutiny revealed that the Company accepted these 27 mines without any preliminary study as to whether it would be able to operate in all the reserve areas with the minimum excavation stipulated in the State Government order.

Acceptance of agency arrangement without effective planning and study caused loss of Rs.1.10 crore.

It was further noticed during audit that out of these 27 mines, mining plan for 11 mines had not been prepared till March 2006 and resultantly, no mineral could be excavated from the 11 mines and as per agency terms the Company paid avoidable premium charges of Rs.48.40 lakh without any mining operation. The Company also did not commence mining operations in 8 out of 16 remaining mines where all formalities were completed and consequently paid avoidable minimum premium charges of Rs.35.20 lakh. Further, the Company failed to achieve minimum excavation of 2000 MT per month in eight locations where it commenced mining operations and paid avoidable minimum premium charges of Rs.26.28 lakh for shortfall in excavation. Thus, acceptance of the agency arrangement without adequate planning and efficient execution resulted in loss of Rs.1.10 crore in the year 2005-06.

The Management stated (September 2006) that in order to prevent possible pilferage of royalty, development charges and other Government levies by unauthorised elements, it accepted the allotment of mines. Also, it was neither technically possible nor commercially desirable to commence mining in all these areas simultaneously. The Management further stated that the Government had been approached for reconsideration of the additional conditions.

The Company's acceptance of the mines on agency basis without preliminary study and planning for excavation was commercially imprudent and resulted in unfruitful payment of premium charges and loss.

Wrong issue of Rawanna[@]

Avoidable extra expenditure of Rs.46.43 lakh due to incorrect issuance of Rawanna.

2.2.12 It was noticed in audit that out of eight locations, where mining had commenced on agency basis, excavation of 2,38,155.50 MT during January- March 2006 was shown from one location *i.e.* Dhani Abdullah wali-A and the Company paid premium charges of Rs.47.63 lakh to the State Government. Scrutiny of records relating to the payment of crop compensation to the landowners revealed that the landowners and the khasra numbers for which the crop compensation was paid were not related to this mining lease but related to areas of the Company's own mines. This indicates that the Rawannas were wrongly issued for this lease whereas the mineral excavation was done from other mining lease. The incorrect issuance of Rawannas caused undue payment of premium charges of Rs.46.43 lakh to the State Government.

The Company while accepting (September 2006) the fact, assured to take suitable corrective action.

Production Performance

2.2.13 The Company fixed its targets for excavation of gypsum mainly on the basis of demand of the cement industry which was the main customer. The table below indicates the demand of natural gypsum in the cement industry along with the targets set by the Company for excavation of gypsum and the actual excavation against the targets for the last five years ended on 31 March 2006:

(In lakh MT)

Sl. No.	Particulars	2001-02	2003-03	2003-04	2004-05	2005-06
1	Total natural gypsum requirement for cement industry	26.12	28.55	30.09	32.63	36.16
2	Targets fixed by the Company for gypsum excavation	12.47	11.25	24.00	27.00	28.00
3	Actual excavation of gypsum by the Company	14.01	12.29	23.75	28.67	27.97
4	Percentage of excavation targets to demand	47.74	39.40	79.76	82.75	77.43
5	Percentage of achievement of excavation target	112.35	109.24	98.96	106.19	99.89

[@] Rawanna- is a document (Form No. 12) by which Department of Mines & Geology, GOR allows to take out the excavated material from the mines.

It would be seen from the table on prepage that the percentage of achievement of excavation targets ranged between 98.96 and 112.35 during the last five years. Though the Company achieved the excavation targets, the excavation targets were fixed at lower levels when compared to the demand of natural gypsum by the cement industry alone and despite availability of mines for meeting increased excavation targets. The Company kept the excavation targets between 39.40 and 82.75 *per cent* of the total demand of natural gypsum by the cement industry during the last five years. Reasons for fixation of targets on lower side were neither on record nor stated.

Delay in inviting fresh tenders for excavation

Delay in invitation of fresh tender caused avoidable extra expenditure of Rs.22.67 lakh.

2.2.14 The excavation of gypsum from mines, its transportation from mines to grinding units/ railway sidings and its loading into wagons is done on contractual basis. Grinding of gypsum is also partly carried out by the Company. The Company had been awarding contracts for excavation of gypsum of specified quantity for a block period of two years. It was noticed in audit that the rates of excavation obtained in competitive bidding over more than five years showed a declining trend. Despite this, the Company instead of calling fresh bids for the subsequent periods well before the completion of the existing contracts for excavation extended the running contracts on existing rates, terms & conditions for four months (November 2005 to February 2006). The rates received thereafter against fresh tenders were lower by 40.21 to 71.39 *per cent*. The Company had made extra payment of Rs.22.67 lakh on excavation of gypsum during the extended period of four months.

Thus, due to not taking timely action for inviting fresh tenders, the Company incurred extra expenditure of Rs.22.67 lakh.

The Management stated (September 2006) that the time period of contracts was extended to avoid stoppage of work. The reply is not tenable as the contingency of stoppage of work could have been avoided by taking timely advance action for invitation of fresh tenders and their finalisation.

Acceptance of Centralised Gypsum Grinding (CGG) Unit without performance guarantee test

2.2.15 Gypsum having 70 *per cent* Calcium Sulphate in powder form (minus 2 mm in size) is required for the purpose of land reclamation in agriculture sector. The Company, considering the demand, proposed to install a grinding unit of 50 Tonne Per Hour (TPH) capacity at Rawla, Sri Ganganagar, estimated to cost Rs.1.60 crore, which was later (June 2002) raised to 70 Tonne Per Hour (TPH) capacity estimated to cost Rs.1.88 crores. The order for supply and erection of the CGG Unit was placed (December 2002) on Saboo Engineers Private Limited with completion period of four months from the date of work order. The CGG Unit was, however, installed in April 2004.

Acceptance of grinding plant without ensuring the desired performance.

As per the terms of the contract, the plant was to give guaranteed performance of 70 TPH of ROM[#] gypsum throughout the entire process. In case of failure to meet the guaranteed performance, the supplier was liable to pay penalty upto shortfall of 10 *per cent*; beyond this, the supplier was to rectify the plant to achieve guaranteed performance. It was noticed in audit that the CGG Unit gave performance of 52.98 MT and 57.28 MT per hour respectively during 2004-05 and 2005-06. Thus, despite the shortfall of more than 10 *per cent* in performance, the Company did not take steps for rectification of the plant.

Under-utilisation of CGG Unit

2.2.16 The table below indicates the capacity and production of gypsum powder of CGG Unit and production of gypsum powder by the contractors during last five years ended on 31 March 2006:

(In lakh MT)

Particulars	2001-02	2002-03	2003-04	2004-05	2005-06
Production of gypsum powder-CGG Unit	-	-	0.12	1.34	1.11
Production of gypsum powder-Contractors	1.83	1.98	2.16	2.97	1.67
Total production of gypsum powder	1.83	1.98	2.28	4.31	2.78
Capacity of CGG Unit	-	-	-	3.36	3.36
Percent utilisation of CGG unit	-	-	-	39.88	33.04

It would be seen from the above that utilisation of CGG unit was 39.88 *per cent* in 2004-05 and 33.04 *per cent* in 2005-06. It was noticed in audit that the Company continued to avail of the services of private contractors for grinding of gypsum despite un-utilised capacity of more than 60 *per cent* of CGG unit. An analysis carried out in audit revealed that had the Company utilised the CGG unit to its full capacity the cost per MT of gypsum powder would be Rs.41 as compared to Rs.56 being paid to the contractor.

The Management accepted (September 2006) the Audit contention of higher grinding cost due to low utilisation of the plant.

Sales performance

2.2.17 Sale of gypsum is made directly to the consumers in ROM form and to the Government agencies for agriculture sector in the powder form. The Company does not fix separate targets for sale of ROM and powder gypsum. The table below indicates the demand of gypsum in the cement industry in the country and sale of natural gypsum to cement industry for the last five years ended on 31 March 2006:

[#] Run of Mine

(In lakh MT)

Sl. No.	Particulars	2001-02	2002-03	2003-04	2004-05	2005-06
1	Total gypsum requirement for cement industry.	51.22	55.98	59.00	63.98	70.90
2	Total natural gypsum requirement for cement industry	26.12	28.55	30.09	32.63	36.16
3	Sale of natural gypsum to cement industry	11.70	10.78	22.51	23.64	26.09
4	Percentage of demand of natural gypsum met	44.79	37.76	74.81	72.45	72.15

It would be seen from the above that percentage of demand of natural gypsum for the cement industry met by the Company increased from 44.79 *per cent* in 2001-02 to 72.15 *per cent* in 2005-06. Though the market share of the Company increased over the years, there is still a significant demand, which is un-tapped and needs to be explored. It was noticed in audit that the Company did not initiate any efforts to increase its market share in the cement industry and explore other avenues to see if demand in other industries also existed where natural gypsum is used.

The Management stated (August 2006) that due to availability of cheaper phospho gypsum which is used by other industries; it has not opened the market for other industries. The reply is not tenable as there was no record to show that any efforts were made to assess the market in other industries.

Undue benefit to customers

2.2.18 The sale price of gypsum (ex-pit and ex-loading point) is fixed by the Coordination Committee consisting of the representatives from the Company & the Fertilizer Corporation of India. The break-up of the cost of production, overheads and profit margin *etc* in the prices was not found on record. For ex-loading point supplies, incidental charges are added to the ex-pit sale price. The incidental charges include inland transportation, loading and unloading charges *etc*.

The Coordination Committee revised the sale prices (ex-pit and ex-loading points) with effect from 1 June 2004 and again from 1 April 2005. The incidental charges for Ex-Kanasar loading point were fixed at Rs.161 per MT. It was noticed in audit that the actual expenditure on incidental charges borne by the Company was Rs.177.80 per MT during June 2004 to March 2005 and Rs.191.55 per MT during April 2005 to March 2006. The Company did not take up the matter with the Coordination Committee for increasing the incidental charges during revision of price from April 2005, despite incurring higher cost of Rs.177.80 per MT.

Loss of Rs.91.33 lakh due to higher incidental charges.

Audit scrutiny of sales records revealed that the customers to whom the supplies were given from Kanasar railway siding had also purchased gypsum from ex-pit during the same period. Despite this, and the fact that actual incidental charges had increased, the Company supplied gypsum to these

customers at the lower rate of incidental charges. This resulted in undue benefit of Rs.91.33 lakh to the customers on account of incidental charges.

The Management stated (September 2006) that the sale at railway siding is increasing profitability of the Company and is required to maintain the customer base. The reply is not tenable in view of the fact that the customers to whom the sale was made from railway siding were also taking supplies from ex-pit and thus there was no increase in profitability and rather undue benefit was being extended to these customers towards incidental charge.

Non-pursuance of insurance claim

2.2.19 UPBSN[§] placed (December 2001) an order for supply of 1,33,000 MT gypsum powder in HDPE bags on FOR destination basis. The Company obtained transit insurance, for an amount equal to 110 *per cent* of CIF value for the goods from “warehouse to warehouse” on “all risk” basis and supplied 1,28,144.15 MT (25,62,884 Bags) gypsum Powder from Anupgarh and Hanumangarh railway siding between February 2002 and May 2002. UPBSN, however, received only 1,25,643.95 MT (25,12,880 Bags) at various destinations which resulted in short supply of 2500.20 MT (50,004 Bags) valuing Rs. 36.40 lakh. The Company lodged claims with the Railways in July and October 2002, which was rejected on the ground that the Railways had clear receipts of delivery from the Company. The Company lodged claim with the Insurance Company between October 2002 and March 2003. The insurance company sought (August 2003) documents regarding acceptance of claim made by UPBSN and the claim lodged for refund of CST by the Company. The Company did not provide the required documents in the form of credit notes for the amount deducted by UPBSN as acceptance of claim and continued to show the deducted amount as recoverable from UPBSN in its accounts. Due to this, the claim could not be recovered, resulting in loss of Rs.36.40 lakh, despite taking insurance cover.

Failure to provide required document resulted in loss of Rs.36.40 lakh.

The Management accepted (August 2006) the Audit contention and stated that action would be taken to recover the dues either from the insurance company or from the customer.

Delayed supplies and non-maintenance of documentary evidence

2.2.20 UPBSN placed (March 2004) an order for supply of 2,25,400 MT of gypsum powder at the rate of Rs. 616 per MT with rebate of Rs. 20 per MT on the condition that UPBSN shall release the payment within 30 days from the presentation of invoices. The Company was also liable to pay liquidated damages at the rate of half *per cent* per week of delay subject to a maximum of 10 *per cent* of the contract price in case of failure to deliver gypsum within the specified period. The Company supplied 2,23,635.30 MT of gypsum powder during April 2004 to November 2004. Audit scrutiny revealed that 72,456.85 MT gypsum powder was supplied after delays ranging from one to 16 weeks. UPBSN deducted liquidated damages of Rs.13.17 lakh for the delayed supplies. No recorded reasons for delay in supply were available with

[§] Uttar Pradesh Bhumi Sudhar Nigam

the Company. Despite delay in the payment ranging between 1 and 38 days for 1,32,297 MT by UPBSN an amount of Rs.26.46 lakh was deducted towards rebate at the rate of Rs.20 per MT on the plea that payments were made within 30 days after receipt of invoices. The Company issued credit note as it failed to establish that the UPBSN had delayed release of payments within 30 days from the presentation of invoice. Thus, delayed supplies and non-maintenance of documentary evidence to prove delay in payment by UPBSN led to loss of Rs.39.63 lakh.

The Management stated (September 2006) that UPBSN deducted the recoveries without conveying it to the Company. The matter is being taken up to settle the dispute.

Non-receipt/non-claiming of duty drawback from Excise Department

2.2.21 The supplies of gypsum powder to UPBSN were covered under deemed exports provisions eligible for duty draw back under Custom & Central Excise Duties Draw Back Rules 1995. The Company was also eligible to claim the amount of excise duty paid by it on the purchase of HDPE bags used in packing of gypsum powder supplied to UPBSN. The claim for duty drawback was to be filed within three months, extendable up to one year on furnishing satisfactory reasons for delay from the date of let-export orders. Two claims for Rs.26.48 lakh (Rs.7.62 lakh for the year 2002-03 and Rs.18.86 lakh for the year 2003-04) filed by the consultant in September 2003 and February 2004 were pending with the Excise Department till date. The Company also failed to file claims of Rs.22.89 lakh for exports made during April to June 2005 within maximum allowable time of one year (July 2006). Thus, the Company failed to monitor pursuance of claims already filed as well as timely filing of subsequent claims which resulted in blockage of Rs.49.37 lakh and consequential loss of interest.

Failure to pursue claim filed and non-filing of claims resulted in loss of Rs.49.37 lakh.

The Management stated (September 2006) that the delay in preferring the claim was due to delay in issuance of Project Authority certificate and payment certificate by UPBSN. The fact remains that delay in preferring claims resulted in blocking of funds and consequential loss of interest.

Handling losses

2.2.22 During the process of transportation & loading of mineral some quantity is lost which are called 'handling losses'. The Company did not fix any norms for handling losses of gypsum during transit, loading in railway wagons etc. While awarding the contracts for transportation of ROM from mines to railway siding, the Company was, however, allowing transit losses of half *per cent* to one *per cent*. During 2004-05, the Company awarded contract for transportation of ROM from mines to railway sidings and further loading of ROM into wagons under which the handling losses of three *per cent* were allowed. The railway siding wise handling losses of the Company for the last four years are given in the **Annexure-13**.

Write off of excess handling loss of Rs.1.60 crore by obtaining approval of Board on misrepresenting the information.

It would be seen from the annexure that handling losses at railway siding ranged between 4.19 and 33.41 *per cent* during the last four years ended March 2005 as against permissible losses of 2.5 *per cent* at railway siding. The value of handling losses in excess of permissible 2.5 *per cent* (3 *per cent* – 0.5 *per cent* towards transportation) at railway siding worked out to Rs.1.60 crore. Audit scrutiny revealed that the Board was informed that losses were ranging between 0.26 and 1.06 *per cent* during 2001-05 and on that basis the Board approved a proposal for writing off the handling losses. Audit further noticed that the Management had arrived at 0.26 and 1.06 *per cent* handling losses during 2001-05 by taking the total quantity of production and sale together for the respective years instead of the quantum of actual handling at railway sidings. The Management's decision to consider the ex-pit sale for the purpose of working out the handling losses was not in order as the ex-pit mineral is lifted by the customers directly from the mines. Hence, no handling loss occurs on ex-pit sales. Thus, the Company obtained the approval of the Board for write-off of handling losses by misrepresenting the information and excess losses of Rs.1.60 crore were got written off by the Company without any investigation.

This only reflects a casual approach of the Management towards losses and is fraught with the risk of manipulations.

The Management accepted (September 2006) the fact that handling losses were worked out after taking the total production/sale uniformly for all SBUs. The reply is not tenable as the system for working out handling losses should be correctly worked out based on the actual quantity handled at railway siding to arrive at the true position of handling losses so as to monitor excessive losses.

Internal Control & Internal Audit

2.2.23 In order to achieve its objectives every organisation requires to have an effective system of Internal Control to ensure that all the activities of the Company are performed in accordance with the rules, standardised procedures and system for accomplishment of desired goals. It was noticed in audit that the Company has not prepared any manuals relating to its core functions such as Purchase manual, Contract manual, Cost & Budget manual, Marketing and Sales manual *etc.* In absence of these, the procedures and systems are either deficient or vulnerable to deviations, manipulation without being noticed and detected. The system of Internal Control was found to be deficient as regards handling losses (para 2.2.22) and non-filing and lack of pursuance of duty draw back claims (para 2.2.21) as pointed out in earlier paragraphs. It was also noticed in audit that there were persistent irregularities on which no corrective action was taken by the management, despite the same being pointed out by the Internal Audit Wing.

Conclusion

The contribution of gypsum to the operating profit of the Company had declined from 21.55 *per cent* in 2001-02 to 13.92 *per cent* in 2004-05 indicating that contribution of gypsum has grown at a much lower rate as compared to other activities of the Company. The Company operated several mines without obtaining statutory environmental clearances. Due to not obtaining environmental clearance, non-operation of several mines and accepting mining operation on agency basis without adequate planning there was avoidable loss of Rs.2.03 crore. Excess handling losses of Rs.1.60 crore were got written off by the Company without any investigation and by obtaining approval of the Board based on misrepresentation of facts and information. Delay in invitation of fresh tenders of mining and transportation, continuing the services of private contractors despite un-utilised capacity of CGG unit and lack of an effective Internal Control System also adversely impacted the Company's working. Besides, the Company did not initiate efforts to explore demand in other industries where natural gypsum is used, with a view to diversifying the business activities of gypsum as also initiating steps for aggressive marketing.

Recommendations

The Company needs to:

- Ensure compliance with various statutory provisions.
- Strengthen the system of lease management to avoid payment of dead rent.
- Improve marketing efforts to tap demand of natural gypsum in other industries.
- Take timely action for award of fresh transportation contracts on competitive rates.
- Optimise the utilisation of the CGG unit to reduce the cost of grinding.
- Strengthen the system of Internal Control and audit and standardise its procedures.

2.3 Power Sector Companies

Transmission and Distribution Losses in power sector companies of Rajasthan

Highlights

Against the norms of four *per cent* for Transmission loss and 11.5 *per cent* for Distribution loss, actual losses ranged between 6.01 and 8.15 *per cent* and 34.06 and 45.51 *per cent* respectively. Transmission & Distribution losses in excess of the norm of 15.5 *per cent* was Rs.11,624.80 crore for the period of five years from 2000-01 to 2004-05.

(Paragraphs 2.3.11 and 2.3.18)

The performance of Rajasthan Rajya Vidyut Prasaran Nigam Limited with regard to evacuation of power within the State deteriorated during 2003-05 as within State transmission losses increased to 4.72 *per cent* in 2003-04 and 4.59 *per cent* in 2004-05 as compared to 4.10 *per cent* in 2000-01, despite a capital investment of Rs.1,125.16 crore.

(Paragraph 2.3.11)

Due to Transmission & Distribution losses in excess of the norm of 15.5 *per cent*, consumers had to bear additional burden of Rs.4,183.57 crore in the form of higher tariff equivalent to 17 *per cent* of average tariff for the year 2004-05.

(Paragraph 2.3.34)

Distribution loss in excess of that allowed by the Regulatory Commission was Rs.2,508.75 crore during the period of four years from 2001-02 to 2004-05.

(Paragraph 2.3.18)

Deficient implementation of Low Tension-less system resulted in loss of envisaged energy saving of 1,193.47 million units valued at Rs.399.40 crore.

(Paragraph 2.3.31)

Shortfall in installation of capacitor banks resulted in loss of envisaged saving of energy to the extent of 75.36 million units valued at Rs.23.04 crore in Transmission system and 199.66 million units valued at Rs.68.58 crore in Distribution system.

(Paragraphs 2.3.14 and 2.3.23)

Deficient planning and implementation coupled with inadequate monitoring of Ariel Bunch cable works in Distribution Companies caused loss of energy savings of 438.67 million units valuing Rs.148.16 crore.

(Paragraph 2.3.30)

Delay in awarding the works of Feeder Renovation Programme led to loss of energy savings of 154.82 million units valued at Rs.55.27 crore.

(Paragraph 2.3.29)

Percentage of defective meters to total metered consumers increased to 4.35 per cent in 2004-05 from 3.70 per cent in 2002-03 in case of Jaipur Vidyut Vitran Nigam Limited, 2.60 per cent in 2004-05 from 1.83 per cent in 2002-03 in case of Ajmer Vidyut Vitran Nigam Limited and 2.88 per cent in 2004-05 from 1.43 per cent in 2002-03 in case of Jodhpur Vidyut Vitran Nigam Limited. Due to non-replacement of 0.79 lakh defective meters for over six months, Jaipur Vidyut Vitran Nigam Limited alone had sustained a loss of 57.53 million units valuing Rs.20.54 crore during 2004-05.

(Paragraph 2.3.25)

Delay in erection of 19 Extra High Voltage lines resulted in loss of envisaged energy saving of 65.03 million units valuing Rs.21.38 crore.

(Paragraph 2.3.12)

The performance of Distribution Companies in respect of feeder outage, distribution losses and gap between Average Revenue Realisation and Average Cost of Supply had deteriorated due to slow progress in implementation of Accelerated Power Development and Reforms Programme scheme during the last two years up to 2004-05.

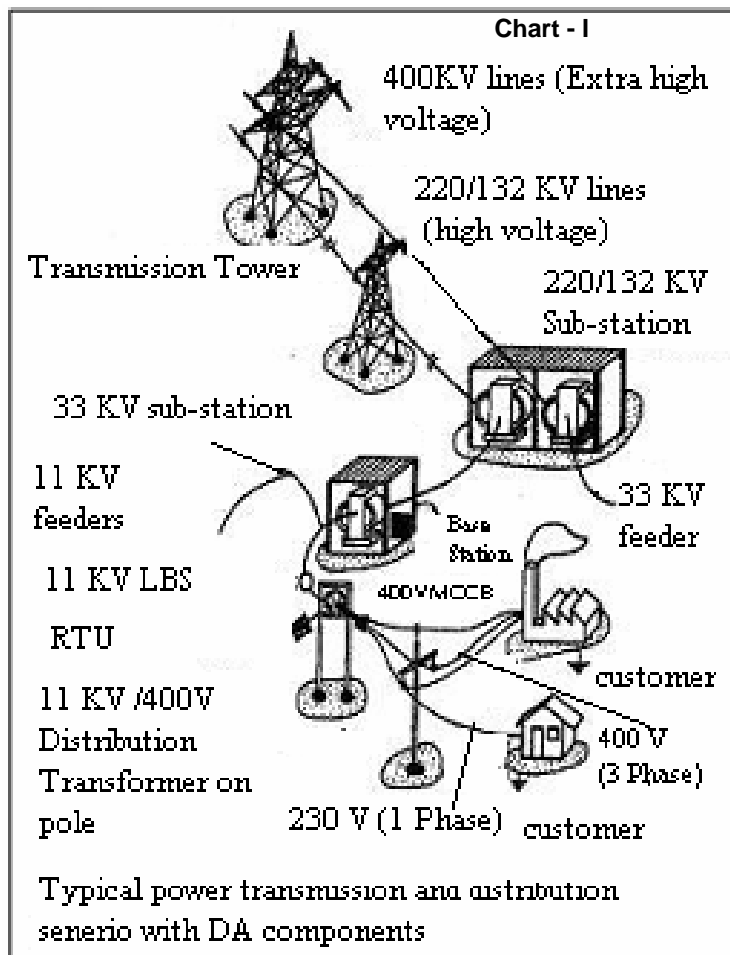
(Paragraph 2.3.28)

For every three cases of vigilance checking, two cases of theft were detected in Jaipur Vidyut Vitran Nigam Limited during 2003-05 indicating high incidence of theft prevailing in the system. Coverage of vigilance checking was not adequate as targets fixed were less than two and half per cent and actual checking was less than one per cent of total consumers during 2003-04 and 2004-05.

(Paragraphs 2.3.32 and 2.3.33)

Introduction

2.3.1 Power is critical for economic growth, as economic acceleration greatly depends upon a reliable source of quality power supply. The Transmission and Distribution (T&D) system is an important and essential link between the power generating/receiving source in case of bulk purchase and the ultimate consumer. For efficient functioning of the system, it must be ensured that there are minimum losses in transmitting and distributing the power from the generating point to the consumer's end. The power is supplied through primary and secondary feeders at 132, 33 or 11 KV (Kilo volt) to High Tension (HT) consumers and 400/230 volts to Low Tension (LT) consumers after step down through distribution transformers (DTs) as depicted in Chart-I.



For efficient evacuation of power, the transmission system must keep pace with the generating capacity/ available power so as to ensure proper power voltage, minimise transmission losses, avoid overloading and thereby improving reliability of the system as a whole.

The T&D system should be based on detailed techno-economic study so as to ensure cost effectiveness and desired benefits. The T&D facilities built up in the State of Rajasthan as at the end of five years up to 31 March 2005 are given in **Annexure-14**.

Under the Rajasthan Power Sector Reforms (PSR) Act, 1999, the Rajasthan State Electricity Board (RSEB) was unbundled (July 2000) into five^β electricity companies with the objective of creating conditions for sustainable development of the power sector, improving viability of operations, efficiency and quality of service to consumers.

The affairs of RRVPNL[@] and three Distribution companies (JVVNL, AVVNL and Jd.VVNL) are managed by the respective Boards of Directors at the apex level. The Chairman-cum-Managing Director (CMD) is the Chief Executive of RRVPNL assisted by Director (F&CA), Director (Project and Reforms), Chief Engineers and functional engineers. Managing Director (MD) of each Distribution Company is the Chief Executive who is assisted by Chief Engineers (CPM* and O&M**) and functional engineers. As on 31 March 2005, there were nine circles in RRVPNL and eight circles each in JVVNL, AVVNL and Jd.VVNL headed by Superintending Engineers (SE).

The performance of the T&D System of the erstwhile Board was last reviewed in the Report of the Comptroller and Auditor General of India for the year ended 31 March 1999 (Commercial) Government of Rajasthan. The review was discussed by the Committee on Public Undertakings (COPU) in July 2003.

Scope of Audit

2.3.2 The performance audit of the T & D system in power sector companies during the period of five years ended 31 March 2005 was conducted during September 2005 to March 2006. The audit findings are based on test check of records at the head offices and three[§] circles each of RRVPNL, JVVNL, AVVNL and Jd.VVNL selected out of a total of nine circles of RRVPNL and eight circles each of the distribution companies based on maximum power handled, consumer mix, risk of revenue leakage and geographical areas as assessed through stratified sampling.

^β Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL), Rajasthan Rajya Vidyut Utpadan Nigam Limited (RRVUNL), Jaipur Vidyut Vitran Nigam Limited (JVVNL), Ajmer Vidyut Vitran Nigam Limited (AVVNL) and Jodhpur Vidyut Vitran Nigam Limited (Jd.VVNL).

[@] The transmission Company.

* Construction, Planning and Monitoring.

** Operation and Maintenance.

[§] Transmission & Construction Circles (TCC)-I&II, Jaipur and TCC-III, Ajmer of RRVPNL, Jaipur District (JPD), Jaipur City (JC) and Alwar Circles of JVVNL, Ajmer, Nagaur and Bhilwara Circles of AVVNL and Jodhpur Rural, Jodhpur city and Pali Circles of Jd.VVNL.

Audit Objectives

- 2.3.3** The performance audit of the T&D system attempts to assess whether:
- the transmission system was adequate and effective for efficient evacuation of electricity;
 - the distribution system exists for reliable, safe and quality supply of power and is capable to meet power demands of consumers in the State;
 - 'unbundling' achieved its stated objectives;
 - expenditure on system improvement schemes could obtain the desired results;
 - an effective Internal Control System exists to ensure that the activities are run in a systematic and orderly manner; and
 - predetermined benchmarks/objectives of system improvement schemes *i.e.* reduction of T&D losses and energy savings, were achieved.

Audit Methodology

- 2.3.4** The following mix of methodologies was adopted:
- Study of the provisions of the Electricity Act 2003, Financial Restructuring Plan, Power Sector Reforms Act, 1999, Electricity Grid Code, Distribution Code, Orders of Regulatory Commission^{*}, CEA[@] and CERC^{**}, Aggregate Revenue Requirement (ARR) and Tariff Fixation Orders *etc.*;
 - Analysis of records relating to compliance of directions/orders issued by the Regulatory Commission and Ministry of Power (MOP) to arrest high T&D losses;
 - Analysis of progress in implementation of various system improvement schemes *viz.* APDRP^{\$}, FRP[#]; and
 - Review of records relating to financial turnaround and improving viability of electricity companies as envisaged in the PSR Act, 1999.

* Rajasthan Electricity Regulatory Commission
@ Central Electricity Authority
** Central Electricity Regulatory Commission
\$ Accelerated Power Development and Reform Programme
Feeder Renovation Programme

Audit Criteria

2.3.5 The performance of the RRVPNL, JVVNL, AVVNL and Jd.VVNL in respect of achievement of reliable, quality and safe power supply to consumers was assessed against the following parameters:

- Norms of T&D losses prescribed/fixed by the CEA/CERC/ Regulatory Commission;
- Regulatory Commission's directions with regard to curbing theft of power through effective vigilance of consumers, replacement of defective meters within two months from their detection *etc.*;
- Targets of schemes/projects *i.e.* predetermined benchmarks as envisaged in the various schemes including FRP and APDRP for reduction in T&D Losses;
- Directions and guidelines of various authorities including CEA, MOP, Regulatory Commission and CERC for improvement in the T&D system and reduction in T&D losses; and
- Projections of financial turnaround and the viability of Distribution companies as envisaged in the PSR Act, 1999.

Audit Findings

2.3.6 Audit findings were reported to the Government/Management in May 2006 and discussed in a meeting of the Audit Review Committee for Public Sector Enterprises (ARCPSE) held on 5 July 2006 where the Government was represented by the Secretary (Energy) and the Management of RRVPNL was represented by CMD and MDs of the Distribution companies. The review was finalised after considering the views of the Government/ Management.

Transmission and Distribution system

2.3.7 While energy is carried from the generating station to the consumers through the T&D network, some energy is lost which is termed as T&D loss. T&D losses are based on the difference between energy received from the generating station/Grid and energy billed to consumers. The percentage of losses in the system to available power indicates the effectiveness of T&D system. Losses occurring at various stages of power transformation and transmission system at 220 KV and 132 KV are known as transmission losses, at 33 KV as sub-transmission losses and at 11 KV and below as distribution losses. Losses occur mainly on two counts *viz.* technical losses and commercial losses.

Technical losses

2.3.8 Transmission losses and transformation losses are known as technical losses which occur due to inherent character of equipment used for transmitting and distributing power and resistance in conductors through which the energy is carried from one place to another. Transmission losses include copper losses (load losses), which are dependent upon the quantum of power being transformed and iron losses (no-load losses), which are due to designed character of the transformer.

Commercial losses

2.3.9 Commercial losses occur due to theft of energy, defective meters and drawl of unmetered supply *etc.*

Transmission and Distribution Losses

The table below indicates the T&D losses for the last five years up to 2004-05.

(In million units)

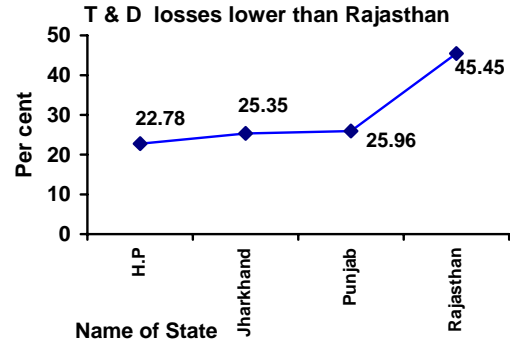
Particulars	2000-01	2001-02	2002-03	2003-04	2004-05
(i) Power available for sale	17,774.270	24,841.836	26,614.445	27,647.120	29,397.625
(ii) Power sold	10,088.770	14,792.684	15,349.140	15,080.020	17,177.903
(iii) T&D losses	7,685.500	10,049.152	11,265.305	12,567.100	12,219.722
(iv) Percentage of T&D losses to power available for sale	43.24	40.45	42.33	45.45	43.64
(v) Percentage of T&D losses in excess of CEA's norms	27.74	24.95	26.83	29.95	28.14
(vi) T&D losses in excess of norms	4,930.52	6,198.04	7,140.66	8,280.31	8,272.49
(vii) Average revenue (Rs. per unit)	2.658	3.295	3.429	3.440	3.597
(viii) Loss of revenue due to excess T&D losses (Rs. in crore)	1,310.52	2,042.46	2,448.50	2,848.05	2,975.27

It would be seen from the above table that T&D losses ranged between 40.45 and 45.45 *per cent* during the last five years up to 2004-05.

The T&D losses of the erstwhile RSEB ranged from 26 to 28.54 *per cent* during 1997-98 to 1999-2000. Rajasthan Power Sector Financial Restructuring Plan (RPSFRP) approved in April 2000 envisaged gradual reduction of T&D losses from 40.6 *per cent* in 2000-01 to 28.2 *per cent* in 2004-05. Due to consistent failure in reduction of T&D losses, the target was revised upward to 34.81 *per cent* in RPSFRP of August 2003. The Transmission and Distribution companies incurred expenditure of Rs.3,512.16 crore on power sector reforms since April 2001; despite this there was significant increase in T&D losses to 43.64 *per cent* in 2004-05 *i.e.* in the post unbundling period.

Despite expenditure of Rs.3,512.16 crore, the T&D losses increased to 43.64 *per cent* from 40.45 *per cent*.

An analysis of the position of T&D losses across the country revealed that the T & D losses in Rajasthan in 2003-04 were higher at 45.45 per cent compared to the national average of 32.53 per cent and also higher than other States viz. Himachal Pradesh (H.P), Jharkhand and Punjab connected with the Northern Regional Grid as shown in the graph.



The Government stated (July 2006) that Rajasthan being a larger State in terms of area the T&D losses should be viewed in that context as these are bound to be higher than other smaller States. The reply is not tenable as, in the post unbundling period, the geographical area of Rajasthan has been divided into three Distribution companies and despite that the T&D losses have increased.

Reasons for higher T&D losses

2.3.10 The main reasons of high T&D losses as analysed in audit were overloading of transformers and feeders, low power factor, poor voltage regulation, theft and misuse of electricity by consumers/non-consumers due to inadequate vigilance checks, defective/stopped meters and improper energy Accounting and Audit at various stages of the system. Besides, lack of planning, poor execution and monitoring of upgradation and improvement schemes of T&D network was noticed as, discussed in subsequent paragraphs.

Transmission losses

2.3.11 The table on the next page indicating the percentage of transmission losses of RRVPNL for the last five years up to 2004-05 reveals that the overall transmission losses of RRVPNL had come down to 6.01 per cent in 2004-05 as compared to 8.15 per cent in 2000-01 against the norm of four per cent prescribed by CEA. The reduction in transmission losses were mainly due to improved effectiveness in evacuation of power through the Northern Regional Grid of PGCIL*/BBMB[§] as outside State, transmission losses had decreased to 2.78 per cent in 2004-05 as against 4.63 per cent in 2000-01. The performance of evacuation of power within the State had, however, deteriorated because transmission loss within the State increased to 4.72 per cent in 2003-04 and 4.59 per cent in 2004-05 as compared to 4.10 per cent in 2000-01. This was the position despite a capital investment of Rs.1,125.16 crore incurred on system improvement schemes during the last four years up to 2004-05. The transmission losses in excess of the norm of

Despite capital investment of Rs.1,125.16 crore, transmission loss within State increased to 4.59 per cent in 2004-05 compared to 4.10 per cent in 2000-01.

* Power Grid Corporation India Limited
 § Bhakhra Beas Management Board

four *per cent* prescribed by CEA works out to Rs.1,007.76 crore during the last five years up to 2004-05.

(In percentage)

Year	Outside the State losses	Within the State losses	Total losses
2000-01	4.63	4.10	8.15
2001-02	4.35	4.17	6.59
2002-03	5.13	3.68	6.14
2003-04	2.77	4.72	6.41
2004-05	2.78	4.59	6.01

Audit scrutiny of 36 GSS¹ (12 *per cent* of the total) further revealed that percentage of transmission losses was higher and ranged between 4.27 to 15.18. Transmission losses in excess of the norms for these 36 GSS alone worked out to Rs.101.80 crore. The management of RRVPNL stated (August 2006) that RRVPNL had achieved the targets in respect of transmission losses within the State as fixed at 4.44 to 5.8 *per cent* during 2001-05 by the Regulatory Commission. The reply is not tenable as the transmission losses fixed by the Regulatory Commission were for both *i.e.*, outside the State and within the State, and not for within the State only. Further the transmission losses within the State have increased from 4.10 *per cent* in 2000-01 to 4.59 *per cent* in 2004-05.

Delay in Construction of new lines and sub-stations

2.3.12 The details of targets and achievement for construction of transmission lines and sub-stations are given in **Annexure-15**. It would be seen from the annexure that though the targets for 400 KV and 132 KV lines were achieved, there was significant shortfall in laying of transmission lines of 220 KV during 2000-01 and 2002-03 to 2004-05. The shortfall was 117 Ckm[@] (47 *per cent*) in 2000-01, 314 Ckm (65 *per cent*) in 2002-03, 400 Ckm (100 *per cent*) in 2003-04 and 53 Ckm (12 *per cent*) in 2004-05. Similarly, shortfall in construction of Sub stations for 220 and 132 KV ranged from five to 33 *per cent* during the last five years up to 2004-05. The target for construction of Sub stations for 400 KV during the year 2003-04 was also not achieved.

The Project, Planning and Monitoring Wing of RRVPNL, formulated an annual plan for the year 2001-02 for laying of 16 EHV* transmission lines (715 Ckm) at different locations. It was observed in audit that the contracts for laying of these (15 out of 16 proposed) 220 KV and 132 KV EHV transmission lines were awarded during the year 2002-03. The delay in finalisation of work orders for nine lines resulted in non-utilisation of budget for capital expenditure and energy saving foregone of 13.94 MU[§] valued at Rs.4.39 crore as targeted in the project report. Audit further noticed that upto 2004-05 there were delays of three to 28 months in erection of 10 out of 107 EHV lines mainly due to not providing tower material, non-approval of route

¹ Grid Sub-station
[@] Circuit Kilometer
^{*} Extra High Volt
[§] Million Units

alignment, non-synchronisation of sub-stations with transmission lines and delay on the part of contractors. This has resulted in energy saving foregone of 51.09 MU valuing Rs.16.99 crore as envisaged in the project report.

The delay in construction and commercial use of 132 KV and 33 KV GSS due to not interconnecting with each other also caused loss of energy saving of 8.217 MU valued at Rs.2.85 crore as envisaged in the project reports.

The Management of RRVPNL stated (August 2006) that the delay in construction of lines was due to non-availability of tower material. The reply is not tenable as timely planning and action could have ensured the availability of the material.

Overloading of transformers and poor voltage profile

2.3.13 Overloading results in frequent tripping and adverse voltage regulation as well as frequent failure of transformers resulting in higher Transmission losses. Scrutiny of records relating to 391 EHV transformers for the year 2004-05 revealed overloading of 37 transformers beyond their rated capacity. Review of MIS* data of RRVPNL revealed that the operating range of voltage during the 2004-05 was 90 to 149 KV as against the norms of 120 to 145 KV in case of 132 KV and was 159 to 250 KV as against the norms of 200 to 245 KV in case of 220 KV as prescribed in the Grid Code issued by the Regulatory Commission. This is indicative of the fact that the power has been transmitted at lower voltage, leading to higher transmission losses. Audit further noticed that the voltage profile at 55 out of 101 GSS was lower than the prescribed norms of the Grid Code.

The management while accepting (August 2006) higher transmission losses stated that system improvement schemes for avoiding overloading were in progress.

Inadequate installation of capacitor banks

2.3.14 The transmission system, when stressed to its limits with average voltage dropping below the normal voltage, results in higher Transmission losses. To set right this situation, sufficient capacitor banks are required to be installed in the Transmission system. The table below indicates the targets/achievements of installation of capacitor banks during the last five years up to March 2005.

Year	Targets (In MVAR [@])	Achievements (In MVAR Percentage)	Shortfall (In MVAR/Percentage)
2000-01	300	174(58)	126 (42)
2001-02	150	49(33)	101 (67)
2002-03	250	233(93)	17 (7)
2003-04	190	168(88)	22 (12)
2004-05	120	141	-

* Management Information System
 @ Mega Volt Ampere

Shortfall of capacitor banks inclusive of defective capacitors resulted in energy saving forgone valued Rs.23.04 crore.

Actual installation of capacitor banks ranged between 33 and 93 *per cent* of the planned MVAR during 2000-04. The target for the year 2004-05 was, however, achieved. The shortfall in installation of capacitor banks ranged between seven and 67 *per cent* during the year 2000-01 to 2003-04 and the total shortfall was of 266 MVAR. Besides the above, 20 capacitor banks (104 MVAR capacity) remained defective and out of circuit for periods ranging between one and 66 months. The total shortfall of capacitor banks inclusive of defective capacitors resulted in energy savings forgone to the extent of 75.36 MU, valued at Rs.23.04 crore (calculated at the average tariff rates on the basis of norms for loss of energy due to shortfall in capacitor banks).

The Management of RRVPNL stated (August 2006) that adequate capacitor banks are installed as per the direction of NREB² and at present sufficient number of capacitor banks are installed. The fact, however, remains that the Company could not achieve its own laid down targets during 2001-2004.

Non-utilisation of testing instruments (imported and indigenous) valued at Rs.2.78 crore

2.3.15 With a view to improving the transmission system for reduction in transmission losses, RRVPNL approved (February 2003) purchase of instruments for testing of electrical switchgears, transformers, insulating oil *etc.* The purchase orders were issued during the period between May 2004 and March 2005. These instruments were received in central stores during June 2005 to February 2006. These testing instruments are required to be used twice in a year for routine testing and during emergency. These equipments costing Rs.2.78 crore were, however, not issued to the respective laboratories/GSS for their use and were lying in store at Heerapura (Jaipur). Thus, non-issuance of these instruments to the end-users defeated the very purpose of procurement of these testing instruments.

The management agreed (August 2006) to take corrective measure for utilisation of these instruments.

Energy Accounting and Audit

2.3.16 Energy Accounting and Audit is necessitated to assess transmission losses and this can be effective on correct meter recording of input and output at each level, so that results of the system can be relied upon for taking remedial measures for reduction of losses. Scrutiny of MIS revealed that transmission losses were in the negative (*i.e.* the units sent out were more than the units received) to the extent of 2082.72 MU in 18 to 23 GSS during the period of five years from 2000-01 to 2004-05, due to defects in the metering system. Further, analysis of records revealed that despite the fact that two 132 KV GSS (out of 23) were showing negative energy for four years and four other 132 KV GSS and one 220 KV GSS were showing negative energy for the last three years, the Management did not take any remedial action.

² Northern Regional Electricity Board

Delay in installation of electronic meters

2.3.17 With a view to improving the metering system, a scheme for installation of electronic energy meters on feeders up to 11 KV for a total cost of Rs.8.40 crore was drawn up with the date of completion January 2004. The project was financed from Power Finance Corporation Limited (PFC) funds to the extent of Rs.6.72 crore. The project, however, could not be completed till April 2006. The delay in completion of installation of electronic energy meters at feeders of 220 KV to 11 KV had an adverse impact on the attempts of improving the system of Energy Accounting and Audit for containing the losses. The management stated (August 2006) that the delay was mainly due to certain modification/ changes necessitated by monitoring of the projects at highest level. The fact remains that these delays could have been avoided by proper planning.

It was further noticed in audit that despite receipt of periodic reports of defects in the metering system, the management did not take remedial measures.

Distribution losses

2.3.18 The table below indicates the distribution losses of Distribution companies *i.e.* JVVNL, AVVNL and Jd.VVNL during 2000-2005.

(In percentage)

Year	Name of Company		
	JVVNL	AVVNL	Jd.VVNL
2000-01	39.46	37.60	40.61
2001-02	38.51	34.06	39.60
2002-03	39.24	39.90	40.95
2003-04	39.85	45.51	42.56
2004-05	37.71	40.49	42.38
Value of distribution losses in excess of norms (Rupees in crore)	3,796.43	3,665.08	3,155.53

It would be seen from the table above that distribution losses of Distribution companies ranged between 34.06 and 45.51 *per cent* as against the norm of 11.5 *per cent* prescribed by CEA (July 1991). This is despite capital investment of Rs.2,387 crore since April 2001. The amount of distribution losses in excess of the CEA norm worked out to Rs.10,617.04 crore (Rs.3,796.43 crore for JVVNL, Rs.3,665.08 crore for AVVNL and Rs.3,155.53 crore for Jd.VVNL) for the period of five years from 2000-01 to 2004-05.

Aggregate Revenue Requirement (ARR) and tariff is required to be approved by the Regulatory Commission, which allows certain level of T&D losses based on the performance of past years. Distribution losses during the period from 2001-02 to 2004-05 allowed by the Regulatory Commission in the ARR were 32.9 *per cent* for JVVNL and 34.25 *per cent* for Jd.VVNL whereas these

were 29.55 per cent for AVVNL for the years from 2001-02 to 2003-2004 and 34.25 per cent for 2004-05. It was noticed in audit that the distribution losses were higher than the losses allowed by the Regulatory Commission while approving the ARR for each year since 2001. The percentage of excess distribution losses against those allowed by the Regulatory Commission ranged from 4.51 to 15.96 and the amount of excess loss worked out to Rs.2,508.75 crore (Rs.729.27 crore for JVVNL, Rs.1,095.43 crore for AVVNL and Rs.684.05 crore for Jd.VVNL) during the four years from 2001-02 to 2004-05.

Burden of excess distribution loss of Rs.2,449.47 crore was passed on to the consumers in the form of higher tariff.

Regulation 88 of the Terms and Conditions for determination of Tariff Regulation 2004 of the Regulatory Commission prescribed that in case Distribution companies failed to achieve the loss reduction target fixed by it, the entire loss on this count would be borne by these companies and not to be passed on to the consumers. Due to non-compliance of the directions issued from March 2001 to December 2004 for reduction of distribution losses, the Regulatory Commission disallowed (December 2004 and September 2005) Rs.59.28 crore (JVVNL: Rs.21.08 crore, AVVNL: Rs.20.42 crore and Jd.VVNL: Rs.17.78 crore) out of a total of Rs.2,508.75 crore in ARR/fixation of tariff during 2004-05 and 2005-06. The remaining excess distribution loss of Rs.2,449.47 crore which was allowed in ARR/Fixation of tariff by the Regulatory Commission has, however, been passed on to the consumers in the form of higher tariff.

The management of the three Distribution companies stated (July 2006) that the norms fixed by the Regulatory Commission are achievable but are not being achieved as losses have increased due to increase in number of agricultural connections as well as increase in the number of hours of supply to the Agriculture sector where technical losses and commercial losses (*i.e.* theft and wastage of energy) are higher. The Government stated (July 2006) that comparison of T&D losses with the norm prescribed by the CEA is unrealistic. The reply is not tenable as the Bureau of Energy Efficiency, based on the latest energy scenario, has indicated ideal T&D losses of only 13 per cent as against 15.5 per cent prescribed by CEA. Incidentally, T&D losses of the States of Andhra Pradesh, Punjab, Meghalaya and Tamilnadu ranged between 10 and 24 per cent only in 2003-04. The three Distribution companies, thus, consistently failed to achieve even the liberal targets fixed by the Regulatory Commission, leave alone the targets fixed by CEA in July 1991.

Delay in ' Loss Diagnostic Study'

2.3.19 The Regulatory Commission directed (March 2001) Distribution companies to carry out a detailed study to assess category wise total technical and non-technical (commercial) losses and annual average consumption of flat rate agricultural consumers with a view to take suitable corrective action for reduction of losses. The work of Loss Diagnostic Study was awarded (March 2003/November 2001) to KLG Systel Limited for JVVNL/Jd.VVNL and to Datagen for AVVNL. The reports were submitted after delays of two to four years mainly due to delay in data collection and verification and its further

communication by the companies to the consultants which led to delay in report finalisation.

The feeder wise losses assessed in respect of JVVNL for year 2003-04 and Jd.VVNL for the year 2004-05 are indicated in table below.

(In percentage)

Type of feeder	JVVNL		Jd.VVNL	
	Technical	Commercial	Technical	Commercial
Industrial	4.96	14.75	5.66	20.00
Agricultural	19.12	28.30	19.44	31.77
Mixed Load	6.16	32.99	8.56	28.07
Domestic	6.03	30.05	8.96	26.23
Non-domestic	5.96	25.03	9.31	18.85

It would be seen from the table above that technical losses were very high in the agricultural feeders and commercial losses were very high in the agricultural, mixed load and domestic feeders. An analysis of the Loss Diagnostic Study of these two distribution companies revealed that the technical losses were very high at 13.86 *per cent* in Jhalawar circle as against the lowest technical losses of 4.83 *per cent* in Jaipur City Circle (JCC). Similarly, commercial losses were very high at 38.24 *per cent* in Bharatpur circle compared to lowest of 14.06 *per cent* in JCC of JVVNL. Circle wise technical losses of Jd.VVNL ranged between 8.12 *per cent* for Jodhpur city to 16.79 *per cent* for Jodhpur district whereas commercial losses ranged between 13.03 *per cent* for Pali to 38.01 *per cent* for Bikaner circle. The management of JVVNL and Jd.VVNL had not taken any action on the Loss Diagnostic Reports so far (July 2006).

The Loss Diagnostic Report of AVVNL pointed out that the results obtained were not reliable due to absence of correct consumer identification data, which was a prerequisite and thus, the exercise of loss diagnostic study, though indicative, did not produce the intended degree of reliability.

There was, thus, no significant progress due to delay in finalisation of the report for AVVNL coupled with inaction thereon. Therefore, the purpose of undertaking such a study to identify the risk areas towards reduction in losses was defeated. Further, study for assessing annual average consumption of flat rate agricultural consumers for AVVNL had not been done so far (June 2006).

Wasteful expenditure on IT enabling services

2.3.20 With the objective of reducing distribution losses on rural distribution network, JVVNL conceived (1996) a Remote Control Load Management scheme. Initially it was planned to be implemented as a pilot project in 33 KV Grid sub-stations at Machwa, Kalwar and Hatod in the District of Jaipur. Tenders on turnkey basis were invited (January 1997) for the purchase of equipments, their installation and commissioning. The purchase orders were placed in January 1998 on Shyam Telecom Limited and CMC Limited at a cost of Rs.1.50 crore each. The total cost of the scheme comprised Rs.2.22 crore for hardware/ software and Rs.0.78 crore for fail safe transformers.

As per the supply order, 100 *per cent* payment including installation and commissioning charges was to be released after one month from the satisfactory installation and commissioning of the entire system. The Company released (2000-02) an amount of Rs.2.90 crore in full payment against the agreed cost of Rs. 3.00 crore, for no recorded reasons.

It was observed in audit that:

- no test report showing the successful commissioning of the system was available with the company;
- the system could not be implemented so far (August 2006) due to non availability of continuous three phase power for 24 hours a pre-requisite for operating the software; and
- the management was also not aware of the three phase 24 hours power supply requirement for operating this system at the time of planning as well as acquiring and commissioning the system.

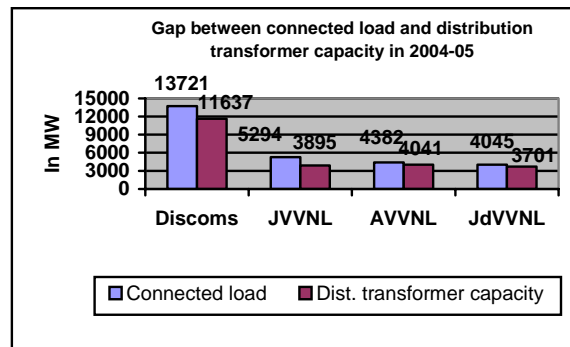
Thus, failure of the Company to ensure three phase 24 hours power supply for operation of the system at the time of acquisition and implementation of the system resulted in wasteful expenditure of Rs.2.15 crore* towards purchase of hardware/ software. Besides, the targeted benefit amounting to Rs.2.48 crore per annum arising out of reduction of losses, improvement of voltage profile and improvement in power factor *etc.* as envisaged in the project report also could not be achieved.

* proportionate amount according to actual payment made (Rs. 2.22 x 2.90 ÷ 3.00 = Rs.2.15).
The cost of the fail safe transformer has not been taken as the same is being used.

Over-loading of Distribution Transformers and Feeders

2.3.21 The ideal ratio of transformation capacity to connected load is considered as 1:1. It was noticed in audit that the distribution transformation capacity of the three Distribution companies was 11,637 MW as compared to the connected load of 13,721 MW in the ratio of 0.85:1 as on 31 March 2005, reflecting a gap of 2,084 MW. The gap of 1,399 MW in JVVNL was very high, as reflected in the graph, leading to overloading of 11 KV sub-stations/lines. It was noticed during audit that 39 feeders were overloaded in Jaipur District (JPD) circle of JVVNL during 2003-04 and 2004-05 due to excess demand compared to carrying capacity of feeders resulting in frequent tripping and adverse voltage regulation ranging between 12.13 and 14.31 per cent as against eight per cent prescribed in the Distribution Code. No improvement scheme was planned/ executed during 2004-05 resulting in high losses of Rs.55.26 lakh in five feeders and poor quality service to the consumers.

Management of JVVNL assured (July 2006) that systems improvement scheme for avoiding overloading of these feeders would be undertaken.



Further, there was a major gap of 785 MW in 2003-04 and 539 MW in

2004-05 between peak demand of power and supply capacity of Distribution companies resulting in failure to provide uninterrupted supply of power to consumers.

Management of Jd.VVNL stated (July 2006) that there is adequate transformation capacity to meet average demand. The reply is not acceptable as the power system of Distribution companies should be adequate and capable of meeting peak power demand for reliable and uninterrupted supply of power to consumers.

Delay in construction of Sub stations

2.3.22 Audit analysis revealed that the system of monitoring of cost over-run and time over-run in respect of construction of sub-stations did not exist as the actual cost of each work at sub-division level/circle level was not calculated for comparison with estimated cost and scheduled date of completion envisaged for taking suitable corrective measures. It was further noticed that there were delays of five to 60 months in construction of 5 out of 38 sub-stations due to delay in awarding the works as well as commencement of works by the contractor resulting in loss of energy saving equal to 36.1 Lakh Unit (LU) valued Rs.1.10 crore, as envisaged in the project report. Further, the 33 KV line and 33/11 KV sub-station at Gagardu, which were erected/constructed in December 1998 and March 1999 respectively could be energised in April 2003 only even after delay of five years for want of a small

earth wire. The energy saving foregone based on the projections in the Project Report, was 18.10 LU valued at Rs.49.05 lakh.

Inadequate installation of capacitor bank

2.3.23 Capacitor bank improves power factor by regulating the current flow and voltage regulation and reduce the Distribution losses. Distribution companies planned installation of 946.60 MVAR (403 MVAR in JVVNL, 252 MVAR in AVVNL and 291.60 MVAR in Jd.VVNL) during 2002-05.

Significant shortfall in installation of capacitor banks due to delay in procurement of material led to loss of energy savings of Rs.68.58 crore.

It was noticed in audit that actual installation of capacitor banks by the distribution companies was 4.80 MVAR (3.27 per cent) in 2002-03, 158.20 MVAR (47.25 per cent) in 2003-04 and 197.20 MVAR (42.39 per cent) in 2004-05 totalling 360.20 MVAR (38.05 per cent) comprising 103.60 MVAR in JVVNL, 81.00 MVAR in AVVNL and 175.60 MVAR in Jd.VVNL. There was, thus, significant shortfall in installation of capacitor banks ranging from 52.75 to 96.73 per cent during the years 2002-03 to 2004-05 due to delay in procurement of material. The delay led to loss of targeted energy saving of 199.66 MU valued at Rs.68.58 crore, as depicted in **Annexure-16**

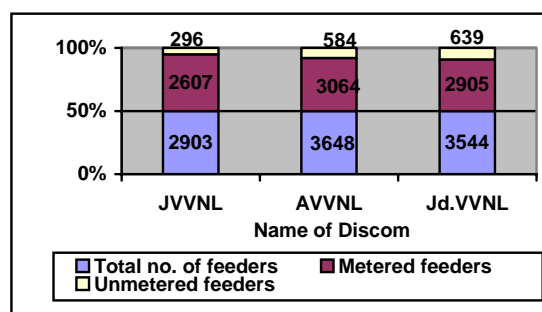
Significant shortfall in achievement of targets due to poor planning and execution, continued overloading of feeders/transformers and low power factor resulted in higher distribution losses and poor supply to consumers.

Management of the three Distribution companies stated (July 2006) that capacitor banks of adequate MVAR capacity had been installed. The reply is not correct as the distribution companies showed shortfall of capacitor banks in the plans submitted to the Regulatory Commission during the last three years upto 2004-05.

Energy Accounting and Audit

Feeder Metering:

2.3.24 In accordance with the directions of CEA (May 1992) and conditions of Memorandum of Understanding (March 2001) signed by the Government of Rajasthan with GOI, the Distribution companies were required to undertake Energy Accounting and Audit at all levels in order to reduce system losses. Distribution companies also undertook metering of 6,461 unmetered feeders (JVVNL: 1,883; AVVNL: 2,290; Jd.VVNL: 2,288) financed from the loan of Rs.29.43 crore sanctioned by PFC in November 2000.



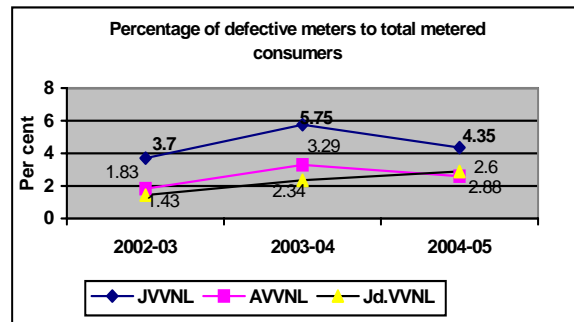
Though the Distribution companies completed the project only by May 2003 i.e. after delay of 20 months due to delay in availing the loan by the Distribution companies from PFC, the target of 100 per cent metering could

not be achieved as new 1,684 feeders created between April 2003 and March 2005, were not planned with feeder meters. As a result, 1,519 feeders remained unmetered as on 31 March 2005. The delay in execution of projects as well as failure to include new feeders defeated the very objective of Energy Accounting and Audit. Further, it was observed that out of 8576 metered feeders, 1,349 feeders (JVVNL: 176, AVVNL: 355 and Jd.VVNL: 818) showed negative losses *i.e.* energy sold was in excess of energy received, which indicated defects in meters.

Management of the three Distribution companies stated (July 2006) that metering of remaining feeders was under progress but the reply is silent about negative losses.

Consumer Metering

2.3.25 As per the Memorandum of Understanding (March 2001), 100 *per cent* metering of all consumers and timely replacement of defective meters is essential for effective Energy Accounting and Audit and reducing distribution losses. The Regulatory Commission had prescribed two months period for replacement of defective meters from the date of detection and had directed (March 2001) that in case defective meters were not replaced within the specified period five *per cent* rebate should be allowed in the bills from the third month onwards. The position of pending defective meters for replacement during three years up to March 2005 is given in **Annexure-17**. An analysis of the annexure reveals that the percentage of defective meters to total metered consumers increased to 4.35 in 2004-05 from 3.70 in 2002-03 in JVVNL, 2.60 in 2004-05 from 1.83 in 2002-03 in AVVNL and 2.88 in 2004-05 from 1.43 in 2002-03 in Jd.VVNL as depicted in the Graph indicating further deterioration in replacement of defective meters.



Defective meters not replaced upto 71 months.

There was high incidence of defective meters ranging between 13 and 24 *per cent* of the total consumers during 2004-05 in Alwar and JPD circle of JVVNL. An analysis of consumer wise defective meters of JVVNL and Jd.VVNL for the year 2004-05 revealed that as on 31 March 2005, meters of 1,523 non-domestic, 192 small industries, 341 public water schemes and 45 consumers of mix load category were defective and were not replaced for over one year. Similarly, defective/stopped meters (20) were awaiting replacement for 23 to 71 months in Luni sub-division of Jd.VVNL. Out of total 82,894 defective meters, there were 23,745 defective meters (28.65 *per cent*) not replaced for more than one year in six circles of JVVNL and Jd.VVNL as on 31 March 2005. Non-replacement of the defective meters by JVVNL/Jd.VVNL had an adverse impact on revenue collection. During audit it was noticed that due to non-replacement of 0.79 lakh defective meters for

over six months, JVVNL alone had sustained a loss of 57.53 MU valuing Rs.20.54 crore during 2004-05.

It was further noticed that while AVVNL allowed a rebate of Rs.22.05 lakh to the consumers during 2001-02 and 2002-03 due to non-replacement of defective meters within two months, Jd.VVNL and JVVNL, violating the Regulatory Commission's directives, did not allow rebate despite the fact that meter replacement was delayed beyond two months after detection.

The management of JVVNL stated (July 2006) that there was no loss due to non-replacement of consumer meters. The reply is factually incorrect because the management, while submitting the action plans to the Regulatory Commission, had mentioned that replacement of defective meters would generate additional revenue through reduction of distribution losses.

Poor metering of agricultural connections

2.3.26 The Regulatory Commission directed (March 2001) the Distribution companies to convert 3.97 lakh unmetered agricultural consumers to metered category within three years *i.e.* by 31 March 2004 to reduce unmetered energy. As against 3.97 lakh flat rate consumers, the Distribution companies converted only 1.48 lakh consumers during the last four years up to 2004-05 leaving 2.49 lakh consumers un-metered. The percentage of achievement up to 2004-05 as compared to targets was only 37 (JVVNL: 30.8 *per cent*, AVVNL: 44.30 *per cent* and Jd.VVNL: 36.70 *per cent*).

The Management of the three Distribution companies stated (July 2006) that conversion of all flat rate consumers to metered category could not be achieved due to resistance by consumers. It was also stated that revenue realisation had actually declined after metering as against flat rate billing and, therefore, they had gone slow on metering agricultural consumers. The contention of the management is not tenable because supply of unmetered power to any consumer is not permissible under the law (Electricity Act, 2003). Supply of unmetered power also violates the directives of the Regulatory Commission. The decline in revenue after metering is attributable to lack of effective vigil to curb theft.

Responsibility/Profit centre

2.3.27 With a view to improve efficiency and viability of operations by reducing distribution losses, all 11 KV feeders were to be operated as independent profit centres under Junior Engineers (JEn). A review of the performance of metered feeders in JVVNL for the year 2003-04 revealed that distribution losses in 264 out of 2903 feeders were very high ranging between 81 and 100 *per cent*. The MOP, GOI during the review meeting had also pointed out (June 2005) that action should be taken against the feeder managers (JEn) whose performance was deficient. Though, the Distribution companies designated JEn as feeder managers from July/October 2002 yet they did not fix responsibility for increase in distribution losses or non-reduction of distribution losses during the year 2003-04 and 2004-05. The

Distribution losses in 264 feeders were abnormally high between 81 and 100 per cent.

losses in excess of 50 *per cent*, in these feeders during 2003-04, worked out to Rs.98.70 crore.

The management thus, could not arrest the increasing trend in distribution losses due to defective feeder metering as also consumer metering and non-implementation of the system of accountability of profit centres.

Lack of planning, deficient execution and monitoring of up gradation and improvement under Government funded schemes

Implementation of APDRP

2.3.28 GOI approved (February 2001) the Accelerated Power Development Programme (APDP) and renamed as APDRP[@] in 2002-03 for up-gradation of sub-transmission and distribution system and energy accounting for reducing T&D losses and gap between ARR and ACS^{**} *etc.* Funding of the programme was 50 *per cent* from GOI and 50 *per cent* by the implementing agency. GOI sanctioned (between August 2002 to October 2004) 19 schemes of Rs.1,238.18 crore relating to up-gradation of sub-transmission and distribution systems. The schemes included construction of 33/11 KV sub-stations and lines, installation of capacitor banks, renovation of Distribution Transformers (DTs), energy accounting by metering of feeders, DTs and consumers. A review of selected schemes revealed that progress in implementation of schemes was slow and achievement up to 31 July 2005 was only 56 *per cent* as detailed in **Annexure-18**.

It would be seen from the annexure that:

The performance of the Companies with regard to feeder outage, distribution losses and gap between ARR and ACS further widened in JVVNL and AVVNL and losses increased to Rs.928.08 crore in 2004-05 from Rs.694.85 crore in 2001-02.

Actual distribution losses in two circles each of JVVNL and AVVNL, where these schemes were implemented, were higher by Rs.132.23 crore during the period 2004-05 than losses during 2001-02. Losses were also higher by Rs.443.28 crore than the targeted losses as envisaged in the approved schemes.

The management did not hold periodical meetings of Distribution Reform Committees, as required, for monitoring the execution and taking suitable corrective action wherever required. The MOP, GOI expressed (June 2005) concern over the slow progress in execution of schemes leading to dismal performance in achievement of the benchmarks/parameters.

The Government stated (July 2006) that an incentive of Rs.137 crore in all APDRP schemes was received during 2003-04 for reduction in losses. Audit,

[@] Accelerated Power Development and Reforms Programme
^{**} Average Cost of Supply

however, noticed that the Companies could neither achieve the targeted reduction in T&D losses nor could maintain the reduced level achieved as the losses again increased in 2003-04, after recording minor decline in 2002-03.

Deficient planning and implementation of Feeder Renovation Programme

2.3.29 Feeder Renovation Programme (FRP) was intended to achieve significant benchmarks regarding reliable and uninterrupted supply of power to consumers and substantially reducing distribution losses to the level of 15 *per cent* in Urban Feeders, 25 *per cent* in Rural Feeders and two *per cent* in Industrial Feeders through maintenance works, augmentation/up gradation of system and curbing thefts.

The Board of Directors of JVVNL approved (June 2003) phase I of FRP work of 274 out of 2437 feeders at a cost of Rs.221.08 crore with completion period of 12-15 month. It was envisaged that there would be annual saving of 591.9 MU valued at Rs.126.02 crore with 57 *per cent* rate of return, on completion of phase I. The Board also directed to complete 40 to 50 worst feeders out of 274 feeders (under part-I of Phase-I) on priority basis within four months from the date of approval so as to assess the actual benefits of investment made.

A review of records in respect of 50 feeders renovated by JVVNL revealed that 16 feeders which handled power ranging between 3.57 LU and 15.66 LU with distribution losses between 10.5 and 89.8 *per cent* during 2003-04 were selected instead of the worst feeders, which handled more power (ranging between 50.11 LU and 141.39 LU) with higher distribution losses (56.9 to 93.10 *per cent*). Thus, there was failure at the planning stage itself in identifying the worst feeders for renovation despite clear directions from the Board in this regard.

Incorrect selection and delay in completion of feeder renovation led to loss of energy savings valuing to Rs.55.27 crore.

There were delays from eight to 17 months in completion of these 50 feeders reckoned against the envisaged time of four months due to delay in awarding the works on account of non-finalisation of tenders in time. JVVNL renovated only 30 feeders up to March 2005 and the remaining 20 feeders during the period from April to June 2005 against scheduled completion by October 2003. This led to loss of energy savings of 154.82 MU valued at Rs.55.27 crore as envisaged in the project report. Four urban feeders and 13 rural feeders out of these 50 renovated feeders, failed to achieve the prescribed benchmark of distribution losses of 15 and 25 *per cent* respectively during 2005-06 as the distribution losses at five* (out of 13) rural feeders were between 41 and 49 *per cent* in 2005-06 and at three** rural feeders the losses ranged from 35 to 39 *per cent* after renovation. Distribution losses at Krishnanagar (Bharatpur), an urban feeder, during 2005-06 were at 38 *per cent* as against the benchmark of 15 *per cent*.

JVVNL took up FRP work on the remaining feeders during 2005-06. Audit, however, noticed that four high risk feeders out of 33 industrial feeders of

* Sileser(Alwar), Samerkhada, Asro, Itawa, Sultanpur

** Kainthrun (Bharatpur), Somali (Dausa), Amla (Kota)

Alwar circle, which handled substantial power ranging between 22.94 LU and 159.11 LU and in which T&D losses were between 27.10 and 52.09 *per cent*, were not renovated under FRP. No study of performance of 50 renovated feeders for determination of incremental revenue, reduction in number of tripping and actual benefit realised had been done (March 2005) to enable the Board to judge the performance of the feeders renovated, as directed in June 2003. In the absence of feedback, the actual impact of FRP could not be evaluated. Thus, there was not only failure in planning but also in execution and monitoring of the programme.

AVVNL executed FRP work of one feeder at Roshangarh (Sikar) by 31 March 2005 against FRP of 100 feeders under Phase-I approved (December 2003) by the Coordinate Committee of the Board, to be completed by July 2004.

The Government stated (July 2006) that FRP is a recent programme approved in June 2003 to be implemented on pilot basis for limited number of feeders. The fact, however, remains that even in the pilot programme, the directions of the Board regarding selection of feeders and evaluation of benefits of the programme were not followed and there were significant delays in implementation of the programme.

Measures for reduction of commercial losses

Conversion of LT Conductors into Aerial Bunch Cables

2.3.30 Aerial Bunch (AB) Cables prevent illegal tapping of low voltage distribution lines and help in reducing overloading of DTs and maintain voltage of the supply. With a view to taking advantage of AB Cables for reduction of distribution losses, an action plan for conversion of LT conductors into AB cables was prepared. The year wise position of targets, achievements and shortfall is given in **Annexure-16**.

It would be seen from the annexure that no targets for conversion of LT conductors into AB Cables were fixed by AVVNL in 2001-02 and by Jd.VVNL in 2001-02 and 2003-04. JVVNL converted 3,690 Km (73.80 *per cent*) of LT conductors into AB Cables against the target of 5,000 Km, while AVVNL converted only 1,060 Km (15.33 *per cent*) against target of 6,915 Km and Jd.VVNL converted only 278.82 Km (25.35 *per cent*) against target of 1,100 Km during the period from 2001-02 to 2004-05. The Shortfall of 7,986.18 Km (61.36 *per cent*) out of 13,015 Km due to delay in placement of purchase order for material resulted in loss of targeted energy saving of 438.67 MU valued at Rs.148.16 crore besides failure in improvement of quality of power to consumers.

The Management of the three Distribution companies stated (July 2006) that adequate AB Cables were not available in the market and there was some problem relating to insulator connector which had since been sorted out. The

Delay in procurement of material resulted in loss of energy saving valuing Rs.148.16 crore.

reply is not tenable as there were avoidable delays in placement of purchase orders for procurement of AB cables.

Implementation of LT Less system

2.3.31 High Voltage Distribution System (HVDS) is an effective method of reduction of technical losses, prevention of theft, improved voltage profile and better consumer service. Distribution losses of both technical and commercial category at 11 KV lines were only 10 *per cent* as compared to 46.72 *per cent* at LT lines. The MOP, GOI had stressed (February 2001) the need to adopt LT less system of distribution through replacement of existing LT lines (0.4 KV) by HT (11 KV) lines to reduce the distribution losses.

Jd.VVNL fixed a target of replacement of 2,645 Km of LT lines to implement LT less system during the period from 2002-03 to 2004-05 as shown in **Annexure-16**. The target of 2,645 Km over the period of three years representing 4.8 *per cent* of total LT lines of 54,779 Km was itself on the lower side. Jd.VVNL did not execute any work during 2002-04 and converted only 80 Km of LT lines into HT Lines in 2004-05. Non-execution of planned works resulted in loss of envisaged energy saving of 234.56 MU valued at Rs.80.35 crore for 2002-03 to 2004-05.

To implement LT less system, AVVNL fixed a target of 8,230 km of LT lines to be converted into HT lines during the period 2002-05. The target of 8,230 Km over the period of three years representing 9.18 *per cent* of total LT lines of 89,629 Km was itself on the lower side. AVVNL did not execute any work during 2002-04. It converted only 56.5 Km of LT lines into HT Lines during 2004-05. Non execution of planned works due to delay in award of works and lack of monitoring of progress of execution by the Management resulted in loss of envisaged energy saving of 923.27 MU during 2002-05, valued at Rs.306.70 crore.

JVVNL fixed a target of replacement of 7,632 Km of LT lines to implement LT less system for the period 2002-05. The target of 7,632 Km over the period of three years representing 8.85 *per cent* of total LT lines of 86,221 Km was itself on the lower side. JVVNL converted 1180 Km in 2002-03, 1557.90 Km in 2003-04 and 3,380.31 Km in 2004-05 of LT lines into HT Lines. Non execution of targeted works during 2002-05 resulted in loss of envisaged energy saving of 35.64 MU, valued at Rs.12.35 crore.

Thus failure of the management to undertake and complete the planned up gradation and improvement schemes led to non achievement of envisaged energy saving and reduction of Distribution losses. The Management of Jd.VVNL stated (July 2006) that backlogs of targets shall be achieved during the current year.

Theft and misuse of electricity by consumers/non-consumers due to inadequate vigilance checks

2.3.32 Substantial commercial losses are caused due to theft of energy by tampering of meters by the consumers and unauthorised tapping/hooks by the non-consumers. The targets for number of checking, theft cases, assessed amount and amount realised there against are given in **Annexure-19**. An analysis of the annexure reveals as under:

Though the targets were fixed by the Distribution companies based on the prescribed monthly norms for vigilance checking by JEn/AEn/XEn* to curb theft/pilferage and malpractices, the actual checking ranged from 29 to 83 *per cent* of the targeted checking. The targets fixed for vigilance checking were less than two and half *per cent*, and the actual checking was less than one *per cent* of the total consumers during 2003-04 and 2004-05 indicating that vigilance checking coverage was inadequate. Further, neither was the Vigilance checking conducted based on any study/ survey of high risk or loss making feeders nor were any high-risk consumers identified based on category wise distribution losses. Besides, the Distribution companies did not prescribe any policy/rules for vigilance checks of different categories of consumers.

Higher incidence of theft

2.3.33 For every three cases of vigilance checking, two cases of theft were detected in JVVNL during 2003-04 and 2004-05 indicating high incidence of theft prevailing in the system. This indicated that theft is one of the major contributors towards distribution losses as was also corroborated by the 'Loss Diagnostic Study' and therefore vigilance checking needed to be enhanced to effectively address this area. Audit noticed that distribution losses were high in Alwar and Bharatpur circles of JVVNL during 2003-04 and 2004-05. The system of assessment and recovery from theft cases was not effective as 596 cases out of 1796 cases of theft/malpractices in JPDC of JVVNL were pending for assessment and realisation for periods ranging between one and 19 years as on 31 March 2005. The targets for realisation as against targets of amount assessed were kept low between 47 to 75 *per cent* and collection/realisation there against was lower.

Distribution companies did not plan and execute feeder wise vigilance checking as directed by the Regulatory Commission. It was noticed in audit that despite high distribution losses ranging between 11.35 and 52.09 *per cent* in five industrial areas (Kekri, Rajgarh and Bhiwadi feeders' no. 2, 3 and 6) the vigilance checking was only 33.7 to 41.25 *per cent* of the targets. This indicated that the vigilance system was neither effective nor adequate. Further, the system of assessment and collection against theft cases was also weak.

* Junior Engineer/Assistant Engineer/Executive Engineer.

Impact of high T&D losses

2.3.34 The success of unbundling of the erstwhile RSEB by improving efficiency and viability of operations was dependent on reducing T&D losses. Distribution companies were to be operated on no profit no loss basis from 2001-02 with subsidy from Government projected in RPSFRP from time to time.

Significant increase in T&D losses to 43.64 *per cent* during 2004-05 as compared to 26 to 28.54 *per cent* during 1997-98 to 1999-2000 had so far frustrated the achievements of objective of Power Sector Reforms and inflicted severe adverse impact on main stakeholders *i.e.* consumers and the State Government. Actual requirement of subsidy support from the Government of Rajasthan was significantly higher at Rs.2,016.45 crore for the year 2004-05 against the requirement of subsidy support of Rs.970 crore projected in the RPSFRP of August 2003 due to failure to reduce T&D losses. It was observed in Audit that T&D losses of Rs.11,624.80 crore in excess of the norms of 15.5 *per cent* during the five years period (2000-01 to 2004-05) had been shared by the State Government in the form of subsidy and grants and by the consumers in the shape of higher tariff. The State Government had shared a burden of Rs.7,441.23 crore, while consumers had borne Rs.4,183.57 crore in the form of higher tariff equivalent to 17 *per cent* of average tariff for the year 2004-05.

Due to excess T&D losses, consumers had to share Rs.4183.57 crore in the form of higher tariff.

In addition, out of the total net borrowings of Rs.5,625.49 crore during the five years ended 31 March 2005, an amount of Rs.5,587.58 crore was used for funding the gap between subsidy receivable and subsidy received leaving a meagre amount of Rs.37.91 crore for capital expenditure. Further, the interest burden alone on these borrowings used for funding subsidy gap would result in annual recurring expenditure of over Rs.500 crore. This would be borne by the Government and consumers in future years and would also impact the credit rating and borrowing capacity of RRVPNL and Distribution companies.

Conclusion

The main objective of unbundling of the erstwhile RSEB under the Rajasthan Power Sector Reforms Act 1999 to create conditions for sustainable developments of the power sector by improving efficiency and viability of operations, could not be achieved due to failure of the power companies to reduce T&D losses. Transmission losses of RRVPNL ranged from 6.01 to 8.15 *per cent* during the period under review against the norm of 4 *per cent*. Distribution losses of Distribution companies ranged from 34.06 to 45.51 *per cent* during the period under review against the norm of 11.5 *per cent*. The distribution losses were also higher by 4.51 to 15.96 *per cent* than those allowed by the Regulatory Commission, with financial implication of Rs.2,508.75 crore.

Despite incurring of expenditure of Rs.3,512.16 crore by Power Companies since April 2001 on power sector reforms, there was

significant increase in T&D losses to 43.64 *per cent* in the post unbundling period as compared to 26 to 28.54 *per cent* during 1997-98 to 1999-2000. During the five years period 2000-2005 the Transmission and Distribution losses in excess of the norm of 15.5 *per cent* were Rs.11,624.80 crore, with consequent impact on the main stakeholders *i.e.* consumers and the State Government. Delay in construction of lines, over-loading of transformers, low power factor, poor voltage regulation, thefts due to inadequate vigilance checks, failure to detect high risk areas and take corrective and preventive measures, defective/stopped meters, improper energy accounting and audit, lack of planning, poor execution and monitoring of up gradation and improvement schemes contributed to higher T & D losses.

Recommendations

The companies may:

- Streamline the system of energy Accounting and Audit to assess feeder wise and consumer category wise technical/commercial losses at each stage of operation, identify high-risk areas of T&D losses and take corrective and preventive measures for containment of losses.
- Exercise more effective control over planning, execution and monitoring for achieving the benefits envisaged.
- Expedite installation of meters/removal of defective meters.
- Evolve a system of evaluation of actual benefits accrued against benefits envisaged in projects/schemes for corrective action/improvements in future.
- Ensure implementation of directions/recommendations of the Regulatory Commission and other authorities, particularly those relating to system improvements.
- Frame a policy and fix adequate norms for vigilance checks in high risk areas to reduce commercial losses and also evolve an appropriate system for the agricultural sector so as to ensure maximum realisation of revenue.