

CHAPTER V GENERAL SECTOR

5.1 Introduction

This Chapter of the Audit Report for the year ended 31 March 2015 deals with the findings on audit of the State Government units under General Sector.

The names of the State Government departments and the total budget allocation and expenditure of the State Government under General Sector during the year 2014-15 are given in the table below:

Table 5.1.1

(₹ in crore)

Sl. No.	Name of the Departments	Total Budget Allocation	Expenditure
1	Development Planning, Economic Reforms and North Eastern Council Affairs	117.05	35.54
2	Election	16.23	16.37
3	Governor	6.16	5.80
4	Finance, Revenue and Expenditure	1,508.52	1,125.37
5	Home	62.80	46.13
6	Information and Public Relation	12.81	10.59
7	Information Technology	34.01	17.80
8	Judiciary	25.89	21.50
9	Land Revenue and Disaster Management	462.70	267.88
10	Law	8.46	8.08
11	Legislature	17.80	17.42
12	Parliamentary Affairs	1.81	1.30
13	Personnel, Administrative Reforms and Training, Public Grievances, Career Options and Employment, Skill Development and Chief Minister's Self Employment Schemes	13.19	7.87
14	Police	314.62	273.35
15	Printing and Stationery	8.00	8.00
16	Public Service Commission	3.39	3.39
17	Science, Technology and Climate Change	7.47	1.96
18	Sports and Youth Affairs	23.08	13.71
19	State Excise (Abkari)	7.02	6.83
20	Vigilance	6.35	6.42
	TOTAL	2,657.36	1,895.31

Besides the above, the Central Government has been transferring a sizeable amount of funds directly to the implementing agencies under the General Sector to different departments of the State Government. The major transfers for implementation of flagship programmes of the Central Government are detailed below:

Table 5.1.2

(₹ in lakh)

Sl. No.	Name of the Department	Name of the Scheme/Programme	Implementing Agency	Funds transferred during the year
1	Land Revenue and Disaster Management	MPLAD scheme	District Collector East	500.00
2	Science, Technology and Climate Change	Alliance and R&D Mission	Sikkim State Council of Science & Technology	150.00
		State Science & Technology Programme	Sikkim State Council of Science & Technology	106.12
		Environment Information Education and Awareness	Sikkim State Council of Science & Technology	10.30
		Science and Technology Programme for Socio Economic Development	Kanchendzonga Conservation Committee	9.66
3	Sikkim Information Commission	Propagation of RTI Act – Improving Transparency and Accountability	Sikkim Information Commission	3.00
		Propagation of RTI Act – Improving Transparency and Accountability	Accounts and Administrative Training Institute (AATI)	5.48
TOTAL				784.56

Source: Central Plan Scheme Monitoring System of the GOI.

5.2 Planning and conduct of Audit

Audit process starts with the assessment of risks faced by various departments of Government based on expenditure incurred, criticality/complexity of activities, level of delegated financial powers, assessment of overall internal controls, etc.

After completion of audit of each unit on a test-check basis, Inspection Reports containing audit findings are issued to the heads of the departments. The departments are to furnish replies to the audit findings within one month of receipt of the Inspection Reports. Whenever replies are received, audit findings are either settled based on reply/action taken or further action is required by the audited entities for compliance. Some of the important audit observations arising out of these Inspection Reports are processed for inclusion in the Audit Reports, which are submitted to the Governor of the State under Article 151 of the Constitution of India for laying on the table of the Legislature.

Test audits were conducted involving expenditure of ₹ 1,238.49 crore (including expenditure of ₹ 1,209.58 crore of previous years) of the State Government under General Sector. The details of year-wise break-up is given in **Appendix 5.2.1**. This Chapter contains one Performance Audit report on ‘Effectiveness in the functioning of State Pollution Control Board’ as given below:

FOREST, ENVIRONMENT AND WILDLIFE MANAGEMENT DEPARTMENT

5.3 Performance Audit on 'Effectiveness in the functioning of State Pollution Control Board'

Highlights

Annual Action Plan defining various activities and sub-activities was never prepared and thus policy, legislations and action plan programmes to control pollution was not ensured by the SPCB.

(Paragraph 5.3.7.1)

Against total of 256 industries (Pharmaceuticals, Hydro-Electric Power, Small-Scale Industries, Hot-mix Plants, Hotels, etc.), 86 numbers of Industries did not obtain Consent for Operation (CFO) for 2015-16. The number of Industries not obtaining CFO ranged between 13 and 32 during 2012-15.

(Paragraph 5.3.8)

Against total of 10 Sewerage Treatment Plants (STPs), nine STPs had not obtained Consent to Establish/Consent to Operate for treatment of effluents and only one STP was actually functioning.

(Paragraph 5.3.9.1)

Against total of 65 water polluting industries, five Effluent Treatment Plants (ETPs) were either not established or were found non-functional.

(Paragraph 5.3.9.3)

1,721.16 MT of hazardous wastes were generated against which only 619.04 MT was disposed of at TSDF and the remaining 1,102.12 MT of untreated hazardous waste were not transported through TSDF.

(Paragraph 5.3.10)

Health Care Facilities (HCFs) were functioning without BMW treatment facilities and Stone Crushers were operating without obtaining consent.

(Paragraph 5.3.11.2 and 5.3.12.2)

Board had never issued any advice for setting up vehicular pollution control laboratories nor were these laboratories set up by the MVD.

(Paragraph 5.3.12.4)

Against 11 slaughter houses in the State, 10 were functioning without any consent from the Board and had even not applied for the consents.

(Paragraph 5.3.16)

Audit survey revealed that around 72 per cent of the population was not aware of Pollution Control Board, 64 per cent of the population did not know the function and activities of the Pollution Board and the common citizen never approached SPCB for environmental issues.

(Paragraph 5.3.17)

Utilisation of funds by the Board was poor and it ranged between 19 and 24 per cent during 2012-13 to 2014-15.

(Paragraph 5.3.20.2)

The Board was functioning with shortage of 17 numbers of technical and non-technical staff.

(Paragraph 5.3.21.1)

The Board did not organise training programmes for target groups despite having huge unspent balance at the disposal of Board.

(Paragraph 5.3.24)

Against the minimum requirement of 20 meetings, the Board could hold only three meetings and no follow up action could be taken even for these three meetings.

(Paragraph 5.3.25)

5.3.1 Introduction

The Sikkim State Pollution Control Board (SPCB) was set up during 1992 to implement the provisions of Water (Prevention & Control of Pollution) Act, 1974, which was functioning under “State Land Use and Environment Board” of Department of Forest, Environment and Wildlife Management. The SPCB was separated from State Land Use Environment Board during March 2008. Since then the scope of its functioning has widened and it has been implementing following Environment Acts and Rules.

- The Water (Prevention and Control of Pollution) Act 1974;
- The Water (Prevention and Control of Pollution) CESS Act 1977;
- The Air (Prevention and Control of Pollution) Act 1981;
- The Public Liability Insurance Act 1981;
- The Environment (Protection) Act 1986 and the Rules made there under, i.e. Environment (Protection) Rules, 1986 and the rules made for Management and Handling of Municipal Solid Wastes (1999), the Bio-Medical Wastes (1998), Hazardous Wastes (2002), Plastic Wastes (1999), Batteries (2001) and E-waste (2011); and Noise (Regulation and Control) Rules 2000, as amended from time to time.

The Board had vision of cleaner and pollution free environment in the State of Sikkim with the following mission:

- To oversee the implementation of different Environment Acts and Rules in the State;
- To control and abate water, air, and soil pollution from industrial sources;

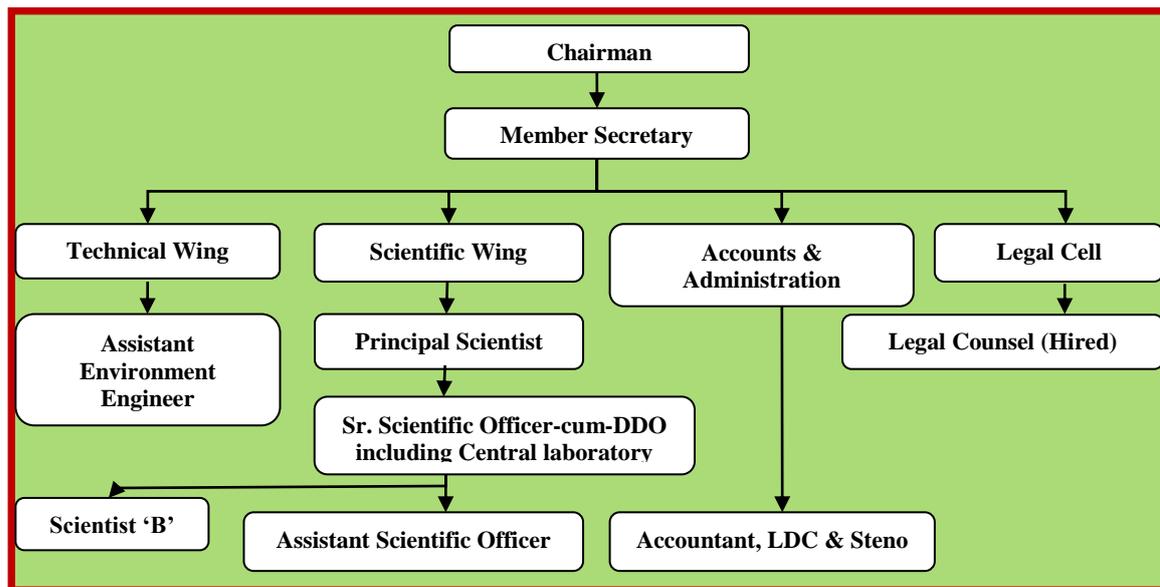
- To control and restrict use of horn, playing of loud speakers and bursting of fireworks;
- To protect the water bodies;
- To monitor water quality, air quality and noise level at major areas in the State;
- To encourage, conduct and participate in research activities on environmental issues; and
- Disseminate the information available with the Board.

This Performance Audit attempts to examine the functioning of the Board in the effective operation of safeguards relating to water pollution, solid waste management and air pollution in the State.

5.3.2 Organisational structure

The Board is headed by a Chairman who is assisted by the Member Secretary in day to day functioning of the Board. The organisational structure of the Board is given in the following organogram:

Chart 5.3.1



5.3.3 Audit objectives

The objectives of the Performance Audit were to assess whether:

- mechanisms adopted by SPCB to prevent, control and for abatement of pollution were effective and efficient;
- monitoring by the Board of the compliance to Acts, Rules and conditions by the stakeholders was efficient and effective;
- fund management by the Board was efficient to secure optimum utilisation; and

- adequate man power and effective Internal Control mechanisms existed.

5.3.4 Audit criteria

The sources of Audit criteria for the Performance Audit were:

- The Water (Prevention and Control of Pollution) Act 1974;
- The Water (Prevention and Control of Pollution) Cess Act 1977;
- The Public Liability Insurance Act 1981;
- The Air (Prevention and Control of Pollution) Act 1981;
- The Environment (Protection) Act 1986 and the Rules made there under, i.e. Environment (Protection) Rules 1986 and the Rules made for Management and Handling of Municipal Solid Wastes (1999), the Bio-Medical Wastes (1998), Hazardous Wastes (2002), Plastic Wastes (1999), Batteries (2001) and E-waste (2011); and Noise (Regulation and Control) Rules 2000, as amended from time to time;
- Directions and notifications issued by Central Pollution Control Board (CPCB), GOI and the State Government;
- Sikkim PWD Code, Manual and Schedule of Rates.

5.3.5 Audit scope and methodology

The Performance Audit sought to evaluate functioning of the Board regarding effective implementation of various Environmental laws and rules. Performance Audit covering a period of five years (2010-15) was conducted during May-July 2015 through test check of records of Board's Office and Central Laboratory of the Board, Urban Development and Housing Department (UDHD), Water Security and Public Health Engineering Department (WSPHED), Municipalities, Health Care, Human Services and Family Welfare Department (HCHSFWD) (including hospitals, thereunder) and other involved entities. Audit also analysed responses to audit questionnaires, reports and records available at various levels.

The Performance Audit commenced with an entry conference held on 19 May 2015 with the Secretary of Forest, Environment and Wildlife Management Department (FEWMD), Member Secretary and other senior officers of the Board, wherein, the audit objectives, criteria, scope and methodology were explained. The exit conference was held on 15 October 2015 with the Secretary of FEWMD, Member Secretary and other Senior Board officials, wherein the audit findings were discussed. Response of the Government/Board during exit conference and written replies received (15 October 2015) from Government/Board have been taken into account while finalising this report.

5.3.6 Sample size

The Board had only one office and one Central Laboratory at Gangtok without any regional/branch office and hence, records of the Board at Gangtok were verified. The

schemes relating to pollution control were being implemented by UDHD (Municipal Waste Collection and Treatment), WSPHED (Installation of Sewerage Systems and Sewage Treatment Plants) and HCHSFWD (Treatment of Bio-Medical Waste). Sikkim is having only four districts; for the purpose of audit, schemes implemented by these departments in East District and South District (50 per cent) were selected. Records of two Municipal Solid Waste (MSW) Plants were test checked which were under the control of UDHD. WSPHED was having six schemes for installation of Sewerage Systems and Sewage Treatment Plants (STPs) in East Sikkim and three in South Sikkim. Expenditure records of these nine schemes were audited. Records relating to HCHSFWD were examined at their Head Office. In addition, availability of treatment facilities for Bio-Medical Waste (BMW) was verified physically at State Hospital, Gangtok; District Hospitals (East and South) and Central Referral Hospital, Tadong.

Audit findings

Audit findings relating to effectiveness in the functioning of the Board are discussed in succeeding paragraphs:

Audit objective-1:

Whether mechanisms adopted by SPCB to prevent, control and for abatement of pollution were effective and efficient?

5.3.7 Planning Process

5.3.7.1 Comprehensive Action Plan to address environmental pollution

As per Section 17 (1) (a) of the Water (Prevention and Control of Pollution) Act, 1974 and Air Pollution Act 1981, the Board has to plan a comprehensive programme for the prevention, control or abatement of pollution of streams, wells and air in the State and to secure the execution thereof. Further, Annual Action Plan defining various activities and sub-activities proposed to be taken up including physical and financial targets to be achieved in the ensuing year in line with the vision and long/short term goals of the Board was to be prepared. However, audit found that the Board never prepared any Annual Action Plan.

Further, the Government had not formulated a separate policy for addressing water and air pollution in Sikkim. It had not enacted legislations for ecological restoration of rivers, lakes and groundwater. Periodic and regular meetings of the water quality review committee and ambient air quality review committee had not taken place to improve co-ordination between the Centre and the State. Thus, Policy, Legislations and Action Plan programmes to control pollution were not prepared by the State Government.

In reply, the Board stated that Annual Action Plan was not prepared due to lack of funds and assured that the Board would now prepare Annual Action Plan and place before the Hon'ble members of the Board for approval.

5.3.7.2 Database for identification of risk

As per Section 16 (2)(f) of the Water (Prevention and Control of Pollution) Act, 1974 and Section 16 (2)(g) of Air Pollution Act, 1981, the Board is required to collect, compile and publish technical and statistical data relating to pollution and the measures devised for its effective prevention and control and prepare manuals, codes or guides relating to treatment and disposal of sewage and trade effluents and disseminate information connected therewith. Further, the National Water Policy 2002 envisages development of an information system for water related data at the State level for resource planning. In order to plan the programme to prevent, control and for abatement of pollution, the Board must have a detailed database of the pollutants, sources of the same and pollution loads.

Audit however revealed that the Board had not prepared any such database. In absence of this, risks to the environment and health caused by pollution from water, air, noise, etc. could not be assessed by the Board. Hence, the Board was not able to exercise effective control over the industries and plan for pollution abatement measures in an effective manner.

5.3.7.3 Inventory of polluting sources

Inventory management is necessary for ready reckoning of type and number of industries and its discharge and its resultant impact on the environment. However, it was seen that the Board had not prepared any inventory of water polluting industries (Red, Orange and Green Category), air polluting industries and hazardous waste generated in the State. The Board had also not prepared any inventory of sources generating BMW, MSW, e-waste, effluent discharged from STPs, waste from slaughter house, plastic waste, etc. and systems for their handling and disposal in prescribed manner. While accepting the fact, the Board stated that a proposal for conducting survey for inventory of major river basins and their polluting sources would be initiated.

5.3.7.4 Establishing standard

Under the provisions of Section 64 of Water (Prevention, Control of Pollution) Act 1974 and Section 54 of Air (Prevention, Control of Pollution) Act 1981, the Board was required to prescribe its own standards for various types of pollutants. However, the Board had not prescribed its own standards for any kind of pollutant but was instead adopting various standards concerning different pollutants like industrial effluents, MSW, sewage effluent, etc. prescribed by the CPCB at the time of giving consent to establish/operate.

5.3.8 Industries operating without consent from the Board

As per Section 25 (1) (a) of the Water Act, no person shall, without previous consent of the State Board, establish or take any steps to establish any industry, operation or process, or any treatment and disposal system or an extension or addition thereto, which is likely to discharge trade effluent into a stream. Similar provision was also contained in the Air Act in respect of persons likely to discharge effluents into the air. Under these Acts, the Board was empowered to issue Consent for Establishment (CFE) and Consent for

Operation (CFO). Before expiry of consents granted initially, the units were required to renew their consents prior to 60 days of its expiry.

During audit, it was found that neither the Board nor the Commerce and Industries Department had the data of actual number of industries running in the State. However, from records provided by the Board, it was noticed that out of total 256 industries (Pharmaceuticals, Hydro-Electric Power, Small-Scale Industries (SSI), Hot-mix Plants, Hotels, etc.), registered with Commerce and Industries Department, Government of Sikkim, 86 numbers of industries did not obtain CFO for 2015-16. Similarly, the number of industries not obtaining CFO, ranged between 13 and 32 during 2012-15. The operation of these industries without any consent not only led to irregular/unauthorised operation but also led to forfeiture of consent fees amounting to ₹ 1.45 crore which could have been used for prevention, control and abatement of pollution. Reasons for non-renewal of consents were not found on records. It was found that the Board had issued show cause notices to only ten industries during 2010-11 to 2014-15 but the Board neither initiated further follow up action nor took any penal actions as per the provisions of the Acts in respect of the defaulting industrial units. The details of consents obtained and consents due with the defaulting period of various categories of industries are given below:

Table 5.3.1

Category of industries	No. of units	Consent not obtained for					Outstanding consent fees due to non-realisation (in rupees)
		2011-12	2012-13	2013-14	2014-15	2015-16	
Hydro Electric Powers	17	0	4	5	5	7	1,07,50,000
Pharmaceuticals	38	0	3	5	5	7	10,65,000
Hotels	119	Figures not available			0	39	7,09,000
Distilleries and Breweries	10	0	2	2	5	7	9,30,000
Hot-mix Plants	18	0	0	0	0	0	0
SSI and others	54	0	4	12	17	26	10,91,000
TOTAL	256	0	13	24	32	86	1,45,45,000

Source: Board's figures.

Audit further noticed that in 110 cases, there were delays in obtaining consents by various units as given in the table below:

Table 5.3.2

Year	Below 30 days	30 to 90 days	91 to 180 days	180 days and above	Total
Hydro Electric Powers	-	07	04	-	11
Pharmaceuticals	04	03	05	-	12
Hotels	13	31	04	-	48
Distilleries and Breweries	01	--	04	01	06
Hot-mix Plants	-	03	-	-	03
SSI and others	01	08	13	08	30
TOTAL	19	52	30	09	110

Thus, it could be seen from the above tables that the Board had failed to evolve effective monitoring mechanism for timely issuance of consent, realisation of consent fee and follow up action for defaulting units.

In reply, the Board stated that due to absence of penalty clause in the consent fee notification, consents were not renewed in time by the units. However, a proposal to incorporate penalty clause was under process. Further, follow up action for realisation of due consent fees was being taken up by the Board.

In further reply (October 2015), the Board stated that a direction had been issued to initiate penalty provision for late renewal, to include conditions in the consent for information prior to closure of any unit and in the event of failure to inform the Board the fee would be realised from the units.

5.3.9 Water pollution

Water pollution means contamination of water or alteration of physical, chemical or biological properties of water by discharge of various kinds of wastes into water, directly or indirectly, which renders water harmful for public health and health of animals, plants, aquatic organisms, etc.

The Board had set up 14 numbers of water quality monitoring stations on banks of two major rivers of the State, viz. Teesta and Rangit. The Board was collecting samples from these 14 water monitoring stations on monthly basis and its four general parameters were analysed in the Central Laboratory. However, 10 parameters were not being monitored due to shortage of technical manpower. The analysed data was neither posted in the website of the Board nor used for preparation of strategy for water pollution control.

5.3.9.1 Treatment of domestic effluents

Twelfth Schedule under Article 243W of the Constitution of India entrusted urban local bodies with duties of protection of environment and promotion of ecological aspects, which include water supply, sewerage, etc. Further, as per Section 17 (1)(f) of Water (Prevention and Control of Pollution) Act 1974, the Board is required to inspect sewage or trade effluents for their treatment and every authority treating sewage needs to obtain authorisation from the Board.

The WSWSPHED is responsible for construction of STPs for treatment of domestic effluent under directions of the Board. It was observed that out of ten STPs, nine STPs had not obtained Consent to Establish/Consent to Operate from the Board for treatment of effluents. Further, the Board was only issuing notices to WSPHED from time to time without enforcing penal provisions of the Environment (Protection) Acts. This not only led to non-realisation of ₹ 10.00¹ lakh towards consent fees but also granting permission for establishment of these STPs was irregular without obtaining consents.

In reply (October 2015), the Board stated that the concerned Department (WSPHED) had assured to apply to obtain the consent to establish/operate and outstanding fees would also be realised from the Department.

¹ Consent fee due for 10 STPs @ ₹20,000 per year for 5 years.

5.3.9.2 Inadequate treatment of domestic effluents

Scrutiny of the records of the Board and WSPHED revealed that there were thirteen local bodies in the State under the jurisdiction of the Board but there was only one STP functioning in the State at Adampool, Gangtok. The status of domestic effluents generated and treated in these STPs as of March 2015 is detailed in the table below:

Table 5.3.3

Status of town-wise population and generation of sewer and its treatment in STPs

District with Towns ²	District-wise Urban Population of 2011 census	Sewage generated as per national per capita generation of sewage (@ 121 lt/ day/person) (in mld ³)	Sewage collected (in mld)	Sewer treated in the STPs (in mld)	Sewer being disposed of without any treatment in STPs (in mld)
East	1,22,487	14.82	8.00	8.00	6.82
North	4,644	0.56	0	0	0.56
West	5,248	0.64	0	0	0.64
South	21,199	2.57	0	0	2.57
TOTAL	1,53,578	18.59	8.00	8.00	10.59

Source: Board's figure.

It could be seen from the above table that out of 18.59 mld of sewage generated and collected in the State, only 8.00 mld were being treated and the rest 10.59 mld of effluents were being discharged untreated in the rivers through *jhoras* (long drains). Further analysis of records revealed that:

- Sewage in respect of only one town (Gangtok) out of total 13 classified urban towns was treated and for rest 12 urban towns, sewage was discharged off without any treatment.
- Nine new STPs were constructed only in seven towns under two districts, viz. East and South and sewer network had not started yet in six towns in North and West districts.
- Out of these nine STPs (with estimated cost ₹ 1.91 crore), none had been commissioned despite incurring ₹ 1.24 crore due to delay in completion ranging from 39 to 86 months. The delay was attributed to reasons like non-acquisition/availability of land, change in design, increase in span of rainy seasons, shifting of work site to new location, delay in obtaining forest clearance, etc.

Physical verification of the only functioning STP at Adampool, Gangtok revealed that:

- Though WSPHED had installed an inflow meter at the STP, it was not functioning and no out flow meter was installed to measure the quantum of inflow and outflow of sewage effluents. As a result, actual inflow and outflow of sewage relating to capacity of STP could not be ascertained.

² East: Gangtok, Ranipool, Singtam, Rangpo, Pakyong, Rhenock and Rongli. North: Mangan and Chungthang. West: Gyalshing and Soreng. South: Namchi, Jorethang, Melli and Ravangla.

³ Mld = million litres per day.

- During last five years only three inspections were done against prescribed monthly inspections by the officials and the effluent samples were taken only twice during 2014-15.
- There were no engineers having requisite skills (Mechanical/Chemical Engineers) to look after the STP and it was being looked after by one Junior Engineer (Civil) and one Assistant Engineer (Civil).

This indicated that capacity to treat domestic effluents in the State was far from satisfactory. The reasons for not providing STPs in uncovered towns were not furnished by the Board to the Audit.

In reply, the Board stated that untreated sewage effluents were being treated in the septic tanks and the WSPHED was constructing STPs for treatment of sewage. The reply is not tenable as septic tanks were to be connected to STPs for effective treatment of sewage. However, the fact remains that while on the way to physical verification by the Audit team as well as from the social media, it was seen that untreated sewage was being disposed of directly into the water stream at Jalipool which was contaminating river water on which neither WSPHED nor the Board had any control as could be seen from the photographs below:

Image 5.3.1



Image 5.3.2



Disposal of untreated sewage directly into the water stream at Jalipool

In reply (October 2015), the Board stated that sewage effluents generated by the houses which were not connected with the sewage network system were being treated in their own septic tanks. The contention of the Board is not acceptable as it can be seen in the DPRs of the STPs wherein it is clearly mentioned that the untreated sewage wastes are discharged into existing drains which ultimately flows into the river. Besides, many houses have septic tanks along with pit latrines and the effluent from it also gets discharged into river. Some houses do not have soak pits for which highly polluted liquid wastes are being discharge into river directly.

5.3.9.3 Industrial Effluents

Industrial effluent is any waste water generated by an industrial activity. The impact of industrial discharges depends not only on their Biochemical Oxygen Demand (BOD) and the amount of suspended solid material but also on their content of inorganic and organic substances. Water pollution caused by major industries can be controlled at the point of generation by constructing Effluent Treatment Plants (ETPs) for individual industries and

Common Effluent Treatment Plants (CETPs) for clusters of medium and small-scale industries.

Scrutiny of records of the Board revealed that there were 65 water polluting industries in the State. However, physical inspection (15-16 July 2015) of 16 industries revealed that-

- three⁴ industrial units did not have any ETPs.
- two⁵ industrial units were having non-functional ETPs; as a result, trade effluent was not treated.
- It was seen in one⁶ industry that though the industry had ETP, untreated trade effluent was directly drained out outside the industry compound creating risk to health of the nearby habitants. Further, it was seen that domestic wastes of the industry were thrown haphazardly in the compound of the industry creating risk to health of the public as could be seen from the photographs below.
- One industry⁷, a pharmaceutical unit, was running in a small rented building in an unhygienic condition without ETP and entire trade effluent was thrown in the side drain of the road in front of the said rented building.

Image 5.3.3



Non-functional ETP at C G Foods, , Rangpo, and Sheela Foams, Bagheykhola, East Sikkim

Image 5.3.4



Image 5.3.6

Image 5.3.5



Untreated trade effluent being drained out at Micro Labs, Mamring, South Sikkim



Domestic waste thrown near ETP at Micro Labs, Mamring, South Sikkim

⁴ Government Fruit Preservation Factory, Pristine Life science and Mayell and Fraser Distillery.

⁵ CG Foods and Sheela Foam.

⁶ Micro Labs, Mamring, South Sikkim.

⁷ Pristine Life Science, Singtam, East Sikkim.

Image 5.3.7



Image 5.3.8



Rented building in which Pristine Life Science industry was running in an unhygienic condition

Inaction on the part of industry for installation of ETPs as well as non-functioning of ETPs by the industries led to discharge of untreated effluent into the nearby water bodies.

The Board did not issue any direction to the defaulting industries and had not taken any legal action as required under Section 33(1) of the Water (Prevention and Control of Pollution) Act 1974 to ensure adequate treatment of effluents by these industries. Instead, the Board gave consents to industries to operate in usual manner which indicated that the Board had been giving consents without inspecting these industries.

In reply (October 2015), the Board stated that it would conduct field visits of defaulting units and issue stringent directions.

5.3.9.4 Test results of treated water samples

Section 21 of Water (Prevention, Control of Pollution) Act 1974, the Board is required to take samples of water or of sewage or trade effluent for analysis or tests. During audit, the Board could not produce any record in support of test conducted on trade effluent. However, during physical inspections of industries, audit team collected water samples of treated trade effluents of seven pharmaceutical industries and tested these samples in the Board's Central Laboratory for four parameters. The details are given in the following table:

Table 5.3.4

(In mg/litre)

Sl. No.	Name of industry	Parameters							
		PH level		Total Dissolved Solid		Biological Oxygen Demand (BOD)		Chemical Oxygen Demand (COD)	
		Permissible	Test result	Permissible	Test result	Permissible	Test result	Permissible	Test result
1	Sun Pharma	5.5-9.0	7.0	500	425	30	30	250	115
2	Unichem Pharma	5.5-9.0	6.5	500	480	30	32	250	240
3	Microlab, Mamring	5.5-9.0	6.0	500	478	30	34	250	270
4	Zydus Healthcare	5.5-9.0	6.0	500	419	30	32	250	200
5	Glenmark Pharma	5.5-9.0	7.0	500	350	30	26	250	145
6	Intas Pharma	5.5-9.0	7.5	500	230	30	28	250	145
7	Torrent Pharma	5.5-9.0	6.5	500	430	30	26	250	155

From above test results, it could be seen that in respect of three industries (Sl. Nos. 2, 3 and 4), BOD level was in excess of permissible limit and in case of one industry (Sl. No. 3), COD was also in excess of the permissible limit. The Board should conduct regular test of treated effluent and take follow up action to ensure effective functioning of ETPs.

While accepting the audit contention (October 2015), the Board stated that they would initiate regular monitoring of the effluents.

5.3.9.5 Handling of Municipal Solid Wastes

As per Section 4(1) of Municipal Solid Waste (Management and Handling) Rules 2000 (MSW Rules) every municipal authority was responsible for the implementation of the provisions of these rules and for any infrastructure development for collection, storage, segregation, transportation, processing and disposal of municipal solid wastes within its territory.

Further, Schedule 1, Rule 4(2 and 3) of the Rules, *ibid* stipulated that municipal authority or an operator of a facility shall obtain authorisation from the Board for setting up waste processing and disposal facility including landfills and comply with the following implementation schedule:

Table 5.3.5

Compliance Criteria	Schedule
Setting up of waste processing and disposal facilities	By 31.12.2003 or earlier
Monitoring the performance of waste processing and disposal facilities	Once in six months
Improvement of existing landfill sites as per provisions of these rules	By 31.12.2001 or earlier
Identification of landfill sites for future use and making site (s) ready for operation	By 31.12.2002 or earlier

MSW Rules also provide that the biodegradable wastes shall be processed through biological processes like composting, vermi-composting, etc. and non-biodegradable wastes which could not be recycled shall be disposed of through landfills. It was observed that even after a passage of more than 11 years since the Rules were enforced, the State was yet to have a fully functional integrated MSW treatment plant for disposal of MSW in a scientific manner.

As the data was not available either with the Board or with the Municipal Bodies, the audit calculated figures of generation of MSW as per the national standard of 0.45 kg/day/person based on urban population of the State. Further, there was a wide gap between total MSW generated and treated/disposed of in the State during 2010-15. The status of disposal of MSW in the State during 2010-15 was as under:

Table 5.3.6

Sl. No.	District (13 towns)	Urban Population based on 2011 census	MSW generated as per national per capita generation of solid waste @ 0.45kg /day/ person. (in Metric Ton per day)	Total capacity of MSWT plant for treatment of waste (in Metric Ton per day)	MSW treated in the MSWT plant (in Metric Ton per day)	MSW disposed through landfills (in Metric Ton per day)	MSW being disposed-off without any treatment in MSWT plant (in Metric Ton per day)
1	East	1,22,487	55.12	35.00	42.00	Nil	20.12 ⁸
2	North	4,644	2.09	Nil	Nil	Nil	2.09
3	West	5,248	2.36	Nil	Nil	Nil	2.36
4	South	21,199	9.54	Nil	Nil	Nil	9.54
	TOTAL	1,53,578	69.11	35.00	42.00	Nil	34.11

Considering the figures of 69.11 MT MSW generated every day, 34.11 MT (49 per cent) of untreated MSW were dumped in the open every day, which worked out to a huge quantity of 12,450 MT of municipal wastes piled up every year causing environmental degradation and health hazards. Further analysis of records revealed that UDHD had adopted cluster approach with regard to treatment of MSW by establishing two MSW treatment plants at Martam for North and East districts and Sipchu for South and West districts.

Further examination of records of UDHD and physical inspection of these plants revealed that:

- Despite incurring ₹ 2.69 crore on the project setting up of Solid Waste Treatment Plant at Sipchu in South District was still incomplete which was scheduled to be completed in June 2008.
- Even after incurring an expenditure of ₹ 7.60 crore (out of estimated sanctioned cost of ₹ 12.01 crore) on the project 'Landfill sites at Martam', the project was only 65 per cent complete due to slow pace of work which was scheduled to be completed by September 2015.
- Due to non-completion of the project 'Landfill sites at Martam' MSW was being thrown haphazardly here and there at the dumping site and leachates generated from excess wastes dumped at dumping sites were going to ground water.
- MSW Rules 2000 (Management and Handling) also require separation of waste into bio-degradable and non-biodegradable categories right from the point of generation itself. While the bio-degradable MSW was to be converted to compost, non-biodegradable MSW was to be thrown at landfill sites and thereby decreasing the volume of waste to be thrown into landfill sites. It was found that UDHD had not put any mechanism for segregation of MSW as prescribed either at the point of generation or during treatment.
- Rule 23 and 25 of MSW Rules stipulated that both water and ambient air quality in and around landfill sites need to be monitored to ensure that ground water and ambient air quality are not contaminated beyond acceptable limit. However, it was observed that the Board had not been monitoring air and ground water quality in

⁸ Figure arrived at by considering the total capacity of MSWT plant of treatment of waste.

and around the dumping sites. As a result, ill effects of environment pollution could not be ruled out. The photographs given below substantiate the above findings.

Image 5.3.9



Image 5.3.10



Unused landfill site of Solid Waste Management at Sipchu

Image 5.3.11



Image 5.3.12



Garbage being put in the landfill at Sipchu constructed under NABARD funding

Image 5.3.13



Image 5.3.14



Incomplete landfill site at Martam, East Sikkim

The MSW are being thrown haphazardly at the dumping site at Martam

Image 5.3.15



Image 5.3.16



Throwing of un-segregated municipal waste at dumping site at Sipchu, South Sikkim

Thus, the failure on the part of the Board to impress upon the municipalities/UDHD to comply with MSW Rules and not analysing of the reasons for non-compliance to take necessary remedial measures led to MSW being disposed of untreated.

In reply, the Board stated that necessary action will be taken in coordination with the concern Department at the earliest.

5.3.9.6 Effects of water pollution

Shortfalls in effluent treatment in STPs, MSW, CETPs and ETPs in the State have been discussed in the above paragraphs. Poor treatment of effluents before finally discharging them into *jhoras* and rivers adversely affects public health in the State. Polluted water causes water-borne diseases such as gastroenteritis, diarrhoea, hepatitis, typhoid, etc. Incidences of such diseases were seen in the State during the period from 2010-15 as given in the Table below.

Table 5.3.7

Year	Attention Deficiency Disorder	Hepatitis	Typhoid	Enteric Fever	Total
2010-11	26,439	575	276	338	27,628
2011-12	30,946	519	149	128	31,742
2012-13	36,826	770	164	121	37,881
2013-14	33,879	512	262	90	34,743
2014-15	32,450	339	260	36	33,085
TOTAL	1,60,540	2,715	1,111	713	1,65,079

Source: Data furnished by the Health Care and Family Welfare Department.

As may be seen from the above table, the number of water-borne diseases increased from 27,628 in 2010-11 to 33,085 in 2014-15. During the last five years there were a total of 1.65 lakh cases of water borne diseases.

5.3.10 Management of Hazardous Wastes

As per Rule 22 of Hazardous Waste (Management, Handling and Trans Boundary Movement) Rules 2008, occupiers generating hazardous wastes and operators of the facilities involved in disposal of hazardous wastes are required to furnish an annual return to State Board showing details of hazardous wastes generated by them and disposal thereof. Based on returns filed by occupiers/operators, the Board shall prepare an inventory of hazardous wastes within its jurisdiction and compile related information like their recycling, treatment and disposal.

It was seen that Board had not compiled such inventory using the annual returns furnished by the occupiers/operators as on date of audit (July 2015). As there were no Treatment, Storage and Disposal Facilities (TSDFs) available in the State, the hazardous waste was being sent to TSDF at Haldia in West Bengal by the industries. As per the records (pertaining to 25 out of 48 industries generating hazardous wastes) furnished by the Board, 667.04 MTs of hazardous waste was sent to the TSDF, Haldia during 2010-15. Details are given below:

Table 5.3.8

Details of hazardous waste treated/disposed of during 2010-15

(In MT)

Year	Waste generated	Waste disposed of by TSDF	Un-disposed hazardous waste	Percentage of disposal against total waste generated
2010-11	343.51	Nil	343.51	0
2011-12	343.51	Nil	343.51	0
2012-13	343.51	Nil	343.51	0
2013-14	343.51	271.92	71.59	79
2014-15	347.12	347.12	Nil	100
	1,721.16	619.04	1,102.12	36

The above table revealed that during last five years 1,721.16 MT of hazardous wastes were generated by the test checked industries, out of which only 619.04 MT was disposed of at TSDF and the remaining 1,102.12 MT (64 *per cent*) of untreated hazardous waste were not transported through TSDF and there were no records available with the Board as well as with industries as to how these wastes were disposed of. It is likely that the wastes lie around in unsafe condition which would raise the toxicity of the environment.

Further, Rule 7 of the Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules, 2008 provides that the occupiers, recyclers, re-processors, re-users and operators of facilities may store the hazardous wastes for a period not exceeding ninety days and shall maintain a record of sale, transfer, storage, recycling and reprocessing of such wastes and make these record available for inspection. However, the Board may extend the said period in certain conditions. In the case of failure to comply, the Board may suspend or cancel the authorisation under Rule 6 of Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008.

While doing physical inspection (15-16 July 2015) of industries it was seen that most of these industries kept huge quantity of hazardous waste/sludge which had accumulated for more than ninety days, that was neither disposed of in time nor any extension of time was sought from the Board. The photographs below show accumulation of hazardous waste/sludge.

Image 5.3.17



Image 5.3.18



Sludge/Hazardous waste kept openly at CG Foods, and at Zydus Healthcare, Bagheykhola, East Sikkim

Image 5.3.19



Image 5.3.20



Sludge kept in haphazard manner in the compound of Sikkim Agro Chem, Majhitar, East Sikkim

In reply (June 2015), the Board stated that considering merits of each case the Board may extend the storage period under the Act.

In further reply (October 2015), the Board stated that the accumulation of hazardous waste generated by the pharmaceuticals was because of non-lifting of waste by Haldia based TSDF plant due to expiry and non-renewal of MOU between West Bengal and Sikkim. However, reply is not tenable as records in support of contention of the Board were not made available to audit.

5.3.11 Bio Medical Waste

As per Rule 4 of the Bio-Medical Waste (Management and Handling) Rules, 1998, it is duty of occupier of an institution generating bio-medical waste to take all steps to ensure that such waste is handled without any adverse effect to human health and environment.

5.3.11.1 Health Care Facilities (HCFs) functioning without valid BMW authorisation

As per the Notification dated 7 May 2012 and in exercise of the power conferred under Sub-rule (3) of Rule 8 of the Bio-medical Waste (Management and Handling) Rules 1998, occupier of an institution generating, collecting, receiving, storing, transporting, treating, disposing and handling bio-waste in HCFs had to obtain authorisation from the Board for which an occupier/operator had to pay fee as fixed by the Board according to various types of HCFs for grant of authorisation.

It was observed that out of a total of 69 HCFs in the State, 49 to 62 HCFs⁹ did not obtain any BMW authorisations during period under performance audit. Further, it was seen that during the same period, 20 HCFs obtained the authorisation belatedly. The irregular operation of HCFs without any authorisation not only led to non/short realisation of authorisation fee amounting to ₹ 11.65 lakh but also left the scope of these HCFs working without prescribed norms leading to possibility of spreading of diseases due to improper treatment and disposal of BMW.

⁹ 62 number of HCFs in 2010-11, 60 number of HCFs in 2011-12, 56 in 2012-13, 53 in 2013-14, 52 in 2014-15 and 49 in 2015-16.

5.3.11.2 Health Care Facilities (HCFs) functioning without BMW treatment facilities

As per schedule I of Rule 5 of the Bio-medical Waste (Management and Handling) Rules 1998, every occupier shall set up requisite BMW treatment facilities like incinerator, autoclave, microwave system, shredders, etc. for treatment of waste or ensure requisite treatment of waste by having a tie up with a common BMW treatment facility. It was observed that no common BMW treatment facility existed in the State. Audit of records revealed that most of HCFs were not complying with above conditions as given in table below:

Table 5.3.9

Year	Total no. of HCFs	No. of HCFs submitting Annual Reports to SPCB	Status of treatment equipment in the HCFs											
			Incinerators			Autoclaves			Micro-oven			Shredders		
			Required	Available	Shortage	Required	Available	Shortage	Required	Available	Shortage	Required	Available	Shortage
2010-11	48	34	6	6	0	34	1	33	34	4	30	6	1	5
2011-12	48	14	6	6	0	14	1	13	14	4	10	6	1	5
2012-13	48	15	6	6	0	15	1	14	15	4	11	6	1	5
2013-14	69	24	6	6	0	24	9	15	24	6	18	6	11	-
2014-15	69	22	6	6	0	22	5	17	22	2	20	6	1	5

Source: Departmental figures.

It could be seen from the table above that the total numbers of HCFs during 2010-11 to 2012-13 were 48 which rose to 69 from 2013-14. However, it was seen that during the years 2010-11 to 2014-15, only 34, 14, 15, 24 and 22 HCFs submitted their annual reports in the respective years to the Board and rest HCFs did not submit their annual reports/returns for onward forwarding to the CPCB. Further, all these HCFs were not having requisite BMW treatment facilities as per norms throughout the period of audit, viz. 13 to 33 HCFs were running without any autoclave during the period of audit, 10 to 30 HCFs were not having any micro-oven and 0 to 5 HCFs were operating without any shredders. Under the circumstances, spreading/transmission of diseases could not be ruled out.

The Board did not have records of total BMW generated by 69 HCFs in the State; however, the Board had partial records of total quantity of BMW generated from HCFs which had submitted annual reports during the period under audit.

Compilation from annual reports revealed that total BMW generated during the year 2010-15 was around 606.27 MT (quantity would have been much higher had the Board furnished total figure of BMW generated in all the HCFs) and its treatment was not done as per the Act as BMW treatment equipments were insufficient to treat it properly. The Board failed to issue directions or initiate legal action under the EP Act against defaulting HCFs.

5.3.11.3 Physical verification of Health Care Facilities (HCFs)

The Healthcare, Human Services and Family Welfare Department informed that for the purpose of treatment and disposal of bio-medical waste, State Hospitals and District Hospitals were required to have Incinerator, Microwave Disinfection Machine, Autoclave, Shredder, Needle destroyer and Sharp Pit and Public Health Centers were

required to have Microwave, Disinfection Machine, Autoclave, Needle destroyer and Sharp Pit.

Availability of BMW treatment facilities were physically verified by Audit (June-July 2015) in some of HCFs and it was seen that:

- District Hospital, Namchi was not having a Shredder;
- STNM Hospital, Gangtok was not having Autoclave;
- Microwave Disinfection Machine was out of order and Sharp Pit was kept open;
- Central Referral Hospital, Tadong was not having Shredder and Microwave Disinfection Machine while the Sharp Pit was under construction;
- PHC, Temi was having two Autoclaves, one of them was not working for want of repair and the other one was not installed;
- PHC, Jorethang was having uncovered Sharp Pit;
- PHC, Rhenock was having idle shredder for want of three phase electricity supply.

The following photographs show the above deficiencies:

Image 5.3.21



Image 5.3.23



Under construction Sharp Pit at CRH, Tadong

Image 5.3.22



Image 5.3.24



Unused Autoclaves at PHC, Temi

In reply (October 2015), the Board stated that the necessary actions for compliance would be taken in coordination with the concerned Department.

5.3.12 Air Pollution

Air pollution occurs due to increase in the concentration of foreign particles like Respirable Suspended Particulate Matter (RSPM), Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), Lead, Ozone depleting substances, etc. which are harmful to living organisms.

Increased air pollution adversely affects human health by causing respiratory diseases like asthma, bronchitis, etc. For grant of consent under the Air Act 1981 it was mandatory before commissioning of the smoke emitting plants (HEP, Pharmaceuticals, Distilleries, Stone crushers, etc.) that infrastructural facilities for monitoring of stack emissions and ambient air quality, emission control instruments and a well-equipped laboratory should be in place.

5.3.12.1 Inadequate monitoring of air quality

The Board had identified seven¹⁰ numbers of sites for air quality monitoring stations across the State but had not established any air quality monitoring stations as on date of Audit. Though the CPCB prescribed (April 2011) a list of twelve important air quality parameters¹¹ to be analysed by monitoring laboratories, the Board had procured equipments for monitoring of only four air quality parameters¹². The Board had not conducted any studies to know whether the levels of 12 parameters were within permissible limit as prescribed under National Ambient Air Quality Standards (NAAQS) and to identify the causes for air pollution. It was further observed that under National Air Quality Monitoring Programme, the Board had procured (May 2011) all machines and equipments at a cost of ₹ 30.77 lakh with assistance of CPCB (₹ 26.89 lakh) for establishment of seven ambient air quality monitoring stations in the State. Further, despite repeated requests and reminders from CPCB for immediate installation and commissioning of these stations and furnishing of air monitoring data, the machines and equipments had not (July 2015) been installed and put to operation. Scrutiny further revealed that after purchase of above machines and equipments, the Board started (June 2011) proposal for recruitment of technical staff for operating these stations which had not been finalised so far despite assurance from CBCB that all recurring expenditure on operation and maintenance of these stations including salary would be borne by the CPCB. The machines and equipments were kept idle/uninstalled at Central Laboratory as seen from the following photographs:

¹⁰ Namchi, Jorethang, Mangan, Chungthang, Singtam, Rangpo and Pelling.

¹¹ SO₂, NO₂, PM₁₀, PM 2.5, Ozone, Lead, Carbon Monoxide, Ammonia, Benzene, Benzo, Arsenic and Nickel.

¹² NO₂, SO₂, SPM and RSPM.

Image 5.3.25



Image 5.3.26



Machines and equipments kept idle/uninstalled at Central Laboratory, Gangtok

In reply, the Board stated that at present it was able to monitor only four parameters of air pollution and process for procurement of infrastructure (machines and equipments) to monitor all parameter as per NAAQs was under progress. Further, it is also mentioned that the Board is in the process of installation of seven air monitoring stations in important towns for monitoring all the 12 parameters as per National standard. However, the fact remains that the monitoring of only four parameters of air pollution, viz. NO₂, SO₂, SPM and RSPM could only do a partial evaluation of the quality of air and in absence of such complete evaluation of the air quality, remedial measures could also not be ascertained.

5.3.12.2 Stone Crushers operating without obtaining consent

As per Schedule 1 to Environment (Protection) Rules 1986, various parameters and standards for consent to stone crushers were prescribed for preventing and abating environmental pollution.

It was noticed that there were 75 stone crushers registered for consent to operate from the Board. However, actual number of stone crushers operating in the State were not known as the Board did not have inventory of these crusher machines. From records made available to audit, it was seen that during the period of PA, three to 23 stone crushers were operating without any consents. It was observed that Board renewed consent to operate of even those crusher machines which did not deposit their consent fees due for the previous years. The reasons for renewing consents despite non-payment of previous dues was not on record. It was also noticed that the Board gave consent to 18 stone crusher operators who had belatedly applied for renewal of consent ranging from 20 to 80 days.

Further, pollution created due to particles generated by stone crushing units was not monitored by the Board with regard to compliance of the standards for stone crushers in the State. The Board was to analyse samples for Suspended Particulate Materials (SPM) twice a month throughout the year for each stone crusher, drawing samples at a distance of 40 metres from an isolated unit as well as from a unit located in a cluster in order to ensure that presence of SPM was within prescribed limit. However, the Board did not conduct regular inspections of stone crushers and never analysed air samples in the

vicinity of any of the stone crushing unit nor issued notices/directions to defaulting units. The Board also did not take any legal action against the erring units under environmental Acts/Rules.

Thus, allowance to operate these crusher machines without consent resulted in free blowing of dust/sand particles in air which could result in occurrence of various health hazards. Further, non-realisation of consent fees also led to loss of Government revenue to the extent of ₹ 20.65 lakh during the period under audit.

While accepting the audit observation, the Board replied (October 2015) that the points raised by the audit had been noted for adherence in future. Further, the Board stated that due to lack of manpower it could not conduct the inspections and the units were required to carry out the monitoring through third party accredited laboratories.

5.3.12.3 Non-monitoring of emission from Diesel Generator sets

As per Sl.No.95 of Schedule 1 of Environment (Protection) Rules 1986, which states that for the purpose of protecting and improving quality of environment and preventing and abating environmental pollution, the standards for emission or discharge of environmental pollutants from the industries, operations or processes shall be as specified in Schedule I to IV.

The Board did not have any data in respect of total number of Diesel Generator (DG) sets with a capacity of 15 KVA and above available in the State. However, from examination of the consent records available with the Board, DG set operators were 125 in number in the State. The Board had fixed consent fee of ₹ 5,000 per year for each DG set. It was seen that the Board was realising consent fee towards CFO from those DG set operators who were applying for CFO. However, the Board did not have any actual figure of the DG sets. There was also a delay in applying for renewal of consent by the 39 DG set operators ranging between 16 and 235 days.

Further, it was also found that the Board was granting renewal of consent to the operators without clearing their outstanding consent fees due for the previous years. No measures to control the pollution were ever taken by inspecting the units by the Board as no such records could be made available to the audit.

Thus, operation of DG sets without consent was not only irregular but also led to non-realisation of consent fee of ₹ 21.50 lakh.

While accepting the fact, the Board replied (October 2015) that the points raised by the audit has been noted for initiation of necessary action.

5.3.12.4 Vehicular Pollution

Monitoring of air pollution is the responsibility of the Board under the Air Act, while the control of vehicular pollution is vested with Transport Department under Central Motor Vehicle Act, 1988 and Rules 1989. The Board was to lay down the standards for automobile emission under Section 17(1)(g) of the Air Act and the State Government in consultation with the Board was to instruct the Transport Department to ensure compliance of the standards so laid down.

Motor Vehicle Division (MVD) under transport department was directly responsible for implementation of MV Acts and Rules. As per Rule 115 of MV Rules 1989, idling CO (Carbon Monoxide) emission limits prescribed by STA for vehicles by volume were 4.5 *per cent* and 3 *per cent* respectively. There was a growth of 43 *per cent* vehicles in Sikkim from 47,612 vehicles in 2011-12 to 68,162 vehicles in 2014-15.

In Sikkim, only two numbers of private Auto Emission Testing Centres (AETCs) were authorised by MVD till 2014-15 for routine check of vehicular emission and issuing Pollution Under Control (PUC) certificate under MV Rules. The year-wise total number of vehicles required to do auto emission test and PUC certificates issued by two AETCs is given below:

Table 5.3.10

Year	2010-11	2011-12	2012-13	2013-14	2014-15
No. of registered vehicle	47,612	51,881	60,848	64,574	68,162
PUC to be issued as above (<i>twice in a year</i>)	95,224	1,03,762	1,21,696	1,29,148	1,36,324
PUC certificate issued by firm	9,008	9,084	8,619	9,692	9,846
Vehicles running without PUC (<i>percentage in brackets</i>)	43,108 (91)	47,339 (91)	56,539 (93)	59,728 (92)	63,239 (93)
Percentage of emission tested	9	9	7	8	7

Source: Annual Reports of Transport Department (Motor Vehicle Division)

It can be seen from the table above that the percentage of PUC issued to vehicles were very low and ranged between seven *per cent* and nine *per cent*. Further, records relating to vehicles detected with emitting excessive smoke and required to undergo re-test for issue of fresh PUC certificates and polluting the environment were not available. It was found that neither the Board had ever issued any advice for setting up vehicular pollution control laboratories nor these laboratories were set up by the MVD. Besides, surprise checks of vehicles on roads by expert monitoring team attached to each laboratory were to be conducted. However, no such surprise checks were conducted. Thus, monitoring of vehicle emission norms could not be carried out.

In reply (October 2015), the Board stated that the necessary action for compliance would be taken in coordination with the concerned Department.

5.3.13 Laboratory Management

As per Section 17(2) of Water (Prevention and Control of Pollution) Act 1974 and Air (Prevention and Control of Pollution) Act 1981, the Board may establish or recognise a laboratory or laboratories to enable the Board to perform its functions including the analysis of samples of water from any stream or well or of samples of any sewage or trade effluents and stack emission.

5.3.13.1 Lack of infrastructure facilities and manpower at laboratories

The State Board may establish or recognise laboratories for analysing water/air samples to enable the Board to perform the functions stipulated in those Acts. Guidelines issued (June 2008) by CPCB for recognition of environmental laboratories under EP Act by Central Government stipulated certain minimum standards, which included availability of capacity/equipment for conducting certain minimum air/water quality tests and

recognition/accreditation by the National Accreditation Board for Testing and Calibration of Laboratories (NABL).

Audit observed that the Board had established only one Central Laboratory. The laboratory had neither been recognised under the EP Act by Central Government nor recognised/accredited by the National Accreditation Board for Testing and Calibration of Laboratories (NABL). The Laboratory did not have adequate facilities even for a minimum of five essential group tests, viz. physical, inorganic, organic, microbiological and toxicological tests for water analysis. For air analysis, the laboratory must have facilities for the first four of the above tests and an Environmental Laboratory should also provide for biological tests, characterisation of hazardous waste and soil/sludge/sediment/solid waste analysis. It was, however, noticed that the laboratory did not have the capacity for conducting all the mandatory tests as out of 37 water test analysis equipments, only 14 equipments were available in the laboratory. Similarly, out of 16 equipments for air stack test analysis, only two equipments were available in the laboratory.

The laboratory either did not have most of the mandatory equipments or had non-functional equipments. As per norms (February 1996), the Board was required to collect water and stack samples and report the results of the analysis to the CPCB, but it was found that the Board had not kept any record in respect of number of samples collected and reports analysed. Further, it was found that laboratory also had shortage of three technical staff as against the norms prescribed by CPCB. The Board did not have any air stack analysis laboratory till the date of audit and air testing machines which were procured four years back were still lying in the space of water testing laboratory. The Central Laboratory was also in very poor condition as can be seen from the following photographs:

Image 5.3.27



Image 5.3.28



Pitiable condition of the Central Laboratory

In reply, the Board stated that a proposal was being submitted for recognition of the laboratory. Further, the Board had submitted a comprehensive proposal on requirement of lab equipments to MoEF for financial support. However, the fact remains that the SPCB was yet to be recognised under the EP Act by Central Government and was also not recognised/accredited by the National Accreditation Board for Testing and Calibration of Laboratories (NABL). Further, the laboratory needed to be equipped with necessary equipments.

5.3.14 Management of Plastic Wastes

As per Rule 3 of the Plastic Waste (Management and Handling) Rules 2011, the concerned municipal authorities are responsible for ensuring safe collection, storage, segregation, transportation, processing and disposal of plastic waste.

As per data available with the Board, there was no plastic manufacturing/recycling unit and there were also no registered plastic collection centres in the State. Moreover, the Board did not have the actual information regarding generation, segregation, collection and disposal of plastic in the State. In the absence of such data, the quantum of plastic waste generated could not be ascertained as a result of which the enormity of problem and related remedial measure could not be determined.

In reply, the Board stated that process for management of plastic waste was being initiated.

5.3.15 Management of e-wastes

Ministry of Environment and Forest, GOI vide gazette notification¹³ enacted the e-waste (Management and Handling) Rules 2011 with the primary objective of managing e-waste generated in the country in an environmentally friendly manner. These Rules came into force since May 2012. As per the Rules, e-waste consists of “waste electrical and electronic equipment, whole or in part or reject from their manufacturing and repair process, which are intended to be discarded”. The e-waste falling under this category cannot be disposed of along with the MSW; instead, the Rules stipulate that it should be channelised to authorised collection centres or registered dismantlers or recyclers.

However, audit observed that there were no authorised collection centres or registered dismantlers or recyclers in the State, except some initiation taken by the Department of Information Technology in co-ordination with other departments in this direction. Further, it was seen that in absence of any registered e-waste dealer and authorised collection centre in the State, e-waste was being thrown by generators of e-waste along with MSW at the MSW dumping sites as could be seen from the photographs below:

Image 5.3.29



Image 5.3.30



e-waste thrown at municipal waste dumping site at Sipchu

¹³ Gazette Notification No.1125 (E) dated 14 May 2010, Extraordinary Part II, Section 3, sub-section(ii).

Thus, failure in establishing authorised collection centres in the State for handling e-waste generated was fraught with risk of creating environmental hazards as e-waste contained cadmium, lead oxide, mercury, polychlorinated biphenyls, etc. which are very harmful for human health and environment.

In reply, the Board stated that process for management of e-waste was being initiated.

5.3.16 Pollution from Slaughter Houses

Standards for discharge of effluents from slaughter-houses have been laid down and notified under Sl.No.50 of Schedule I of the Environment (Protection) Act 1986. Abattoirs generally use large quantities of water for washing meat and cleaning processing areas. CPCB had prescribed (January 2001) that waste water discharged from slaughter-houses should be treated appropriately to meet the prescribed standards. Discharge of untreated effluents from these slaughter houses could result in increase in pathogens which may percolate and contaminate groundwater.

Scrutiny of the records revealed that there were 11 slaughter houses in the State. Out of these, 10 were functioning without any consent from the Board and had not even applied for the consents and only one at Majhitar, East Sikkim was functioning with the valid consent from the Board. Further, it was found that these slaughter houses were functioning without any ETPs and discharging sewage into municipal drains/nearby water bodies/lands, causing water pollution and increasing the risk to public health. Further, there were no arrangements for safe disposal of solid waste generated in these slaughter houses. Till date of audit, only five slaughter houses were functional and six slaughter houses were closed since September 2014. The Board also failed to realise ₹ 8.80 lakh of consent fees from these slaughter houses.

The Board stated that the Slaughter House at Majhitar, East Sikkim which was under the control of Animal Husbandry and Veterinary Services Department, though was not having Effluent Treatment Plant but was having Septic Tank for effluents of the Slaughter House. However, physical inspection (16 July 2015) of the said Slaughter House revealed that the Slaughter House was not having any Septic Tank and entire effluent of the Slaughter House was directly discharged into the river Teesta through drains as could be seen from the photographs below:

Image 5.3.31



Image 5.3.32



Effluent of the Slaughter House, Majhitar directly going in the drain

Though the Board has power to issue directions under the provisions of Water Act to violators of environmental laws including the power to direct closure of any industry, operation or process, it did not issue any directions to these slaughter houses.

In reply (October 2015), the Board stated that it had already issued directions to the Animal Husbandry Department, Government of Sikkim to comply with the norms governing the slaughter houses.

5.3.17 Public Awareness Meetings and Advertisement

According to Section 17 (1)(e) of Water (Prevention and Control of Pollution) Act 1974, the Board is required to collaborate with Central Board in organising mass awareness programme relating to prevention, control and abatement of water pollution. It was seen from records that the Board had given very little emphasis on conducting of public awareness programmes to encourage the citizens regarding environmental issues. Regular meetings at quarterly intervals with representatives of Local Residents and Welfare Associations and NGOs were also not held. Further, the Board also needed to conduct awareness programmes by publishing pamphlets, appeal in newspapers, etc. However, it was found that the Board spent ₹ 42.20 lakh during the period 2010-15 for conducting some awareness programmes but there were no written records/documents of meetings/activities held available with the Board. In the absence of these records, the actual number of public awareness meetings held could not be ascertained. Further, the Board had not ever published any study/research paper till date of audit (August 2015).

As the Board could not produce records/documents of meetings/activities held, the Audit team, in order to assess public awareness on environment pollution in the State, prepared questionnaires for survey on the awareness of environment pollution in the State from the common citizens. The questionnaires were uploaded in the web sites as well as advertised in the local newspapers seeking public responses but the obtained responses were very poor. Hence, survey was taken up independently by the audit team in two selected districts (East and South) with a sample size of 157 persons from different classes of society like teachers, students, farmers, contractors, etc. The analysis of the feedback obtained from survey revealed the following points:

- Even though most of the people were aware of Pollution Control Board (around 72 *per cent*) but the people did not know the functions and activities of the Pollution Board (64 *per cent*) and the common citizen never approached SPCB (not even one *per cent*) for environmental issues;
- People had a general idea of air pollution, water pollution and noise pollution. As per the survey, the main reasons behind air pollutions were due to smoke emitting from vehicles, burning of plastic and emission of smoke from industries. The main reasons for water pollutions were leakage of sewage waste, dumping of garbage, improper drainage system, etc. The noise pollution was caused due to the movement of heavy vehicles, blowing of horns and loudspeakers;

- Majority of people (i.e. around 60 *per cent*) had no fair idea of bio medical waste and its sources and treatments;
- Around 52 *per cent* of people did not have knowledge about the Municipal Solid Waste and its sources and treatments; 66 *per cent* people did not know about the e-Waste and its treatment and 75 *per cent* people did not have any idea about the Battery Waste and its treatment;
- Though the State had two MSW Treatment Plants in South and East Districts, around 70 *per cent* of people were not aware of these Treatment Plants and 64 *per cent* of people were not aware of Sewage Treatment Plants and Effluent Treatment Plants in the State;
- Around 61 *per cent* of people had never heard of any Environment Education Programme conducted by State Government/Pollution Board or any other Agency. However, most of the environment education related programmes were conducted on Environment Day celebration in the schools and not by the SPCB.
- Most of the people (90 *per cent*) surveyed had no idea about the categorisation of industries.

Thus from the analysis of survey conducted by the audit team, it was observed that the SPCB had failed to create awareness among the common citizens on the environment issues such as the activities of the Board, different types of wastes generated and its sources; various types of treatment plants in the State, conducting of environment education programmes by the Board and categories of polluting industries in the State.

Audit objective-2:

Whether monitoring by the Board of the compliance to Acts, Rules and conditions by the stakeholders was efficient and effective?

5.3.18 Compliance mechanism

As per provisions of various Rules made under Environment (Pollution) Act, the Board may cancel or suspend authorisation/registration granted if there is failure to comply with any of the conditions by the authorised persons/registered manufacturer, recycler or dismantler. The Board may also issue directions to the defaulting persons during the course of suspension and failure to comply with or contravention of any provision or orders or directions issued, shall entail imprisonment and/or fine.

However, it was seen that though the Board stated that during inspections, non-compliance was being monitored in the industries, no such inspection reports were available with the Board and even inspections of the industries were also very few in number. Notices and directions were being drafted by the hired legal person/general staff available with the Board and not by the law/ technical division as no such division existed. Though only one direction for closure of an industry was issued during the period under PA, no penalty was imposed on that industry. It was also found that though the

Board had issued 10 show-cause notices to various industries, their follow-up actions were not taken by the Board.

Further, in the physical verification it was seen that though the 'Pristine Life Science, Singtam', a pharmaceutical industry, and 'Mayell and Fraser, Bagheykhola', a brewery, were not having any ETP, consents to operate were being renewed every year by the Board with condition to have ETP with Zero Liquid Discharge (ZLD). This showed that the industries had not been complying with the directions and despite this, the Board had been renewing consents without physical inspection of the industries.

While accepting the fact, the Board replied (October 2015) that the points raised by audit had been noted and it was prepared to carry out prior inspection before renewal of consents in further instances.

5.3.19 Non-submission of Environmental Audit Reports (EARs)

As per Notification issued by GOI in March 1992, every industry requiring consent under Air Act 1981 or Hazardous Waste (Management and Handling) Rules 1989 shall submit an EAR for the preceding financial year to the State Board by 15 May every year, indicating the quantity of pollutants generated.

It was found that out of total of 55 numbers of industries (HEPs and Pharmaceuticals), which were registered with Commerce and Industries Department, only 16 industries submitted EARs and other 39 industries to whom consents were granted by the Board had not submitted their EARs. The Board, despite this violation, had not initiated any action against the erring industries. In the absence of the EARs, the quantity of pollutants released by these industries to the atmosphere was not ascertainable by the Board.

The Board replied (October 2015) that on the basis of audit observation it had directed all the industries to comply with the requirements of submission of environmental audit reports without further delay.

Audit objective-3:

Whether fund management by the Board was efficient to secure optimum utilisation?

5.3.20 Financial Management

5.3.20.1 Financial resources of the Board

The main sources of income of the Board were contributions made in the form of grants-in-aid by the State/Central Governments including CPCB, fees collected while granting Consent for Establishment/Operation (CFE/CFO) and their renewals under Air and Water Acts, sample analysis fees, Bio-Medical Waste Management authorisation fee, etc.

5.3.20.2 Budget and Expenditure

Under Section 38 of the Water Act, the Board shall, during each financial year, prepare a budget in respect of the ensuing financial year showing the estimated receipt and expenditure. It was noticed that the Board was not preparing any budget estimate to plan

its resources (funds). However, expenditure was incurred by the Board in an *ad-hoc* manner. The total funds received and expenditure incurred by the Board during last five years is shown in table below:

Table 5.3.11

(₹ in lakh)

Year	Opening Balance	Funds received			Total funds available	Expenditure incurred	Percentage of expenditure incurred	Closing balance	Percentage of savings
		GOI	State	Other					
2010-11	68.78	26.89	11.00	265.76	372.43	242.67	65	129.75	35
2011-12	129.75	32.00	28.62	225.83	416.20	193.65	47	222.55	53
2012-13	222.55	86.00	15.41	152.77	476.73	112.82	24	363.91	76
2013-14	363.91	Nil	Nil	222.55	586.46	117.48	20	468.99	80
2014-15	468.99	Nil	54.08	180.25	703.32	135.17	19	568.15	81
TOTAL		144.89	109.11	1,047.16		801.79			

Source: Audited Annual Accounts of the SPCB.

Further, the year-wise break ups of expenditure under different heads by the Board during the last five years are given in the table and chart below:

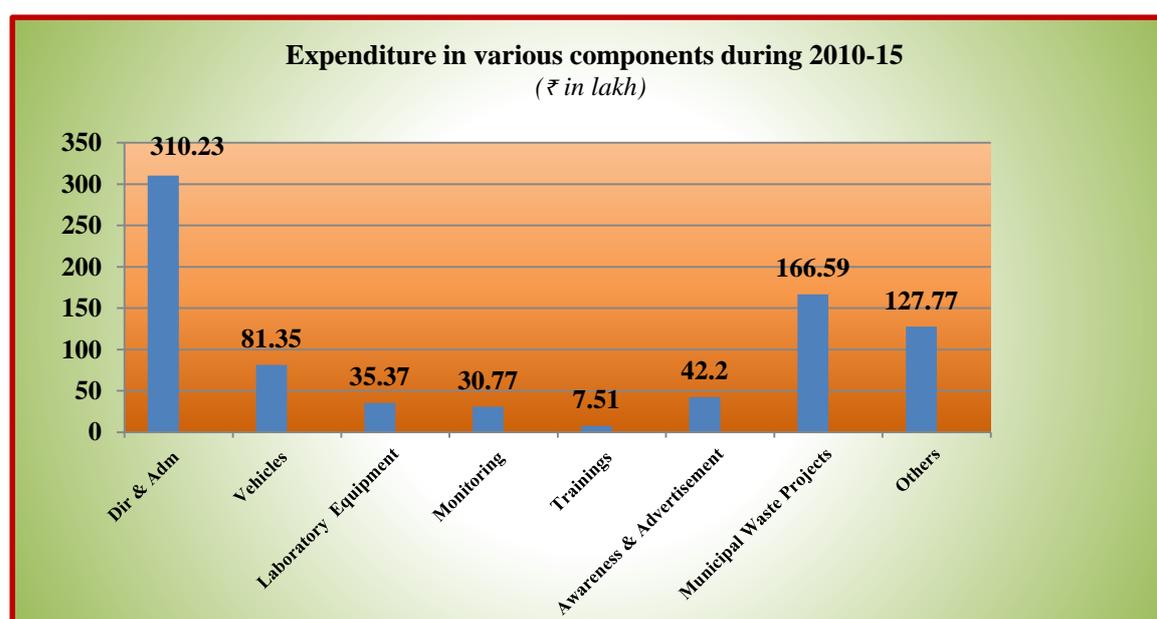
Table 5.3.12

(₹ in lakh)

Year	Total funds available	Expenditure incurred											Savings over total funds available	
		Dir & Adm.	Vehicles		Lab Equipments	Monitoring	Trainings	Awareness & Advertisements	MSW Projects, beautification of bird park, Hydel Power Projects, Waste Water Management (WWM)					Total expenditure
			Purchase	Running expenses					MSW project	HEPs	WWM	Others (misc)		
2010-11	372.43	52.06 (21)	Nil	4.75(2)	9.43 (9)	Nil	0 (0)	13.56 (6)	66.25	28.69	9.09	58.85	242.67 (65)	129.75 (35)
2011-12	416.20	55.90 (29)	17.13 (9)	Nil	2.74 (1)	30.77 (16)	0 (0)	5.91 (3)	25.78	36.78	Nil	18.64	193.65 (47)	222.55 (53)
2012-13	476.73	51.31 (46)	25.55	1.09	3.48 (3)	Nil	1.20 (1)	2.61 (2)	Nil	Nil	Nil	27.58	112.82 (24)	363.91 (76)
2013-14	586.46	75.81 (65)	Nil	9.64 (8)	18.87 (16)	Nil	0.10 (1)	2.54 (2)	Nil	Nil	Nil	10.52	117.48(20)	468.98 (80)
2014-15	703.32	75.15 (56)	12.34 (9)	10.85 (8)	0.85 (1)	Nil	6.21 (4)	17.58 (13)	Nil	Nil	Nil	12.19	135.17 (19)	568.15 (81)
TOTAL		310.23	55.02	26.33	35.37	30.77	7.51	42.20	92.03	65.47	9.09	127.78	801.79	

(Source: Audited Annual Accounts of the SPCB); Note: Figures in brackets indicate percentage

Chart 5.3.2



From the above table and chart it could be seen that utilisation of funds by the Board against the available funds was poor and it ranged between 19 and 24 *per cent* during 2012-13 to 2014-15. Poor utilisation of funds was attributed mainly due to imbalanced spending as could be seen that funds during 2010-11 and 2011-12 were utilised mainly for MSW and HEPs leaving other items like awareness, training, etc. with less expenditure. Reasons for poor utilisation of funds were not on record.

Further, the Board had not given emphasis on inspections and monitoring (except in 2011-12) of the industries and similarly only a meagre amount was spent on awareness drives, advertisement and trainings.

While accepting the points raised by audit, the Board stated (October 2015) that it had placed the budget before the Board Members in September 2015 and had also obtained approval of the same.

5.3.20.3 Non realisation of Water Cess by the Board

As per Rule 3 of the Water (Prevention and Control of Pollution) Cess Act 1977, enacted by Parliament, water cess is to be collected from the State Industries and Municipalities by the Board and remitted to the Central Government.

Scrutiny of records revealed that the Board was not collecting Cess from the industries/municipal bodies under Water Cess Act 1977. The water cess as calculated from the 71 test checked files of different industries by the audit revealed that the WSPHED supplied 7,88,61,900 kilo litre (@ 1,57,72,380 kilo litre per year) water for domestic consumption, hospitals, etc. and the industries utilised 4,37,67,205 kilo litre (@ 87,54,747 kilo litre per year) of water for the industrials uses. The total water cess amounted to ₹ 59.54 lakh (₹ 43.77 lakh from test checked industries at the rate of ₹ 0.10/kilo litre and ₹ 15.77 lakh from the WSPHED at the rate of ₹ 0.02/kilo litre) which remained to be realised. Further, the details of consumption of water by the HEPs were not furnished by the Board to audit and hence could not be examined.

Failure to collect water cess from users resulted in shortfall in income amounting to ₹ 59.54 lakh to the Board as the amount of cess apportioned to State Board by GOI depends on the amount collected in that State. Thus, amount to that extent was not available to the Board for its activities. Though the Water Cess Act provides that non-payment of water cess attracts levy of interest (two *per cent* per month), penalty (up to an equal amount of arrears) and imprisonment (up to six months), the Board failed to take initiatives for effective implementation of Water (Prevention and Control of Pollution) Cess Act, 1977.

While accepting the audit contention, the Board replied (October 2015) that the points raised by the audit had been discussed thoroughly in the Board Meeting and all the members of the Board agreed the proposal unanimously to implement the Water Cess Act 1977.

5.3.20.4 Diversion of funds under Sikkim Ecology Fund and Environmental Cess

The State of Sikkim notified the Sikkim Ecology Fund and Environmental Cess Act in 2005 and the Rules there under were framed in 2007. As per the Act, whoever brings non-biodegradable materials in the State of Sikkim with whatsoever purpose would be levied environmental cess at the rate of one *per cent* of total turnover on sale price. The broad objective for utilisation of this fund was to protect and improve the quality of environment, control and abate environment pollution and to take measures for restoration of ecological balance of the State.

Scrutiny of records revealed that the collection of environmental cess started from the year 2007-08 onwards under the Sikkim Ecology Fund and Environmental Cess Act. It was found that a total of ₹ 172.60 Crore was collected till 2014-15. However, while scrutinising utilisation of this ecology funds, it was seen that out of ₹ 106.46 crore of expenditure, a huge amount of ₹ 90.01 crore (85 *per cent*) was diverted for various purposes like construction, payments towards salaries, wages, muster rolls, purchase of vehicles, furniture, beautification of religious places, computers, establishment of saw mills in various places, and release of state share of various centrally sponsored schemes.

Further, it was also noticed that out of the total diversion of ₹ 90.01 crore, the funds amounting to ₹ 16.46 crore was transferred to Tourism Department for the project Sky-walk at Bhaleydung, South Sikkim and an amount of ₹ 24.60 crore was transferred to different sectors, other than ecology and environment for development purposes. The details are given in the following table:

Table 5.3.13

(₹ in lakh)

Ecology Cess Funds utilised for various purposes other than environment and ecology	Amount
Funds transferred to different sectors for developmental purposes other than ecology and environment purposes.	2,460.00
Payments towards salaries; wages; muster rolls	1,916.09
Release of state share of various centrally sponsored schemes	1,866.16
Funds transferred to Tourism Department for the project Sky-walk at Bhaleydung	1,646.05
Construction works, viz. Residential quarters, offices, footpath, gates, repairs, etc.	866.31
Purchase of vehicles	79.04
Establishment of saw mills in various places	65.60
Furniture of offices and forest residential quarters	31.65
On computers	26.20
Beautification of religious places	14.50
Miscellaneous items	29.50
TOTAL	9,001.10

Hence, the funds so collected for the purpose of protection and improving the quality of environment, control and abating environment pollution and for taking measures for restoration of ecological balance of the State was mostly (85 *per cent*) diverted to other works defeated the purpose for which the environment cess was collected.

*Audit objective-4:
Whether adequate man power and effective Internal Control mechanisms existed?*

5.3.21 Manpower Management

Deployment of adequate manpower in the Board is required to carry out its various functions for prevention, control and abatement of pollution.

5.3.21.1 Shortage of manpower

Audit of records of the Board revealed that it was functioning from the existing manpower which was appointed prior to 2005. However, there was considerable increase in number of industries from 82(2005) to 331(2015) due to rapid industrialisation and establishment of industries like Hydro Electric Projects, Pharmaceutical units, Distilleries, Breweries, etc. in post 2005 period as shown in **Table-5.3.14**. Thus, it was imperative that the volume of work had increased, which necessitated increased requirement of manpower for monitoring, inspection and supervision of establishments for enforcement of various environmental Acts.

It was seen from the proposal of the Board (September 2012) sent to CPCB that they were in need of 31 number of technical and non-technical staff against which the Board was having at its disposal only 14 people with a shortage of 17 numbers of staff as shown in **Table-5.3.15**.

The details of industries established and manpower available is given in the tables below:

**Table 5.3.14
Status of industries**

Status of industries	HEPs	Pharma- ceuticals	Distilleries & Breweries	Hotels	Hotmix plants	SSI & others	Stone crushers	Total
No. of industries prior to 2005	01	01	04	50	0	24	02	82
No. of industries at present	17	38	10	119	18	54	75	331

**Table 5.3.15
Details of manpower**

Cadre/ post	Number of staff available	Number of staff required	Shortage of staff
Scientific	07	11	04
Technical	01	02	01
Administration	05	07	02
Finance	01	04	03
Computer	00	01	01
Legal	00	01	01
Drivers and Gr 'D'	00	05	05
TOTAL	14	31	17

Thus, it was evident that there was inadequate staff which led to compromise in discharging its responsibilities effectively with regard to issue of consents/authorisations to establish and operate, inspection, monitoring, supervision, conducting public hearings, etc.

The disproportionate deployment of manpower has adversely impacted the objective of retaining the pollution under control in the context of supervision, inspection and monitoring of industrial units and units generating BMW, STPs, MSWs, etc.

5.3.21.2 Appointment of Chairperson and Member Secretary

As per the Section 4.2(a) and (f) of Water (Prevention and Control) Act 1974 and section 5.2 (a) and (f) of Air Act 1981, the Chairperson of the Board should have qualification and special knowledge or experience in respect of matters relating to environmental protection or he should be a person having knowledge or practical experience in administering institutes dealing with environmental matters. He is to be nominated by the State Government. Similarly, the Member Secretary (MS) should possess qualification, knowledge and experience of scientific, engineering and management aspects of pollution control and he is to be appointed by the State Government. Further, it was seen that the MoEF, as directed by the Supreme Court Monitoring Committee (SCMC), requested (16 August 2005) the Chief Secretaries (CS) of all States for filing affidavit taking clear stand in matter of appointments of the Chairperson and MS in the State Boards on the directions issued by the SCMC. As per the directions of SCMC, the Chairperson of the Board should be individual with a sense of vision and a feeling for future and they must have an understanding of the complexity of modern science and technology since they will be dealing with highly technical issue. Similarly, the MS was required to be full timer and should possess a post-graduate degree in science, engineering or technology and have adequate experience of working in area of environment protection. Finally, it was instructed that only technically qualified professionals should be appointed to the critical positions of Chairperson and MS, so that their functioning could be strengthened as required in terms of paragraph 41.1 of Supreme Court's order dated 14 December 2003.

However, it was seen that the Chairperson as well as MS did not possess above mentioned requisite qualification. The Chairman was a public representative having qualification of BA, whereas the MS possessed the qualification of B.Sc. Further, the MS was not a full timer as he also looked after functions of other wings of FEWMD.

Hence, the SPCB was headed by the people not having pre-requisite qualifications and under such circumstances, management aspects of pollution control and understanding of the pollution related complexity of modern science & technology remained questionable.

5.3.21.3 Non-availability of qualified legal officers

Under the provisions of the Acts and Rules made there under, the Board was vested with authority to take legal action on violators of environmental laws. The Board was required to form a Legal Committee for this but it was found that no such Legal Committee was formed and reasons for the same were not furnished to audit by the Board.

Further, it was observed that legal section at the Board's Office did not have qualified legal officer and was manned by an engineer. The legal cases were dealt with through hired legal counsels appointed by the Board from time to time. Speedy disposal of legal cases under such circumstances were hampered to a great extent.

5.3.22 Inspections of industries

As per instructions issued in Schedule IV of the Notification (December 1999) by Ministry of Environment and Forest, GOI, industries shall be inspected at the following frequency depending on their classification, viz., Red (highly polluting), Orange (moderately polluting) and Green (least polluting):

Table 5.3.16

Prescribed frequency of inspections of industries by Board

Sl. No.	Size of Industry	Category of Industry	Frequency of visit and effluent sampling
1	Small scale	Red	Once in 12 months
		Orange	Once in 3 years,
		Green	Once in 3 years on random check basis
2	Large and Medium Scale	Red	Once in 3 months
		Orange	Once in 6 months
		Green	Once in 12 months

The instructions also included an advice that State Board may chalk out a programme of inspection/sampling by its staff so as to cover all the units for vigilance and monitoring purposes and also to improve the frequency as might be necessary.

Audit noticed that the Board's inventory did not have any information on the number of small, medium and large industries under each category and the categorisation of industries had not yet been done by the Board. Records relating to numbers of inspection done were also not maintained. In absence of these information Audit could not make an assessment of the number of inspections due, conducted and shortfall thereto.

In reply, the Board stated that inspection of industries were conducted only as and when required or on receipt of specific complaints, though number of inspections conducted could not be furnished by the Board due to non-maintenance of any records of inspection. Further, the Board stated that categorisation of industries would be done shortly and as soon as the industries are categorised the inspection would be carried out accordingly. However, facts remained that the Board had failed to perform its function of periodic inspection effectively and in fact it is doubtful that any inspections were conducted at all in view of the absence of documentation.

While accepting the audit observation, the Board replied (October 2015) that the SPCB was waiting for uniform categorisation of industries from CPCB/MoEF after which regular inspection would be carried out as per the guidelines.

5.3.23 Dissemination of information in the websites

As per Section 17 (1) (c) of Water (Prevention and Control) Act 1974 and Air Act 1981, the Board is required to collect and disseminate information relating to water and air pollution and the prevention, control or abatement by posting data in the website of the Board. However, it was found that even after several requests from the CPCB, the Board failed to upload any analysed data in the website of the Board.

In reply, the Board stated that Board intended to carry out uploading of data at the earliest in the Web site.

5.3.24 Trainings

According to Section 17(1)(e) of Water (Prevention and Control of Pollution) Act 1974, the Board is required to collaborate with Central Board in organising training programmes for target groups relating to prevention, control and abatement of water pollution. It was also necessary to keep workforce updated about latest environmental issues and technology. Audit scrutiny revealed that no such training was given to any persons during 2010-11 and 2011-12. However, it was found that a very meagre amount of ₹ 7.51 lakh (less than one *per cent* of the total expenditure) was spent during last three years, i.e. 2012-13 to 2014-15 for training. This showed that the Board had not taken adequate efforts to organise training despite having huge unspent balance with the Board. While accepting it, the Board stated that they would give priority to organise training on regular basis.

Audit survey on the awareness of pollution revealed that the people did have idea/knowledge on municipal solid waste-its source and treatment, etc. Had the SPCB imparted training to the targeted groups, the knowledge on source and treatment of various wastes could have been disseminated and consequently the pollution could have been controlled and abated.

5.3.25 Board meetings

Section 10 of Air (Prevention and Control) Act, stipulated that the Board shall meet at least once in every three months. It was observed that during the five year period of 2010-15, the Board met only thrice as against the minimum requirement of 20 meetings.

Though only three Board meetings were held during the period under PA, minutes of only two meetings held on 5 December 2011 and 10 May 2013 were produced to Audit. While going through these minutes of the meetings, it was seen that decisions like early appointments of technical staff for Air Quality Monitoring Stations, conducting of the Board meetings at interval of every three months, appointment of Accounts Officer for looking after the Board's financial activities, getting of grants from the State Government on regular basis, conducting surprise and frequent checks of industries on regular basis, preparation of annual action plans every year, etc. were taken up. However, the Board failed to initiate follow up action on the lines of these minutes.

Thus, above facts corroborate that there was non-compliance to the standing Act. Though, the SPCB could hold only three meetings out of 20 requisite meetings, no follow up action could be taken for even these three meetings.

In reply, the Board stated that a proposal to conduct meetings on regular basis as per the provisions of the Act was under process. However, the fact remained that the SPCB had trailed in conducting meeting and more importantly, no follow up action of the conducted

meetings was taken which hampered the implementation of activities related to abatement of environmental pollution.

5.3.26 Monitoring and Evaluation

The Board had not developed any mechanism to monitor or to evaluate the compliance of the provisions of the Acts and Rules, as it did not have the required scientific and technical officials. The inaction of the Government was also responsible in not allowing the Board to discharge its statutory functions as the Board had not been given its autonomy in its functioning. Further, the Board had not made its own Rules and Regulations and Recruitment Policies and had been adopting State Government Rules and Regulations. As a result, it was lagging behind in monitoring and evaluating the compliance of the provisions of the Acts and Rules such that 86 numbers of units were operating without consent, three units were functioning without effluent treatment plant, healthcare facilities were inadequately equipped with respect to treatment of bio-medical waste, etc.

In reply, the Board stated that the matter related to monitoring and evaluation was being taken up.

5.3.27 Monitoring of Environmental Statements of industries not monitored

As per Rule 14 of the Environment (Protection) Rules 1986, every person carrying on an industry, operation or process requiring consent under Section 25 of the Water (Prevention and Control of Pollution) Act 1974 or under Section 21 of the Air (Prevention and Control of Pollution) Act 1981 or both or Authorisation under Hazardous Wastes (Management and Handling) Rules 1989 issued under the Environment (Protection) Act 1986 was to submit an Environmental Statement (ES) for the financial years ending 31 March in Form V to the Board on or before 30 September of every year. All the industries were required to submit ES as per the Rule.

It was revealed that most of the industries had not submitted their ES as required under rules. As a result, the Board was not able to know compliance of Environmental Act and Rules by industries and could not initiate follow up action.

5.3.28 Internal control mechanisms in the Board

Internal audit is an independent appraisal of the control mechanism in the Department by the auditors. The responsibility of carrying out internal audit of the Board was assigned to Directorate of Internal Audit under Finance, Revenue and Expenditure Department. It was however, noticed that the Director of Internal Audit had not inspected records of the Board during any of the years under PA. Consequently, weakness, lacunae in the internal control were not brought to the notice of the Board to initiate corrective measures.

5.3.29 Annual Reports not prepared

As per Para 39 of the Water (Prevention and Control of Pollution) Act 1974, the Board is required to prepare the Annual Report in respect of the year last ended giving a true and full account of activities of the Board during previous financial year and shall submit such report to the State Government by 15 May each year to be laid before the State Legislature. However, it was found that the Board had not prepared any Annual Report since 2008-09 onwards. Thus, the Board was not in a position to review the status of works already done and was not able to set the future programmes perspective.

In reply, the Board stated that Annual Reports would be prepared and furnished.

5.3.30 Good Practices

State of Sikkim as well as some of the industries had adopted some good practices to improve quality of environment, control and abating environment pollution as mentioned below:

1. The State of Sikkim has notified The Sikkim Ecology Fund and Environmental Cess Act in 2005 and the Rules 2007. As per the Act, the environmental cess would be levied at the rate of one *per cent* of total turnover on sale price whoever brings non-biodegradable materials in the State of Sikkim with an objective to protect and improve the quality of environment, control and abating environment pollution and to take measures for restoration of ecological balance of the State.
2. On directions of the Board in consent letters, industries were developing green belt by planting various kinds of trees in factory premises.
3. Industries were utilising the treated effluent water for reuse in toilets and watering of gardens within their industrial compound with the ZLD concept which could be seen from the photographs below:

Image 5.3.33



Treated effluent being used for gardening purpose at Intas Pharma, Bagheykhola, East Sikkim

Image 5.3.34



Treated effluent being used for gardening purpose at STP/PTS, Sangkhola, East Sikkim

5.3.31 Absence of preparedness to deal with environmental pollution in Himalayas

The Himalayas are home to some 110 mountain peaks that stretch along 1,550 miles of Asia and harbour 10,000 glaciers. These massive rivers of ice hold the third largest

amount of stored fresh water on the planet (after the North and South Poles). This frozen water is the main source of replenishment to lakes, streams and some of the continent's mightiest rivers, on which millions of people depend for their water supplies. However, since the 1960s, the area covered by Himalayan glaciers has declined by more than 20 *per cent*. Some glaciers are melting away so rapidly that scientists are worried that they might disappear by mid of this century.

Climate change is one of the greatest challenges faced by the world in present times. With the current rate of green-house gas emission, the global temperature is likely to increase. This increase in temperature has affected the climate pattern causing cascading effect on biotic and non-biotic components of the ecosystem. The growing levels of greenhouse gases and the resultant global warming are threatening the Himalayan glaciers. Large clouds of pollution which hang over South and East Asia could also be contributing as much as the recent increases in greenhouse gases to the heating of the lower atmosphere. Their combined effect could be warming the lower atmosphere in the region which may be sufficient to account for the observed retreat of the Himalayan glaciers. Further, diesel fumes, along with smoke from coal burning, cooking fires and the burning of waste are among the main sources of particulate matter called soot or black carbon. This black carbon rises into the atmosphere and is driven by winds on to the snow or ice in the Himalayas, darkening the surface and in the process reducing reflectivity and causing the surface to absorb more heat.

Warming rate, and also its consequences, is higher in the Himalayas than the rest of the world. Sikkim occupies an important bio-geographic location in the entire Himalayan chain and represents high diversity of life forms. Over the years, various climate induced adverse effects have been felt in the Sikkim Himalayas. Due to this climate change, many species of fauna have shifted upwards along the elevation gradient in Sikkim. The severe effect of climate change on Sikkim fauna may lead to serious consequences resulting in their extinction. The present climatic variability that is slow and steady may lead to a sudden climate change over a period of time. It is understood that the human activities like agriculture, running of factories, burning of fossil fuels for transportation, deforestation, urban development are changing the climate on a micro level which, in turn, is changing the climate in the Himalayan range in Sikkim.

It is seen that many glaciers of the Sikkim Himalaya are forming glacial lakes with increasing intensity, which in fact is corroborated with the intermediate effects of long-term climate changes apprehended by majority of scientists. Due to increase in the rate of melting of the glaciers, lakes are increasing in the area and so is their stored water capacity. Surrounded by potentially dangerous glacial lakes that can burst and cause floods any time in Teesta and Rangit rivers of the State, Sikkim needs immediate long and short term plans for mitigating the eminent danger.

Despite the situation being alarming in the context of endangered Himalayan environment and pollution in rivers of Sikkim, the SPCB has not yet prepared itself to mitigate the adverse impact of such agents of pollution.

5.3.32 Conclusion

The Board did not prepare Annual Action Plans since its inception in 1992. There was no inventorisation of industries, stones crusher/hot-mix plants, DG sets, hotels, HCFs, etc. which resulted in operation without consent as well as non-realisation of revenue by the Board. Several industries, municipalities, healthcare establishments were operating without valid/renewed Consent for Operation. Out of 13 towns, 12 towns were operating without any sewage treatment facilities. Some of the industries were not having any ETPs and in some of the industries, ETPs were not functioning. Municipal waste was not treated properly and treatment facilities were not sufficient to treat waste generated in the State as most of the towns were not having such facilities. The UDHD had not so far constructed any landfill site for disposal of untreated non-biodegradable waste. Hazardous waste was also not disposed in prescribed time as most of the industries had kept accumulated hazardous waste in their premises openly. Out of 69 HCFs, only 20 HCFs had obtained BMW authorisation. Some of the HCFs were not having required treatment equipment. The Board was not fully equipped with lab equipments to carry out various types of water and air testing and monitoring facilities. No Air Quality Monitoring Stations were established despite incurring expenditure of ₹ 30.77 lakh on procurement of equipments. There was no authorised collection centre and registered dealer in the State for handling of e-waste. There was huge shortage of water and air stack lab equipments in the Central Lab of the Board. Out of total funds of ₹13.70 crore available with the Board during the period of PA, the Board could utilise ₹ 8.02 crore only with a saving of ₹5.68 crore. The Board failed to enforce Water Cess Act and hence could not collect water cess of ₹0.60 crore. There was diversion of funds towards various purposes like construction, payments on salaries, purchase of vehicles, furniture, computers, establishment of saw mills, etc. amounting to ₹ 90.01 crore from the Sikkim Ecology Funds and Environment Cess, which was collected to protect and improve the quality of environment, control and abate environment pollution and to take measures for restoration of ecological balance of the State. The Board did not categorise the industries into 'Red', 'Orange' and 'Green' as a result of which there was substantial shortfall in conducting inspections in these industries. There was no monitoring exercised by the Board on compliance of environmental norms by industries, stone crushers, STPs, MSW Plants, etc. Despite such large number of violations, the Board failed to initiate legal action to contain pollution.

5.3.33 Recommendations

The Board should consider implementing the following recommendations:

- prepare robust database regarding different polluting sources, pollution load, etc., and prepare annual comprehensive action plans. These needs to be done in a time bond manner;
- initiate legal actions for violation of provisions of environmental laws and ensure that no establishment is working without consent of the Board;

- take immediate steps for implementation of Water Cess Act, issues of setting up STPs and utilise its accumulated funds towards prevention, control and abatement of pollution;
- take measures for safe disposal of hazardous and biomedical/organic and inorganic waste which needs to be ensured through stringent action including shutting down defaulters institution and periodical verification of air/water monitoring stations; and
- the ambient air quality meters need to be established immediately.