Economic Sector

(Public Sector Undertakings)

CHAPTER – III

ECONOMIC SECTOR (PUBLIC SECTOR UNDERTAKINGS)

3.1 Overview of State Public Sector Undertakings

Introduction

3.1.1 The State Public Sector Undertakings (PSUs) consist of State Government Companies and Statutory Corporations. The State PSUs are established to carry out activities of commercial nature while keeping in view the welfare of people. In Sikkim, the State PSUs occupy an insignificant place in the State economy. The State working PSUs registered a turnover of ₹ 86.43 crore as per their latest finalised accounts as of September 2012. This turnover of PSUs was equal to 1.03 *per cent* of State Gross Domestic Product (SGDP) for 2011-12[1]. Major activities of Sikkim State PSUs are concentrated in power and infrastructure sectors. The State working PSUs incurred an overall loss of ₹ 3.24 crore[2] in the aggregate for 2011-12 as *per* their latest finalised accounts as on 30 September 2012. They had employed 604 employees as of 31 March 2012. The State PSUs do not include two[3] Departmental Undertakings (DUs) and one[4] Co-operative Bank, which carry out commercial operations but are a part of Government departments. Audit findings of these DUs are incorporated in other chapters of this Report along with the findings of Government departments.

3.1.2 As on 31 March 2012, there were 15 PSUs as per the details given below. None of these companies were listed on the stock exchange(s).

Table 3.1.1

Type of PSUs	Working PSUs	Non-working PSUs[5]	Total
Government Companies	6	6[6]	12
Statutory Corporations	2	1	3
Total	**8**	**7**	**15**

Audit Mandate

3.1.3 The Companies Act, 1956 is not extended to the State of Sikkim. The Government Companies in Sikkim are registered under the 'Registration of Companies Act, Sikkim 1961'. The accounts of these companies are audited by Statutory Auditors (Chartered Accountants)

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[1] *the State GDP for 2011-12 is ₹ 8,399.88 crore (Quick estimate)*
[2] *Appendix 3.1.2*
[3] *Government Fruit Preservation factory and Temi Tea Estate*
[4] *Sikkim State Co-operative Bank Ltd.*
[5] *Non-working PSUs are those which have ceased to carry on their operations.*
[6] *During 2011-12, three Government companies (Sl. No. C-12, C-13 & C-14 of Appendix 3.1.2) became non-working companies.*

who are directly appointed by the Board of Directors (BoDs) of the respective companies. Besides the statutory audit conducted by the Statutory Auditors, supplementary audit of these companies had also been taken up by the Comptroller and Auditor General of India (CAG) on the request of the Governor of the State under Section 20(1)/20(2) of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971.

3.1.4 There are three Statutory Corporations in the State *viz*. State Bank of Sikkim (SBS), State Trading Corporation of Sikkim (STCS) and Sikkim Mining Corporation (SMC) established under the proclamations of the erstwhile Chogyal (King) of Sikkim. The accounts of these Corporations are audited by the Chartered Accountants, directly appointed by the BoDs of the respective Corporations. Supplementary Audit of these Corporations was taken up by CAG under Section 19(3) of the CAG's (Duties, Powers and Conditions of Service) Act, 1971.

Investment in State PSUs

3.1.5 As on 31 March 2012, the investment (capital and long-term loans) in 15 PSUs was ₹ 374.90 crore as per details given below.

Table 3.1.2

(₹ in crore)

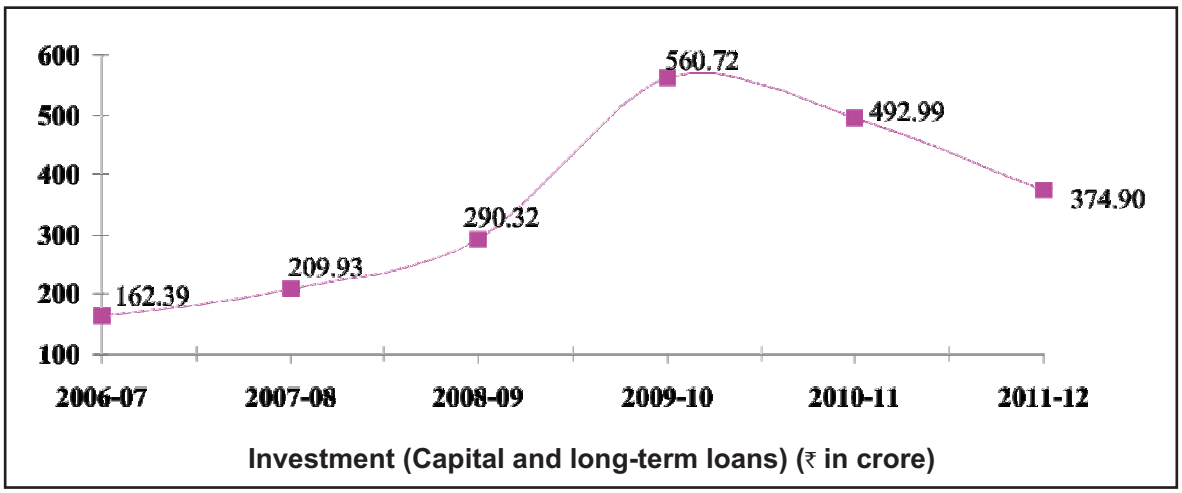
Type of PSUs	Government Companies			Statutory Corporations			Grand Total
	Capital	Long Term Loans	Total	Capital	Long Term Loans	Total	
Working PSUs	55.37	260.92	316.29	2.19	-	2.19	318.48
Non-working PSUs	43.91	0.01	43.92	12.50	-	12.50	56.42
Total	**99.28**	**260.93**	**360.21**	**14.69**	**-**	**14.69**	**374.90**

Source: Data collected from PSUs

A summarised position of Government investment in State PSUs is detailed in **Appendix 3.1.1.**

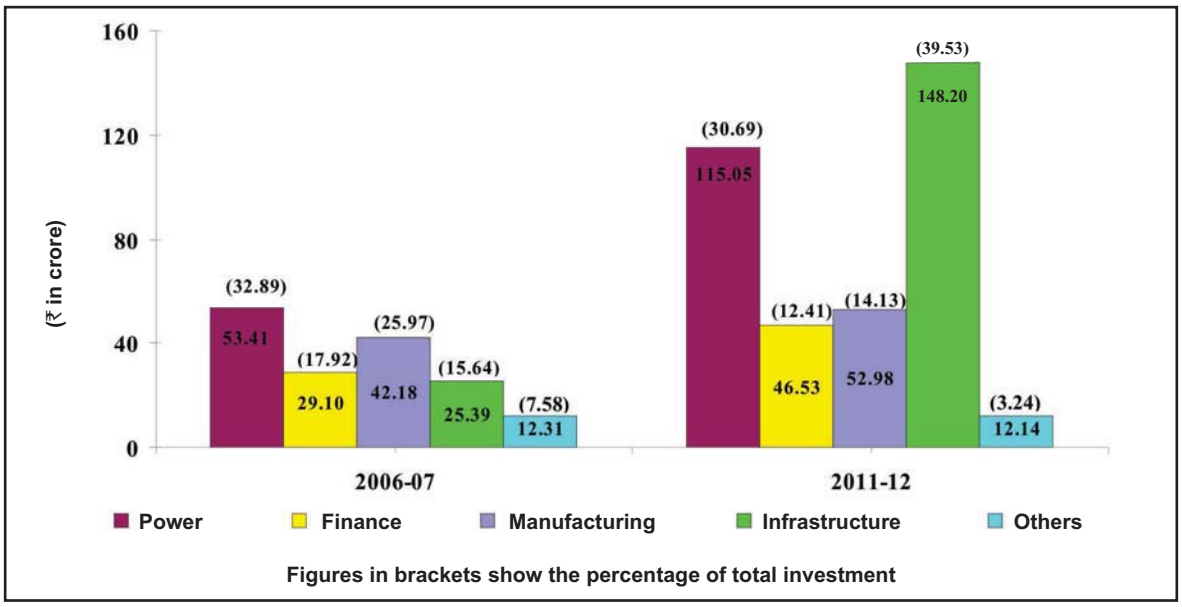
3.1.6 As on 31 March 2012, of the total investment in State PSUs, 84.95 per cent was in working PSUs and the remaining 15.05 per cent in non-working PSUs. This total investment consisted of 30.40 per cent towards capital and 69.60 per cent in long-term loans. The investment had grown by 245.29 per cent from ₹ 162.39 crore in 2006-07 to ₹ 560.72 crore in 2009-10. However, due to decrease in the long term loans, the total investment had also correspondingly decreased by 33.14 per cent from ₹ 560.72 crore in 2009-10 to ₹ 374.90 crore in 2011-12 as shown in the graph below.

Chart 3.1.1



3.1.7 The total investments in various sectors and percentage thereof at the end of 31 March 2007 and 31 March 2012 are indicated below in the bar chart.

Chart 3.1.2



3.1.8 The thrust of PSUs investment was mainly in power and infrastructure sectors during the six years 2006-07 to 2011-12. The investment in infrastructure sector had grown by 483.69 per cent from ₹ 25.39 crore in 2006-07 to ₹ 148.20 crore in 2011-12. The power sector had also registered an increase by 115.41 per cent from ₹ 53.41 crore in 2006-07 to ₹ 115.05 crore in 2011-12. The increase of investment under infrastructure sector was mainly due to loan of ₹ 285 crore borrowed by Sikkim Industrial Development and Investment Corporation Ltd. (SIDICO) from four banks[7] during 2009-10 on behalf of Government of Sikkim to facilitate the development of infrastructure in Sikkim.

[7] *Dena Bank: ₹ 60 crore, Allahabad Bank: ₹ 75 crore, UCO Bank: ₹ 100 crore and Bank of Maharashtra: ₹ 50 crore.*

Budgetary outgo, grants/subsidies, guarantees and loans

3.1.9 The details regarding budgetary outgo towards equity, grants/subsidies, guarantees issued and interest waived in respect of State PSUs are given in **Appendix 3.1.3**. The summarised details are given below for three years ended 31 March 2012.

Table 3.1.3

(₹ in crore)

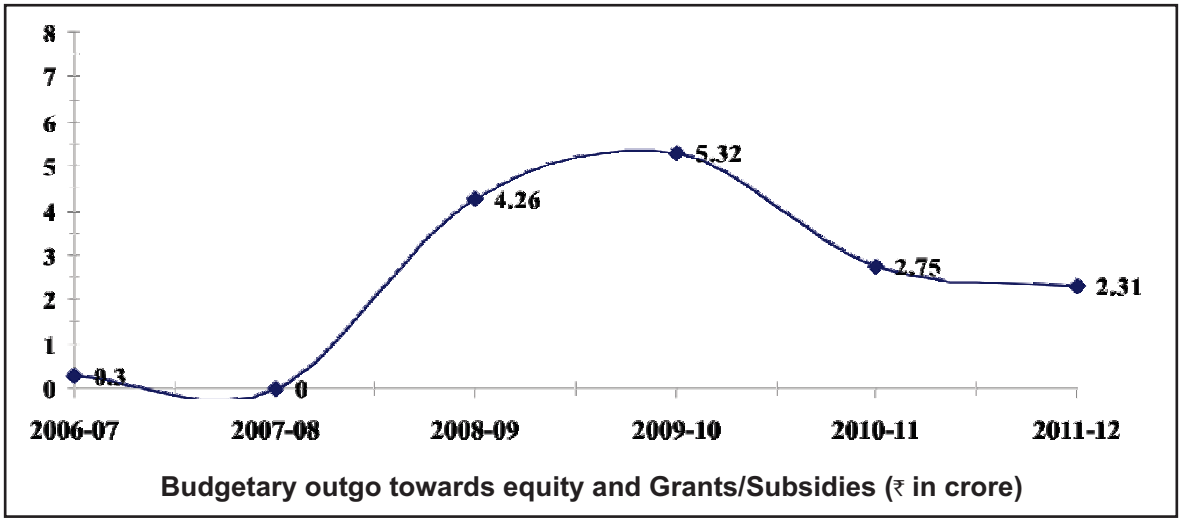
Sl. No.	Particulars	2009-10		2010-11		2011-12	
		No. of PSUs	Amount	No. of PSUs	Amount	No. of PSUs	Amount
1.	Equity Capital outgo from budget	4	2.10	4	0.96	-	-
2.	Grants/Subsidy received	2	3.22	1	1.79	1	2.31
3.	**Total Outgo (1+2)**	**6**	**5.32**	**5**	**2.75**	**1**	**2.31**
4.	Loans written off	-	-	-	-	-	-
5.	Interest/Penal interest written off	1	0.17	1	0.12	1	0.43
6.	**Total Waiver (4+5)**	**1**	**0.17**	**1**	**0.12**	**1**	**0.43**
7.	Guarantees issued	2	290.44	1	3.28	1	4.08
8.	Guarantee Commitment	3	187.05	2	246.70	2	163.72

Source: Data collected from PSUs

3.1.10 Besides, during the year 2011-12, three Government companies, namely, Sikkim Jewels Ltd., Sikkim Time Corporation Ltd. and Sikkim Precision Industries Ltd. had received an amount of ₹ 25 crore as severance package to employees subsequent to closure of operations of these companies with effect from April 2011.

3.1.11 The details regarding budgetary outgo towards equity and grants/subsidies[8] for past six years are given in the graph below.

Chart 3.1.3



[8] *excluding ₹ 25 crore disbursed to three PSUs for severance package during 2011-12*

3.1.12 The guarantee commitment at the end of year has decreased from ₹ 246.70 crore in 2010-11 to ₹ 163.72 crore in 2011-12. As on 31 March 2012, guarantee amounting to ₹ 34.93 crore and ₹ 128.79 crore were outstanding against two Government companies, namely, Sikkim Scheduled Castes, Scheduled Tribes and Other Backward Classes Development Corporation Limited (SABCCO) and Sikkim Industrial Development and Investment Corporation Ltd. (SIDICO) respectively.

On any guarantee given to a public body, a guarantee commission at the rate of one per cent is charged by the State Government. Only one Government Company (SIDICO) had paid (July 2010) guarantee commission of ₹ 2.85 crore on the Government guarantee against the loans of ₹ 285.00 crore borrowed (2009-10) from banks. The other Government Company (SABCCO), however, had not paid any guarantee commission against the guarantee outstanding.

Reconciliation with Finance Accounts

3.1.13 The figures in respect of equity, loans and guarantees outstanding as per records of State PSUs should agree with the figures appearing in the Finance Accounts of the State. In case the figures do not agree, the concerned PSUs and the Finance Department should carry out reconciliation of differences. The position in this regard as at 31 March 2012 is stated below.

Table 3.1.4

(₹ in crore)

Outstanding in respect of	Amount as per Finance Accounts	Amount as per records of PSUs	Difference
Equity	80.68	87.35	(6.67)
Loans	37.03	2.03	35.00
Guarantees	246.69	163.72	82.97

3.1.14 Audit observed that the differences occurred in respect of eight PSUs and some of the differences were pending reconciliation since 2004-05. The Government and the PSUs should take concrete steps to reconcile the differences in a time-bound manner.

Performance of PSUs

3.1.15 The financial results of PSUs, financial position and working results of working Statutory Corporations as per their latest finalised accounts as on 30 September 2012 are detailed in **Appendices 3.1.2, 3.1.5 and 3.1.6** respectively. A ratio of PSU turnover to State GDP shows the extent of PSU activities in the State economy. Table below provides the details of working PSUs turnover and State GDP for the period 2006-07 to 2011-12.

Table 3.1.5

(₹ in crore)

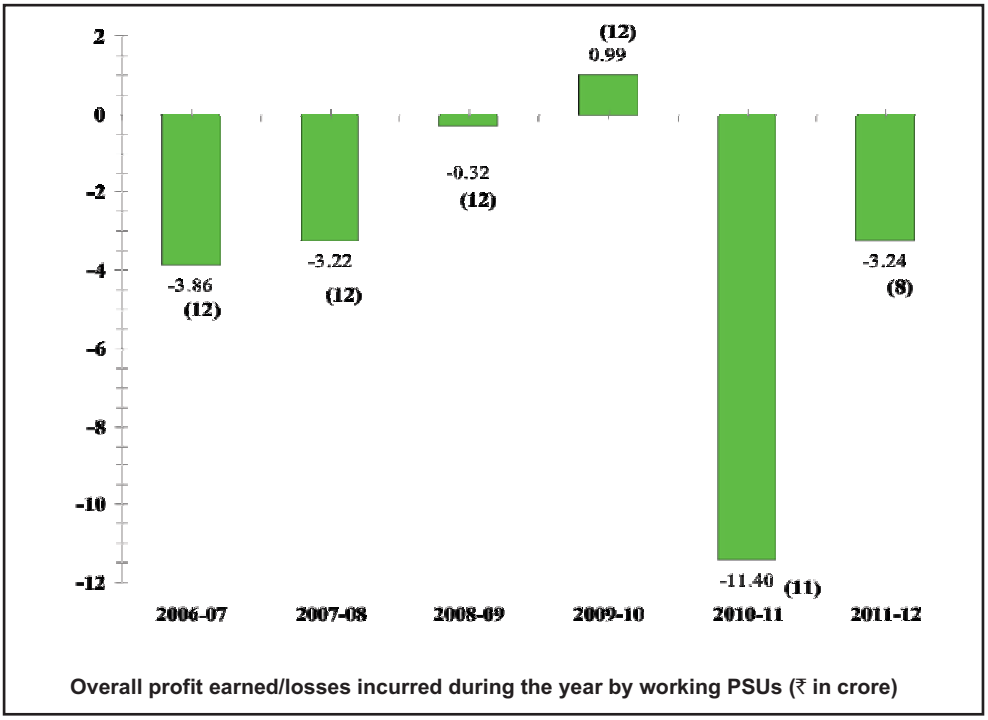
Particulars	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Turnover[9]	45.80	44.44	31.34	41.98	42.81	86.43
State GDP	2,161.45	2,506.09	3,229.08	6,132.76	7,144.55[10]	8,399.88[11]
Percentage of Turnover to State GDP	2.12	1.77	0.97	0.68	0.60	1.03

Source: Data collected from PSUs and Dept. of Economics, Statistics, Monitoring & Evaluation

It may be noticed that during 2006-12, the State GDP had grown by 289 *per cent* from ₹ 2,161.45 crore (2006-07) to ₹ 8,399.88 crore (2011-12). The increase in turnover of State PSUs during the corresponding period was, however, only to the extent of 89 *per cent*. As a result, the percentage of turnover of PSUs to State GDP decreased from 2.12 *per cent* (2006-07) to 1.03 *per cent* (2011-12).

3.1.16 Profit earned/Losses[12] incurred by the State working PSUs during 2006-07 to 2011-12 are given below in the bar chart.

Chart 3.14



(Figures in brackets show the number of working PSUs in respective years)

As per the latest finalised accounts as on 30 September 2012, out of eight working PSUs, four PSUs[13] incurred an aggregated loss of ₹ 16.91 crore whereas four PSUs[14] earned a profit of

[9] *Turnover as per their latest finalised accounts as on 30 September 2012.*
[10] *Provisional Estimates*
[11] *Quick Estimates*
[12] *Figures are as per the latest finalised accounts during the respective years.*
[13] *Sl. No. A-1, A-2, A-3 and A-5 of Appendix 3.1.2*
[14] *Sl. No. A-4, A-6, A-7 and A-8 of Appendix 3.1.2*

₹ 13.67 crore during the year 2011-12. The major profit was earned by SBS and SIDICO (₹ 11.84 crore and ₹ 1.13 crore respectively).

It may be observed that the performance of State working PSUs in terms of the overall working result had shown improving trend upto 2009-10 when overall losses of 2006-07 (₹ 3.86 crore) turned into profits of ₹ 0.99 crore (2009-10). The working PSUs, however, incurred overall losses of ₹ 11.40 crore during 2010-11 mainly on account of loss of ₹ 9.63 crore reported by Sikkim Power Development Corporation Limited due to the interest paid on loans borrowed for project execution. The position again improved during 2011-12 when the overall losses of State working PSUs reduced to ₹ 3.24 crore, which was on account of profits (₹ 11.84 crore) earned by one Statutory Corporation (viz. State Bank of Sikkim) and transfer of three loss making Government Companies[15] under non-working category during 2011-12.

3.1.17 The losses of PSUs are mainly attributable to deficiencies in financial management, planning, implementation of project, running their operations and monitoring. A review of latest Audit Reports of CAG shows that the State working PSUs incurred losses to the tune of ₹ 3.45 crore, which were controllable with better management. Year wise details from Audit Reports are stated below:

Table 3.1.6

(₹ in crore)

Particulars	2009-10	2010-11	2011-12	Total
Net profit/(loss)	0.99	(11.40)	(3.24)	(10.73)
Controllable losses as per CAG's Audit Report	0.24	2.79	-	3.45
Infructuous Investment	2.58	-	-	2.58

Source: Data collected from PSUs and CAG's Audit Reports

3.1.18 The above losses pointed out by Audit Reports of CAG are based on test check of records of PSUs. The actual controllable losses could be much more. The above table shows that with better management, the losses can be minimised substantially. The PSUs can discharge their role efficiently only if they are financially self-reliant. The above situation points towards a need for professionalism and accountability in the functioning of PSUs.

3.1.19 Some other key parameters pertaining to State PSUs are given below:

Table 3.1.7

(₹ in crore)

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12
Return on Capital Employed (*per cent*)	0.81	1.80	3.38	2.00	5.24
Debt	124.61	194.46	462.76	395.91	260.93
Turnover[16]	44.44	31.34	41.98	42.81	86.43
Debt/Turnover Ratio	2.80:1	6.20:1	11.02:1	9.25:1	3.02:1
Interest Payments	29.68	5.52	7.33	24.56	64.90
Accumulated losses	58.06	66.86	68.62	69.82	83.57

(Above figures pertain to all PSUs except for turnover which is for working PSUs)
Source: Data collected from PSUs

[15] *Sl. No. C-12, C-13 and C-14 of Appendix-3.1.2*
[16] *Turnover of working PSUs as per the latest finalised accounts as of 30 September 2012.*

3.1.20 There was constant improvement in Debt Turnover Ratio during 2009-12 from 11.02:1 (2009-10) to 3.02:1 (2011-12) due to gradual increase in the turnover figures and significant reduction in the debts of PSUs after 2009-10. The decrease in the debts was mainly in respect of two State PSUs (viz. Sikkim Industrial Development and Investment Corporation Ltd. and Sikkim Power Development Corporation Ltd.). The percentage of return on capital employed had also increased significantly from 0.81 per cent (2007-08) to 5.24 per cent (2011-12) mainly due to increase in interest earned by two State PSUs (viz. Sikkim Industrial Development and Investment Corporation Ltd. and State Bank of Sikkim).

3.1.21 The State Government had not formulated (September 2012) any dividend policy under which PSUs are required to pay a minimum return on the paid up share capital contributed by the State Government. As per their latest finalised accounts as on 30 September 2012, four PSUs earned an aggregate profit of ₹ 13.67 crore but none of these PSUs declared any dividend. The State Government may consider framing a dividend policy to ensure a minimum return on its investments.

Arrears in finalisation of account

3.1.22 The Companies Act, 1956 is not extended to the State of Sikkim. The Government Companies in Sikkim are registered under the Registration of Companies Act, 1961 and the Statutory Corporations are governed under the proclamation of the erstwhile Chogyal (King) of Sikkim. The table below provides the details of progress made by working PSUs in finalisation of accounts by September 2012.

Table 3.1.8

Sl. No.	Particulars	2007-08	2008-09	2009-10	2010-11	2011-12
1	Number of Working PSUs	12	11	11	11	8
2	Number of accounts finalised during the year	19	24	10	8	7
3	Number of accounts in arrears	31	18	19	22[17]	20
4	Average arrears per PSU (3/1)	2.58	1.64	1.73	2.00	2.50
5	Number of Working PSUs with arrears in accounts	12	11	11	9	8
6	Extent of arrears (in years)	1 to 4	1 to 4	1 to 4	1 to 5	1 to 4

3.1.23 The table above indicates that the PSUs were able to finalise significant number of accounts during 2007-08 (19 nos.) and 2008-09 (24 nos.). As a result, the backlog in arrears of accounts reduced from 31 arrear accounts (2007-08) to 20 arrear accounts (2011-12). None of the working PSUs had, however, finalised their accounts for the year 2011-12. The delay in finalisation of accounts of the working PSUs was due to delay in compilation/adoption of accounts by the BoDs of the respective PSUs.

3.1.24 In addition to above, there were arrears in finalisation of accounts by 7 non-working PSUs ranging from 1 to 17 years.

[17] *including three accounts of one company (Sl. No. C-14 of Appendix-3.1.2) which became non-working during 2011-12 with other two companies (Sl. No.C-12 & C-13 of Appendix-3.1.2)*

3.1.25 The State Government had invested ₹ 4.30 crore (Equity: ₹ 0.26 crore and Grants: ₹ 4.04 crore) in two working PSUs during the years for which their accounts had not been finalised as detailed in **Appendix- 3.1.4**. Delay in finalisation of accounts might result in risk of fraud and leakage of public money.

3.1.26 The administrative departments have the responsibility to oversee the activities of these entities and to ensure that the accounts are finalised and adopted by these PSUs within the prescribed period. Though the concerned administrative departments of the State Government were informed every quarter by the audit about the arrears in finalisation of accounts, no remedial measures were taken to clear the backlog of accounts in a time bound manner.

In view of the arrear position discussed above, it is recommended that the Government may impress upon respective PSUs to expedite the process of finalisation of accounts and bring them upto date.

Winding up of non-working PSUs

3.1.27 There were seven non-working PSUs (six Companies and one Statutory Corporation) as on 31 March 2012. None of these non-working PSUs have commenced liquidation process. The numbers of non-working PSUs at the end of each of the previous five years are given below.

Table 3.1.9

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12
No. of non-working Companies	3	3	3	3	6
No. of non-working Corporations	-	1	1	1	1
Total	**3**	**4**	**4**	**4**	**7**

The non-working PSUs are required to be closed down as their existence is not going to serve any purpose. During 2011-12, one non-working PSU[18] incurred an expenditure of ₹ 0.20 crore towards salaries of its employees which was financed by the State Government.

The stages of closure in respect of non-working PSUs are given below.

Table 3.1.10

Sl. No.	Particulars	Companies	Statutory Corporations	Total
1.	Total No. of non-working PSUs	6	1	7
2	Closure, i.e. closing orders/instructions issued but liquidation process not yet started.	5[19]	1[20]	6

During 2011-12, the Government of Sikkim decided to close down three working PSUs[21]

[18] *Sikkim Mining Corporation*
[19] *Sikkim Jewels Limited, Sikkim Time Corporation Limited and Sikkim Precision Industries Limited, Sikkim Flour Mills Limited and Chandmari Workshop and Automobiles Limited.*
[20] *Sikkim Mining Corporation*
[21] *Sikkim Jewels Limited, Sikkim Time Corporation Limited and Sikkim Precision Industries Limited*

which were incurring losses as there was no possibility of their turnaround. These three PSUs had stopped their operations and employees were relieved during April 2011.

No Company/Corporation was, however, wound up during 2011-12. The Government may make a decision regarding winding up of these seven non-working PSUs.

Accounts Comments and Internal Audit

3.1.28. Four working Companies forwarded their five audited accounts relating to earlier years to the Principal Accountant General during the year 2011-12[22]. Out of these, three accounts of three Companies were selected for supplementary audit. In respect of remaining two accounts of two working Companies, non-review certificate had been issued. The audit reports of statutory auditors and the supplementary audit of CAG indicate that the quality of maintenance of accounts needs to be improved substantially. The details of aggregate money value of comments of CAG are given below.

Table 3.1.11

(₹ in crore)

Sl. No.	Particulars	2009-10		2010-11		2011-12	
		No. of accounts	Amount	No. of accounts	Amount	No. of accounts	Amount
1.	Increase in loss	-	-	6	29.93	2	0.51
2	Increase in profit	1	0.03	1	2.59	-	-
3	Decrease in loss	-	-	3	1.49	1	0.11
4	Decrease in profit	-	-	1	1.05	4	11.05
5.	Non-disclosure of material facts	2	-	-	-	-	-
6.	Errors of classification	2	0.06	5	7.77	4	4.04
		5	**0.09**	**16**[23]	**42.83**	**11**[24]	**15.71**

3.1.29 During the year, out of total seven accounts finalised by five PSUs, the statutory auditors had given unqualified certificates for two accounts and qualified certificates for five accounts. Additionally, CAG also qualified five accounts during the supplementary audit.

3.1.30 One working Statutory Corporation forwarded its two annual accounts[25] relating to earlier years to the Principal Accountant General during the year 2011-12.

3.1.31 Some of the important comments in respect of accounts of the PSUs audited during 2011-12 are stated below.

State Bank of Sikkim (2006-07)

- Non-provision of dues of ₹ 6.33 crore, which were doubtful of recovery had resulted in overstatement of Advances and Profit for the year as well as understatement of Accumulated loss by ₹ 6.33 crore each.

[22] *During the period October 2011 to September 2012*
[23] *Significant impact on 16 instances of seven PSUs*
[24] *Significant impact on 19 instances of five PSUs*
[25] *State Bank of Sikkim for 2006-07 & 2007-08.*

State Bank of Sikkim (2007-08)

- Non provision of liabilities against service tax (₹ 1.36 crore) and rent (₹ 0.59 crore) resulted in understatement of Other Liabilities & Provisions with corresponding overstatement of profit by ₹ 1.95 crore each.

- The share capital of SBS was held by Government of Sikkim (GOS) and UCO Bank. 10,000 shares valuing ₹ 10 lakh were allotted to UCO Bank, of which UCO Bank paid ₹ 5 lakh only. With a view to re-allot the shares, SBS returned (June 2006) the amount paid by UCO Bank which was inconsistent with the Proclamation of GOS.

Sikkim Scheduled Castes, Scheduled Tribes and Other Backward Classes Development Corporation Limited (2009-10)

- The share capital include ₹ 1.79 crore being the grant received from the Government of Sikkim during 1998-99 wrongly shown as shares held by Government of Sikkim. The amount should have been booked under the head Reserves & Surplus instead of including the same under share capital. This resulted in overstatement of Share Capital by ₹ 1.79 crore with a consequential understatement of Reserves & Surplus by same amount.

Sikkim Tourism Development Corporation (2009-10)

- The Statutory Auditors' Report on the Unit accounts of Head Office, Sikkim House Kolkata and Rangpo Tourist Lodge had given qualified certificate in their respective reports. However, the Auditors' Report on the consolidated accounts had not reported the qualifications made by the Unit Auditors nor made any reference on the same. Further, the consolidated accounts did not include the accounts of Heliservice, which had earned a profit of ₹ 1.02 crore during the year 2009-10 and had accumulated loss of ₹ 0.39 crore as on 31 March 2010.

Recoveries at the instance of audit

3.1.32 During the course of propriety audit in 2011-12, recoveries of ₹ 64.98 crore were pointed out to the Management of various PSUs. As against this, an amount of ₹ 0.45 crore was recovered by the PSUs during 2011-12.

Status of placement of Separate Audit Reports

3.1.33 The following table shows the status of placement of various Separate Audit Reports (SARs) issued by the CAG on the accounts of Statutory Corporations in the Legislature by the Government.

Table 3.1.12

Sl. No.	Name of Statutory Corporation	Year up to which SARs placed in Legislature	Year for which SARs not placed in Legislature		
			Year of SAR	Date of issue to the Government	Reasons for delay in placement in Legislature
1.	State Trading Corporation of Sikkim	2004-05	2005-06 to 2007-08	August 2011	Concerned administrative department delayed forwarding of SARs for placement in Legislature.
2.	State Bank of Sikkim	2004-05	2005-06 & 2006-07	August 2011 July 2012	
3.	Sikkim Mining Corporation	2006-07	2007-08	July 2012	

Delay in placement of SARs weakens the legislative control over Statutory Corporations and dilutes the latter's financial accountability. The Government should ensure prompt placement of SARs in the legislature(s).

Disinvestment, Privatisation and Restructuring of PSUs

3.1.34 During the year 2011-12, Government of Sikkim had disinvested 49 *per cent* of its equity shareholding (9.95 lakh shares of ₹ 100 each) in Sikkim Power Development Corporation Limited for ₹ 42.25 crore.

Reforms in Power Sector

3.1.35 The State Government targeted the setting up of State Electricity Regulatory Commission (SERC) by May 2003. In terms of the Electricity Act 2003, the State Government was also required to constitute a three member Selection Committee for the purpose of selecting members of the SERC. The State Government constituted the Sikkim State Electricity Regulatory Commission in April 2011.

A Memorandum of Understanding (MoU) was signed in December 2002 between the Union Ministry of Power and the State Government as a joint commitment for implementation of reforms programme in power sector with identified milestones. The progress achieved so far in respect of important milestones is stated below:

Table 3.1.13

Sl. No.	Milestone	Achievement as of March 2012
1	Setting up of SERC.	SERC in the State has been set up in April 2011.
2	100 *per cent* metering of all consumers.	Out of 88,706 consumers, 65,648 consumers (74 *per cent*) were metered (March 2012).
3	100 *per cent* metering and energy audit and accounting for each 11 KV feeder.	11 KV feeder metering has been completed but due to malfunctioning of meters at a number of installations, proper energy auditing for each 11 KV feeder could not be accomplished. However, under Restructured Accelerated Power Development & Reforms Programme (R-APDRP) the metering of 11 KV feeders in Gangtok and Upper Tadong town has been installed but yet to be commissioned.
4	Mandatory installation of capacitor for consumers of more than 10 HP.	As motors of 10 HP capacity are installed in industrial applications/units only, the concerned units have installed capacitors of required capacities.

Sl. No.	Milestone	Achievement as of March 2012
5	Computerised billing and Management Information System (MIS).	Computerised billing is being done in four Sub-divisions in Gangtok. The MIS was under implementation under R-APDRP scheme for Gangtok. In rest of Sikkim, the energy bills are prepared manually.
6	Consumer indexing.	Consumer Indexing has been started at Gangtok only under R-APDRP Scheme and the work is in progress.

From the table above, it may be noticed that even after lapse of almost 10 years of signing the MoU, the milestones set under the power sector reforms programme could not be fully achieved in four out of six identified areas.

ENERGY AND POWER DEPARTMENT

3.2 Performance Audit of Power Transmission activities of Energy & Power Department, Government of Sikkim

Highlights

The Energy and Power Department (EPD) is responsible for planning and development of the intra-state transmission system. Assessment of demand is an important pre-requisite for planning capacity addition. The EPD, however, had not prepared the State Electricity Plan, in line with the National Electricity Plan of February 2005. The annual plans for augmentation of transmission network were prepared on felt need basis depending on availability of funds without considering the future load growth and probable demand for power.

The execution of transmission projects by EPD suffered with several deficiencies mainly relating to delays and excessive time taken in completing the preparatory and pre-work award activities. As the execution of transmission projects was undertaken without synchronisation with actual progress of execution of generating plans, the facilities so created remained underutilised. The Transmission and Distribution losses of EPD exceeded the norms prescribed by the Central Electricity Authority in all five years. Due to non-revision of tariff for last six years, EPD had suffered huge financial losses on sale of energy. The (Sikkim) State Load Dispatch Centre (SLDC) was connected only with 7 SSs out of 19 SSs and in the absence of effective communication network, the SLDC could not monitor the efficiency of the transmission system in the State. The energy accounting and audit system of the EPD was unreliable in the absence of proper metering arrangements. There was no scientific system in place for management of inventory.

Following are the main highlights of the performance audit:

Energy and Power Department had not prepared State Electricity Plan for planning and development of intra-state transmission system in lines with the National Electricity Plan.

(Paragraph 3.2.9)

Against the capacity additions of substations (302 MVA) and transmission lines (338 CKM) targeted under annual plans during 2007-12, EPD could complete capacity additions to the extent of 100 MVA (33 *per cent*) and 69.81 CKM (21 *per cent*) only in respect of substations and transmission lines respectively.

(Paragraph 3.2.10)

Out of 13 projects completed during 2007-12, all the eight projects test checked were delayed by 31 to 67 months. Further, test check of 10 out of 19 ongoing projects showed that 7 ongoing projects had already been delayed by 27 to 100 months till October 2012 and remaining three projects were also at initial stages of execution.

(Paragraph 3.2.12)

The delays in execution of projects occurred mainly on account of delay in completing the preparatory activities like obtaining forest clearance, acquisition of project land, etc. and excessive time taken in processing/finalisation of tenders and issue of work orders, etc.

(Paragraph 3.2.13)

In absence of adequate evacuation system, the EPD lost the opportunity of generating 84.71 MUs from Rongli and Lachung Hydro Electric Projects involving revenue of ₹ 21.86 crore.

(Paragraph 3.2.23)

The total transmission and distribution losses suffered by the EPD in excess of Central Electricity Authority norms for the period 2007-12 were 557.57 MUs valuing ₹ 116.39 crore.

(Paragraph 3.2.33)

Sikkim State Load Dispatch Centre commissioned at a cost of ₹ 10.57 crore remained non-functional since April 2011 due to breakdown of connectivity.

(Paragraph 3.2.36)

EPD had not established Disaster Management programme to safeguard against the risk of blackout situation in case of major transmission system failure.

(Paragraph 3.2.41)

Materials valuing ₹ 0.99 crore remained idle in stores for more than 15 years and no materials were issued from the stores during the performance audit period.

(Paragraph 3.2.48)

Introduction

3.2.1 With a view to supply reliable and quality power to all by 2012, the Government of India (GOI) prepared the National Electricity Policy (NEP) in February 2005 which stated that the Transmission System required adequate and timely investment besides efficient and

coordinated action to develop a robust and integrated power system for the country. It also, inter-alia recognised the need for development of National and State Grid with the coordination of Central/State Transmission Utilities. As part of power sector reforms, separate companies were to be formed for managing and controlling the generation, transmission and distribution of electricity in the State of Sikkim. However, only one State owned company (namely, Sikkim Power Development Corporation Limited) was formed in 1998 to look after the generation related aspects, which at present is engaged in operation and maintenance of mini hydro projects. Presently, the activities relating to generation, transmission (including grid operations) and distribution of electricity in the State of Sikkim are managed and controlled by the Energy & Power Department (EPD), Government of Sikkim (GoS). The EPD is mandated to provide an efficient, adequate and properly coordinated grid management and transmission of energy.

3.2.2 The EPD is headed by the Principal Chief Engineer-cum-Secretary (PCE-cum-Secretary). The day-to-day operations of EPD are carried out by the PCE-cum-Secretary with the assistance of six Chief Engineers, two Chief Accounts Officers and a host of junior level engineering staffs. During 2007-08, 375.22 Million Units (MUs) of energy was transmitted by the EPD which increased to 597.22 MUs in 2011-12, i.e. an increase of 59 *per cent* during 2007-12. As on 31 March 2012, the EPD had a transmission network of 361.47 CKM and 19 Sub-stations (SSs) with installed capacity of 297.5 MVA capable of annually transmitting 597.22 MUs at 66 KV and 132 KV level. The turnover of the EPD was ₹ 358.41 crore in 2011-12[26] which was equal to 4.27 *per cent* of State Gross Domestic Product[27]. It employed 3,850 employees as on 31 March 2012.

A Performance Audit on Power Distribution Utilities was included in the Report of the Comptroller and Auditor General of India (Report No.2), GOS for the year ended 31 March 2011. The Report had not yet been discussed by the Public Accounts Committee.

Scope and Methodology of Audit

3.2.3 The present Performance Audit conducted during April 2012 to June 2012 covers performance relating to the transmission activities of the EPD during 2007-08 to 2011-12. Audit examination involved scrutiny of records of different wings at the Head Office and five out of seven[28] circles each headed by an Additional Chief Engineer, except Ravangla Circle which is headed by a Superintending Engineer.

Out of six SSs (capacity: 70 MVA) constructed during 2007-12, four SSs (capacity: 55 MVA) were selected for examining project execution related issues. Similarly, out of seven transmission lines (Distance: 69.81 CKM) completed during 2007-12, four lines (Distance: 42 CKM) were examined. The augmentation of 30 MVA made in four SSs were also examined. Besides, out of 13 SSs and 6 transmission lines under construction, the project execution in

[26] *Combined turnover of EPD against sale of power within as well as outside the state*
[27] *Quick estimate for 2011-12 is ₹ 8,399.88 crore*
[28] *Gangtok, Topakhani, Rongli, Jorethang, Ravangla, Gyalshing and Mangan*

respect of six SSs and four lines were also examined. The sample selection for examining project execution related aspects was made on the basis of financial value covering four districts in the State.

The operational performance of 8 SSs[29] out of 19 SSs as on March 2012, as well as related transmission lines, were examined in audit. The sampling was based on a mix of all categories of SSs (having capacity of 5, 10 and 20 MVA each) consisting of mix of good and bad performing SSs. The sample selection was made based on the capacity and geographic location of the SS.

Audit Objectives

3.2.4 The objectives of the performance audit were to assess whether:

- Perspective Plan was prepared in accordance with the guidelines of the National Electricity Policy/Plan and State Electricity Regulatory Commission (SERC) and assessment of impact of failure to plan, if any;
- The transmission system was developed and commissioned in an economical, efficient and effective manner;
- Operation and maintenance of transmission system was carried out in an economical, efficient and effective manner;
- Effective failure analysis system was set up;
- Disaster Management System was set up to safeguard the transmission operations against unforeseen disruptions;
- Effective and efficient system existed for filing of Aggregate Requirement Revenue (ARR) for tariff revision in time;
- Efficient and effective energy conservation measures were undertaken in line with the National Electricity Plan (NEP) and Energy Audit System was established;
- Efficient and effective system of Procurement of material and inventory control mechanism was in place; and
- There is a monitoring system in place to - review existing/ongoing projects, take corrective measures to overcome deficiencies identified, respond promptly and adequately to Audit/Internal audit observations.

Audit Criteria

3.2.5 The audit criteria for assessing the achievement of the audit objectives were derived from the following sources:

- Provisions of National Electricity Policy/Plan and National Tariff Policy;
- Perspective Plan and Project Reports of the EPD;

[29] *132KV SS at Melli, 66 KV SSs at Melli, Phodong, Sichey, Tadong, LLHP, Bulbulay, and Pelling*

- Standard procedures for award of contracts with reference to principles of economy, efficiency, effectiveness, equity and ethics;
- Report of the Task force constituted by the Ministry of Power to analyse critical elements in transmission project implementation;
- Report of the Committee constituted by the Ministry of Power recommending the "Best Practices in Transmission;"
- Directions from State Government/Ministry of Power (MoP);
- Norms/Guidelines issued by SERC/Central Electricity Authority (CEA);
- Manual of Transmission Planning Criteria (MTPC);
- Code of Technical Interface (CTI)/Grid Code consisting of planning, operation, connection codes
- Reports of Regional Power Committee (RPC)/Regional Load Dispatch Centre (RLDC); and
- Circulars, Manuals and MIS reports of the EPD.

Audit Methodology

3.2.6 Audit followed the following mix of methodologies:

- Scrutiny of loan/subsidy files, physical and financial progress reports;
- Analysis of data from annual budgets and physical as well as financial progress with completion reports;
- Scrutiny of records relating to project execution, procurement, receipt of funds and expenditure;
- Examination of tariff fixed by State Electricity Regulatory Commissions (SERC); and
- Interaction with the Management during entry and exit conference.

Besides, the audit objectives were also explained to the EPD during an 'Entry Conference' held on 2 April 2012. Subsequently, audit findings were reported to the EPD/GOS in August 2012 and discussed in an 'Exit Conference' held on 12 November 2012. The Exit Conference was attended by Principal Chief Engineer-cum-Secretary and Chief Engineers of the EPD. The EPD replied to audit findings in November 2012. The views expressed by them have been appropriately considered while finalising this Performance Audit.

Brief description of transmission process

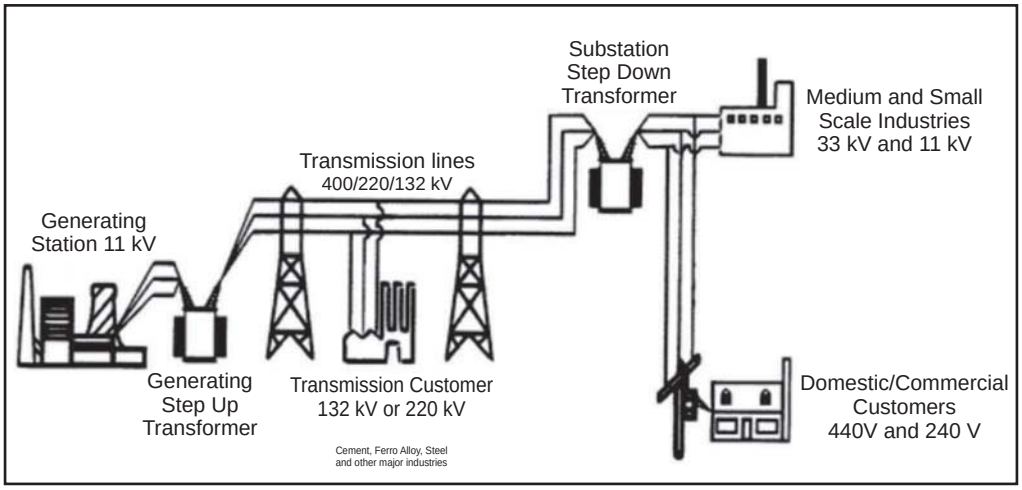
3.2.7 Transmission of electricity is defined as bulk transfer of power over long distances at high voltages, generally at 132 kV and above. However, in Sikkim the transmission of power is done at 66 kV and above. Electric power generated at relatively low voltages in power plants is stepped up to high voltage power before it is transmitted to reduce the loss in transmission and to increase efficiency in the Grid. Sub-stations (SSs) are facilities within the

high voltage electric system used for stepping-up/stepping down voltages from one level to another, connecting electric systems and switching equipment in and out of the system. The step up transmission SSs at the generating stations use transformers to increase the voltages for transmission over long distances.

Transmission lines carry high voltage electric power. The step down transmission SSs thereafter decreases voltages to sub transmission voltage levels for distribution to consumers. The distribution system includes lines, poles, transformers and other equipment needed to deliver electricity at specific voltages.

Electrical energy cannot be stored; hence generation must be matched to need. Therefore, every transmission system requires a sophisticated system of control called Grid management to ensure balancing of power generation closely with demand. A pictorial representation of the transmission process is given below:

Charrt 3.2.1



Audit Findings

3.2.8 The audit findings of Performance Audit has been finalised after taking into consideration the replies and views expressed by the representatives of EPD and GOS during exit conference. The audit findings are discussed in the succeeding paragraphs.

Planning and Development

National Electricity Policy/Plan

3.2.9 The Central Transmission Utility (CTU) and State Transmission Utilities (STUs) have the key responsibility of network planning and development based on the National Electricity Plan in coordination with all concerned agencies. At the end of 10th Plan (March 2007), the transmission system in the country at 765/HVDC/400/230/220/kV stood at 1.98 lakh CKM of transmission lines which was planned to be increased to 2.93 lakh CKM by end of 11th Plan i.e. March 2012. The National Electricity Plan assessed the total inter-regional transmission capacity at the end of 2006-07 as 14100 MW and further planned to add 23,600

MW in 11th plan bringing the total inter-regional capacity to 37,700 MW.

Similarly, the EPD's transmission network at the beginning of 2007-08 consisted of 13 Extra High Tension (EHT) SS with a transmission capacity of 197.5 MVA and 291.66 CKM of EHT transmission lines. The transmission network as on 31 March 2012 consisted of 19 EHT SSs with a transformation capacity of 297.50 MVA and 361.47 CKM of EHT transmission lines.

The EPD is responsible for planning and development of the intra-state transmission system. Assessment of demand is an important pre-requisite for planning capacity addition. The State Electricity Regulatory Commission (SERC), however, had not given any instructions/guidance to the EPD for preparation of State Electricity Plan (SEP). The EPD also had not formulated any State Electricity Plan in line with the National Electricity Plan 2005 prepared by the Central Electricity Authority **(CEA).** The EPD, however, had prepared Master Plan (September 2009) engaging a private consultant for Transmission Network of Power Lines in Sikkim, with a perspective of 15 years (2009-2024). It was, however, noticed that even the suggestions made in the Master Plan were not considered by EPD before taking up the projects. In fact the projects were taken up by EPD on need basis depending on the availability of funds. In a test check of three out of six projects taken up by EPD during 2009-12 (viz. after preparation of the Master Plan), it was found that there was no reference of the Master Plan in the Detailed Project Reports (DPRs) of these three projects. Thus, EPD failed to make scientific plans and upgrade the existing transmission network taking into account the growth in load and increase in future demand of power. Besides, in absence of necessary synchronization between State and National Electricity Plans, the benefit of planned development as reflected in the National Power policy could not be derived.

Transmission network and its growth

3.2.10 The transmission capacity of the EPD at EHT level during 2007-08 to 2011-12 is given below:

Table 3.2.1

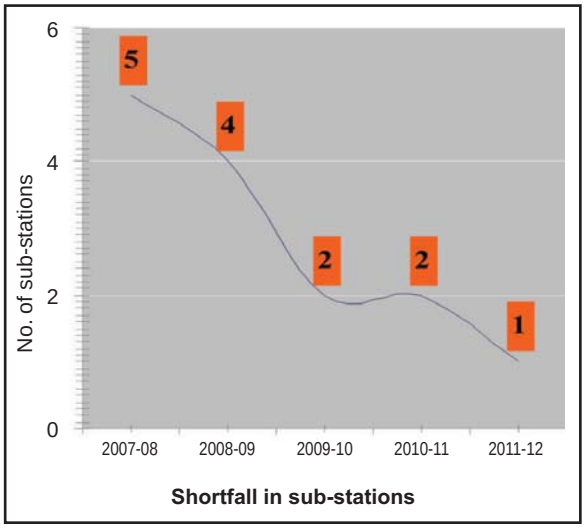
Sl. No.	Description	2007-08	2008-09	2009-10	2010-11	2011-12
A. Number of Sub-stations (Numbers)						
1	At the beginning of the year	13	14	15	15	17
2	Additions planned for the year	6	5	2	4	3
3	Added during the year	1	1	0	2	2
4	Total sub stations at the end of the year **(1+3)**	14	15	15	17	19
5	Shortfall in additions **(2-3)**	5	4	2	2	1
B. Transformers capacity (MVA)						
1	Capacity at the beginning of the year	197.5	207.5	232.5	242.5	260
2	Additions/augmentation planned for the year	67	60	35	72.5	67.5
3	Capacity added during the year	10	25	10	17.5	37.5
4	Capacity at the end of the year **(1+3)**	207.5	232.5	242.5	260	297.5
5	Shortfall in additions/augmentation	57	35	25	55	30
C Transmission lines (CKM)						
1	At the beginning of the year	291.66	309.66	322.47	333.47	361.47
2	Additions planned for the year	81	81	58	58	60
3	Added during the year	18	12.81	11	28	0
4	Total lines at the end of the year **(1+3)**	309.66	322.47	333.47	361.47	361.47
5	Shortfall in additions **(2-3)**	63	68.19	47	30	60

Source: Data collected from substations and planned figures taken from the State Annual Budget

The above table shows that the number of SSs increased from 13 to 19 (46 *per cent*), with corresponding increase in the Transformer Capacity from 197.50 MVA to 297.50 MVA (51 *per cent*) during 2007-12. Similarly, Transmission lines also increased from 291.66 CKM to 361.47 CKM (24 *per cent*) during the last five years. As against this, however, the power consumption in the State had grown by 59 *per cent* from 375.22 MUs (2007-08) to 597.22 MUs (2011-12).

Chart 3.2.2 **Chart 3.2.3**

Line Graph showing the trend in shortfall in addition of Sub-stations in numbers as well as accretion to transformation capacity



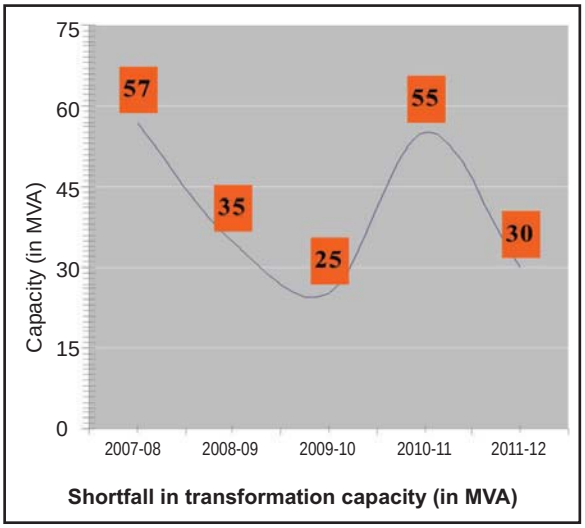
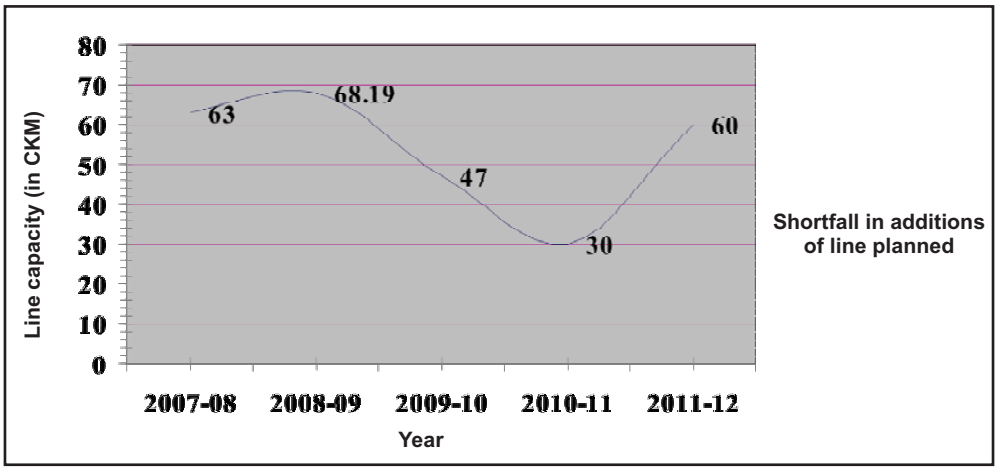


Chart 3.2.4

Line Graph showing trend in shortfall in addition of lines in Circuit Kilometres (CKM)



It may be observed that during 2007-12, the yearwise shortfall in the capacity addition of SSs and TLs ranged from 25 MVA to 57 MVA and 30 CKM to 68.19 CKM respectively as compared to the annual targets fixed. The overall actual capacity addition during 2007-12 in respect of SSs and TLs was 100 MVA (33 *per cent*) and 69.81 CKM (21 *per cent*) as against the target of 302 MVA and 338 CKM respectively.

The particulars of voltage-wise capacity additions planned, actual additions, shortfall in capacity additions, etc. during performance audit period are given in **Appendix 3.2.1**. The reasons attributed for shortfall in capacity addition and slippages in achieving the target by the EPD were improper planning and delay in execution of projects, as discussed in the succeeding paragraphs.

Project management of transmission system

3.2.11 The transmission project involves various activities from concept to commissioning. Major activities in a transmission project are (i) Project formulation, appraisal and approval phase and (ii) Project Execution Phase. For reduction in project implementation period, the Ministry of Power, Government of India constituted a Task Force on transmission projects (February 2005) with a view to:

- analyse the critical elements in transmission project implementation,
- implementation from the best practices of CTU and STUs, and
- suggest a model transmission project schedule for 24 months' duration.

The Task Force suggested and recommended (July 2005) the following remedial actions to accelerate the completion of Transmission systems.

- Undertake various preparatory activities such as surveys, design & testing, processing for forest & other statutory clearances, tendering activities, etc. in advance/parallel to project appraisal and approval phase and go ahead with construction activities once

Transmission Line Project sanction/approval is received;

- Break-down the transmission projects into clearly defined packages such that the packages can be procured & implemented requiring least coordination & interfacing and at same time it attracts competition facilitating cost effective procurement; and
- Standardise designs of tower fabrication so that 6-12 months can be saved in project execution.

3.2.12 Notwithstanding the elaborate guidelines given by the Task Force Committee for timely completion of the projects, the EPD failed to execute several SSs and Lines during 2007-12 as detailed below.

Table 3.2.2

Capacity in KV	Total No. Constructed		No. test checked by Audit		Delay in construction (Numbers)		Time overrun[30] (range in months)		Cost overrun (₹ in crore)	
	SSs	Lines	SS	Lines	SSs	Lines	SSs	Lines	SS	Lines
Completed (Numbers)										
132 kv	1	2	1	1	1	1	32	32	Nil	Nil
66 kv	5	5	3	3	3	3	31-67	60-62	Nil	Nil
Under Construction (Numbers)										
132 kv	-	-	-	-	-	-	-	-	-	-
66 kv	13	6	6	4	3*	4	89-100	27-100	Nil	Nil

**excluding three SS projects for which the scheduled date of completion was not over (as of October 2012)*

Out of six SSs and seven transmission line projects completed during the performance audit period, the scrutiny of files relating to construction of four SSs[31] and four transmission lines[32] were examined. It may be observed that all the eight projects completed during 2007-08 to 2011-12 and test checked in audit were delayed in completion for periods ranging from 31 to 67 months.

As regards the ongoing projects, records relating to 10 (6 SSs[33] and 4 TLs[34]) out of 19 (13 SSs and 6 TLs) ongoing projects sanctioned during 2007-12 by the Ministry of Development of North East Region (DONER) and Ministry of Power (MoP) were examined. It was observed that as against the period of 18 months prescribed by DONER for completion of projects, seven out of ten ongoing projects test checked had already been delayed for periods ranging from 27 to 100 months (October 2012).

The main reasons attributed for these inordinate delays were delays in acquisition of project land, excessive time taken in obtaining statutory/forest clearance **(Paragraphs 3.2.14, 3.2.15, 3.2.17, 3.2.19** and **3.2.20)**, excessive time taken in finalisation of tenders and award of work **(Paragraph 3.2.16, 3.2.17),** delay in release of State Government's share of project funding

[30] *Test checked in audit*
[31] *SS at Bulbulay, Pelling, Chungthang and Gyalshing*
[32] *TL from Sichey to Bulbulay, LLHP to Bulbulay, Meyong to Chungthang, Gyalshing to Sagbari*
[33] *SS under constructions at Khamdong, Perbing, Sombaria, Jorethang, Rabomchu and Lachung Switchyard*
[34] *TL under constructuion-Khamdong to Phodong, LLHP to Nathula, Sombaria to Soreng, Rongli to Sungdung*

(**Paragraph 3.2.19)**, non-receipt of material due to non-pursuance with the supplier **(Paragraph 3.2.21)**, etc. The case study on project execution has been presented under **paragraphs 3.2.17 to 3.2.21** *infra*.

Deficiencies in completing the preparatory and other pre-work award activities

3.2.13 With a view to accelerate the works relating to transmission infrastructure projects, the Task Force constituted by MoP had suggested (July 2005) several remedial actions, which include taking up the preparatory activities in advance/parallel to project appraisal phase, awarding the work after splitting the projects into clearly defined packages, standardising the design of tower fabrication, etc. It was observed that the EPD was not able to adhere to the detailed steps recommended by the Task Force for speedy and timely completion of the projects right from project formulation to implementation. During test check of 8 out of 13 works completed during 2007-12, it was observed that none of these eight works were completed within the stipulated time mentioned in the work orders as delays were occurred at various stages of project planning and execution.

The stage wise details of time taken in pre and post work award activities of the projects relating to four new SSs and four new TLs completed during 2007-12 and test checked in audit are tabulated in **Table 3.2.3**.

Table 3.2.3

Sl. No.	Name of the Project	Date of sanction of DPR	Date of Notice Inviting Tenders (NIT)	Date of work order	Time taken in issue of work order after sanction of DPR (in months)	Schedule date of completion	Actual date of completion	Delay in months
	Construction of Substations							
1	Bulbulay Substation	April 2002	August 2002	December 2002	8	March 2004	October 2009	67
2	Gyalshing Substation	July 2004	February 2005	October 2005	15	October 2006	June 2009	32
3	Chungthang Substation	March 2004	June 2004	October 2004	7	October 2005	December 2010	62
4	Pelling Substation	December 2006	No NIT	May 2007	5	May 2008	December 2010	31
	Drawing of Transmission line from							
5	LLHP to Bulbulay	April 2002	August 2002	December 2002	8	March 2004	March 2009	60
6	LLHP to Sichey	April 2002	August 2002	December 2002	8	March 2004	March 2009	60
7	Meyong to Chungthang	March 2004	July 2004	October 2004	7	October 2005	December 2010	62
8	Gyalshing to Sagbari	July 2004	February 2005	October 2005	15	October 2006	June 2009	32

Similarly, the stage wise details of time taken in pre and post work award activities in respect of 10 out of 19 ongoing projects (13 SSs and 6 transmission lines) test checked are tabulated in **Table 3.2.4** below:

Table 3.2.4

Sl. No.	Name of the Project (Ongoing)	Date of sanction of DPR	Date of Notice Inviting Tenders (NIT)	Date of work order	Time taken in issue of work order after sanction of DPR	Schedule date of completion	Actual date of completion	Delay in months upto October 2012
	Construction of substations							
1	Kamdong	April 2003	August 2003	February 2004	10	June 2004	Work in progress	100
2	Sombaria	April 2003	August 2003	February 2004	10	June 2004		100
3	Jorethang	April 2003	January 2004	November 2004	18	May 2005		89
4	Perbing	April 2010	October 2010	June 2011	14	December 2012		-
5	Lachung switchyard[35]	March 2011	January 2010	April 2012	13	October 2013		-
6	Rabomchu	July 2011	January 2010	April 2012	9	October 2013		-
	Drawing of Transmission lines							
7	Kamdong to Phodong	April 2003	January 2004	September 2004	17	March 2005	Work in progress	91
8	Sombaria to Soreng	April 2003	August 2003	February 2004	10	June 2004		100
9	LLHP to Nathula	June 2006	August 2006	February 2007	8	February 2009		44
10	Rongli to Sungdung	August 2009	Not issued	January 2010	5	July 2010		27

From the **Tables 3.2.3 and 3.2.4** above, it may be noticed that the delays in execution of 8 out of 13 projects completed during 2007-12 and test checked in Audit ranged between 31 and 67 months. In case of ongoing projects, it may be observed that in 7 out of 10 ongoing projects test checked, the completion of works had already been delayed for periods ranging from 27 months to 100 months (till October 2012). In respect of the remaining three projects, though the scheduled date of completion was not over (as of October 2012), the execution of these works was at initial stages and was also likely to be delayed.

The delays in completion of the projects occurred mainly on account of abnormally higher time taken in completing the preparatory activities like, obtaining forest clearance, acquisition of land, etc. Besides, the EPD had also taken excessive time in processing and finalisation of tenders and issue of work orders, which further contributed in delaying the completion of the projects as discussed below.

Delay in obtaining forest clearance

3.2.14 Obtaining of forest clearance is very essential for execution of any project and at the same time, procedural uncertainties are also involved in completing the process. The Task Force constituted by the Government of India also recommended that the process for obtaining the forest clearance should be initiated at the project planning/appraisal stage viz.

[35] *Including transmission line work from Lachung to Maltin*

before award of work so as to ensure timely completion of the project. During the test check of 8 completed and 10 ongoing projects, it was noticed that in 7 projects (6[36] completed and 1[37] ongoing) forest clearance was obtained belatedly after periods ranging from 10 to 57 months from the date of issue of work order, which was not in line with the recommendations of Task Force. The reasons for delay in obtaining forest clearance were not on the records produced to audit.

Delay in acquisition of project land

3.2.15 The acquisition of project land is a pre-requisite for award of project work. Under the provisions of Land Acquisition Act 1894 (LA Act), the process of land acquisition begins with a notification published in the Official Gazette and in two local newspapers. As per the records made available to Audit there were no records of issuing of Preliminary Notice either in the official gazette or in local newspapers for acquisition of project land in respect of 18 projects (8 completed and 10 ongoing) test checked in Audit. It was observed that in 11 cases (7[38] completed and 4[39] ongoing), the project land was acquired belatedly for period ranging from 8 to 65 months after issue of work order. Procedural delays in acquisition of land ultimately caused delay in completion of the projects.

Thus, due to delay in completing the preparatory activities viz. acquisition of land, obtaining statutory clearance, etc. completion of works was also delayed thereby defeating the intended objectives of the projects.

The EPD accepted the audit observation and stated (November 2012) that the delays were due to administrative bottlenecks. The reply is not acceptable as the EPD needed to minimise such procedural delays by better coordination and synchronisation of activities with the concerned departments of the State Government.

Delay in award of works

3.2.16 As per the conditions of the DONER sanctioning the project funding, the EPD needed to issue work orders within a time frame of three months from the date of sanction of the project. From the **Tables 3.2.3 and 3.2.4** under **paragraph 3.2.13** supra, however, it may be noticed that the EPD had taken abnormally higher periods ranging from 5 to 18 months in issuing the work orders after sanction of DPR in respect of 18 projects (8 completed and 10 ongoing) test checked. These delays were mainly due to excessive time taken (3 to 9 months) in preparation of tender documents and issuing Notice Inviting Tenders (NIT). The issue of work orders after NIT was further delayed (3 to 9 months) in all these 18 projects on account of excessive time taken in finalisation of tenders.

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[36] *Construction of substations at Bulbulay and Chungthang, drawing of transmission lines from LLHP to Bulbulay, LLHP to Sichey, Gyalshing to Sagbari and Meyong to Chungthang.*
[37] *Drawing of transmission line from LLHP to Nathula.*
[38] *Construction of substations at Pelling, Bulbulay and Chungthang, drawing of transmission lines from LLHP to Bulbulay, LLHP to Sichey, Gyalshing to Sagbari and Meyong to Chungthang.*
[39] *Construction of substations at Khamdong and Sombaria, drawing of transmission lines from Khamdong to Phondong and LLHP to Nathula.*

The delays at various stages in release of award letters for the works, as stated above, had correspondingly pushed back the scheduled dates of project completion.

Case study

The case study of project execution and deficiencies observed by audit during the test check of records are enumerated in the succeeding paragraphs.

Completed Projects

Transmission line from Lower Lagyap Hydel Project (LLHP) to Bulbulay

3.2.17 With a view to ensure dependable power supply and to have alternate supply for all the 66 kV SSs in East Sikkim area, DONER sanctioned (July 2002) construction of Double Circuit (DC) 66 kV Transmission Line (TL) from LLHP to Bulbulay along with Single Circuit (SC) 66 kV TLs from Bulbulay to Sichey and from Sichey to Ranka. The project was to be implemented by March 2004 under Non Lapsable Control Pool of Resources (NLCPR) at an estimated cost of ₹ 12.97 crore.

The following observations are made on execution of above work:

- The cost of the project was sanctioned by DONER based on the Detailed Project Report (DPR) submitted by EPD. It was observed that while preparing the DPR for the project, several essential works relating to power evacuation system, VCB panels, etc. were not included in the DPR. As a result, the project cost sanctioned by DONER was not found sufficient to meet the cost of the said works. Since the said works were essential for successful commissioning of the project, the EPD had to carry out downward revisions in the scope of the works so as to accommodate the costs of these essential works within the sanctioned project cost (₹ 12.97 crore). It was noticed that the scope of works of LLHP-Bulbulay TL was restricted from Double Circuit to Single Circuit besides scrapping of the Single Circuit TL from Sichey to Ranka on this account. It was observed that though the above deviations to the originally approved project were significant, EPD had not intimated the same to DONER for its concurrence. The downward deviations in the scope of the original project had adversely affected the intended benefits of the project.

- The work order for construction of 66 kV Transmission line from LLHP to Bulbulay was issued in December 2002, with stipulation to complete the work within 15 months (by March 2004). It was, however, observed that the execution of project suffered on account of excessive time taken by EPD in issue of work order by eight months after obtaining the sanction of DONER. Further, the forest clearance was obtained after an abnormal delay of 19 months of issue of work order. Further, though the work order for the project was issued in December 2002, the process of acquisition of project land could be completed after 42 months in June 2006 only. As a result, as against the scheduled date of completion by March 2004, the project was completed after a delay of 60 months in March 2009. Delay in completion of works had correspondingly deferred the intended benefits of the project.

Wasteful expenditure in shifting of transformer

3.2.18 DONER sanctioned (July 2004) the project of Extension of 132 kV system in South and West districts of Sikkim at ₹ 23.03 crore for transmission of power including construction of sub-station at Gyalshing.

Under the above project it was proposed to transfer the 20 MVA transformer installed at Sagbari SS to new 132/66 kV Sub-station at Gyalshing and to replace Sagbari SS with 10 MVA transformer belonging to NHPC and used by EPD. It was observed that before implementing the decision for replacement of Sagbari SS with 10 MVA transformer, no feasibility study was carried out by EPD, which was essential for such decisions. It was noticed that EPD incurred an expenditure of ₹ 66.57 lakh towards dismantling of Sagbari SS transformer. Before the Sagbari SS transformer could be transported for installation in Gyalshing SS, it was found (June 2008) that the 10 MVA transformer proposed for Sagbari SS was not providing adequate backup and could not cater the load demand of West and South Districts. Hence, it was decided to reinstall the Sagbari SS transformer back at Sagbari and to procure a new 20 MVA transformer for 132/66 kV Sub-station at Gyalshing. The new 20 MVA transformer was installed in May 2009 at substation Gyalshing, at a cost of ₹ 3.85 crore. EPD stated (November 2012) that they had no option but to retain the Sagbari SS transformer at Sagbari so as to cater to the then existing load.

Thus, inappropriate decision of the EPD to shift the 20 MVA transformer from Sagbari to Gyalshing switch yard without conducting proper feasibility study had resulted in wasteful expenditure of ₹ 66.57 lakh.

Ongoing projects

Transmission line from LLHP to Nathula

3.2.19 (i) On the basis of Detailed Project Report (DPR) submitted by EPD, DONER sanctioned (June 2006) the work of Construction of 132 kV Transmission Line from Lower Lagyap Hydel Project (LLHP) to Nathula including SS at Sherathang at a cost of ₹ 31 crore. As per the approved funding pattern, the project cost was to be contributed by the Union and State Government in 90:10 ratio. The State Government was to contribute its share (₹ 3.09 crore) after release of the share of the Union Government, Ministry of Power (MoP). The tenders were invited (August 2006) and work order was issued (February 2007), with stipulation to complete the work by February 2009. It was, however, observed that the project had already been delayed by 44 months against the targeted date of completion (February 2009) and the same was still in progress (October 2012). It was observed that though the MoP (Union Government) had already released 65 *per cent* (₹ 18.16 crore) of its share (till October 2012), no funds had been released by the State Government towards its share of the project cost. Delay in release of State Government's share in project funding had contributed towards delay in completion of project. Further, the requisite forest clearance was obtained belatedly in August 2008, 18 months after the issue of work order. The process of acquisition of project land could also be completed only in March 2010, i.e. 37 months after the issue of work order.

It was observed that the EPD failed to undertake these preparatory activities in parallel with the tender process contrary to the recommendations of the Task Force constituted by the GOI.

(ii) For the above mentioned 132 KV transmission line (LLHP to Nathula), the EPD constructed 132KV towers. It was, however, observed that for the said 132 KV line, the Substation had been proposed at 66/11 KV level, instead of 132/11 KV. Thus, the accessories such as transformer, circuit breakers and isolators were also procured considering the suitability of 66/11KV SS. EPD had planned to charge 132 KV transmission line initially at 66 KV and changeover the same to 132 KV at later stage when the future load growth/power demand of Nathula area attain the desired level commensurate to 132 KV infrastructure. It was observed that EPD's planning to changeover the new transmission line from 66 KV to 132 KV would be fruitful only in case the load increases in near future which is doubtful as the sub-station is located at high altitude border area with sparse population.

Image 3.2.1

Towers for proposed 66 KV line

Image 3.2.2

Existing 11 KV line

It may be mentioned that currently the Gangtok town is being fed by 66 KV transmission line. It was not likely in the foreseeable future that Nathula area would attain the density or requirement of electricity comparable to the current requirement of Gangtok town. Therefore, construction of 132 KV transmission line from LLHP to Nathula was far in excess of requirement of Nathula. As a result, the full potential of LLHP-Nathula line involving a huge estimated investment of ₹ 31 crore could remain underutilised.

The EPD stated (November 2012) that the above project was conceived when the border trade was started in 2006, with the anticipation that there was possibility of increase in trade, hotels and other tourism related business activities but the same did not materialise due to poor road infrastructure. The reply is not tenable as the EPD failed to make proper assessment of the load demand which resulted in creation of excess infrastructure capacity.

Construction of Substation at Perbing

3.2.20 (i) Based on the DPR submitted by the EPD, DONER sanctioned (April 2010) ₹ 15.89 crore for construction of 66/11KV Substation at Perbing, Ranka, East Sikkim. The scope of work also included the construction of related 11 KV HT transmission Lines for Power evacuation as well as other allied electrical works in and around Gangtok. The work order was

issued (June 2011), with stipulation to complete the same by December 2012. As of October 2012, however, the work could be completed to the extent of 25 *per cent* only and the same was still in progress. The execution of project was delayed mainly due to delay in acquisition of project land by EPD. Scrutiny of records revealed that though the sanction for the above project was received in April 2010, the process of acquisition of land was started only after 14 months in June 2011 viz. after the issue of work order. The acquisition of project land was still pending (October 2012). Thus, due to non-availability of land, completion of the project within the stipulated period remains uncertain.

ii) The DPR for the above project included ₹ 52.44 lakh towards committed liabilities incurred for taking up emergency works at 66/11 KV Sub-station at Sichey. It was, however, observed that this work was originally meant to be met from Accelerated Power Development & Reforms Programme and had already been completed at the time of preparation of DPR for the above project. Thus, the EPD prepared faulty DPR duly incorporating the specifications of completed work not within the ambit of the project and availed sanction from the DONER for extra fund of ₹ 52.44 lakh with a view to divert the said funds for settlement of its old liabilities.

The EPD has confirmed (November 2012) the fact and stated that the additional expenditure of ₹ 52.44 lakh was incurred with the approval of the Cabinet. The reply is not acceptable as the project cost was deliberately inflated to meet the expenditure not related to the project without the knowledge of the DONER.

Improper planning in drawing transmission line from Khamdong to Phodong

3.2.21 The work sanctioned under APDRP (2003-04) relating to renovation/ augmentation/strengthening and upgradation of Sub-Transmission and Distribution System at East Sub-circle was bifurcated into two parts viz.:

(i) Installation of additional 7.5 MVA, 66/11 KV Transformer bay at Mamring at ₹ 2.57 crore

(ii) Drawing of 66 KV S/C line from Khamdong to Phodong at ₹ 4.35 crore

Scrutiny of records (May 2012) revealed the following deficiencies/irregularities:

- Though the work order was issued in September 2004, the route alignment was finalized in April 2005. It was further observed that the project land for execution of works was yet to be provided to the contractor as the process of land acquisition was still pending with the District Administration (October 2012). As a result, the contractor could not complete the work of construction of towers envisaged in the DPR due to non-availability of project land.
- Audit Scrutiny further revealed that out of ₹ 1.12 crore expended for the project, ₹ 0.64 crore was paid (October 2004) to State Trading Corporation of Sikkim (STCS) on account of advance for purchase of equipment/materials for the above work. As per records made available to Audit, however, it was observed that no materials had been received at the work site till date (October 2012) and EPD had also not pursued the matter with STCS. As a result, the project funds to the tune of ₹ 0.64 crore was blocked

with STCS for more than eight years. The EPD accepted (November 2012) the audit observation and stated that the matter was now being pursued with STCS.

Mismatch between Generation Capacity and Transmission facilities

3.2.22 National Electricity Policy envisaged augmenting transmission capacity taking into account the planning of new generation capacities, so as to avoid mismatch between generation capacity and transmission facilities. It was observed that in several cases, transmission wing of EPD could not timely execute the works relating to transmission projects as per the requirements of the Generation plans of its generation wing. This had caused mismatch between the state generation capacity and the transmission facilities available in the state causing avoidable loss of generation as discussed below:

Table 3.2.5

Sl. No.	Generating Wing's plan		Transmission Wing's plan	Result of Mismatch
	Project	Capacity		
1	Rongli Hydro Electric Project (HEP)	5 MW	Transmission line work from Rongli at Sisney under execution at various stages (October 2012).	In absence of evacuation system HEP could not harness the potential generation resulting in idling of the generating capacity (5 MW).
2	Lachung HEP	3 MW	Work order for drawing of transmission line issued in April 2012 and execution at initial stages (October 2012).	HEP caters to local demand of 1 MW, through existing/old transmission line, causing under-utilisation of HEP by 2 MW
3	Rambochu HEP	3 MW	Work order for drawing of transmission line issued in April 2012 and execution at initial stages (October 2012).	HEP caters to local demand of 0.6 MW, through existing/old TL. There was under-utilisation of HEP by 2 MW.

Source: Assessment of Financial Resources

Two out of above three cases of mismatch between generation capacity and transmission facilities projects were examined and findings are enumerated below:

Rongli and Lachung HEPs

3.2.23 The two Hydro Electric Projects (HEPs) viz. Rongli HEP (Capacity–5 MW) and Lachung HEP (Capacity–3 MW) developed by Sikkim Power Development Corporation Limited, were commissioned in September 2010 and January 2009 respectively. In absence of adequate evacuation system, however, the two projects could not be utilised to their full capacity resulting in potential generation loss of 84.71 MUs and corresponding revenue loss of ₹ 21.86 crore till October 2012 as detailed below:

Table 3.2.6

Name of the unit	Date of Commission	Installed capacity (MW)	Evacuation capacity (MW)	Plant load factor (percentage)	Generation loss (MUs)	Loss of revenue (₹ in crore)
Rongli HEP	September 2010	5 MW	Nil	60	51.03	13.17[40]
Lachung HEP	January 2009	3 MW	1 MW	55	33.68	8.69[41]
					Total loss	**21.86**

Rongli HEP

3.2.24 The construction of Rongli HEP was started in November 2002 and trial run completed in August 2010. The proposal for construction of related transmission line for evacuation of energy was, however, initiated in March 2007 and the same was sanctioned by NEC in August 2009. The work order was issued (January 2010) to the contractor, without tendering, on the plea of urgency involved as the HEP was at the verge of commissioning and in the absence of evacuation system the power generated from the HEP could not be wheeled out. The EPD, however, failed to adequately address the issues relating to land acquisition, Right of Ways (ROW), settlement of compensation to land owners, etc. at the planning and approval stage of the project. As a result, the project work, originally scheduled for completion by July 2010, was lying standstill since June 2011 due to protests from the land owners. In absence of adequate financial resources, the EPD also failed to explore alternative course of action for completing the project. As of October 2012, the execution of project had already delayed by 25 months causing generation loss of 51.03 MUs as well as loss of potential revenue of ₹ 13.17 crore besides deferring the intended benefits of the project for the delayed period.

EPD while accepting the facts stated (November 2012) that other alternatives are being explored for early completion of project work. The reply was, however, silent on EPD's failure in addressing the land related issues at planning/approval stage of the project, which ultimately caused delay in completion of the project.

Lachung HEP

3.2.25 Lachung HEP was commissioned in January 2009 with the installed capacity of 3 MW. In absence of adequate evacuation system, however, the generation of HEP was restricted to only 1 MW so as to meet load requirement of Lachung area. It was observed that the DPR for the related 66 KV transmission line from Lachung HEP to Maltin SS was prepared and submitted to DONER only in May 2009 for estimated project cost of ₹ 10.25 crore, which was sanctioned by DONER in March 2011. It was observed that though the Notice Inviting

[40] *5000 KW X 60% PLF X 24 HOURS X 30 DAYS X 25 MONTHS = 54,000,000 units less 5.5% auxillary consumption = 51,030,000 units X ₹ 2.58 per unit*
[41] *2000 KW X 55% PLF X 24 HOURS X 30 DAYS X 45 MONTHS = 35,640,000 units less 5.5% auxillary consumption = 33,679,800 units X ₹ 2.58 per unit*

Tender (NIT) was issued in January 2010, the EPD had taken abnormally excessive time of 26 months in completing the tendering activities mainly on account of administrative bottlenecks. The work order for the project was finally issued in April 2012 for completing the work within 18 months by October 2013. The project work was at initial stages of execution (October 2012).

It can be observed from the above that although the construction of HEP was completed and commissioned long back (January 2009), optimum energy could not be wheeled out, in the absence of the evacuation facilities. Thus, due to mismatch in generation and transmission planning and excessive time taken by EPD in creating the related transmission infrastructure, the State suffered potential generation loss of 33.68 MUs (upto October 2012), besides not making available the intended benefits of the project for the delayed/mismatch period. Further, EPD also suffered loss of potential revenue of ₹ 8.69 crore (upto October 2012) against the loss of generation.

The EPD accepted (November 2012) the facts and stated that the power evacuation from Lachung HEP could not be completed due to earthquake (September 2011). The reply, however, did not address the lapses on the part of EPD for delay in preparing and submitting the DPR for the transmission project and also for the abnormally excessive time taken in issuing the work order, which ultimately delayed the creation of transmission infrastructure for evacuation of power from Lachung HEP.

Performance of transmission system

3.2.26 The performance of the EPD mainly depends on efficient maintenance of its transmission network for supply of quality power with minimum interruptions. In the course of operation of sub-stations and lines, the supply-demand profile within the constituent sub-systems is identified and system improvement schemes are undertaken to reduce line losses and ensure reliability of power by improving voltage profile. These schemes are for augmentation of existing transformer capacity, installation of additional transformers, laying of additional lines and installation of capacitor banks. The performance of the EPD with regard to Operations and Maintenance (O&M) of the system is discussed in the succeeding paragraphs.

Transmission capacity

3.2.27 The EPD, in order to evacuate the power from the Generating Stations and to meet the load growth in different areas of the State, constructs lines and SSs at different voltages. A Transformer converts Alternate Current (AC) voltage and current to a different voltage at a very high efficiency. The voltage levels can be stepped up or down to obtain an increase or decrease of AC voltage with minimum loss in the process. The evacuation is normally done at 66 kV SSs in Sikkim. The transmission capacity (66 kV) created vis-à-vis the transmitted capacity (peak demand met) at the end of each year by the EPD during the five years ending March 2012 are as follows:

Table 3.2.7

(in MVA)

Year	Installed	After leaving 30 *per cent* towards margin	Peak demand including non- coincident demand	Excess/ shortage (3-4)
2007-08	207.50	145.25	140.83	(+)4.42
2008-09	232.50	162.75	157.15	(+)5.60
2009-10	242.50	169.75	173.75	(-)4.00
2010-11	260.00	182.00	188.14	(-)6.14
2011-12	297.50	208.25	208.58[42]	(-)0.33

Source: Data collected from Sub Stations

It can be observed from the table that the overall transmission capacity was in excess of the requirement for first two years. The transmission capacity excluding 30 *per cent* towards redundancy worked out to an excess of 5.60 MVA as of March 2009. In subsequent three years from 2009-10 to 2011-12, however, the overall available transmission capacity was insufficient to meet the peak demand. The shortages of installed capacity with regard to peak demand varied between 0.33 MVA and 6.14 MVA during these three years. Scrutiny of individual records of SSs revealed that during 2011-12, in 7 SSs out of total 19 SSs, the installed capacity of transformer after leaving 30 *per cent* towards margin were in excess of peak demand by 26 MVA. At the same time, it was noticed that in respect of remaining 12 SSs, the installed capacity after leaving margin were in short of peak demand by 26.33 MVA. Existence of extra/idle capacity in transmission network in some places and prevalence of overloads, high voltages on certain other places reflects an unscientific planning in creation of transmission network.

The EPD accepted the facts and confirmed (November 2012) that the existing Sub-Stations were designed to cater to the then existing loads with sufficient excess margins. However, the load increase has been exponential in the State. The reply is not acceptable as the present situation of having irrational transmission infrastructure could have been avoided with better planning for creation of transmission network based on realistic assessment of requirement.

Sub-stations

Adequacy of Sub-stations

3.2.28 Manual on Transmission Planning Criteria (MTPC) stipulates the permissible maximum capacity for different SSs i.e., 150 MVA for 132 KV and 75 MVA for 66 KV SSs. Scrutiny of the maximum capacity levels of SSs revealed that the transformers capacity did not exceed the permitted levels. It was also observed that every SS of capacity 66 KV and above should have at least two transformers. Though the State Electric Regulatory Corporation (SERC) had not issued any Transmission Planning and Security Standards, it would be a good practice if the size and number of transformers in the SS are planned in such a

[42] *Peak demand figures for 132 KV Gyalshing SS (20 MVA), installed in January 2012, not available, as the SS was yet to be charged (October 2012).*

way that in the event of outage of any single transformer the remaining transformer(s) could still supply 80 *per cent* of the load. It was, however, seen that out of 19 SSs of EPD, four SSs[43] were equipped with single transformer. Besides one SS (Pakyong) presently under construction was also being equipped with single transformer. Further in remaining 15 SSs having two or more transformers, 11 SSs did not have the capacity to bear 80 *per cent* of the load in case of any transformer failure. It was also noticed that the EPD had no standby transformers in stock so as to manage the situation in case of major breakdown of any working transformers.

The EPD stated (November 2012) that the MTPC guidelines are based on data taken from major load centres in the plains whereas the planning for SSs in Sikkim is based on load requirements and availability of funds under various schemes. The reply is not satisfactory as the EPD should have worked out the capacity requirement of SSs based on the topography as well as other influencing factors for the Sikkim State and should have followed the same for stable and continuous power supply.

Voltage management

3.2.29 The licensees using intra-state transmission system should make all possible efforts to ensure that grid voltage always remain within limits. As per Indian Electricity Grid Code, STUs should maintain voltages ranges between 380-420 kV (in 400kV line), 198-245 kV (in 220 kV line), 119-145 kV (in 132 kV line) and 60-72 kV (in 66 kV line). In one SS (Melli), out of two 132 kV SSs test checked, it was noticed that the voltages recorded in 132 kV bus voltages during April 2011 to March 2012 ranged between 131 and 134 kV, which was within the permissible limits. Further, in 7[44] out of 17 (66 kV) SSs test checked, the voltages recorded were ranged within the permissible limits between 61 to 67 kV, except in one SS (LLHP) where voltages varied between 58 to 65 kV in deviation of the permissible limit.

Lines

EHT lines

3.2.30 As per MTPC permissible line loading cannot normally be more than the Thermal Loading Limit (TLL). The TLL limits the temperature attained by the energised conductors and restricts sag and loss of tensile strength of the lines. The TLL limits the maximum power flow of the lines. As per MTPC the TLL of 132 kV line with ACSR[45] Panther 210 sq. mm. conductor was 366 amps. Scrutiny of the line loadings on the 132 kV feeders revealed that the maximum line loading on one out of three 132 kV feeders test checked was 70 Amps only, which was within the permissible limit.

[43] *Phodong, Pelling,Ravangla and Gyalshing*
[44] *LLHP, Peling, Sichey,Tadong, Phodong, Bulbulay and Melli*
[45] *Aluminium Conductor Steel Reinforced*

Maintenance

Performance of Current transformers (CT)

3.2.31 Current transformers are one of the most important and cost-intensive components of electrical energy supply networks, thus it is of special interest to prolong their life duration while reducing their maintenance expenditure. In order to gather detailed information about the operation conditions of CTs, various kinds of oil analysis like the standard oil Dissolved Gas Analysis (DGA) tests are generally conducted. For CT insulation a combination of an insulating liquid and a solid insulation impregnated therewith are used. For an evaluation of the actual condition of this insulating system usually a DGA is used, as failures inside the CT lead to a degradation of the liquid insulation in such a way that the compound of the gases enables an identification of the failure cause. The table below indicates status of failure of transformers during the years 2007-08 to 2011-12:

Table 3.2.8

Year	No. of transformers at the beginning of the year	No. of transformers failed	No. of transformers failed within guarantee period	No. of transformers failed within normal working life	Expenditure on repair and maintenance (₹ in lakh)
(1)	(2)	(3)	(4)	(5)	(6)
2007-08	25	2	Not Available	Not Available	16.99
2008-09	27	1	- do -	- do -	1.80
2009-10	30	1*	- do -	- do -	0
2010-11	32	1	- do -	- do -	12.46
2011-12	35	2	- do -	- do -	33.00
	TOTAL				**64.25**

**Transformer at Phodong lying idle for want of repairs*
Source: Data collected from SSs

It can be noticed from the above table that during 2007-08 to 2011-12, the EPD incurred ₹ 0.64 crore on repairs and maintenance of transformers. The details regarding the guarantee period, expected normal life, etc. of the failed transformers were, however, not available. Deficiencies noticed in the upkeep and maintenance of current transformers have been discussed in the succeeding paragraphs.

Non maintenance of records.

3.2.31.1 The maintenance of 'History Card' containing complete details of each transformer is essential for effective monitoring of performance and realistic assessment of remaining useful life of the transformers. The said details relating to transformers, like, the name of the supplier of transformers, capacity, voltage ratio, date of issue, date of installation, date of energisation, date of failure, date of expiry of guarantee period, normal life of transformer, date of repair and subsequent commissioning of transformers, etc., were required for monitoring performance and ascertaining the remaining working life. It was, however, observed that:

- History cards and Asset Registers were not maintained for CTs. As a result, the procurement dates and the periods for which the CTs were in service were not ascertainable.

- Registers for CT-wise load distribution and periodical maintenance were not maintained in Sub-Division/Divisions and Circle offices.
- There could be several reasons responsible for untimely failure of CT like manufacturing defects, inadequate protection, lack of maintenance and adverse system/environmental conditions, etc. The EPD, however, had not analysed the reasons for failure of CTs for taking corrective action.

Hence, in absence of complete details on CTs, it could not be ascertained in audit whether the failed CTs had served their normal life. The age-wise incidence of failure of CTs as well as the number and details of CTs failed within the guarantee period also could not be derived in absence of complete information.

The EPD stated (November 2012) that necessary instructions are being issued to all Circle Offices to maintain complete records.

Periodical maintenance of transformer

3.2.31.2 Preventive maintenance of transformer is an important aspect of its operation as it reduces breakdowns and possibility of accidents due to mechanical failures. To ensure trouble free service of the CTs it is necessary that periodical maintenance is planned, conducted and recorded as per the schedule prescribed. It was, however, observed that:

- EPD had not prescribed any maintenance and inspection schedule for CTs.
- Divisions/sub-divisions had not prepared any detailed maintenance programme to ensure maintenance of all CTs over a cycle.
- There was no system of feedback on maintenance performed by the divisions to the circle/Head Office for monitoring and control.

The EPD stated (November 2012) that the work of preparing a detailed guidelines and maintenance schedule was in process.

Idle Transmission Transformers

3.2.31.3 The 2.5 MVA transformer at Phodong substation was under breakdown since 2009-10 due to ageing and want of major repairs. As a result, the electricity to entire Phodong Division was being fed through NHPC Substation. The 2.5 MVA transformer had been in disuse since two years for want of repair thereby rendering it unproductive, with the possibility of the transformer deteriorating over the period of time. No decision was, however, taken either for repair or disposal of the damaged CT lying disused.

Working of hot lines division/sub divisions

3.2.32 Regular and periodic maintenance of transmission system is of utmost importance for its uninterrupted operation. Apart from scheduled patrolling of lines, the following techniques are prescribed in the Report of the Committee for updating the best practices of Transmission in the country for maintenance of lines:

- Hot Line Maintenance.

- Hot Line Washing.
- Hot line Puncture Detection of Insulators.
- Preventive Maintenance by using portable earthing hot line tools.
- Vibration Measurement of the line.
- Thermo-scanning.
- Pollution Measurement of the equipment.

The hot line technique (HLT) envisages attending to maintenance works like hot spots, tightening of nuts and bolts, damages to the conductor, replacement of insulators, etc. of SSs and lines without switching off. This includes thermo scanning of all the lines and SSs towards preventive maintenance. The other advantage in HLT is less redundancy in transmission network. HLT was introduced in India long back in 1958. It was, however, observed that EPD had not implemented hot line technique till date (October 2012). In absence of the hot lines technique, EPD had to shut down the transmission system for carrying out the maintenance work causing frequent interruptions in power supply during routine maintenance/repair works.

Transmission & Distribution Losses

3.2.33 While energy is carried from the generating station to the consumers through the Transmission & Distribution (T&D) network, some energy is lost which is termed as T&D loss. Transmission loss is the difference between energy received from the generating station/Grid and the energy sent to the power distribution wing of EPD. Due to non-availability of separate operational data for Transmission Wing and Distribution Wing of EPD, however, the combined T&D losses have been considered for analysis. The details of combined T&D losses of EPD as a whole from 2007-08 to 2011-12 are given below:

Table 3.2.9

Particulars	Unit	Year				
		2007-08	2008-09	2009-10	2010-11	2011-12
Power received for transmission (inside state)	MUs	375.22	393.47	558.17	598.25	597.22
Net power transmitted	MUs	260.25	277.31	363.30	337.62	347.93
Actual T&D losses	MUs	114.97	116.16	194.87	260.63	249.29
	Percentage	31	30	35	44	42
Combined Target T&D losses as per the CEA norms	Percentage	15	15	15	15	15
Target T&D losses as per SERC norms[46]	Percentage	-	-	-	-	-
T&D losses in excess of CEA norms (Valued at realisation per unit).	MUs	58.69	57.14	111.14	170.89	159.71
	Rate per unit in ₹	1.89	1.93	1.90	1.87	2.58
	₹ in crore	11.09	11.03	21.11	31.96	41.20

Source: Assessment of Financial Resources & Annual Plan 2012-13

[46]*SERC had not prescribed any norms for T&D losses*

It could be seen from the above that during five years' period from 2007-08 to 2011-12, the percentage of T&D losses were on increasing trend (excepting marginal reduction in 2008-09 and 2011-12). The T&D loss of EPD had, however, exceeded the CEA norm of 15 *per cent* in all the five years. The total T&D losses suffered by the EPD in excess of the CEA norm for the period 2007-12 were to the tune of 557.57 MUs valuing ₹ 116.39 crore. Audit analysis revealed that the major factors attributable for high T&D losses were:

- transmission of energy for long distances through Low Tension lines for covering the scattered villages;
- over-ageing of transmission lines and lack of re-conductoring due to funds constraints;
- theft of energy through meter tampering by the consumers and unauthorised tapping/hooking by the non-consumers;
- non- constitution of any vigilance squad for conducting regular and routine raids to detect theft/pilferages of electricity; and
- non-achievement of 100 *per cent* consumer metering mark by EPD. At present, 26 *per cent* of consumers were unmetered. (March 2012)

The EPD accepted (November 2012) the facts and stated that metering of all consumers are vigorously pursued with the aim to substantially reduce the T&D losses. The reply is not acceptable as the EPD failed to take any concrete action to reduce the T&D losses despite constant and significant losses during preceding five years.

Grid Management

Maintenance of Grid and performance of State Load Dispatch Centre (SLDC)

3.2.34 Transmission and Grid Management are essential functions for smooth evacuation of power from generating stations and supply to the Distribution Wing consumers. Grid Management ensures moment-to-moment power balance in the inter-connected power system to take care of reliability, security, economy and efficiency of the power system. Grid management in India is carried out in accordance with the standards/directions given in the Grid Code issued by CEA. National Grid consists of five regions viz., Northern, Eastern, Western, North Eastern and Southern Grids, each of these having a Regional Load Despatch Centre (RLDC) to ensure integrated operation of the power system in the concerned region. The Sikkim State Load Dispatch Centre (SLDC) is a constituent of Eastern Region Load Dispatch Centre (ERLDC) at Kolkata to ensure integrated operation of power system in the State. The SLDC is not assisted by Area Load Dispatch Centres (ALDCs) but is assisted by four Sub-SLDCs[47] for data acquisition and transfer to SLDC as well as supervisory control of 132 kV and 66 kV equipment.

Infrastructure for load monitoring

3.2.35 Remote Terminal Units/Sub-station Management Systems (RTUs/SMSs) are

[47] *Tadong, Lower Lagyap, Melli and Namchi*

essential for monitoring the efficiency of the transmission system and the loads during emergency in load dispatch centre as per the Grid norms for all SSs. It was observed that out of 19 SSs and 13 generating stations, only 7 SSs (37 *per cent*) and 2 generating stations (15 *per cent*) were provided with RTUs for recording real time data for efficient Energy Management System. Further, the Sub-SLDCs were not integrated among themselves and did not have any data storing or back up facilities. Thus, the role of these Sub-SLDCs was confined merely to observation centres. Due to non-availability of past transmission data, the SLDC could not monitor the efficiency of the transmission system.

The EPD stated (November 2012) that the initial work for creating the Central Load Dispatch Centre could not cover all the Sub-Stations due to fund constraints. The scheme also did not feature backup and storage facilities. It was further stated that these shortfalls are being met in new schemes. The fact, however, remained that without establishing the complete connectivity of all sub stations, the benefit of SLDC could not be harnessed.

Ineffectiveness of SLDC

3.2.36 Establishment of State load Dispatch Centre (SLDC) is mandated by section 31 and 32 of the Electricity Act, 2003. The prime objective of establishment of SLDC is to monitor the integrated grid operation, optimum scheduling and dispatch of electricity within the State, keep accounts of the quantity of electricity transmitted through State Grid, exercise supervision & control of the intra-state transmission system and be responsible for carrying out real-time operation of the grid and dispatch of electricity within the state. The SLDC in the state of Sikkim was commissioned in January 2008 at a cost of ₹ 10.57 crore. However, the SLDC was non-functional since April 2011 due to breakdown of connectivity.

Scrutiny of records (June 2012) revealed the following:

- The SLDC was connected only with 7 SSs out of total 19 SSs in the State. In absence of effective and complete communication network, effective monitoring of power generation and load management could not be achieved.
- The physical verification of SLDC conducted (June 2012) by EPD revealed that the SLDC was non-functional since April 2011 due to rupture of optical fiber at different places.
- The SLDC did not have any data storage/back up facilities, in absence of which the EPD could not exercise proper supervision and control over the power transmission for facilitating effective monitoring of grid operations.

Thus, due to non operation of SLDC the statutory obligations stipulated under Electricity Act 2003 could not be fulfilled by EPD. The EPD stated (November 2012) that implementation of a new scheme for removing the above deficiencies was in process.

Grid discipline by frequency management

3.2.37 As per Grid Code, the transmission utilities are required to maintain grid discipline for efficient functioning of the grid. All the constituent members of the grid are expected to

maintain a system frequency between 49 and 50.5 Hertz (Hz), (49.2 and 50.3 Hz with effect from March 2009). The grid frequency, however, goes below or above the permitted frequency levels on account of various reasons such as shortages in generating capacities, high demand, grid indiscipline in maintaining load generation balance, inadequate load monitoring and management, etc. To enforce the grid discipline, the SLDC issues three types of violation messages (A, B, C). Message A is issued when the frequency is less than 49.2 Hz and over-drawal is more than 50 MW or 10 *per cent* of schedule whichever is less. Violation B message is issued when frequency is less than 49.2 Hz and over-drawal is between 50 and 200 MWs for more than ten minutes or 200 MW for more than five minutes. Message C (serious nature) is issued 15 minutes after the issue of message B when frequency continues to be less than 49.2 Hz and overdrawal is more than 100 MW or ten *per cent* of the schedule whichever is less. The Transmission Wing of EPD, however, had not received any such violation messages during the period from 2007-08 to 2011-12.

Grid discipline

3.2.38 For maintenance of grid discipline the CERC takes up *suo motu* petition on overdrawal of power from the grid at a lower frequency thus putting the Grid to the risk. The EPD had not violated the grid discipline and no penalty was levied by CERC during the years 2007-08 to 2011-12.

Backing Down Instructions (BDI)

3.2.39 When the frequency exceeds the ideal limits i.e. situation where generation is more and drawal is less (at a frequency above 50 Hz) SLDC takes action by issuing BDI to the Generators to reduce the generation for ensuring the integrated grid operations and for achieving maximum economy and efficiency in the operation of the power system in the State. Failure of the generators to follow the SLDC instructions would constitute violation of the Grid code. The EPD, however, had not evolved any system of issuing BDI due to ineffective functioning of the SLDC.

Planning for power procurement

3.2.40 The EPD should draw up long term supply plan taking into account the contracted generation capacity, allocation from central sector and future committed projects and evolve net additional requirement of power. It should also draw up day ahead plan for assessing its day to day power requirement. The details of total requirement of the State, total power supplied and excess power traded for the five years 2007-08 to 2011-12 are given below:

Table 3.2.10

(Figures in MUs)

Sl.No.	Details	2007-08	2008-09	2009-10	2010-11	2011-12
1	Total power requirement	375.22	393.47	558.17	598.25	597.22
2	Total power supplied[48]	670.58	850.30	923.42	989.06	1,012.22
3	Trading outside State	295.36	456.83	365.25	390.81	415.00

Source: Assessment of Financial Resources & Annual Plan 2012-13

It could be seen from the above that in Sikkim there is no shortage of power due to free power received from two NHPC projects and the import of power from different Inter State Generating Stations (ISGS). The excess power, however, was being sold outside the state through trading companies which facilitates generation of additional revenue.

The gap in demand supply position leads to variation between actual generation or actual drawal and scheduled generation or scheduled drawal which is accounted through Unscheduled Interchange (UI) charges, worked out by ERLDC for each 15 minutes time block. UI charges are levied for the supply and consumption of energy in variation from the pre-committed daily schedule. The UI charges vary inversely with the system frequency prevailing at the time of supply/consumption. Hence it reflects the marginal value of energy at the time of supply. The levying of UI charges acts as a commercial deterrent to curb overdrawls from CGS[49] during low frequency conditions.

It was observed that during 2007-12, the EPD incurred UI loss of ₹ 43.32 crore and at the same time earned UI gain of ₹ 125.78 crore, which ultimately resulted in net UI gain of ₹ 82.46 crore as per the following details:

Table 3.2.11

(₹ in crore)

Sl. No.	Year	UI Gain	UI Loss	Net Gain
1	2007-08	25.70	6.34	19.36
2	2008-09	27.23	15.25	11.98
3	2009-10	43.67	7.12	36.55
4	2010-11	21.09	9.20	11.89
5	2011-12	8.09	5.41	2.68
	Total	**125.78**	**43.32**	**82.46**

Source: Data provided by EPD

Disaster Management

3.2.41 Disaster Management (DM) aims at mitigating the impact of a major break down on the system and restoring it in the shortest possible time. As per the Best Practices, DM should be set up by all power utilities for immediate restoration of transmission system in the event of a major failure. It is carried out by deploying Emergency Restoration System, DG sets, vehicles, fire fighting equipment, skilled and specialised manpower. Disaster Management Centre, National Load Dispatch Centre, New Delhi will act as a Central Control Room in case of disasters.

[48] *Including generation, short and long term purchases and drawl from Central Generating Stations.*
[49] *Central Generating Stations*

It was, however, observed that the EPD had not established any DM programme so far for quick restoration of transmission system in case of major breakdown of system. In absence an effective DM system, the transmission system of EPD was exposed against the risk of blackout situation for longer duration in case of major transmission system failure.

EPD stated (November 2012) that procurement of an Emergency Restoration System for setting up DM programme was in process.

Inadequate facilities for DM

3.2.42 Diesel generating (DG) sets and synchroscopes[50] form part of DM facilities at EHT SSs connecting major generating stations. EPD had total 13 generating stations as on 31 March 2012. It was, however, observed that the EPD had not installed DG sets in any of its 13 generating stations to facilitate Black Start operations.

Tariff Fixation

3.2.43 The financial viability of the EPD depends upon generation of surplus (including fair returns) from the operations to finance their operating needs and future capital expansion programmes by adopting prudent financial practices. Revenue collection is the main source of generation of funds for the EPD, the issues relating to tariff are discussed hereunder.

In terms of the Electricity Act 2003, the Sikkim SERC (SERC) was constituted in November 2003 but the Commission was not operational till April 2011 due to disagreement of the members over the procedure for appointment of the Chairman. Setting up of the SERC was linked to a chain of follow-up reform measures. Its establishment was expected to bring tariff fixation (both bulk and retail) under regulatory regime duly involving the consumers through public hearing. The tariff was last revised in February 2006 and although SERC was functional during 2011-12, EPD failed to file the Annual Revenue Requirement (ARR) petition for revision of tariff.

Analysis of power purchase rate from various Central Generating Stations with selling rate within the state revealed that the EPD was selling power at the rates much lower than the purchase price during 2007-12. As result, the EPD sustained revenue loss of ₹ 208.48 crore during the five years ended 2011-12, as detailed below:

[50] *In an AC electrical power system it is a device that indicates the degree to which two systems generators or power networks) are synchronised with each other.*

Table – 3.2.12

Year	Total power procured and consumed within the State* (in MUs)	Purchase Rate (in ₹)	Selling Rate (in ₹)	Difference in Rate (in ₹)	Total Loss (₹ in crore)
2007-08	329.01	2.07	1.89	0.18	5.92
2008-09	345.47	2.44	1.93	0.51	17.62
2009-10	519.63	2.72	1.90	0.82	42.61
2010-11	556.72	3.12	1.87	1.25	69.59
2011-12	572.72	3.85	2.58	1.27	72.74
				Total	**208.48**

Source: Assessment of Financial Resources and Annual Plan 2012-13
(*) Excluding own generation

Audit is of the view that the reason for the increasing trend in losses was non-revision of tariff during the last six years commensurate with purchase rate and high T&D losses. The EPD stated (November 2012) that tariff has been revised with effect from April 2012. Fact, however, remained that EPD failed to revise the tariff for the last six years, in spite of continuous increase in power purchase rate to attain the revenue sustainability.

Other topics of financial interest

Project Funding - Non release of State share

3.2.44 Sikkim is a special category State whose development plans are financed on the basis of Grants from GOI (90 *per cent*) and State Government (10 *per cent*). As per the approved funding mechanism for execution of projects, contribution from State Government was to be provided simultaneously on receipt of funds from the DONER. In respect of 17 ongoing transmission projects, it was observed that against GOI's share of ₹ 160.79 crore in project funding, DONER had released an amount of ₹ 101.53 crore (63 *per cent*) as on March 2012. It was, however, noticed that out of the State's share of ₹ 50.11 crore, only ₹ 13.56 crore (27 *per cent)* was released by the State Government in respect of 7 out of above 17 projects. As regards the remaining 10 projects, no fund was provided by the State Government. Non-release of its share by the State Government in project funding had adversely affected the pace of execution of related projects.

EPD stated (November 2012) that the matter is being pursued with the State Government for release of remaining share of project funding. Reply is not satisfactory as the EPD should have taken up the matter at the higher level for early release of funds for the above projects.

Non-recovery of outstanding dues

3.2.45 The Indian Electricity Act, 2003 provides for bilateral power trading between states whereby two parties can enter into an agreement to buy or sell a specific quantity of power during a certain period of the day for a pre-specified period of time. The excess power available after the State's internal requirement is traded outside the state through trading companies registered with CERC.

The EPD had entered into MOU (June 2011) for sale of energy with M/s Mittal Processors Pvt

Limited (MPPL) for the period from May 2011 to May 2012 at the rate of ₹ 4.00 per unit. As per the terms and conditions of MOU, MPPL was required to maintain irrevocable letter of credit (LC) minimum to the extent of 105 *per cent* of the weekly dues amounting to ₹ 1.12 crore[51]. It was observed that the MPPL failed to pay its dues from the beginning (June 2011) and the unpaid dues accumulated to ₹ 48.76 crore as on January 2012. It was noticed that the EPD failed to effectively monitor the fulfillment of the MOU's condition regarding maintaining of minimum value of LC by MPPL. As a result, the LC available as of January 2012 was only to the extent of ₹ 4.00 lakh against the requirement of ₹ 1.12 crore. EPD requested (January 2012) the bankers of MPPL for revoking the LC of MPPL available with them for recovery of its unpaid dues. The bankers of MPPL had transferred (February 2012) the available LC amount of ₹ 4.00 lakh to EPD account. The total amount outstanding against MPPL as of March 2012 was ₹ 52.71 crore, including interest of ₹ 3.95 crore **(Appendix 3.2.2)**.

EPD stated (November 2012) that the outstanding amount was due to non-payment by Uttar Pradesh Power Corporation Ltd. (UPPCL) and Andhra Pradesh Power Coordination Committee (APPCC), owned by the Governments of the respective States and the issue of release of the payments being directly pursued with UPPCL and APPCC.

The reply is not satisfactory as blocking up of huge funds against outstanding dues from MPPL could have been avoided by effective pursuance and ensuring the LC of required amount from MPPL as per the agreement.

Non-levy of Transmission Charge

3.2.46 Transmission Charges are recoverable by EPD at the applicable rates from all long-term transmission system users irrespective of their actual utilisation recorded during the period of operation. The Transmission Charges are arrived at based on the installed capacity of the generating unit.

In absence of own network of power lines, Sikkim Power Development Corporation Limited (SPDCL) utilised the transmission lines owned by EPD to inject energy generated from its two HEPs into the State Grid for distribution. The SERC, however, had not fixed any transmission charges and EPD also had not apprised the SERC for fixation of transmission charges. As a result, EPD was deprived of the potential revenue of ₹ 1.38 crore[52] till October 2012 **(Appendix 3.2.3)**, against transmission charges for utilisation of its network by SPDCL.

Energy Accounting and Audit

3.2.47 Energy accounting and audit is necessary to assess and reduce the transmission losses. The transmission losses are calculated from the Meter Reading Instrument (MRI) readings obtained from Generation to Transmission (GT) and Transmission to Distribution (TD) boundary metering points. It was observed that there was no interface metering points between GTs. It was further observed that installation of MRI on TD boundary metering points

[51] *4 lakh units per day @₹ 4 per unit for 7 days*
[52] *At ₹ 80 per MW, as prescribed under CERC (Open Access in inter-State Transmission) Regulations, 2008*

was restricted to only two cities of the State, viz. Gangtok and Tadong. As on 31 March 2012, all 36 TD metering points in respect of these two cities were provided with E3mo21 (3ph 4 wire) type meters with Class 0.5s meters (30 nos.) and Class 0.2s meters (6 nos.). Thus, absence of proper metering of feeders end rendered the energy accounting and recording of transmission loss data unreliable.

EPD stated (June 2012) that on completion of the boundary metering programme, energy audit in these two towns (Gangtok and Tadong) would be initiated after the commissioning of R-APDRP. The reply is not satisfactory as the boundary metering needs to be installed in all TDs and GTs throughout the state.

Material Management

3.2.48 The key functions in material management are laying down inventory control policy, procurement of materials and disposal of obsolete inventory. The EPD had not formulated any procurement policy and inventory control mechanism for economical procurement and efficient control over inventory. Scrutiny of the records of the EPD revealed the following:

The table below indicates the details of Opening stock, purchases, issues and closing stocks for the period from 2007-08 to 2011-12.

Table – 3.2.13

(₹ in crore)

Year	Consumption	Net Closing stock
2007-08	Nil	1.29
2008-09	Nil	1.29
2009-10	Nil	1.29
2010-11	Nil	1.29
2011-12	Nil	0.99

Source: Data furnished by EPD

It may be noticed that the EPD had stock valuing ₹ 1.29 crore lying idle in various stores for more than 15 years. During physical verification (February 2008) stock valuing ₹ 0.30 crore were identified as unserviceable/obsolete and the same were disposed of during 2011-12.

The maintenance divisions of EPD were mainly needed the store items for routine operation and maintenance works. EPD, however, had no effective control on the purchases of stores made by these maintenance divisions directly. It was observed that the maintenance divisions were procuring the required store through local purchases directly instead of lifting the said items from EPD stores through indents. As a result, the consumption of store items from EPD's stores was nil during 2007-12. EPD, therefore, needed to put in place an effective control mechanism on direct purchases of store items by the maintenance divisions so as to ensure economy in procurement of stores centrally and avoid obsolence of material.

Non-conducting of annual physical verification of stocks

3.2.48.1 Sikkim Financial Rules provides that physical verification (PV) of all stores must be made at least once in every year and all discrepancies noticed must be brought into account

immediately. During the review period, the PV of all four[53] departmental stores was conducted only in 2008 and 2011. The value of non-moving, surplus, obsolete, unserviceable and scrap material during the last five years is given below:

Table – 3.2.14

(₹ in crore)

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12
Surplus/obsolete/unserviceable/scrap	0.30	0.30	0.30	0.30	-
Non-moving	0.99	0.99	0.99	0.99	0.99
Total	1.29	1.29	1.29	1.29	0.99

Source: Data furnished by EPD

From the above, it was observed that no materials from the stores were issued during the review period as also discussed in the preceding paragraph. The reconciliation of the above stock also could not be made as the PV of all the stores are not being done annually.

Idling of inventory in stores

3.2.48.2 Material management is necessary to have adequate stock of materials of proper quality for smooth functioning of the maintenance work. Procurement of material of right quality, right quantity at the right time is necessary to control the ever increasing costs of material. Proper assessment should be done before procurement of materials. Audit noticed following inconsistencies in inventory management:

- During the departmental meeting, it was decided (October 2008) that the materials lying at stores should be issued for maintenance works and new works sanctioned during 2009-10. It was also circulated (June 2011) that all officers were to lift the materials from EPD's store for day to day maintenances of electrical networks. It was, however, observed that till date of Audit (July 2012) not even a single material had been lifted from the different stores. Further, the EPD had no control over direct purchases made by the maintenance divisions from local suppliers as discussed under **paragraph 3.2.48** *supra*.
- A Joint Physical Inspection of the stores at Lagyap and Sichey was conducted by the Audit party along with officers of EPD. The results of the inspection revealed that the store premises at Lagyap was in a dilapidated condition. There were water leakages and no fencing/gate was in existence in these stores. Further, the stores had been used as thoroughfare of public resulting in complete absence of safety measures for the assets stored inside the store premises as can be seen from the photographs.

[53] *Sichey, LLHP, Topakhani and Rothak*

Image 3.2.3

Image 3.2.4

Dilapidated condition of store rooms at Lagyap

During Joint Physical Inspection at Sichey stores, it was noticed that the transformers were kept in open and exposed to the vagaries of nature which had led to deteriorated condition over a period of time as can be seen from photographs below:

Image 3.2.5

Image 3.2.6

Transformers kept in open space at Sichey stores

Thus, from the above it was evident that there was lack of an effective internal control mechanism as regards to Stores & Stock management in EPD.

EPD stated (November 2012) that the materials lying at various stores would be issued to indenting divisions in future. Reply is not tenable as the EPD had not initiated any concrete measures for utilisation of these idle stores.

Monitoring and Control

3.2.49 The performance of the SSs and lines of 132/66 kV on various parameters like Maximum and Minimum voltage levels, breakdowns, voltage profiles should be recorded/ maintained as per the grid code standards. It was noticed that the year-wise cumulative performance of the SSs and lines were neither being maintained nor consolidated for evaluation of annual performance of the SSs and lines.

It was further observed that monthly and weekly reports from SSs were not being forwarded to the Head Office. There was virtual non-existence of Management Information System in EPD.

Internal Controls and Internal Audit

3.2.50 Internal control is a process designed for providing reasonable assurance for efficiency of operations, reliability of financial reporting and compliance with applicable laws and statutes which is designed to ensure proper functioning as well as effectiveness of the internal control system and detection of errors and frauds. Internal audit is an important tool of management for an effective internal control system.

It was noticed that no internal audit department existing in EPD. It was also observed that EPD was not maintaining any systematic assets or inventory registers of Sub-Stations, Transformers and Transmission Lines. In absence of these registers the date of creation of assets, cost of construction of the projects and date of subsequent repairs could not be ascertained. Further, the quality control checks and supervision was virtually non-existent. Physical access control was almost nil as anybody could enter the EPD's premises like control room of SSs, Switchyard and Stores without any check or verification of credentials. The photograph below depicts that that there was no system of locking the gate at 66 KV switch yards at Tadong as well as at Lower Lagyap.

Image 3.2.7

66 KV Switchyard at Tadong

Image 3.2.8

66 KV Switchyard at Lower Lagyap

Image 3.2.9

Apart from the above mentioned lapses in physical access controls, the non-existence of proper MIS systems, irregular physical verification of stores, non-compliance with the Sikkim Financial Rules and lack of independent internal audit system indicates the weak internal controls in EPD.

Acknowledgement

3.2.51 We acknowledge the cooperation and assistance extended by different levels of the officers and staff of the EPD at various stages of conducting the performance audit.

Conclusions

The EPD did not prepare any State Electricity Plan for development of transmission infrastructure in the State based on the National Electricity Plan. The annual plans for augmentation of transmission network were prepared on felt need basis without considering the expected future load growth.

The execution of transmission projects by EPD suffered with several deficiencies mainly relating to delays in completing the preparatory and pre-work award activities. As a result, against the capacity addition of substations (302 MVA) and transmission lines (338 CKM) planned under the five annual plans for 2007-12, the EPD could complete capacity additions of the substations and transmission lines to the extent of 100 MVA (33 per cent) and 69.81 CKM (21 per cent) only. The generation capacities of newly developed Hydro projects could also not be fully utilised due to delays in completion of the related transmission projects by the EPD.

The transmission and distribution losses during 2007-12 showed increasing trend (excepting 2008-09 and 2011-12) and EPD could not achieve the CEA norms in any of the five years.

The Grid Management system of EPD was not satisfactory in absence of adequate facilities for recording real time data. The functioning of the State Load Dispatch Centre (SLDC) was also ineffective in absence of effective and complete communication network, data storage/backup facilities, etc.

No Disaster Management programme was in place thereby exposing the system against the risk of black out situations in case of major break down.

EPD sustained huge financial losses on sale of energy due to non-revision of tariff for last six years. Though the State Electricity Regulatory Commission (SERC) became functional in 2011-12, EPD did not file Annual Revenue Return petition for revision of tariff.

The Energy accounting and audit system of the EPD was unreliable in the absence of proper metering arrangements and authentic estimation of transmission loss. No scientific system was in place for management of inventory. Monitoring mechanism of EPD was weak due to non-maintenance of necessary records on performance of the transmission system.

Recommendations

- Capacity additions should be planned and executed in tandem with the National

Electricity Plan duly taking into account the future load growth and probable increase in demand.

- EPD should overcome the deficiencies in completing the preparatory and other pre-award activities by adhering to the recommendations of the Task Force for speedy completion of works.
- EPD should identify the factors responsible for high transmission losses through proper metering and effecting energy accounting and take necessary corrective action to restrict the losses within CEA norms.
- Proper functioning of the communication system should be ensured so as to maintain effective Grid discipline.
- An effective Disaster Management System should be established for restoration of the transmission system in least possible time in case of major break down.
- An effective mechanism should be put in place for filing of ARR within due dates for revision of tariff.
- A scientific system of Inventory Management needs to be put in place for proper accounting and upkeep of stores. Specific instructions should be issued to field offices for maintenance of complete records on performance of transmission system and regular submission of MIS reports to higher authorities for prompt remedial action on the discrepancies noticed.

SIKKIM INDUSTRIAL DEVELOPMENT AND INVESTMENT CORPORATION LIMITED

3.3 Blockage of working capital

Blocking up of working capital of ₹ 6.51 crore due to ineffective mechanism of the Corporation for monitoring and recovery of loans.

Sikkim Industrial Development and Investment Corporation Limited (Corporation) grants loan to various private entrepreneurs for the promotion and development of industries in the State of Sikkim.

As per the terms of loan agreements, the loans sanctioned were to be secured by way of hypothecation of property to the extent of loan to be disbursed. Further, prior to the release of subsequent installment, Corporation was required to conduct physical inspection of the project/hypothecated property so as to ensure that the loan disbursed had been fully utilised for the purpose for which it was sanctioned. In case of default, the Corporation had the right to levy additional interest at the rate of 2 *per cent* per annum from the date of default till the recovery of the dues. Further, the loan agreement empowers the Corporation to take possession of the hypothecated/mortgaged property and recover its dues through auction of the said property.

Audit scrutiny revealed that the Corporation had disbursed loans to different entrepreneurs amounting to ₹ 89.95 crore[54] during the period from 1984 to 2012 at an interest rate ranging from 10 to 19 *per cent* per annum.

The table given below gives the details of loan amount outstanding vis-àvis the default cases under various categories of loan schemes sanctioned by the Corporation as on 31 March 2012:

Table 3.3.1

(₹ in crore)

Sl. No.	Types of loan	No. of accounts	Total amount outstanding	Defaulted loanees			
				No. of accounts	Principal	Interest	Total
1	SSI loan	62	5.79	55	2.09	3.53	**5.62**
2	Composite loan	153	1.14	153	0.38	0.75	**1.13**
3	Hotel loan	278	7.21	221	3.33	3.11	**6.44**
4	Multipurpose loan	2,031	20.50	87	0.63	0.27	**0.90**
5	Computer loan	284	0.56	35	0.09	0.05	**0.14**
	Total	**2,808**	**35.20**	**551**	**6.52**	**7.71**	**14.23**

It was seen from above table that as against loans amounting to ₹ 89.95 crore disbursed by the Corporation, an amount of ₹ 35.20 crore (39.14 *per cent)* remained outstanding as on 31 March 2012. Of these, 551 beneficiaries defaulted in repayment of Principal amounting to ₹ 6.52 crore for periods ranging from 7 months to more than 10 years from the due dates of repayment. It was observed that of the above 551 defaulters, 127 loanees availed loans aggregating ₹ 5.38 crore under SSIs, Hotels and Composite loans categories and had not repaid even a single instalment towards principal loan amount till March 2012.

Scrutiny of records revealed that the Corporation failed to ensure the utilisation of the loans by the loanees on the purpose for which these were disbursed. It was observed that in above 127 loan default cases, no physical inspection of the industrial/project units was conducted on periodic basis for ensuring the utilisation of the loan amount on intended purposes.

The recovery mechanism of the Corporation was also ineffective. It was observed that in all the 127 default cases mentioned above, the recovery action of the Corporation was confined to merely issuing of the legal notices without any fruitful results. No documentary evidences were available on records for initiating further legal course of action for seizure of the mortgaged/hypothecated properties for recovery of defaulted loan amounts.

Thus, overdue loans amounting to ₹ 6.52 crore (principal) remained unrecovered due to ineffective monitoring and recovery system and failure to initiate legal actions for seizure of the mortgaged property depriving the Corporation to meet its working capital requirements for furthering its activities.

In reply, the Management stated (July 2012) that pre-sanction inspection and periodic inspections are conducted prior to release of installments to ensure that the loans sanctioned/released were fully utilised for the purpose for which it was sanctioned and that

[54] *Including Term Loans of ₹ 1.51 crore disbursed upto 31st March 1984, details of which are not available.*

action was being taken to recover the dues by filing cases/by for one settlement.

The reply is not acceptable since the inspection stated to have been carried out by the Corporation is not supported by any documentary evidences. Further, non-recovery of even a single instalment against 127 out of 551 defaulter cases mentioned above establishes the fact that the recovery mechanism of the Corporation was ineffective.

It is, therefore, recommended that the Corporation:

- should monitor the loanees by regular site inspection/physical verification of the projects;
- should conduct regular follow up to recover the dues; and
- should initiate legal action for recovery of the outstanding dues.

The matter was reported (June 2012) to the Government; their reply had not been received (October 2012).

3.4 Inefficient monitoring system

Inefficient monitoring system and absence of effective recovery mechanism led to blockage of ₹ 44.66 crore sanctioned under Chief Minister's Self Employment Scheme.

In June 2002 Chief Minister's Self Employment Scheme (CMSE) was launched by the Government of Sikkim (GOS) to address the problem of educated unemployed youth in the State by providing loans at a low rate of interest (six *per cent* per annum) to start self employment ventures in business, service and industrial activities.

Sikkim Industrial Development and Investment Corporation Limited (Corporation) was the nodal agency of the GOS for processing the loan applications and disbursing the loans to deserving applicants after verifying the eligibility criteria. Besides, the Corporation was required to carry out physical site inspection of the proposed projects and also to ensure the repaying capacity of the applicants before approval of loan. After disbursement of loans, the Corporation, being the nodal agency for implementation of the scheme, was also required to monitor the performance of the beneficiaries through regular physical inspection of their projects so as to ensure timely recovery of the loan amounts. As per the scheme conditions, the Corporation, in case of default, was required to initiate all possible recovery measures before resorting to legal course of action. The maximum loan per individual under the scheme was ₹ 3 lakh, which was enhanced to ₹ 5 lakh from 2005-06. The loan was interest free for first two years from the date of disbursement and carried simple interest at the rate of 6 *per cent* per annum thereafter.

Till 2011-12, the GOS had provided an aggregate amount of ₹ 72.54 crore to the Corporation for disbursement under the scheme. As of March 2012, the Corporation had disbursed loans amounting to ₹ 63.28 crore to 6,350 individuals/loanees. As against this, loan amount (principal) of ₹ 47.92 crore (viz. disbursements made upto 31 March 2010) had become due for recovery as on 31 March 2012. The Corporation, however, could recover a meagre amount of

₹ 3.26 crore (7 *per cent*) against the overdue (principal) loans and ₹ 44.66 crore was still pending for recovery as on 31 March 2012.

During scrutiny of records relating to 150 out of 3,241 loan cases sanctioned during 2002-06 it was revealed that in all the cases test checked, the Corporation sanctioned loans aggregating ₹ 1 crore[55] without obtaining adequate security. The monitoring mechanism for watching the post disbursement performance of the beneficiaries was also ineffective as the Corporation failed to conduct proper verification and site inspection of the projects of the Scheme beneficiaries as required under the scheme. It was observed that out of 1,263 loan cases (loan amount ₹ 11.41 crore) sanctioned during 2009-10 and test checked in audit, site inspections were carried out only in 117 cases[56] (9.26 *per cent*). The Corporation also failed to initiate recovery drives as well as legal course of action, to recover its dues in the default cases.

It was observed that in 5,097 default cases as on 31 March 2012 involving an aggregate amount of ₹ 53.34 crore (including interest of ₹ 8.68 crore), the recovery action of the Corporation was confined to merely issuing of the legal notices without any fruitful results. No documentary evidences were available on records for initiating further legal course of action for seizure of the mortgaged/hypothecated properties for recovery of defaulted loan amounts.

Thus, inefficient monitoring and absence of effective recovery measures on the part of the Corporation had resulted in the blocking of scheme funds aggregating ₹ 44.66 crore (excluding interest).

In reply, the Corporation stated (July 2012) that due to manpower constraints, the site inspection could not be carried out completely and that efforts were being taken for recovery of the outstanding dues. The reply is not acceptable as the Corporation is vested with the responsibility of site inspection before disbursement of loans and also to regularly monitor the performance of the beneficiaries after disbursement. The Corporation also could not initiate vigorous legal action against defaulters for recovery of overdue loans despite involving significant funds.

It is, therefore, recommended that the Corporation:

- should conduct proper verification and site inspection before sanction of loans;
- should monitor the performance of the loanees by regular site inspection/physical verification of the projects;
- should initiate legal course of action for recovery of the outstanding dues, after resorting to recovery drives.

The matter was reported (June 2012) to the Government; their reply had not been received (October 2012).

[55] *50 cases of ₹ 1 lakh each for graduates and 100 cases of ₹ 0.50 lakh each for under-graduates.*
[56] *Amount involved could not be compiled due to voluminous records.*

SIKKIM MINING CORPORATION

3.5 Weak internal controls

Weak internal controls in maintenance of asset records, inadequate safeguarding of assets led the Corporation exposed to risk of loss of assets.

Sikkim Mining Corporation (SMC) was incorporated with the main objectives to explore mining of minerals, etc. The Corporation became non-functional since January 2007 on account of perennial losses. The operations of the Corporation was decided to be wound up by the Stakeholders – Government of Sikkim and the Government of India in August 2003 and June 2004 respectively under a plan to dispose of the assets and payment of liabilities. The mining operations were discontinued from January 2007 and the employees were paid under a Voluntary Retirement Scheme. The accounts of the Corporation had been in arrears for one year viz. 2011-12. Latest certified accounts for the year ended 31 March 2011 depicted that the Corporation had total assets of ₹ 0.91 crore (including immovable assets of ₹ 0.11 crore and movable assets of ₹ 0.80 crore).

For disposal of its assets, there should be systematically maintained and up-to-date records available. However, the Corporation had not established any proper internal control mechanism for ensuring availability of accurate and up-to-date status of the assets held as can be seen from the following:

Inadequate maintenance of asset records

It was noticed in audit that the Corporation had not maintained proper and up-to-date record of fixed assets in its Fixed Assets Register which should contain information regarding the location, original cost, accumulated depreciation, technical and engineering specifications of machinery, identification number, etc. of each individual asset.

Due to non-maintenance of the assets register, the Corporation would be having great difficulty in determining the value of the assets for sale at the time of disposal.

Physical verification of assets

The system of physical verification of assets at regular time intervals is an essential ingredient of internal control. An effective system of periodic physical verification of assets minimises the risks of loss/theft of movable assets and possibilities of encroachments in case of immovable properties. At the same time, periodic physical verification of assets enables the Management to take timely remedial action against the detected cases of theft/encroachments of assets.

It was, however, observed that the Corporation had no laid down policy for periodic physical verification of assets. The Corporation had also confirmed that no physical verification had been conducted since January 2004. No reports for physical verification of assets for any period were, however, available with the Corporation.

In the absence of maintenance of assets records and physical verification, audit was unable to ensure that all the assets shown in the financial statements actually existed and were actually in physical possession of the Corporation.

Non-use of assets

The Corporation needs to make adequate arrangements for proper maintenance and upkeep of the plant and machinery not in use. As the operations of the Corporation has been discontinued since January 2007, the periodical review of the position of these assets taking into account the condition of the assets and their physical verification was essential so as to avoid deterioration of assets due to efflux of time. The assets which were no longer required for use also needed to be considered for sale since their value would only decrease with the efflux of time.

It was, however, observed that there were no proper arrangements for maintenance and upkeep of the assets not in use. Further, no physical verification of the plant and machinery, inventory, etc. was carried out since February 2004. In the absence of the same, no remedial measures were taken for preventing the plant and machinery, and inventory, etc. valued at ₹ 0.50 crore from further deterioration.

Insurance cover

The insurance for the properties is a cover that guards the assets of the Corporation against the probable losses due to natural calamities and other reasons such as theft, damage, fire, floods, riots, etc. Regular and adequate coverage of insurance at a nominal cost, i.e. premium, minimises the risks against these losses. It was, however, observed that the Corporation had not obtained any insurance cover for their assets thereby leaving them exposed for losses against the natural calamities and other risks.

The Corporation replied (July 2012) that due to closure of activities, all the employees were relieved under Voluntary Retirement Scheme and hence, the updation of assets records could not be maintained and the physical verification of the assets could not be conducted. The reply is not tenable since it is the duty of the Corporation to maintain all assets in good condition till their disposal in the interest of stakeholders and creditors. No comments, were however, offered by the Corporation for not obtaining insurance cover for the properties.

In view of this, it is recommended that the Corporation

- should complete and up-to-date its records giving all vital information of all movable and immovable assets;
- conduct up-to-date physical verification of assets; and
- make adequate arrangement for proper upkeep of assets before their disposal.

The matter was reported (May 2012) to the Government; their reply had not been received (December 2012).

STATE BANK OF SIKKIM

3.6 Blockage of fund

SBS was deprived of ploughing back of ₹ 6.17 crore towards its working capital in absence of professionalism in monitoring and follow up of recovery of loans disbursed.

The State Bank of Sikkim (SBS) with its vast network throughout the state of Sikkim plays an important role in the area of financing operations. It provides various kinds of loans like construction loan, smart loan, cash credit and overdraft facilities, etc. besides acting as the banker of the State Government. Based on the commercial judgement and other prudential business considerations, SBS extends loans under various schemes to the eligible applicants duly taking into account the repaying capacity of the borrowers.

As per the prudent practices adopted by the professional bankers for sanction of loans, SBS was required to conduct a pre-sanction appraisal/inspection of the project duly supported by estimates for the project expenditure. Further, for ensuring the utilisation of loan amount for the purpose of its sanction, SBS was needed to carry out inspections of the project sites on periodic basis prior to the release of each loan instalment. After disbursement of loans, the SBS was also required to monitor the performance of the beneficiaries through regular physical inspection of their projects so as to ensure timely recovery of the loan amounts. In the event of default, the SBS was required to initiate all possible recovery measures for recovery of loans before resorting to legal course of action, which included seizure of the mortgaged properties and recover its dues through auction of the properties so seized.

During July 2005 to March 2010, SBS disbursed Construction Loans aggregating ₹ 18.38 crore to 95 loanees. During test check of 30 out of the said 95 loan cases, it was revealed that in 17 cases involving an amount of ₹ 9.06 crore, the loanees had become defaulters as no EMI was paid by these loanees for periods ranging from 14 to 80 months as on 31 March 2012. As a result, against an aggregate amount of ₹ 7.21 crore due for recovery from these 17 loanees, a meagre amount of ₹ 1.04 crore (14.42 *per cent*) could actually be recovered as on 31 March 2012 leaving an unrecovered loan amount of ₹ 6.17 crore as detailed in the **Appendix 3.6.1**.

Scrutiny of records further revealed that SBS did not make assessment of repaying capacity of loanees before disbursement of loans in these 17 cases. It was also observed that no system generated reports were prepared for monitoring timely recovery of EMIs. Thus, the system for follow up of EMIs for repayment by the loanees was completely absent. It was noticed that the SBS had actually issued reminders only in 6 out of above mentioned 17 loan cases despite their being chronic defaulters in making payment of EMIs. No evidences were seen on records for issuing legal notices or for initiating further legal course of action against these 17 defaulters for seizure of the mortgaged/hypothecated properties for recovery of defaulted loan amounts.

Thus, due to absence of professionalism in monitoring and follow up for recovery of loans disbursed, the SBS was deprived of ploughing back of ₹ 6.17 crore towards its working capital.

The Management replied (June 2012) that the bank sanctions loan only after assessing the applicant's source of income. Further, at the instance of audit a dedicated recovery team was formed which has recovered ₹ 18 lakh after the audit period. The reply is not tenable, as it is evident from the default cases that the SBS had not made proper assessment of repaying capacity of loanees and the amount of default is still ₹ 6.17 crore (September 2012) in respect of above 17 loanees. Further, the Bank had not initiated any legal action towards seizure of the mortgaged property to recover the dues, as adopted by the professional bankers.

In view of the above, it is recommended that:

- Repaying capacity of the loanee should be assessed on realistic basis before disbursements of loans;
- Proper monitoring system should be in place for identifying the defaulting loanees and recovery of dues.
- Proper follow up should be made by way of initiating all legal course of action available against the defaulting loanees.

The matter was reported (May 2012) to the Government; their reply had not been received (December 2012).