



सत्यमेव जयते

**Report of the
Comptroller and Auditor General of India
on
General and Social Sector
for the year ended March 2018**



लोकहितार्थं सत्यनिष्ठा
Dedicated to Truth in Public Interest



**Government of West Bengal
Report No. 1 of 2020**

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Comptroller and Auditor General of India
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General and Social Sector**

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Preface

This Report on General and Social Sector for the year ended March 2018 has been prepared for submission to the Governor of West Bengal under Article 151 of the Constitution of India for being laid before the Legislative Assembly of West Bengal.

This Report contains significant results of the performance audit and compliance audit of the Departments of the Government of West Bengal under the General and Social Sector including Health & Family Welfare, Public Health Engineering and Urban Development & Municipal Affairs. Where necessary for purposes of corroboration, the Environment and Animal Resources Development Departments falling under the Economic Sector was also covered.

The instances mentioned in this Report are those, which came to notice in the course of test audit for the period 2017-18 as well as those which came to notice in earlier years, but could not be reported in the previous Audit Reports; instances relating to the period subsequent to 2017-18 have also been included wherever necessary.

The audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

Chapter 1

Overview of the General and Social Sector

Chapter 1: Overview of the General and Social Sector

1.1 Introduction

This Report covers matters arising out of the audit of State Government Departments and Autonomous Bodies under the General and Social Sectors. The primary purpose of this Report is to bring to the notice of the Legislature the important results of audit. The findings of audit are expected to enable the Executive to take corrective action as also to frame policies and directives that will lead to improved financial management of the organisations contributing to better governance.

The Report has been organised in three chapters as under:

- Chapter 1 contains the Profile of the General and Social Sector with a brief analysis of the expenditure of the Departments under the General and Social Sectors for the last five years, the authority for audit, audit jurisdiction, planning and conduct of audit, response of the Government to various audit products, namely Inspection reports, Draft Paragraphs, *etc.* and follow up action on Audit Reports.
- Chapter 2 of this Report contains the Performance Audit on Bio-Medical Waste Management in West Bengal.
- Chapter 3 contains significant observations arising out of Compliance Audit of various Departments and their functionaries and includes Compliance Audit of Implementation of Water Supply Schemes by Kolkata Metropolitan Development Authority.

1.2 Profile of the General and Social Sector and Audit Universe

As per the Budget Publication, the Government of West Bengal releases 75 grants, of which 54 are active¹, related to its various departments. The audit universe under General and Social Sector of the office of the Principal Accountant General (General & Social Sector Audit), West Bengal, comprises 2,261 units of various levels related to 29 Grants. It also includes 127 bodies/authorities which are either substantially financed from the Consolidated Fund of the State or audit of which has been entrusted by the Government under various sections of the Comptroller & Auditor General's (CAG's) DPC (Duties, Powers and Conditions of Service) Act, 1971 under these two sectors. List of the Departments, autonomous bodies and companies under the audit jurisdiction of the office of the Principal Accountant General (General & Social Sector Audit), West Bengal is shown in *Appendix 1.1*.

Trend of expenditure in major Departments under the audit jurisdiction of the office of the Principal Accountant General (General & Social Sector Audit), West Bengal during 2013-18 is shown in **Table 1.1**.

¹ Against the remaining 21 grants there was no budgetary allocation

Table 1.1: Trend of expenditure of the Departments under the audit jurisdiction of Principal Accountant General (General & Social Sector Audit), West Bengal with annual expenditure exceeding ₹ 100 crore (₹ in crore)

Name of the Department	2013-14	2014-15	2015-16	2016-17	2017-18
Backward Classes Welfare	914.16	645.44	1,484.31	1,068.11	1,664.12
Correctional Administration	186.42	206.38	197.95	232.73	270.66
Disaster Management and Civil Defence	824.71	839.48	1,076.76	1,911.82	1,138.20
Finance	66,944.10	67,013.18	57,860.49	53,899.43	68,868.68
Fire & Emergency Services	225.29	199.19	282.25	246.64	259.38
Food & Supplies	2,707.30	1,288.35	3,958.69	8,156.28	9,316.91
Health & Family Welfare	4,723.99	6,252.44	7,727.98	8,124.24	8,772.55
Higher Education, Science & Technology and Bio-Technology	2,466.75	2,520.95	2,661.69	2,996.61	3,024.43
Home and Hill Affairs	5,043.20	5,757.81	6,160.27	6,639.84	6,789.94
Housing	645.37	735.77	765.16	783.29	993.15
Information & Cultural Affairs	152.72	230.19	283.48	318.75	415.25
Judicial	466.78	517.09	533.17	620.01	630.85
Labour	505.42	706.38	652.11	753.50	841.86
Mass Education Extension & Library Services	198.82	224.60	241.25	277.99	249.75
Minority Affairs & Madrasah Education	1,746.10	1,973.57	1,814.35	1,579.78	2,035.40
Panchayats & Rural Development	6,605.50	13,897.12	16,975.89	14,988.96	21,001.77
Planning, Statistics and Programme Monitoring	341.26	348.69	385.38	370.78	395.88
Public Health Engineering	1,354.22	1,429.32	1,879.02	1,947.16	3,042.55
School Education	14,500.99	16,592.53	16,833.02	18,599.25	20,103.68
Self Help Groups & Self Employment	198.71	237.91	455.17	450.15	612.22
Technical Education, Training & Skill Development	468.12	641.51	622.37	699.19	480.54
Tribal Development [#]	-	493.94	494.26	588.67	562.96
Urban Development and Municipal Affairs	5,089.23	5,571.66	6,727.86	7,805.39	9,520.11
Women & Child Development and Social Welfare	2,796.62	3,245.11	3,644.86	3,966.39	4,293.77
Others ²	407.64	454.10	564.90	679.99	746.54
Total	1,19,513.42	1,32,022.71	1,34,282.64	1,37,704.95	1,66,031.15

Source: Sub-Head Accounts and Appropriation Accounts 2013-14 to 2017-18.

[#] came into being in November 2013, however, allotment made from 2014-15 onwards.

1.3 Authority for audit

Authority for audit by the CAG is derived from Articles 149 and 151 of the Constitution of India and the CAG's (Duties, Powers & Conditions of Service) Act, 1971 (DPC Act). CAG conducts audit of expenditure of State Government Departments under Section 13³ of the CAG's DPC Act. CAG is the sole auditor in respect of Autonomous Bodies, which are audited under sections

² Others include Law, Parliamentary Affairs, Governor's Secretariat, Council of Ministers, Personnel & Administrative Reforms, Legislative Assembly Secretariat, Land & Land Reforms and Refugee Relief & Rehabilitation and Sports & Youth Services, etc.

³ Audit of (i) all expenditure from the Consolidated Fund of State, (ii) all transactions relating to Contingency Funds and Public Accounts and (iii) all trading, manufacturing, profit & loss accounts, balance-sheets & other subsidiary accounts.

19 (2), 19 (3)⁴ and 20 (1)⁵ of the DPC Act. In addition, CAG also conducts audit of other Autonomous Bodies which are substantially financed by the Government under Section 14⁶ of DPC Act. Principles and methodologies for various audits are prescribed in the Regulations on Audit & Accounts, 2007 and Auditing Standards issued by the Indian Audit & Accounts Department.

1.4 Planning and conduct of Audit

Performance Audit and Compliance Audit is conducted as per the Annual Audit Plan (AAP). Units for Compliance Audit are selected on the basis of risk assessment of the Apex unit, Audit Unit and Implementing Agencies involving matters of financial significance, social relevance, internal control systems, past instances of defalcation, misappropriation, embezzlement, *etc.* as well as findings of previous Audit Reports.

Inspection Reports are issued to the heads of Units after completion of audit. Based on the replies received, audit observations are either settled or further action for compliance is advised. Important audit findings are processed further as Draft Paragraphs for inclusion in the Audit Report.

Formal replies furnished by the Departments as well as views expressed by the Heads of Departments in Exit Conferences are carefully considered while finalising the materials for inclusion in the Audit Report. Audit Reports are laid before the State Legislature under Article 151 of the Constitution of India.

1.5 Lack of response of Government to audit

1.5.1 Response of the Government to Inspection Reports

Principal Accountant General (General & Social Sector Audit), West Bengal, (PAG) conducts audit of Government Departments to check for compliance to rules and regulations in transactions and to verify the regularity in maintenance of important accounting and other records as per the prescribed rules and procedures. After these audits, Inspection Reports (IRs) are issued to the Heads of Offices inspected with copies to the next higher authorities. Important irregularities and other points detected during inspection, which are not settled on the spot, find place in IRs. Serious irregularities are brought to the notice of the Government by the Office of the PAG.

As per the Regulations on Audit & Accounts, 2007, the Officer-in-charge of the auditee entity shall send the reply⁷ to an Inspection Report (IR) within four weeks of its receipt. On intimation of any serious irregularity by Audit, the Government shall undertake *prima facie* verification of facts and send a

⁴ Audit of the accounts of Corporations (not being Companies) established by or under law made by the State Legislature in accordance with the provisions of the respective legislations or as per request of the Governor of the State in the public interest.

⁵ Audit of accounts of anybody or authority on the request of the Governor, on such terms and conditions as may be agreed upon between the C&AG and the Government.

⁶ Several non-Commercial Autonomous/ Semi-Autonomous Bodies, established to implement Schemes for employment generation, poverty alleviation, spread of literacy, health for all and prevention of diseases, environment, *etc.* and substantially financed by the Government, are audited under Section 14.

⁷ Even if it is not feasible to furnish the final replies to some of the observations in the audit note or inspection report within the aforesaid time limit, the first reply shall not be delayed on that account and an interim reply may be given indicating the likely date by which the final reply shall be furnished.

preliminary report to Audit confirming or denying the facts within six weeks of receipt of intimation. Where the fact of major irregularity is not denied by the Government in the preliminary report, the Government shall further send a detailed report to Audit within three months of preliminary report indicating the remedial action taken to prevent recurrence and action taken against those responsible for the lapse.

Besides the above, Finance Department of Government of West Bengal had also issued instructions (June 1982)⁸ for prompt response by the executive to IRs issued by the PAG to ensure timely corrective action in compliance with the prescribed rules and procedures and to ensure accountability for the deficiencies, lapses, *etc.* observed during inspections.

A six monthly report showing the pendency of IRs is sent to the Principal Secretary/ Secretary of the respective department to facilitate monitoring and settlement of outstanding audit observations in the pending IRs.

Inspection Reports issued up to March 2018 relating to 189 offices under four departments⁹ showed that 714 paragraphs relating to 255 IRs had remained outstanding to the end of March 2018. It was observed that replies were received only in case of 21¹⁰ out of 44 IRs issued during the period from April 2017 to March 2018 relating to these four departments.

Department-wise and year-wise break-up of the outstanding IRs and Paragraphs are detailed in *Appendix 1.2*.

The unsettled IRs contained 79 paragraphs involving serious irregularities like theft, defalcation, misappropriation, *etc.* of Government money, loss of revenue and shortages, losses not recovered/ written off amounting ₹ 194.01 crore. The Department-wise and nature-wise analysis of the outstanding paragraphs of serious nature showed the following position:

Table 1.2: Analysis of outstanding paragraphs on serious irregularities
(₹ in lakh)

Name of the department	Cases of theft/ defalcation/ misappropriation		Loss of revenue		Shortage/ losses neither recovered nor written off		Total	
	Para	Amount	Para	Amount	Para	Amount	Para	Amount
Food & Supplies	03	72.64	09	5,506.44	05	240.68	17	5,819.76
Housing	08	2,028.95	11	3,187.66	07	783.41	26	6,000.02
Information & Cultural Affairs	02	1.15	10	335.15	08	7,098.41	20	7,434.71
Judicial	02	4.84	08	40.37	06	101.13	16	146.34
Total	15	2,107.58	38	9,069.62	26	8,223.63	79	19,400.83

Source: Inspection Reports

Audit Committees, comprising the Principal Secretary/ Secretary of the administrative departments and representatives of the Finance Department and Audit, were formed in 25 out of 29 Departments under the General and Social

⁸ Vide Memo No. 5703 (72)/ FB dated 29.08.1982

⁹ Food & Supplies Department: 52 offices; Housing Department: 20 offices; Information & Cultural Affairs Department: 39 offices and Judicial Department: 78 offices

¹⁰ Food & Supplies Department: 4 IRs; Housing Department: Nil; Information & Cultural Affairs Department: 11 IRs and Judicial Department: 6 IRs

Sector for expeditious settlement of outstanding Inspection Reports/ Paragraphs. Audit Committees were not formed by the remaining four Departments¹¹ under the General and Social Sector. Of the 25 Departments where Audit Committees were formed, meetings were held by only three¹² Departments during April 2017 to March 2018 wherein 73 paragraphs and 32 Inspection Reports were settled. Though other 22 Departments had Audit Committees, they did not hold any meeting during this period.

It is recommended that Government should ensure that a procedure is put in place for (i) action against officials failing to send replies to IRs/ paras as per the prescribed time schedule, (ii) recovery of losses/ outstanding advances/ overpayments, etc. in a time-bound manner and (iii) holding at least one meeting of each Audit Committee every quarter.

1.5.2 Impairment to Audit Scope

Section 18(1) (b) of the DPC Act stipulates that the CAG has the authority in connection with the performance of his duties under the said DPC Act to requisition any accounts, books, papers and other documents which deal with or form the basis of or otherwise relevant to the transactions to which his duties in respect of audit extends. The provision has been further amplified by Regulation 181 of the Regulations on Audit and Accounts, 2007 which provides that every Department or entity shall establish and implement a mechanism to ensure that data, information and documents that are required by Audit are made available to it in time. Further, section 7A of Information Technology (Amendment) Act, 2008 provides that where in any law for the time being in force, there is a provision for audit of documents, records or information, that provision shall also be applicable for audit of documents, records or information processed and maintained in electronic form.

Despite such clear provisions, instances of non-production of records to audit are many which restrict the effectiveness of Audit. Though such instances are brought to the notice of the Authorities on each occasion, follow up action by the auditee units/ authorities concerned have not been uniformly swift and effective. During inspection of different audited entities under various Departments of the Government of West Bengal (GoWB), Audit came across numerous instances of non-production of records, as detailed below:

- Out of 1,453 units under various Departments audited during February 2017 to July 2018, 63 audited entities under 14¹³ Departments did not provide the vouchers relating to transactions involving ₹ 51.35 crore though sought for while conducting audit scrutiny as detailed in the **Appendix 1.3**.

¹¹ Mass Education Extension & Library Services, Fire & Emergency Services, Self-Help Groups & Self Employment and Tribal Development Department.

¹² Public Health Engineering Department- four meetings, Housing Department- one meeting and Urban Development and Municipal Affairs Department- one meeting

¹³ 1. Health & Family Welfare (14 entities), 2. Correctional Administration (one entity), 3. Judicial (six entities), 4. Women & Child Development and Social Welfare (four entities), 5. Disaster Management and Civil Defence (two entities), 6. Labour (four entities), 7. Land & Land Reforms and Refugee Relief & Rehabilitation (five entities), 8. Food & Supplies (two entities), 9. Urban Development & Municipal Affairs (four entities), 10. Higher Education (two entities), 11. School Education (two entities), 12. Youth Services & Sports (two entities), 13. Panchayats & Rural Development (13 entities) and 14. Housing (two entities).

- In the wake of a paradigm shift by the GoWB towards e-governance, the topic on '*Kanyashree Prakalpa*'¹⁴ was selected by this office for the Annual Audit Plan 2016-17 for identifying risk areas through audit data analytics. The concerned Department was accordingly intimated (September 2016) to provide related data and documents. In response to our request, the Joint Secretary of the Department of the Women & Child Development and Social Welfare (WCD&SW) communicated (February 2017) their inability to furnish data relating to '*Kanyashree Prakalpa*' considering violation of rule of ethics regarding disclosure of information about adolescent girls. The reasons for refusing data was, however, not on valid grounds as Section 18 (1) (b) of the Act stipulates that the CAG has the authority under the said DPC Act to requisition any accounts, books, papers and other documents which deal with or form the basis of or otherwise relevant to the transactions to which his duties in respect of audit extends. Further, during audit of the offices of the District Magistrates¹⁵ (DM), the Joint Secretary of the WCD&SW Department again instructed (August 2018) the DMs not to provide the names and other details of beneficiaries as sought for by Audit for scrutiny in relation to *Kanyashree Prakalpa*. Even after follow up at the highest echelons¹⁶ no data was provided to Audit by the Department.

It is evident from the facts above that there was absence of co-operation by the concerned authorities of the GoWB, which was in violation of the provision of Constitution of India, CAG's (Duties, Powers and Conditions of Service) Act, 1971, Information Technology Act, 2008 and CAG's Regulations on Audit and Accounts, 2007.

Such non-production of records prevented the CAG from exercising his Constitutional authority/ mandate of providing assurance to the Legislature regarding accountability of the State Government. Due to non-production of data related to *Kanyashree Prakalpa* and vouchers by 14 Departments of the State Government, transactions could not be evaluated in audit for their regularity and propriety. Further, due to non-production of records, instances of violation of Government Orders/ directives, financial rules and regulations, etc., if any, in finalising the tenders and implementing the different schemes and programmes could not be ascertained in audit.

1.6 Response of the Departments to Draft Audit Paragraphs

Regulations on Audit & Accounts, 2007 stipulate that responses to Draft Audit Paragraphs proposed for inclusion in the Report of the Comptroller & Auditor General of India should be sent within six weeks¹⁷.

¹⁴ A conditional cash transfer scheme for incentivising the education of girl child and preventing child marriage was being implemented by the Women & Child Development and Social Welfare (WCD&SW) Department

¹⁵ Jalpaiguri, Murshidabad and North 24 Parganas

¹⁶ DO letters from Principal Accountant General (General & Social Sector Audit), West Bengal addressed to the Chief Secretary to the GoWB (in March 2017) and to the Additional Chief Secretary (ACS) to the GoWB, Finance Department (in November 2018). This apart, the matter of non-production of records was also discussed with the ACS to the GoWB, Finance Department in a meeting held in October 2018.

¹⁷ State Government's Finance (Budget) Department, in its order dated June 1982, however, directed all the Departments to submit their responses to proposed Draft Paragraphs within one month.

Draft Paragraphs are forwarded to the Principal Secretaries /Secretaries of the concerned Departments drawing attention to the audit findings and requesting them to send their response within prescribed time frame. It is also brought to their personal attention that in view of the likely inclusion of such paragraphs in the Audit Reports of the Comptroller & Auditor General of India which are placed before the Legislature, it would be desirable to include their comments on these audit findings.

Draft Paragraphs proposed for inclusion in this Report were forwarded to the Secretaries of the concerned Departments between July 2018 and December 2018 through Demi-Official letters addressed to them by name. The concerned Departments/ Directorates did not send replies to 4¹⁸ out of 7¹⁹ Draft Paragraphs featured in Audit Report.

The responses of concerned Directorates/ Departments as well as replies to initial audit memos, wherever received, have been suitably incorporated in the Report.

1.7 Follow up on Audit Reports

Audit Report for the year 2015-16, which was submitted to the Governor in February 2017, was laid on the floor of the State Legislature in March 2018. Audit Report for the year 2016-17, which was submitted to the Governor in July 2018, was laid in July 2019. A mechanism to ensure promptness in tabling of Audit Reports should be put in place.

After tabling of the Reports of the C&AG of India in the State Legislature, the State Government Departments are required to submit *suo motu* replies to the audit observations within one month. Review of outstanding replies on paragraphs included in the CAG's Reports on the General and Social Sector on the Government of West Bengal up to 2016-17 showed that replies on 226 paragraphs pertaining to the period 1981-82 to 2015-16 involving 25 Departments (excluding omnibus paragraphs involving a number of Departments) remained outstanding as of December 2018 (*Appendix 1.4*). Out of 226 paragraphs, 41 paragraphs pertaining to 2005-06 to 2015-16 were selected for discussion by the Public Accounts Committee (PAC), while remaining 185 paragraphs pertaining to the period 1981-82 to 2012-13 have not been selected.

As stipulated in the Rules of Procedure of the PAC, Administrative Departments were required to take suitable action on the recommendations made in the Reports of PAC presented to the State Legislature and submit comments on the action taken or proposed to be taken on those recommendations within three months.

Action Taken Notes on 17 paras contained in 14²⁰ Reports of the PAC, presented to the Legislature between 1993-94 and 2017-18 had not been submitted by

¹⁸ This apart, reply from H&FW Department in respect of Performance Audit on Bio-Medical Waste Management in West Bengal was not furnished till November 2019.

¹⁹ Excluding Paragraph of general nature each involving a number of Departments

²⁰ 14th PAC Report 1993-94, 36th PAC Report 1999-2000, 14th PAC Report 2002-03, 18th PAC Report 2003-04, 29th PAC Report 2004-05, 1st PAC Report 2006-07, 4th PAC Report 2006-07, 9th PAC Report 2006-07, 32nd PAC Report 2010-11, 33rd PAC Report 2010-11, 29th PAC Report 2009-10, 2nd PAC Report 2012-13, 3rd PAC Report 2012-13 and 13th PAC Report 2014-15 & 2015-16.

nine²¹ Departments to the Assembly Secretariat as of December 2018. These 14 Reports of the PAC had suggested recovery, disciplinary action, *etc.* A few significant cases are elaborated in ***Appendix 1.5***.

Action taken by Administrative Departments on the recommendations of the PAC were, however, found to be inadequate and wanting.

²¹ (i) *Refugee, Relief and Rehabilitation (erstwhile Refugee Welfare)*; (ii) *Panchayats & Rural Development*; (iii) *Public Health Engineering*; (iv) *Finance*; (v) *Home & Hill Affairs*; (vi) *Urban Development & Municipal Affairs*; (vii) *School Education*; (viii) *Health & Family Welfare and* (ix) *Higher Education, Science & Technology and Bio-Technology Departments*

Chapter 2

Performance Audit

Chapter 2: Performance Audit

HEALTH & FAMILY WELFARE AND ENVIRONMENT DEPARTMENTS

2.1 *Bio-Medical Waste Management in West Bengal*

Executive Summary

According to the World Health Organisation²², health care services in pursuing their aims of reducing health problems and eliminating potential risks to people's health, inevitably create waste that may itself be hazardous to health. The waste produced in the course of healthcare activities carries a higher potential for infection and injury than any other type of waste. Inadequate and inappropriate handling of health-care waste may have serious public health consequences and a significant impact on the environment. Sound management of health-care waste is thus a crucial component of environmental health protection.

With the objective of providing a regulatory frame work for management of bio-medical waste (BMW) generated in the country the Ministry of Environment and Forests, Government of India (GoI) framed (July 1998) the Bio-Medical Waste (Management and Handling) Rules, 1998 under the Environment (Protection) Act, 1986. Thereafter, GoI reviewed these rules and with the objective of implementing these rules more effectively, to improve the collection, segregation, processing, treatment and disposal of these bio-medical wastes in an environmentally sound management thereby, reducing the bio-medical waste generation and its impact on the environment, framed a more comprehensive set of Rules in supersession of the existing rules called 'Bio-Medical Waste Management Rules, 2016' (BMW Rules) in March 2016. These Rules prescribe the procedures for handling, treatment and disposal of Bio-Medical Waste (BMW) generated by hospitals, nursing homes, blood banks, veterinary institutions, *etc.*

In the State of West Bengal, the West Bengal Pollution Control Board (WBPCB), under the control of the Environment Department, Government of West Bengal (GoWB), is the Authority prescribed to enforce provisions of the BMW Rules. The Health and Family Welfare (H&FW) Department, GoWB is responsible for enforcing the Rules in all Health Care Facilities (HCFs). The responsibility in respect of BMW generated from veterinary HCFs lies with the Animal Resources Development (ARD) Department.

The Audit on Bio-Medical Waste Management covered a period of five years from April 2013 to March 2018 through examination of records of the Environment Department, WBPCB and H&FW Department. Besides, audit coverage was extended to Departments of Correctional Administration (CA), Home & Hill Affairs (H&HA) and Animal Resources Development. In addition, Common Bio-Medical Waste Treatment Facilities (CBMWTFs) were also covered in audit. Significant audit findings are detailed below:

²² *Safe management of wastes from health-care activities, second edition, WHO*

- WBPCB's inventory of BMW generating units was incomplete. 48 *per cent* of the BMW generating units remained outside the purview of WBPCB monitoring.
- BMW generation was not assessed in the State. Quantification of BMW is the first step in managing BMW. HCFs were to report the bio-medical waste generated in terms of category and colour coding as specified in Schedule I of the BMW Rules 2016, to WBPCB for compilation to arrive at the total quantum of BMW generated in the State. In seven test-checked WBPCB Circle Offices (COs)/ Regional Offices (ROs), 97 *per cent* of the identified HCFs, did not submit Annual Reports during the period 2015-18.
- BMW remained un-treated. In the Annual Report of 2016, WBPCB understated the quantity of BMW generation (26,859 kg per day) to match the figure of BMW shown as treated (26,859 kg per day) by the CBMWTFs so that no BMW was shown as remaining un-treated in the State. WBPCB was intentionally understating and manipulating the BMW generation figure to make it appear that all generated BMW was being treated before disposal.
- No operational research activity was undertaken or supported by the State to assess the risk posed by BMW to the health and environment. Further, there was lack of public awareness of the harm caused by BMW and limited knowledge of pollution prevention which made the risk assessment more essential.
- CBMWTFs failed to comply with Central Pollution Control Board (CPCB)'s norms of distance and beds to be covered, to ensure waste disposal within 48 hours of generation. 3,037 Metric Tonne (MT) of BMW reported to have been collected by four out of six CBMWTFs was beyond the capacity of the installed incinerators, even presuming the incinerators operated in full capacity round the clock during the period from 2013 to 2016.
- Gap between the requirement and availability of BMW treatment facilities was not analysed and as such there was no Action Plan for development of new CBMWTFs.
- WBPCB reported unrealistic figures of treatment of BMW in its Annual Reports, which was even beyond the installed capacity of the CBMWTFs.
- Though WBPCB attributed poor compliance to the BMW Rules to lack of awareness amongst various stakeholders it failed to establish co-ordination with H&FW Department for organising any centralised training during the period under review. In last five years, WBPCB had conducted only eight Workshops in nine months between December 2016 and August 2017.
- Training to generators and handlers of BMW was deficient. 81 *per cent* of the total staff handling BMW in the test-checked 39 Government HCFs remained untrained.

- There was lack of awareness among other Government Departments (e.g., Animal Resources Development, Correctional Administration, Home & Hill Affairs, etc.) contributing to BMW.
- The issue of improper segregation of BMW was pointed out in the Audit Report of the Comptroller and Auditor General of India on Government of West Bengal for the year ended 31 March 2008. Even after 10 years, serious irregularities were observed by Audit in segregation of BMW in 52 (74.29 *per cent*) of the 70 test-checked HCFs.
- Highly infectious blood samples were found scattered. BMW was disposed with Municipal wastes. Absence of red plastic bags for segregation of recyclable (plastic) BMW was noticed across the test-checked HCFs. Yellow plastic bags were used to collect the plastic BMW, leading to incineration of the plastic BMWs emitting highly toxic chemical called dioxin.
- The status of health check-up, immunisation and provisioning of personal protective equipment for health care workers and others handling BMW in the test-checked HCFs was poor.
- There was deviation of storage norms at CBMWTFs. None of the CBMWTFs were found to be using closed trolleys. Moreover, none of the CBMWTFs, except West Bengal Waste Management Limited (WBWML), Haldia, had installed any automatic feeding device for feeding of BMW into incinerators to avoid manual feeding.
- There was irregular collection and transportation of BM waste by the CBMWTFs. Non-lifting of BMW by CBMWTFs was never reported by HCFs to WBPCB. Hired vehicles, not fully covered vehicles, which were used were not dedicated for BMW carriage.
- Veterinary and other waste remained un-treated in the State. There was irregular burning and disposal in unauthorised burial pits.
- There was no separate collection system and no effluent treatment system in place for liquid chemical waste in 94.29 *per cent* test-checked HCFs.
- Treatment before disposal was poor in CBMWTFs. Continuous emission monitoring of flue gas not carried out. The emissions were beyond safety standards. Autoclaves meant for disinfecting plastic, glasses and sharp waste were not in operation in four out of six CBMWTFs. Plastic and sharp wastes were also burnt in incinerator.
- Prioritisation of prevention and minimisation of BMW generation over treatment and disposal of BMW, remained un-addressed in the State.
- Control and Monitoring mechanisms were not in place. Clinical Establishment licences were issued to 390 HCFs without valid BMW authorisation.
- Under test-checked WBPCB Regional Offices and Circle Offices jurisdiction, 74.88 *per cent* of 4,164 HCFs were operating without valid authorisation.

- Supervision and monitoring by the BMW Committees in HCFs was found to be inadequate.
- The BMW data with regard to West Bengal hosted on the web-site of CPCB, however, contained various anomalies impacting its reliability and highlighted monitoring failure on the part of CPCB.
- In spite of widespread violations of the Rules and Standards by the HCFs and the CBMWTFs across the State, no punitive action against the defaulters under Section 5 and Section 15 of Environment Protection Act, 1986 was found to have been taken by WBPCB to enforce compliance.
- In the absence of orders clearly delineating the duties and responsibilities of the various functionaries involved in implementation at various levels of the organisational hierarchy either under the WBPCB or under various Departments, no responsibility was fixed at any level of the organisational hierarchy despite gross and widespread irregularities in violations of BMW Rules, 2016.

2.1.1 Introduction

Waste management is an important factor in safeguarding human health and environment protection. Improper waste management may cause adverse health problems by spreading infections and diseases and may cause severe environmental problems by polluting the air and the soil, surface water and groundwater.

Some examples are:

- Soil can be contaminated with toxic components;
- Leachate²³ from waste can pollute surface water and ground water;
- Uncontrolled burning of waste produces toxic and carcinogenic gases; and
- Leaks of radioactive substances can contaminate the air and soil.

Waste is categorised as hazardous and non-hazardous (also called solid waste). Bio-Medical waste is a form of hazardous waste because it contains properties which render them hazardous. As per the Bio-Medical Waste Management Rules, 2016 (BMWM Rules) the term “Bio-Medical Waste” (BMW) means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or research activities pertaining thereto or in the production or testing of biologicals²⁴ or in health camps, including the categories mentioned in Schedule I²⁵ appended to the BMWM Rules, 2016.

²³ Water that dissolves contaminants as it trickles through waste disposed of in a landfill. Leaching may result in hazardous substances entering surface water, ground water or soil.

²⁴ Preparation made from organisms or micro-organisms or product of metabolism and biochemical reactions intended for use in health care of human beings or animals.

²⁵ (a) Human Anatomical Waste, (b) Animal Anatomical Waste, (c) Soiled Waste, (d) Expired or discarded medicines, (e) Chemical Waste, (f) Chemical Liquid Waste, (g) Discarded linen, mattresses, beddings contaminated with blood or body fluid, (h) Microbiology, Biotechnology and other clinical laboratory waste, (i) Contaminated Waste (Recyclable), (j) Waste sharps including Metals, (k) Glassware and (l) Metallic Body Implants.

This type of waste typically consists of medicines, sharp objects, bandages, body fluids and body parts, and usually contains bacteria and other organisms that can spread harmful diseases if not properly handled.

BMW constituted about 0.19 *per cent* (2016) of the solid waste (non-hazardous) generated in West Bengal. This 0.19 *per cent* of the infectious and hazardous waste has the potential of infecting the remaining 99.81 *per cent* (14,000 tonnes per day in 2016), if mixed with general waste. Hence, management of Bio-Medical waste at source becomes crucial.

In order to protect the environment and human health from the adverse effects of the BMW and provide a regulatory frame work for management of bio-medical waste generated in the country the Ministry of Environment and Forests, Government of India (GoI) framed (July 1998) the Bio-Medical Waste (Management and Handling) Rules, 1998 {BMW (M&H) Rules} under the Environment (Protection) Act, 1986. In supersession of these rules GoI framed a more comprehensive set of Rules called 'Bio-Medical Waste Management Rules, 2016' (BMWM Rules) in March 2016. These Rules apply to all persons²⁶ who generate, collect, receive, store, transport, treat, dispose or handle BMW in any form.

The Health and Family Welfare (H&FW) Department, GoWB was to ensure implementation of the BMWM Rules in all Health Care Facilities (HCFs) under its control as well as to advise WBPCB/ its committee on implementation of these Rules. H&FW Department was responsible to grant licences to the Government and private HCFs with a condition to obtain authorisation²⁷ from WBPCB for BMW management and to monitor, refuse or cancel licence for violation of conditions of authorisation or provisions under the Rules. Further, the Department was to undertake or support operational research and assess the risks to environment and health due to BMW, co-ordinate with WBPCB for organising training programmes to staff of HCFs and constitute State Level and District Level Advisory Committees to oversee the BMW management and implement the recommendations of the Committees, *etc.* Animal Resources Development Department had the same responsibility in regard to BMW generated by veterinary HCFs.

West Bengal Pollution Control Board (WBPCB), under the control of Environment Department, Government of West Bengal (GoWB), is the prescribed authority to enforce the provisions of the BMW (M&H) Rules, 1998 (up to March 2016) and then the BMWM Rules, 2016 in the State. Apart from ensuring compliance of the provisions of the Rules, WBPCB was responsible to inventorise BMW Occupiers²⁸ and data on BMW generation, treatment and disposal, compile data and submit the same in annual report to Central Pollution Control Board, grant/ renew, refuse/ cancel authorisation, ensure adequacy of treatment capacity of BMW, undertake research/ operational research on BMW

²⁶ Including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, Ayush hospitals, clinical establishments, research or educational institutions, health camps, medical or surgical camps, vaccination camps, blood donation camps, first aid rooms of schools, forensic laboratories and research labs.

²⁷ Kind of licence granted by WBPCB considering capability for proper management of BMW of a BMW handler/generator.

²⁸ Occupier means the person having administrative control over the institution and the premises generating BMW which includes all human and animal HCFs

management, impart training to staff of HCFs and CBMWTFs, monitor the compliance of conditions of authorisations and to take legal actions against HCFs/ CBMWTFs for violation of Rules.

Further details regarding responsibilities identified in BMW Rules, 2016, have been elaborated in *Appendix 2.1*.

2.1.2 Audit Objectives

The audit objectives were to examine whether:

- Quantum of waste being generated in the State had been assessed and risks to environment and health posed by BMW identified;
- Treatment and disposal facilities were adequate in the State;
- Stake holders were sensitised and awareness created among Occupiers, Operators and handlers of BMW;
- Effective compliance to Rules by the Occupiers and Operators²⁹ of the Common Bio-Medical Waste Treatment Facilities³⁰ (CBMWTFs) was taking place in the State;
- Monitoring was effective in checking compliances; and
- Man-power was adequate and accountability determined.

2.1.3 Audit Criteria

Following were the audit criteria:

- (i) Relevant provisions under Environment (Protection) Act, 1986;
- (ii) Provisions under Bio-Medical Waste (Management and Handling) Rules, 1998 and Bio-Medical Waste Management Rules, 2016;
- (iii) Guidelines issued by the Central Pollution Control Board (CPCB) for BMW management;
- (iv) Guidelines/ orders/ instructions issued by WBPCB; and
- (v) Orders/ circulars/ instructions issued by H& FW Department relating to management of BMW.

2.1.4 Audit Scope and Methodology

Audit covered a period of five years from April 2013 to March 2018. Records of H&FW Department, Environment Department, WBPCB along with its Waste Management Cell (WMC) and Seven COs/ ROs were scrutinised in audit. Besides, coverage was extended to Animal Resource Development (ARD) Department, Correctional Administration (CA) Department and Home & Hill Affairs (H&HA) Department as these Departments also operated HCFs and contributed to generation of BMW.

²⁹ A person who owns or controls a common bio-medical waste treatment facility (CBMWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste.

³⁰ CBMWT Facility means a facility common to all its member HCFs wherein treatment, disposal of BMW or processes incidental to such treatment and disposal are carried out.

All the six CBMWTFs functioning in the State were selected. Based on the jurisdiction of each CBMWTF, districts were stratified in six groups. Five districts³¹ were selected representing the strata based on simple random sampling method. Government HCFs in the five selected districts were selected based on bed strength. Joint inspection was also done in 31 private HCFs randomly selected in five test-checked districts.

The details of sample selection are given in **Table 2.1** and **Appendix 2.2**.

Table 2.1: Details of Audit Sampling

Sl. No.	WBPCB approved CBMWTFs	No. of districts catered by CBMWTF	Selected district	Concerned WBPCB office	Number of Units covered at District level							
					H&FW Department					ARD Deptt.	CA Deptt.	Home and HA Department
					Health Care Facilities (HCFs)							
					CMOsH	MCHs	Decentr alised HCFs	BPHC/ RHs	Private HCFs			
1	Greenzen Bio Private Ltd., Siliguri, Jalpaiguri	06	Darjeeling	Siliguri RO	01	01	02	03	02	03	00	00
2	West Bengal Waste Management Ltd., Purba Medinipur	02	Paschim Medinipur	Haldia RO	02	01	03	07	05	00	02	01
3	Medicare Environmental Management Private Ltd., Raniganj, Burdwan	05	Bankura	Durgapur RO	02	01	03	05	10	04	01	01
4	Medicare Environmental Management Private Ltd., Kalyani, Nadia	04	Hooghly	Barrackpore RO, Kankinara CO and Hooghly RO	01	00	04	05	08	03	01	01
5	Medicare Environmental Management Private Ltd., Belgachia, Howrah	02	Kolkata	WMC, WBPCB HQ	00	01	00	00	02	00	00	00
				Camac Street CO	00	00	01	00	00			
6	Greentech Environ Management Private Ltd., Mograhat, South 24 Pargana	02	Kolkata	WMC, WBPCB HQ	00	01	00	00	00	00	00	00
				Camac Street CO	00	00	01	00	04			
TOTAL					06	05	14	20	31	10	04	03

RO: Regional Office, CO: Circle Office, WMC: Waste Management Cell, CMOsH: Chief Medical Officers of Health, MCH: Medical College & Hospital, RH: Rural Hospital, BPHC: Block Primary Health Centre.

An Entry Conference was held (February 2018) with the Health and Family Welfare (H&FW) Department, wherein audit objectives, audit criteria, sampling and methodology were explained. Audit findings and recommendations were discussed with the H&FW Department and WBPCB in an Exit Conference held in March 2019. Replies and views of the Departments have been suitably incorporated in the Report.

³¹ Kolkata being common district for two CBMWTFs, five districts were selected from six strata

2.1.5 Previous Audit Coverage

A performance audit on ‘Management of Bio-Medical and Plastic Waste’ was included in the Audit Report of the Comptroller and Auditor General (CAG) of India on the Government of West Bengal (Civil) for the year ended 31 March 2008. The observations arising out of the present audit have been juxtaposed with the responses made by the WBPCB against the earlier report. The current study, however, does not cover Plastic waste.

Audit Findings

2.1.6 Quantification of Bio-Medical Waste and Assessment of Risk

2.1.6.1 WBPCB’s inventory of BMW generating units was incomplete

According to BMW Rules, 2016, the responsibility of inventorisation of Occupiers and data on bio-medical waste generation, treatment and disposal vests with State Pollution Control Boards (SPCBs).

48.32 per cent of BMW generating units in the State remained outside the purview of WBPCB monitoring

WBPCB did not establish a system or device a mechanism whereby it could establish linkages between Departments like H&FW, ARD, Correctional Administration, H&HA, etc. and integrate data for developing a dependable inventory of BMW generating units. It was observed that 48.32 per cent of the existing HCFs remained outside the inventory of the WBPCB as shown below:

Table 2.2: Comparison between inventory of WBPCB and list of the controlling Departments

Particulars	No. as per Departmental statistics ³²			No. as per WBPCB		
	Bedded	Non-bedded	Total	Bedded	Non-bedded	Total (percentage)
No. of HCFs	2,879	7,835	10,714	2,477	3,060	5,537 (51.68)
Bed Strength	1,47,401	0	1,47,401	1,06,193	0	1,06,193 (72.04)

Source: Departmental statistics of H&FW Department and WBPCB database/ records

Thus, the inventory maintained by WBPCB in respect of BMW generating units in the State was incomplete. In reply (February 2019), the Department of Environment stated that WBPCB has started collating the list of HCFs with Health Department.

2.1.6.2 BMW generation not assessed in the State

Quantification of BMW is the first step in managing BMW. As per the mechanism to be followed, the HCFs were to report the bio-medical waste generated in terms of category and colour coding as specified in Schedule I of the BMW Rules, to WBPCB for compilation to arrive at the total quantum of BMW generated in the State.

Annual Reports not obtained from HCFs

The mechanism failed to generate realistic data as 48.32 per cent of HCFs remained unidentified in the inventory of WBPCB. It was also observed by Audit that 97 per cent of the identified HCFs, in seven test-checked WBPCB COs / ROs, did not submit Annual Reports during the period from 2015 to 2018.

³² Departmental statistics includes H&FW, ARD, H&HA and CA Departments and hospitals under Employees’ State Insurance (Medical Benefit) Scheme

A similar observation was made in the Audit Report of the CAG of India, Government of West Bengal for the year ended 31 March 2008. In spite of its assurances to the Legislature in 2010, WBPCB could not quantify actual BMW generation in the State and continued to depend on hypothetically arrived at figures for reporting to the Central Pollution Control Board (CPCB).

WBPCB, in reply, assured (December 2018) that it would issue reminders and notices to the defaulting HCFs to ensure compliance by them. Reply was silent on why no action had been taken so far, even after more than 10 years of its assertion, to develop the mechanism to quantify the BMW generation reliably.

It was observed by Audit that no internal bio-medical waste control system was set up in hospitals. The hospitals were not in a position to determine the amount of BMW produced or control the flow of the waste. Assessment of quantity of BMW at source of generation was deficient. It was found that 39 HCFs (55.71 per cent) of the 70 test-checked HCFs, did not maintain the BMW Register for recording category and colour coding-wise quantity of BMW generated and collected by the CBMWTF. Moreover, in violation of the CPCB guidelines, none of the HCFs had any weighing machine to weigh the quantity of BMW generated. Only approximate weight of collected BMW as indicated by the CBMWTFs in their collection slips was recorded as BMW generation figure by the HCFs.

Thus, even at the point of generation, the basic records did not capture the actual quantum of BMW generated. The reply (November 2019) of the Directorate of Health Services under the Health and Family Welfare Department also confirms (November 2019) assessment of BMW generation based on CBMWTFs data.

2.1.6.3 BMW remained un-treated

According to the BMWM Rules 2016, Bio-medical waste was required to be treated and disposed of in accordance with Schedule I of the rules, and in compliance with the standards provided in Schedule II, of the rules by the HCFs and CBMWTFs.

The BMW management scenario, when analysed from 2013, was found as below:

Table 2.3: Generation and treatment of BMW

Year	BMW generated (kg/ day)	BMW treated and disposed (kg/ day)	BMW remaining un-treated (kg/ day) (percentage)	Un-treated BMW per year (kg)
2013	40,407	22,970	17,437 (43.15)	63,64,505
2014	42,237	22,737	19,500 (46.17)	71,17,500
2015	32,823	23,555	9,268 (28.23)	33,82,820
2016	26,859	26,859	0	0

Source: Records of the WBPCB

It was evident from above that 28.23 per cent to 46.17 per cent of BMW generated in the State remained untreated. This appeared to be an improvement over the earlier figures of 45 per cent to 94 per cent of BMW remaining untreated, reported in the Audit Report of the CAG of India on the Government of West Bengal for the year ended 31 March 2008. This was, however, only apparent and not real in view of the fact that the figures of BMW generation were being understated as detailed in the following paragraph:

No weighing machine to weigh the quantity of BMW generated was maintained by HCFs.

BMW remained un-treated

2.1.6.4 Understatement of BMW generation to match the figure of BMW shown as treated

WBPCB understated the quantity of BMW generation to match the figure of BMW shown as treated.

The steep fall in the quantity of waste generation from 2015, as noted in **Table 2.3** above, raised doubts as to the reliability of the data reported in the Annual Reports by WBPCB. Scrutiny showed that in the Annual Report of 2016, WBPCB understated the quantity of BMW generation (26,859 kg per day) to match the figure of BMW shown as treated (26,859 kg per day) by the CBMWTFs so that no BMW was shown as remaining un-treated in the State. It was observed that WBPCB took such decision of depicting the figure of BMW treated as equal to the figure of BMW generation ‘to avoid a negative portrayal of the State’ which was a matter of serious concern and called for immediate attention of the Government for fixing of responsibility.

An audit analysis of the extent of understatement using average BMW generation figure of 0.231 kg³³ per bed per day showed that BMW generation was understated at least by 49.52 *per cent* considering bed strength of the State as per H&FW Department data (**Appendix 2.3**). Thus, the efficacy of the efforts for BMW management was compromised by lack of reliable data. What appeared to be even more worrisome was that the WBPCB was intentionally understating and manipulating the BMW generation figure to make it appear that all generated BMW was being treated before disposal.

The Department of Environment/ WBPCB accepted the audit observations during an Exit Conference held in March 2019.

2.1.6.5 Absence of research on risk to environment and health posed by BMW

As per BMW Rules, 2016, the H&FW Department was to undertake or support operational research and assessment with reference to risks to environment and health from BMW and previously unknown disposables and wastes from new types of equipment. This was necessary for identifying various aspects of risks involved with BMW, so that steps may be taken to contain generation of BMW and to manage the BMW generated. Further, lack of public awareness of the harm caused by BMW and limited knowledge of pollution prevention makes the risk assessment more essential.

No operational research activity was, however, ever undertaken or supported in the State to assess the risk posed by BMW to the health and environment.

Conclusions: *Even after two decades of implementation of the Rules, WBPCB did not establish a system or devise a mechanism whereby it could establish linkages between Departments and integrate data for developing a dependable inventory of BMW generating units. 48.32 per cent of the existing HCFs remained outside the inventory of the WBPCB.*

WBPCB could not quantify actual BMW generation in the State and continued to depend on hypothetically arrived at figures for reporting to the Central Pollution Control Board (CPCB).

Assessment of quantity of BMW at source of generation was deficient.

³³ As per the Training Module (2003) on ‘Health Care Waste Management’ of H&FW Department

In the Annual Report of 2016, WBPCB understated the quantity of BMW generation (26,859 kg per day) to match the figure of BMW shown as treated (26,859 kg per day) by the CBMWTFs, so that no BMW was shown as remaining un-treated in the State.

Recommendations:

- **WBPCB needs to establish linkages with the Departments like H&FW, ARD, Correctional Administration, H&HA for developing a comprehensive, reliable and dynamic inventory of Occupiers and data on bio-medical waste generation, treatment & disposal; and**
- **WBPCB along with H&FW Department and ARD Department needs to enforce the requirement of all HCFs to maintain and update on day to day basis the bio-medical waste management register and display the annual report on its website regarding the bio-medical waste generated in terms of category and colour coding as specified.**

2.1.7 Adequacy of waste treatment facilities

Six Common Bio-Medical Waste Treatment Facilities (CBMWTFs) were set up in West Bengal between 2003 and 2015 and all HCFs in the State were required to hand over the BMW generated by each HCF to the CBMWTF catering for the area ensuring treatment and disposal by the CBMWTF.

Though the quantity of BMW shown (by WBPCB and CBMWTFs) as generated/ treated in 2016 was only about 50 per cent of actual BMW generation in the State, coverage and capacity of the CBMWTFs when assessed in audit even with these understated figures, revealed the following:

2.1.7.1 CBMWTFs covered area beyond prescribed limit

As per the guidelines of CPCB, a CBMWTF was supposed to cater to maximum 10,000 beds of HCFs situated at a radial distance of maximum 150 km to ensure that the generated BMW could be collected, treated and disposed within 48 hours.

The CBMWTFs, however, did not comply with the norms of CPCB in terms of distance covered and beds covered as shown in **Table 2.4**:

Table 2.4: Comparison between normative coverage load and actual load on CBMWTF

Suggested coverage of distance	Actually covered by CBMWTFs		
	CBMWTFs	Maximum* distance covered	Range of Beds covered From 2013 to 2016
a) 75 km extendable maximum up to 150 km b) Maximum up to 10,000 beds	WBWML** Haldia	155 km	6,978 - 8,200
	Medicare Raniganj	210 km	17,820 - 20,155
	Medicare Kalyani	250 km	22,940 - 27,755
	Medicare Belgachia	110 km	28,368 - 33,820
	Greenzen Siliguri	280 km	11,927 - 14,495
	Greentech Mograhat	250 km	1,869 - 13,526

Source: Joint Inspection Reports and records of CBMWTFs; *Distance-wise analysis of member HCFs attached to each CBMWTF was not available; ** West Bengal Waste Management Ltd.

CBMWTFs failed to comply with CPCB's norms of distance and beds to be covered to ensure waste disposal within 48 hours of generation.

In reply, WBPCB/ Department of Environment (December 2018/ February 2019) stated that since the coverage norm came with 2016 Rules, it was not imposed on CBMWTFs which commenced operation between 2003 and 2015. Audit was of the opinion, however, that WBPCB was always responsible to ensure disposal of waste within 48 hours of generation making the coverage area of CBMWTFs as an essential factor.

2.1.7.2 Over-burdening of the CBMWTFs beyond their capacity

Incinerable waste³⁴ quantity shown as received and treated by the CBMWTFs in their annual reports *vis-à-vis* incinerator capacities of the CBMWTFs was analysed in audit. It was observed that at least 3,037 MT of BMW reported to have been collected by four out of six CBMWTFs was beyond the capacity of the installed incinerators, even presuming the incinerators operated in full capacity round the clock during 2013 to 2016 as detailed in **Appendix 2.4**.

Detailed scrutiny of records disclosed that the Medicare, Belgachia and Medicare, Kalyani also transferred their excess waste to WBWML, Haldia due to receipt of waste beyond the capacity of the installed incinerators. During 2016, Medicare, Belgachia transferred 975 MT of BMW. Medicare, Kalyani had transferred 492 MT of BMW during September to December 2016.

Evidently, the capacity of BMW collection and disposal was quite inadequate. There was significant shortfall in BMW treatment capacity in the State and quantity of BMW shown as treated by WBPCB/ CBMWTFs over the years was unrealistic and beyond capacity.

2.1.7.3 Gap analysis not conducted to prepare Action Plan

As per CPCB guidelines, WBPCB was required to conduct gap analysis in terms of BMW generation and the existing treatment capacity under the coverage area of each CBMWTF. Based on the gap analysis, an Action Plan was to be drawn for development of new CBMWTF over a period of 10 years.

Despite the fact BMW remained un-treated, and CBMWTFs were running beyond capacity, WBPCB had not conducted any gap analysis exercise till September 2018. Also, there was no Action Plan for development of any new CBMWTF. Instead, the 16 HCFs in the State which had their own treatment facility (Autoclaves and Shredders) were asked to stop operating the equipment by H&FW Department in 2014.

WBPCB/ Department of Environment stated (December 2018/ February 2019) that they had recently conducted a gap analysis exercise which showed requirement of seven more CBMWTFs apart from two CBMWTFs which were already under process of development. The Commissioner, Medical Administration, H&FW Department apprised during Exit Conference (March 2019) that to ameliorate the situation, the process of floating tenders to create more CBMWTFs was under finalisation.

Conclusion: *BMW Treatment Facilities were grossly inadequate in the State and consequently overburdened.*

Instead of analysing the gap between the requirement and availability of treatment facility and preparing Action Plan for setting up new CBMWTFs,

Gap between the requirement and availability of BMW treatment facilities not analysed – no Action Plan for development of new CBMWTF

Coverage of CBMWTF was beyond the prescribed limit.

³⁴ All BMWs except recyclable plastic, glass and sharp BMWs to be burnt in incinerator

WBPCB reported unrealistic figures of treatment of BMW in its Annual Reports, which was even beyond the installed capacity of the CBMWTFs.

As a result, BMW to a large extent remained untreated, posing a threat to environment and health.

Recommendation:

Gap between the requirement and availability of treatment facilities needs to be analysed based on realistic figures of BMW generation and an Action Plan prepared for setting up of more treatment facilities on immediate basis. This should include assessing levels of further investment in infrastructure for collective processing of BMW as well as collective disposal capacity. Such an Action Plan should be bench-marked to realistic time-frames.

Awareness camps/ trainings not conducted for the stakeholders.

2.1.8 Sensitisation and Creating Awareness

2.1.8.1 Absence of Training by WBPCB

BMWM Rules, 2016 specifically entrusted WBPCB with the responsibility of conducting training in co-ordination with the H&FW Department for staff of health care facilities (HCFs), municipal workers, common bio-medical waste treatment facilities (CBMWTFs) and State Pollution Control Boards (SPCBs) for ensuring compliance with the various provisions of handling, segregation, collection, storage, transportation, treatment and disposal of BMW as specified in the Rules.

WBPCB attributed (October 2016) the poor compliance to the Rules to lack of awareness amongst various stakeholders. No effort on the part of the WBPCB was, however, noted to establish co-ordination with H&FW Department for organising any centralised training during the period under review. In last five years WBPCB, had conducted only eight Workshops³⁵ in nine months between December 2016 and August 2017.

While accepting the audit observation, the WBPCB/ Department of Environment stated (December 2018/ February 2019) that workshops were being conducted only after notification of BMWM Rules, 2016.

2.1.8.2 Deficiencies in training to handlers of BMW

Every BMW generator was also to provide training to all its health care workers and others, involved in handling of bio-medical waste at the time of induction and thereafter, at least once every year and the details of training programmes conducted, number of personnel trained and number of personnel not undergone any training was to be provided in the Annual Report.

Only 59 trainings (30.26 per cent) were, however, organised against 195 trainings required to be conducted by the test-checked 39 Government HCFs during 2013 to 2018. Consequently, 80.98 per cent (4,849) of the total staff (5,988) remained untrained about BMW management (**Appendix 2.5**).

Conclusion: *Up to November 2016 no awareness camps/ trainings for the stakeholders was organised by WBPCB in coordination with H&FW Department.*

³⁵ Durgapur, Kolkata, Chinsurah, Asansol, Siliguri, Malda, Medinipur and Haldia

In last five years, between December 2016 and August 2017, only eight workshops were organised. Training to generators and handlers of BMW was deficient. 80.98 per cent of the total staff handling BMW in the test-checked 39 Government HCFs remained untrained.

Recommendation:

Creating awareness across all the stakeholders needs to be given utmost priority for ensuring compliance of BMWM Rules.

The quality of implementation at the initial phase of a waste management process, was poor and effective, compliance to the rules remained un-accomplished. The basic management requirements like quantity assessment and reporting of BMW generation, ensuring adequate treatment of the generated BMW for disposal, creating awareness among stakeholders, *etc.*, which were pre-requisites to ensure proper and effective management of BMW in the State, was not in place. This resulted in gross violation of norms both at the test-checked Occupiers’ and at CBMWTFs’, which are detailed in subsequent paragraphs.

2.1.9 Compliance to BMWM Rules, 2016

2.1.9.1 Handling of BMW by HCFs and CBMWTFs

“Handling” in relation to bio-medical waste includes the generation, sorting, segregation, collection, use, storage, packaging, loading, transportation, unloading, processing, treatment, destruction, conversion, or offering for sale, transfer, disposal of such waste. So both the Occupiers (HCFs) and Operators (CBMWTFs) are required to take all necessary steps to ensure that bio-medical waste is handled without any adverse effect to human health and the environment and in accordance with these rules. If the waste handling is inadequate there is the risk of being exposed to the inherent and/ or potential danger of each type of waste. Hazardous waste needs to be handled in compliance with strict quality requirement. The waste generator should be obliged to manage the waste.

(A) Irregular segregation of BMW

The position of generation of BMW compared with general waste in West Bengal in 2016 was only 0.19 *per cent*. Since this meagre quantity of waste has the potential to infect the entire waste of the State if mixed with and/ or disposed with general waste, segregation of BMW is essential. The BMWM Rules, 2016 has specified colour coding and type of containers for segregation of BMW at the point of generation for ensuring appropriate treatment as detailed in **Table 2.5:**

Table 2.5: Bio-Medical wastes categories and their segregation, collection, treatment, processing and disposal options

Category/ Type of Bag/ Container to be used	Type of waste	Treatment & disposal Options
Yellow Yellow coloured non-chlorinated Plastic bag	i) Human Anatomical waste Human tissues, organs, body parts and fetus below the viability period (as per the Medical Termination of	

Category/ Type of Bag/ Container to be used	Type of waste	Treatment & disposal Options
	Pregnancy Act 1971, amended from time to time).	
	ii) Animal Anatomical waste Experimental animal carcasses, body parts, organs, tissues, including the waste generated from animals used in experiments or testing in veterinary hospitals or colleges or animal houses.	Incineration or plasma pyrolysis ³⁶ or deep burial ³⁷ .
	iii) Soiled waste Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs and bags containing residual or discarded blood and blood components.	Incineration or Plasma Pyrolysis or deep burial. In absence of above facilities, autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilisation and shredding. Treated waste to be sent for energy recovery.
	iv) Expired/ discarded medicines Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials, etc.	Expired 'cytotoxic drugs and items contaminated with cytotoxic drugs' to be returned back to the manufacturer or supplier for incineration at temperature >1200 °C or to common bio-medical waste treatment facility or hazardous waste treatment, storage and disposal facility for incineration at >1200°C or Encapsulation or Plasma Pyrolysis at >1200°C. All other discarded medicines shall be either sent back to manufacturer or disposed by incineration.
	v) Chemical waste Chemicals used in production of biological and used or discarded disinfectants.	Incineration or Plasma Pyrolysis or Encapsulation in hazardous waste treatment, storage and disposal facility.
	vi) Discarded linen, mattresses, beddings contaminated with blood or body fluid.	Non-chlorinated chemical disinfection followed by incineration or Plasma Pyrolysis or for energy recovery. In absence of above facilities, shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery or incineration or Plasma Pyrolysis.
Autoclave safe plastic bags or containers	vii) Microbiology, Bio-technology and other clinical laboratory waste Blood bags, Laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures.	Pre-treatment to sterilize with non-chlorinated chemicals on-site as per National AIDS Control Organisation or World Health Organisation guidelines and thereafter for incineration.

³⁶ Plasma pyrolysis makes use of an ionized gas in the plasma state to convert electrical energy to temperatures of several thousand degrees using plasma arc torches or electrodes. The high temperatures are used to pyrolyse waste in an atmosphere with little or no air.

³⁷ Disposal by deep burial is permitted only in rural or remote areas where there is no access to CBMWTF. This will be carried out with prior approval from the prescribed authority and as per the Standards specified in Schedule III of BMWM Rules, 2016. The deep burial facility shall be located as per the provisions and guidelines issued by CPCB from time to time.

Category/ Type of Bag/ Container to be used	Type of waste	Treatment & disposal Options
Separate collection system leading to effluent treatment system	viii) Chemical liquid waste Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, Silver X-ray film developing liquid, discarded Formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities, etc.	After resource recovery, the chemical liquid waste to be pre-treated before mixing with other wastewater- combined discharge to conform to the discharge norms given in Schedule- III of BMWM Rules.
Red Red coloured non-chlorinated plastic bags or containers	Contaminated waste (Recyclable) Wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and <i>fixed needle syringes</i>) and vacutainers with their needles cut and gloves.	Autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent to registered or authorized recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites.
White (Translucent) Puncture proof, Leak proof, tamper proof containers	Waste sharps including Metals Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharps.	Autoclaving or Dry Heat Sterilization followed by shredding or mutilation or encapsulation in metal container or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries (having consent to operate from the State Pollution Control Boards or Pollution Control Committees) or sanitary landfill or designated concrete waste sharp pit.
Blue Cardboard boxes with blue coloured marking	i) Glassware Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes.	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling.
	ii) Metallic Body implants	

Source: Segregation Schedule I as per BMWM Rules, 2016

The issue of improper segregation of BMW was pointed out in the Audit Report of the CAG on GoWB for the year ended 31 March 2008. WBPCB, in its reply (January 2010), accepted the observation and intimated that efforts were made to improve the scenario.

Even after 10 years, serious irregularities were observed by Audit in segregation of BMW in 52 (74.29 per cent) of the 70 test-checked HCFs. Some instances of irregularities as noticed during physical inspection of the HCFs are detailed below with pictures.

Appalling disposal of highly infectious blood samples

- **Highly infectious blood samples found scattered:** Highly infectious blood samples are to be segregated in Autoclave safe plastic bags or containers to be pre-treated to sterilize with non-chlorinated chemicals on-site as per National AIDS Control Organisation or World Health Organisation guidelines and then given to the common bio-medical waste treatment and disposal facility.

On the contrary they were found strewn around and scattered on the premises in North Bengal Medical College Hospital. It was irregularly

segregated in red plastic (meant for autoclavable waste) in Imambara Hospital, Hooghly. As per the prescribed method the blood samples, were to be handed over to CBMWTFs for incineration, after pre-treatment. Hence, it needed to be segregated in Yellow bag meant for incineration by CBMWTFs. Segregation in Red bags would cause Autoclaving again of the same blood samples by CBMWTFs instead of incineration.



Pic 2.1: Blood samples in black bag scattered in front of Pathology Department in North Bengal MCH (April 2018)



Pic 2.2: Blood samples kept in red bag instead of yellow bag at Imambara Hospital, Hooghly (June 2018)

BMW disposed with Municipal wastes

- ***BMW segregated as municipal solid waste:*** The BMW Rules 2016 specifically states that Occupiers are not to give treated bio-medical waste with municipal solid waste and no untreated bio-medical waste shall be mixed

with other wastes. BMWs were found to have been gathered in black bags meant for municipal wastes or in buckets/ cardboard boxes with no colour coding.



Pic 2.3: Colour coded plastics not used in Central Nursing Home, Paschim Medinipur (private hospital) (February 2018)



Pic 2.4: Plastic BMW kept in black bag in Spandan Advanced Medicare, Paschim Medinipur (private hospital) (February 2018)



Pic. 2.5: Plastic BMW in black bag in Medinipur MCH, Paschim Medinipur (January 2018)



Pic. 2.6: Infected cotton in black bag in Bishnupur District Hospital, Bankura (June 2018)

This resulted in disposal of BMW along with municipal wastes potentially contaminating the entire quantity of municipal solid waste with adverse effect to human health and the environment.

- ***Wrong segregation caused plastic BMW being irregularly burnt:*** Recyclable plastic BMW to be segregated in red (autoclave safe) were segregated, as a common practice, in yellow (incinerated) plastics.



Pic. 2.7: Tubing in yellow instead of red in Bankura Sammilani MCH, Bankura (April 2018)



Pic. 2.8: Plastic BMW not in red bag in Kanak Nursing Home, Hooghly (private hospital) (July 2018)

*Autoclavable plastic
BMW irregularly
burnt*

Absence of red plastic bags for segregation of recyclable (plastic) BMW was noticed across the test-checked HCFs. In 24 of the 70 test-checked HCFs there was no procurement of red bags during the period covered in audit. It was

observed that yellow plastic bags were used to collect the plastic BMW, leading to incineration of the plastic BMW.

A highly toxic chemical called ‘dioxin’ is emitted in harmful quantities due to burning of plastics which is carcinogenic and hormone disruptor for human health.

➤ *Unauthorised selling of un-treated saline bottles:*



Pic. 2.9: Pilfered saline bottles stacked within premises of Kaushalya Nursing Home, Jhargram (private hospital) (February 2018)

Plastic saline bottles were found segregated from BMW. **Picture 2.9** shows that bottles were segregated and packed for transportation for unauthorised sale and not for handing over to the CBMWTF. Saline bottles were prone to carry infection after coming in contact with patients. Un-treated recycling carried risk of contamination.

Hence, improper segregation not only resulted in inappropriate treatment of BMW but also caused emission of additional pollutants to environment by incineration of inappropriate waste.

(B) Poor status of storage of BMW materials at HCFs

Every Occupier was supposed to make a provision, as per BMW Rules, within the premises for a safe, ventilated and secured location for storage of segregated BMW for direct transportation from such place to the CBMWTF for appropriate treatment and disposal. Such storage was to be roofed, divided in compartments, having ramp, sloped tile flooring with provision for water supply, signboard and BMW logo.

36 of the 70 test-checked HCFs did not have separate storage places for BMW at all. Storage rooms as used in 24 HCFs were not as per specifications and were

*BMW stored with
Municipal wastes
indicating slack
BMW management*

in dilapidated condition. In spite of having vacant storage facility, four HCFs³⁸ did not use the same for reasons not on record. In HCFs not having/ using storage facility, BMW was found lying in the open at corner of wards, corridors and not in safe and secured condition. The same has been captured in the following pictures. In 12 HCFs, BMW was found lying mixed with municipal waste (MW) in open or in municipal vat.



Pic 2.10: BMW lying in open and in Municipal Vat in Medinipur MCH, Paschim Medinipur (January 2018)



Pic. 2.11: BMW lying open in Barjora BPHC, Bankura mixed with Municipal Waste, Bankura (May 2018)

- Huge amount of BMW was found scattered within the compound of Barjora BPHC (Pic 2.11) indicating inaction on the part of the Occupier in utter disregard of the Rules 4 and 8 of BMWM Rules, 2016.

³⁸ Serampore Walsh Sub-Divisional Hospital (SDH), Khanakul RH, Singur RH and Pandua RH

- In Shree Sarbamangala Clinic, Bishnupur, Bankura (private hospital), BMW meant for autoclaving and incineration were stored along with medicines in the same room.
- One person was found residing inside the BMW storage area in R.G. Kar MCH at Kolkata (*Pic 2.12*).
- There was no approach road for vehicles to the place where BMW was stored in SSKM Hospital in Kolkata (*Pic 2.13*). The area was muddy and permeable causing seepage of infectious blood and body fluids into the ground causing possible contamination of ground water.



Pic. 2.12: Person residing inside BMW storage area at R.G. Kar MCH (July 2018)



Pic 2.13: BMW stored on permeable muddy ground at SSKM, Kolkata (July 2018)

Thus the very objective of the Rules envisaging, safe, ventilated and secured location for storage before transportation for disposal, which was to ensure no

secondary handling³⁹, pilferage of recyclables, inadvertent scattering or spillage by animals was defeated.

Accepting the audit observations, WBPCB/ Department of Environment stated (December 2018/ February 2019) that to address the problem of poor segregation and storage of BMW, the Board was trying to sensitise the HCFs.

The Directorate of Health Services attributed (November 2019) the irregularity of segregation on lack of knowledge of staff and stated that the WBPCB would be requested to prepare an Action Plan for training of staff. As regards BMW storage facility, Directorate of Health Service stated that construction of storage facilities at 71 HCFs was to be taken up soon.

(C) Occupational safety of health care workers handling BMW compromised

The status of health check-up, immunisation and provisioning of personal protective equipment for health care workers and others handling BMW in the test-checked HCFs was poor as shown below:

Table 2.6: Occupational safety status of health care workers handling BMW

Provisions as per Rule	Audit Findings
Health Check-up: Every BMW generator was required to conduct health check-up of all its health care workers and others involved in handling of BMW at the time of induction and at least once in every year.	34 of 39 test-checked HCFs had never done health check-up of 5,646 staff who handled BMW (<i>Appendix 2.5</i>).
Immunisation: Immunise all its health care workers and others, involved in handling of bio-medical waste for protection against diseases including Hepatitis B and Tetanus	31 of the 39 test-checked HCFs had never taken up immunisation programme for 5,115 staff handling BMW (<i>Appendix 2.5</i>).
Protective gears: Every BMW generator was to ensure occupational safety of staff handling BMW by providing appropriate and adequate personal protective equipment.	Store records of the 39 test-checked Government HCFs showed that 27 HCFs did not have any stock of Personal Protective Equipment (PPE) like heavy duty gloves, masks, gumboot, <i>etc.</i> , for the staff handling potentially infectious wastes. No procurement was also made of such PPEs during the period covered in audit (<i>Appendix 2.5</i>).

Source: Records of HCFs

As such, the health care workers and others involved in handling of bio-medical waste were being exposed to infectious environment without immunisation, health check-up and protective gear.

In its reply the Directorate of Health Services (November 2019) stated that it has started the immunisation initiatives and already covered 80 of the 94 HCFs initially identified for immunisation. In respect of providing Protective Equipment, it stated that such responsibility vested on the agencies engaged for housekeeping and scavenging services and that the same would be strictly enforced on these Agencies.

³⁹ Any unwanted handling of BMW apart from required as per the rule.

(D) Deviation of storage norms at CBMWTFs

As per the revised guidelines issued by Central Pollution Control Board (CPCB) for CBMWTFs based on BMW Rules 2016, every CBMWTF was also required to have a covered main storage room with partitions for different colour coded containers/ plastics of BMW collected from the HCFs. The front portion of the room was to be used for unloading wastes from the vehicles and back or side portion for shifting of wastes to respective treatment rooms.

It was observed that three⁴⁰ out of six CBMWTFs did not have any such storage room. Though there was main storage room in other three CBMWTFs, these were neither as per specifications nor being used by the operators.



Pic. 2.14: Blood and body fluid leaching to ground from wastes in front of incinerator room in Greentech, Mograhat (August 2018)



Pic. 2.15: Wastes stored in equipment room at Greentech, Mograhat (August 2018)

⁴⁰ Medicare, Kalyani; Medicare, Belgachia and Greenzen, Siliguri

BMW heaped directly in front of incinerators without colour segregation – blood and body fluid leaching from waste

Further, all BMW was found heaped directly in the incinerator and/ or autoclave room without any segregation based on colour resulting in dumping of treated and un-treated wastes alongside. Wastes were also found stored even outside the incinerator room (Medicare, Belgachia) and scattered all around in the premises (Greenzen, Siliguri). Blood and body fluids were found leaching from the heaps of wastes and percolating to ground in Medicare, Belgachia and Greentech, Mograhat.

(E) In-house transportation and feeding of BMW in violation of norms

As per CPCB guidelines, the stored BMW is required to be brought to the treatment equipment using closed trolleys. Further, for feeding of BMW in the primary chamber of the incinerator, automatic feeding device was to be used and no manual handling of waste was recommended.



Pic. 2.16: Manual dragging and feeding at Medicare, Kalyani (June 2018)



Pic. 2.17: Manual dragging and feeding at Greenzen Siliguri (April 2018)

None of the CBMWTFs were found to be using closed trolleys; instead BMW was brought to the incinerator/ autoclave by dragging in open drums. Moreover, none of the CBMWTFs, except WBWML Haldia, had installed any automatic feeding device for feeding of BMW into incinerators to avoid manual feeding.

The process of manual feeding not only involved risk of leakage of hot flue gas⁴¹ and any backfire but also exposed the incinerator operator to the harmful furnace atmosphere.

Conclusion: *Segregation and storage of BMW before disposal, at HCFs and CBMWTFs which constitutes the first step towards efficient management of the BMW was grossly inadequate and irregular. Disposal of highly infectious blood samples was appalling, BMW was disposed with Municipal wastes, BMW was heaped directly in front of incinerators without colour segregation with blood and body fluid leaching from waste.*

Instead of managing the risk involved, the spectrum of risk increased manifold with huge quantum of non-hazardous solid waste getting contaminated by mixing infectious BMW with it.

More alarming was exposing the health care workers and handlers of BMW to infection by not providing any protective gears to them and absence of health check-ups and immunisation.

Recommendations:

- ***The simplest waste-segregation system is to separate all hazardous waste from the larger quantity of non-hazardous general waste and every generator/ handler of BMW is duty bound to ensure it;***
- ***WBPCB and the controlling Departments need to take up urgent upgradation of physical infrastructure along with raising awareness by providing training to all stakeholders ensuring effective compliance of provisions; and***
- ***Health check-up, immunisation and provisioning of personal protective equipment for health care workers and others handling BMW needs to be prioritised.***

2.1.9.2 Collection and Transportation of BMW by CBMWTFs

(A) Irregular collection of waste

To ensure untreated human anatomical waste, animal anatomical waste, soiled waste and, bio-technology waste is not stored beyond a period of 48 hours as stipulated, BMW was to be cleared on at least daily basis from hospital wards to separate storage before the CBMWTF collects the waste for the day. The CBMWTF was also to ensure collection on daily basis to comply with the norms of treatment within 48 hours. Rules provide that CBMWT facility shall ensure collection of bio-medical waste on holidays also.

⁴¹ Fuel and BMW combustion exhaust coming out of flue or stack of incinerator

Vehicles of CBMWTFs returned without collecting BMW from the HCFs on several occasions

(i) **BMW retained beyond 48 hours in patient care area by HCFs**

It was, however, observed from the records that on a number of occasions vehicles of the CBMWTFs returned without collecting any BMW from the separate storage as no waste was cleared by the HCFs from patient wards to the storage (*Appendix 2.6*).

(ii) **Only 9 per cent to 51 per cent of HCFs were covered by CBMWTFs for collection of BMW**

Collection of wastes on preceding two days from the date of joint inspection of the CBMWTFs exhibited the following status.

Table 2.7: Waste Collection by CBMWTFs

Name of the CBMWTF	No. of HCFs shown as member	No. of HCFs from whom waste was collected on preceding date of inspection (percentage)	No. of HCFs from whom waste was collected two days before date of inspection (percentage)
WBWML Haldia	445	206 (46.29)	226 (50.79)
Medicare Raniganj	974	167 (17.15)	271 (27.82)
Medicare Kalyani	1,565	408 (26.07)	439 (28.05)
Medicare Belgachia	1,669	305 (18.27)	150 (8.99)
Greenzen Siliguri	932	Not furnished	Not furnished
Greentech Mograhat	402	Not furnished	Not furnished

Source: Waste collection reports of CBMWTFs

The percentage of HCFs from whom the BM waste was collected did not exceed 50.79 per cent on the two test-checked days. In the case of Medicare Belgachia CBMWTF the collection was as low as 8.99 per cent on the second day and 18.27 per cent on the first day. Information regarding waste collection was not furnished by two facilities, but it was noted from the frequency of the route chart of vehicles of Greentech, Mograhat that only 23.88 per cent of the member HCFs (96 out of total 402) were covered daily. The range of frequency even showed collection once in 29 days.

Further, in respect of 25 test-checked Government HCFs, though the CBMWTFs did not collect waste on daily basis, payments⁴² for the entire month including the days when it was not lifted was made resulting in avoidable expenditure of ₹ 36.21 lakh (*Appendix 2.7*). Non-lifting of BMW by CBMWTFs was also not reported by the HCFs to the prescribed authority, namely WBPCB, as required.

Non-lifting of BMW by CBMWTFs never reported by HCFs to WBPCB

Retaining untreated waste beyond the stipulated forty-eight hours meant adversely affecting human health and the environment by both the Occupiers and Operators.

Admitting the fact, the Directorate of Health Services stated (November 2019) that this issue would be addressed through discussion during training sessions, to rule out the scope of such lapses recurring in future.

⁴² At rate ranging from ₹ 4.87 to ₹ 5.06 per bed per day during the test-checked period.

(B) Irregular transportation by CBMWTF

Pic 2.18: Label for transporting Bio-Medical Waste or Containers

According to CPCB guidelines, collection and transportation of BMW was to be carried out in a manner so as to prevent any possible hazard to human health and environment. BMW was to be transported in fully covered vehicles having labels of BMW hazard as prescribed in the Rules.

All vehicles used for carrying BMW were to be owned by the CBMWTF and intended only for collection and BMW transportation. Such vehicle numbers were also to be registered with WBPCB. The CBMWTF operator was to install online real time tracking and monitoring provision (GPS) in those vehicles and provide access to the State PCB for cross checking at any time.

Neither details (registration number, *etc.*) of any vehicle were registered with WBPCB, nor online access to monitor movement of vehicles through GPS was provided to WBPCB.

When tracked by Audit using GPS during joint inspections of the CBMWTFs, the status of vehicles found in five CBMWTFs was as below:

Table 2.8: Utilisation of vehicles for transportation of BMW by CBMWTF

CBMWTFs	Number of vehicles shown in Annual Report 2016	Vehicles tracked on GPS	Vehicles found working on the date
Medicare Raniganj	19	14	14
Medicare Kalyani	22	Nil	Nil ⁴³
Medicare Belgachia	23	20	18
Greenzen Siliguri	19	15	11
Greentech Mograhat	12	12	5
Total	95	61	48

Source: Records and Annual Reports of CBMWTFs

Out of the 95 vehicles reported to have been used by the five CBMWTFs indicated above for transportation of BMW, 47 vehicles were found not in operation on the dates of inspection.

Moreover, the excess waste collected by Medicare, Belgachia and Medicare, Kalyani was transported to WBWML, Haldia on 508 occasions during September 2016 to May 2018, in vehicles that were neither owned by the CBMWTFs nor were they covered vehicles as verified from the vehicle registration numbers on the website of Transport Department.

The uncovered hired vehicles not only exposed infectious wastes to environment but also caused infection to spread as the vehicles were used for purposes other than BMW transfer also.

Hired vehicles, not fully covered vehicles, used were not dedicated for BMW carriage

⁴³ CBMWTF Medicare Kalyani did not provide access to GPS screen nor showed the GPS tracked live locations of the BMW carrying vehicles on screen of computers to Audit. The vehicle route chart of the CBMWTF, however, showed presence of 17 routes and as per waste collection report of the facility on the test-checked days 12 to 16 vehicles plied.

Accepting the audit observations mentioned, WBPCB/ Department of Environment stated (December 2018/ February 2019) that it had issued Show Cause Notice and lodged a court case (January 2018) against the defaulting CBMWTF (Greenzen, Siliguri) operating in North Bengal. Reply did not mention of action taken against the other defaulting CBMWTFs.

Conclusion: *The objective of framing criteria of daily collection and safe transportation of BMW was frustrated while BMW was lying un-treated beyond 48 hours and transported in hired and uncovered vehicles exposing the environment to risk of contamination.*

Recommendation:

WBPCB should ensure strict adherence by the CBMWTFs to the provisions of the Rules and CPCB guidelines by fully implementing the GPS tracking and monitoring of BMW carrying vehicles.

2.1.9.3 Treatment and disposal of veterinary waste and other waste by other HCFs and CBMWTFs

(A) Veterinary and other waste remained un-treated in the State

The BMWM Rules, 2016 specifically stipulate that the rules are applicable to all HCFs generating BMW, which includes veterinary units. The ARD Department is required to grant licences to the veterinary units with the condition to obtain authorisation from WBPCB for bio-medical waste management.

The ARD Department, which operates 3,372 Government veterinary units⁴⁴, did not introduce a system of granting licences to veterinary units under its control so that it could impose the condition to obtain authorisation from WBPCB for BMW management. In the absence of a system only one of the 3,372 units had obtained authorisation and complied with the norms. The remaining BMW generating units had remained totally non-compliant to BMWM Rules.

Similarly, of 29 Jail and Police Hospitals only one⁴⁵ had obtained authorisation from WBPCB. With regard to the others, BMW generated were either irregularly disposed in pits and/ or disposed with municipal waste.

In reply, WBPCB/ Department of Environment stated (December 2018/ February 2019) that ARD Department had recently approached WBPCB and would apply for authorisation for units under its control. The reply, however, did not make a reference regarding other defaulting Departments.

(B) Irregular burning and disposal in unauthorised burial pits

As per the BMWM Rules 2016, no occupier shall establish on-site treatment and disposal facility, if a service of common bio-medical waste treatment facility is available at a distance of 75 km. In cases where service of the common bio-medical waste treatment facility is not available, the Occupiers shall set-up requisite bio-medical waste treatment equipment like incinerator, autoclave or microwave, shredder prior to commencement of its operation, as per the authorisation given by the prescribed authority.

⁴⁴ Including Veterinary Hospitals, polyclinics, State and Block Animal Health Centres and Animal Development Centres.

⁴⁵ Kolkata Police Hospital discharged occupiers' responsibilities by complying with norms unlike others.

Contrary to the above, it was observed that:

BMW irregularly burnt and/or dumped within premises of HCFs

- the M.R. Bangur TB Sanatorium, a 317 bedded hospital at Digri, Paschim Medinipur neither had its own facility nor had an agreement with the nearest CBMWTF at Haldia (115 km) for treatment of BMW. The Hospital burnt the BMW within the premises in gross violation of the Rules.
- of the 65 Primary Healthcare Centres (PHCs) under control of the 20 test-checked Block Primary Healthcare Centres (BPHCs)/ Rural Hospitals (RHs) in the selected districts, 61 PHCs neither had their own facility nor had agreements with any CBMWTF for treatment of BMW generated by them. As per the Block Medical Officers of Health (BMOsH), the BMW generated in these PHCs was disposed in pits.

No burial pit details on record of WBPCB

Though the PHCs were to maintain a record of such deep burial pits and obtain authorisation of WBPCB for such pits, none of the PHCs, however, had any record or authorisation of WBPCB for deep burial pits.

The issue was pointed out in Audit Report of the CAG of India on Government of West Bengal for the year ended 31 March 2008. In an assurance given to the Legislature against observations made by Audit, WBPCB had then stated (March 2010) that Government HCFs had started discontinuing use of pits by joining CBMWTFs. Even after 10 years, however, the PHCs, had neither joined any CBMWTF nor had authorised pits.

Admitting the audit observation, WBPCB/ Department of Environment assured (December 2018/ February 2019) that action would be taken against the unit for ensuring compliance. Director of Health Services in their reply (November 2019) mentioned that to plug the gaps, tenders have been floated, for creation of more CBMWTFs.

(C) Highly infectious wastes not pre-treated

Every HCF was supposed to pre-treat the laboratory waste, micro-biological waste, blood samples and blood bags through disinfection or sterilisation on-site as per the Guidelines of World Health Organisation or National AIDS Control Organisation and then given to the common bio-medical waste treatment and disposal facility for incineration.

Out of 70 test-checked HCFs, 43 HCFs (61.43 *per cent*) did not pre-treat laboratory wastes. Blood bags and blood samples were autoclaved in only nine test-checked HCFs.

Directorate of Health Services while admitting the fact (November 2019) assured to take corrective measures.

(D) Un-treated liquid chemical wastes mixed with general effluents

HCFs were to ensure segregation of liquid chemical waste⁴⁶ at source and ensure pre-treatment or neutralisation prior to mixing with other effluents generated from HCFs. The BMWM Rules, 2016, envisage a separate collection system

⁴⁶ *Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, Silver X-ray film developing liquid, discarded Formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities, etc.*

leading to effluent treatment system. An Effluent Treatment Plant (ETP) had to be provided in every HCF to treat the wastewater generated from the hospital. Sludge from Effluent Treatment Plant is required to be given to common bio-medical waste treatment facility for incineration or to hazardous waste treatment, storage and disposal facility for disposal.

No separate collection system and no effluent treatment system in place for liquid chemical waste in 94.29 per cent test-checked HCFs

Of the 70 test-checked HCFs, 66 (94.29 *per cent*) neither had any system of segregation and collection of liquid chemical waste nor did they ensure any treatment of such wastes before mixing with general waste water. There was no ETP in any of the 66 HCFs. This had the potential of infecting the surface and ground water and spreading contagion to human beings through fish and other aquatic plants/ animals. In the Exit Conference, the Commissioner, Health Administration, H&FW Department, intimated that the process of installation of the ETPs was in progress.

This issue had been pointed out in Audit Report of the CAG for the year ended 31 March 2008. Neither WBPCB nor the H&FW Department has enforced the HCFs to act on this in the last 10 years for ensuring safe convergence of liquid waste in water bodies. WBPCB/ Department of Environment stated (December 2018/ February 2019), that in the course of a hearing of a case regarding non-compliance of BMW Rules by HCFs, the National Green Tribunal directed (January 2018) five⁴⁷ Government HCFs to install ETPs. There was no noticeable improvement in this regard, over the position communicated in the Exit Conference, as from the reply of the Directorate of Health Services (November 2019) it was seen that DPRs were under finalisation for installation of ETPs in these five Government HCFs. In respect of other HCFs, the reply indicated that a makeshift arrangement was being put in place, details of which were not elaborated in the reply.

Further at CBMWTFs, all liquid waste generated from collected BMW, washing of floor and vehicle washing bay were also to be collected centrally and treated through ETP before discharge or before re-use in incinerator.

Records of WBPCB showed that 14 (66.67 *per cent*) out of 21 test results of the effluents coming out of the CBMWTFs after treatment failed to meet the parameters. Sample of liquid taken at the instance of Audit during joint inspection from Medicare, Kalyani and tested in WBPCB's laboratory, also failed to comply with the standards, as detailed in the **Table 2.9**:

Table 2.9: Test result of ETP water sample collected on Joint Inspection

CBMWTF	Parameters	Prescribed limits	Results
Medicare Kalyani	TSS (<i>Total Suspended Solids</i>)	100 mg/ lt	1,430 mg/ lt
	COD (<i>Chemical Oxygen Demand</i>)	250 mg/ lt	2,280 mg/ lt
	BOD (<i>Biological Oxygen Demand</i>)	30 mg/ lt	661 mg/ lt

Source: Test Reports from WBPCB Lab

No liquid was discharged by the CBMWTFs outside the treatment plant and reused in venturi scrubber (Air Pollution Control Device) of the incinerator for cleaning and removal of air pollutants by dust separation from flue gas. Use of untreated water saturated with suspended particles failed to absorb particulate matter of the flue gas enhancing air pollution.

⁴⁷ Kolkata Medical College & Hospital, RG Kar MCH, NRS MCH, SSKM and Lady Dufferin Victoria Hospital.

(E) Poor status of treatment in CBMWTFs

Schedule II of BMW Management Rules 2016⁴⁸, prescribe the operating standards of incinerator, autoclave and effluent treatment plants for treating incinerable, autoclavable and liquid BMW and fixed the parameters to judge desired outcomes.

Incinerable wastes: For burning, the incinerator was supposed to operate with combustion efficiency⁴⁹ of at least 99 *per cent* with 800⁰C temperature at the primary chamber and 1050⁰C +/- 50⁰C at the secondary chamber. Minimum stack height was to be 30 meters (mt.) above the ground and attached with the necessary monitoring facilities. Emission standards (Oxides of Carbon, Oxygen, particulate matter, Oxides of Nitrogen, HCL, *etc.*) were also fixed to ensure compliance to the operating standards and were required to be compliant with standards for Dioxins and Furans.

- **WBPCB allowed Continuous Emission Monitoring System to remain un-connected:** The CBMWTFs were supposed to install a Continuous Emission Monitoring System (CEMS) with connectivity to WBPCB and CPCB for real-time monitoring of flue gas parameters like CO₂, CO, O₂ and temperature of primary and secondary chamber.

None of the CBMWTFs (except WBWML, Haldia) had established connectivity of CEMS with WBPCB and CPCB, which defeated the very purpose of establishing a monitoring system. No attempt by WBPCB to enforce this rule to establish connectivity for ensuring real time monitoring was found on record.

- **Continuous emission beyond safety standard:** The CBMWTFs were also to take samples quarterly and carry out tests in WBPCB approved laboratories for compliance in respect of other parameters⁵⁰.

Records of WBPCB showed that during the period covered under audit, 11 (39.29 *per cent*) out of 28 tests of incinerator flue gas did not comply with the prescribed safety standards for particulate matter⁵¹.

Sample of flue gas, taken at the instance of audit on date of joint inspection from the stack of Medicare, Kalyani and Medicare, Belgachia (June 2018 and August 2018 respectively) also failed to comply with the standards; as detailed in the table below.

Table 2.10: Test results on samples of flue gases collected during Joint Inspection

CBMWTFs	Limits of Particulate Matter in Flue gas (mg/ Nm ³)	Found during Joint Inspection (mg/ Nm ³)
Medicare Kalyani	50	650.00
Medicare Belgachia	50	253.37

Source: Test Reports from WBPCB Lab; Nm³: Normal Cubic Metre

⁴⁸ read with Schedule V of BMW (Management and Handling) Rules, 1998 and Schedule II of BMW (Management and Handling) Rules, 1998

⁴⁹ How well the fuel being burnt is utilised in the combustion process = $\{(\%CO_2)/(\%CO_2 + \%CO)\} \times 100$

⁵⁰ Particulate matter, NO & NO₂, HCL, Dioxins and Furans, Hg and its compounds

⁵¹ Readings ranged from 156.55 to 658.33 mg/ Nm³ against permissible limit of 150 mg/ Nm³ before 2016 and from 52.20 to 250.03 mg/ Nm³ against revised limits of 50 mg/ Nm³ after 2016

Continuous emission monitoring not carried out

The temperatures in primary and secondary chambers in Medicare, Kalyani were also found to be 791⁰C and 761⁰C, which were below the standard⁵².

Such sub-optimal performance of the test-checked CBMWTFs in treating incinerable wastes coupled with high percentage of failed quality tests of emissions (43 *per cent*) was alarming, as this indicated release of pollutants in atmosphere at higher than the permissible level.

Autoclavable wastes: All recyclable BMWs like plastics, glasses and sharps were to be disinfected by autoclaving or micro-waving/ hydroclaving at prescribed temperature and pressure followed by shredding or mutilation or combination of sterilisation and shredding before they are sold to an authorised recycler/ iron foundries by a CBMWTF. Waste sharps, if not recycled, were to be encapsulated in metal or concrete container and sent to landfill or designated waste sharp pit. Plastics were to be sent for energy recovery of plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste was not to be sent to landfill sites.

Joint inspection along with WBPCB representative revealed that the autoclaves in four⁵³ out of six CBMWTFs were not in operation. In WBWML, Haldia, the autoclave was never used as all BMW was incinerated.

Autoclaves meant for disinfecting plastic, glasses and sharp waste was not in operation in four out of six CBMWTFs



Pic. 2.19: Recyclable red packets put into incinerator by Medicare Kalyani (June 2018)

⁵² The temperature of the primary chamber is required to be minimum of 800⁰C and the secondary chamber minimum of 1050⁰C + or – 50⁰C.

⁵³ WBWML, Haldia; Medicare, Kalyani; Medicare, Belgachia and Greenzen, Siliguri



Pic. 2.20: Recyclable red and blue packets put into incinerator by WBWML Haldia (December 2017)



Pic. 2.21: Secondary segregation of plastic saline bottles in Greenzen Siliguri (April 2018)



Pic. 2.22: Un-shredded plastic saline bottles in Medicare Belgachia (August 2018)

Possibility of reselling of untreated plastics was not ruled out

It was observed that plastic saline bottles were segregated and stored separately. Re-selling of plastic wastes was on record in every facility except WBWML, Haldia. Scrutiny of records showed that 1,15,756 kg of plastics were sold (March to June 2018) by Medicare, Belgachia when its autoclave was not in operation during the period. Similar instances of selling of plastics were also noticed in Medicare, Kalyani and Greenzen, Siliguri during the period autoclaves were not functioning. Hence, the possibility of reselling of untreated plastics (especially saline bottles) could not be ruled out.

Plastic and sharp wastes also burnt in incinerator

Irregular burning (incineration) of plastic recyclable BMWs was noticed in WBWML, Haldia and Medicare, Kalyani. None of the facilities (except Greentech, Mograhat) could furnish any record regarding storage, treatment and/ or disposal of waste sharps. Burning of waste sharps and plastics leads to release of 'dioxins' causing adverse effects to human health.

Improper maintenance of records of treatment equipment: Every operator of a CBMWTF was required to maintain a log book for each of its treatment equipment recording therein weight of batch, categories of waste treated, time, date and duration of treatment cycle and total hours of operation.

None of the CBMWTFs maintained log books for incinerators or for autoclaves as per prescribed format. As such, actual period of operation of the equipment, with quantity of wastes treated, could not be ascertained. Moreover, none of the facilities installed magnetic flow meter to ETP whereby quantity of water extracted and treated by the facilities for reuse or discharge could be ascertained.

2.1.9.4 Other issues of non-compliance

Apart from above-mentioned serious shortcomings, issues like non-treatment, dumping and irregular transfer of wastes, non-operation/ unauthorised operation of incinerator and autoclave, etc. were also observed.

The WBPCB, it was noted, did not issue authorisation to the CBMWTFs (Medicare, Kalyani; Medicare, Raniganj and Medicare, Belgachia) for 33 to 40 months of the test-checked 60 months (April 2013 to March 2018) due to serious non-compliance of the Rules. The facilities, however, continued to collect and dispose wastes from the member HCFs during the period.

Despite non-renewal of authorisation due to serious non-compliance of provisions, WBPCB was compelled to allow the CBMWTFs to collect and dispose the BMW as closure of the CBMWTFs would have affected healthcare services due to non-availability of alternative arrangements. As a result, the BMW was collected, transported, treated and disposed in a grossly inappropriate manner.

Conclusion: *Veterinary and other waste remained un-treated in the State. There was irregular burning and disposal in unauthorised burial pits. Highly infectious wastes not pre-treated and un-treated liquid chemical wastes were mixed with general effluents.*

Treatment of disposable in CBMWTFs was poor.

Continuous emission monitoring was not carried out.

11 (39.29 per cent) out of 28 tests of incinerator flue gas did not comply with the prescribed safety standards for particulate matter.

Autoclaves meant for disinfecting plastic, glasses and sharp waste was not in operation in four out of six CBMWTFs.

Plastic and sharp wastes were also burnt in incinerator which leads to release of 'dioxins' causing adverse effects to human health.

Recommendation:

WBPCB should ensure strict compliance on the part of the common treatment facilities by ensuring immediate connectivity of on-line monitoring systems of flue gas emissions, movement of BMW carrying vehicles, etc., WBPCB may consider enforcement of various provisions of Environment (Protection) Act, imposing fines so that non-compliance of the rules becomes economically unviable for both the Occupiers and Operators.

2.1.10 Control and Monitoring Mechanism

2.1.10.1 Non-prioritisation of prevention and minimisation of waste strategies

Though the major deficiencies of BMW (H&M) Rules, 1998 were addressed by framing the revised BMW Management Rules, 2016, the BMWM Rules, 2016 mainly stipulated guidelines for treatment and disposal of BMW. Prevention and minimisation of BMW generation over treatment and disposal of BMW as priorities remained unaddressed in the State in the absence of specific legislation and/ or due to non-formulation of any policy on prevention and minimisation.

Further, the Rules provide for constitution of a State Level Expert Committee for overall review and promotion of clean or new technologies for BMW management. Formation of such a Committee though discussed in January 2018 in West Bengal, has not been operationalised till date (April 2019).

As a result, management of BMW in the State lacked co-ordination and holistic focus. There was no co-ordination mechanism for sharing of BMW information between WBPCB and H&FW Department.

Also there was no formal mechanism in place for discussion with Urban Development and Municipal Affairs Department regarding implementation of BMW Rules.

Directorate of Health Services in its reply (November 2019) stated that the process of issue of Government Notification regarding formation of Expert Committee is underway.

Recommendation:

The Government may adopt the ‘Polluter Pays’ Principle⁵⁴ and influence the amount of waste generated through economic incentives, whereby the efficient use of resources and the limited generation of waste are rewarded. To motivate the desired behaviour among waste generators, economic incentives ought to be used, such as tax-exemptions, lower licence fee for fully compliant operations, etc.

2.1.10.2 Monitoring mechanism not followed by H&FW Department

The H&FW Department was supposed to issue licences to the private HCFs with a condition to obtain authorisation from the WBPCB for BMW Management.

Clinical Establishment licences issued to 390 HCFs without valid BMW authorisation

Review of the Clinical Establishment (CE) Registry of H&FW Department showed that CE licences of 390 HCFs were issued/ renewed in four test-checked districts⁵⁵, without valid authorisation. Further, no instance of cancellation of CE licence on grounds of not having valid authorisation was noticed.

Director of Health Services in its reply (November 2019) stated that the matter is under review and CMOsH would be duly apprised to prevent recurrence of such lapses in future.

2.1.10.3 Majority of HCFs running without valid authorisation

Every Occupier and Operator handling bio-medical waste was to apply to the WBPCB for grant of ‘authorisation’ for BMW management. The WBPCB was supposed to issue provisional Bio-Medical Waste ‘authorisation’ (BMA) upon verification of the capacity of the HCF or Operator in terms of infrastructure required for appropriate handling. For all bedded-HCFs, the authorisation was also to be renewed from time to time following the same procedure.

Under test-checked WBPCB Regional Offices and Circle Offices jurisdiction, 74.88 per cent of 4,164 HCFs were operating without valid authorisation.

WBPCB, in its Annual Report for 2016, showed that only 49 out of 5,537 HCFs did not have valid authorisation. The position was, however, factually incorrect as audit scrutiny of records of test-checked WBPCB Regional Offices and Circle Offices showed that as many as 3,118 (74.88 per cent) out of 4,164 HCFs, which were operating did not have valid authorisation as detailed in **Appendix 2.8**. As the authorisation mechanism was devised as a preventive

⁵⁴ all producers of waste are legally and financially responsible for the safe and environmentally sound disposal of the waste they produce. This principle also attempts to assign liability to the party that causes damage

⁵⁵ Paschim Medinipur, Darjeeling, Bankura and Hooghly

measure against unscientific handling of BMW, dilution of such preventive mechanism by permitting the HCFs to operate even without valid authorisations would potentially expose the human health and environment to adverse and hazardous effects.

Absence of authorisation (96 per cent of test-checked HCFs), was also reported upon in the Audit Report of the CAG of India on Government of West Bengal for the year ended 31 March 2008. WBPCB, in its reply, had assured improvement of the situation by forming a monitoring committee for Government HCFs and by requesting H&FW Department not to issue licence without WBPCB's authorisation to private HCFs. The mechanism, however, does not appear to be working and the position remains albeit with a slight reduction in the percentage (74.88 per cent as against 96 per cent earlier) after a lapse of 10 years. Instead of acting on the gravity of the situation, WBPCB in its report to CPCB depicted an inflated figure suppressing the gravity of the scenario.

Further, it was observed in audit that authorisations were issued to the HCFs without conducting any verification of the capacity of the 'Occupier' in scientific handling of BMW. In five test-checked circles/ regional offices, inspections were conducted only in five out of 1,305 cases⁵⁶ of grant/ renewal of authorisation during last five years. Acute shortage of inspecting staff in the WBPCB was found to be one of the reason for this failing (*Paragraph 2.1.11.1*).

In reply, WBPCB/ Department of Environment stated (December 2018/ February 2019) that they were trying to improve the situation by working closely with H&FW Department and by issuing notices to the erring HCFs. Director of Health Services in its reply (November 2019) stated that it had already convened a meeting and decided that Dy. CMOH-I, working under the aegis of CMOH, of each district was to ensure data updation in the website of the WBPCB regarding authorisation of all Government HCFs functioning in the respective District. No further details regarding the progress made in this regard, was provided. The aspect of authorisation of private HCFs was, however, not touched upon in the reply.

2.1.10.4 Non-formation of Monitoring Committees

As per Bio-Medical Waste (Management and Handling) Rules, 1998, every State Government was to constitute a State Level Advisory Committee (SLAC) to oversee the implementation of the rules and to advise any improvements. As per BMW Rules, 2016 the committee was to be formed under the chairmanship of the respective health secretary. The Advisory Committee shall include representatives from the Departments of Health, Environment, Urban Development, Animal Husbandry and Veterinary Sciences of that State Government, State Pollution Control Board, Urban Local Bodies, Municipal Corporation, representatives from Indian Medical Association, common bio-medical waste treatment facility and non-governmental organization.

⁵⁶ During May 2013 to July 2017: Kankinara CO- Nil verification out of 59 BMAs; April 2013 to March 2018: Durgapur RO- two verifications out of 375 BMAs; Hooghly RO- two verifications out of 262 BMAs; April 2013 to May 2018: Barrackpore RO- one verification out of 320 BMAs and January 2014 to February 2018: Siliguri RO- nil out of 289 BMAs.

Monitoring of the implementation of Rules by the Committee at State level and district level was inadequate

BMWM Rules, 2016 also stipulated formation of the District Level Monitoring Committee (DLMC) under chairmanship of District Magistrate to monitor implementation of the provisions of the Rules by the HCFs and the Common BMW Treatment Facilities in the district. The DLMC was required to report at least once in six months to the SLAC which in turn was required to conduct review meeting for taking further necessary action.

It was observed in audit that an Advisory Committee, constituted by Environment Department in March 1999 and reconstituted in June 2002, met only once in July 2002 and thereafter remained defunct. The H&FW Department constituted the SLAC, in December 2017, which held two meetings in January 2018 and September 2018. A representative from the Urban Development and Municipal Affairs (UD&MA) Department was also included in the SLAC. It was, however, noted that neither was the role of UD&MA Department defined with reference to BMW Management Rules nor was the issue raised of mixing of BMW with Municipal solid waste that was found in large scale across the State. DLMCs were formed in 18 out of 23 districts (between December 2017 and January 2018) and first meeting was held in nine districts, so far.

Besides the above, WBPCB, on the recommendation of the Standing Committee on Environment, Forests and Tourism, West Bengal Legislative Assembly, formed a Monitoring Committee in 2007 to oversee proper implementation of the Rules in Government Hospitals. The Committee was to meet quarterly. Against normative requirement of 20 meetings during 2013 to 2018, the Committee met only thrice (once in 2013 and twice in 2015) during 2013 and 2018. WBPCB/ Department of Health & Family Welfare, however, did not act upon the directions of the Committee for better management of BMW.

While accepting the audit observations, WBPCB/ Department of Environment intimated (December 2018/ February 2019) about formation of SLAC and its meetings. Reply of Director of Health Services (November 2019) claimed formation of DLMCs and convening of meeting in all the districts. District-wise dates of formation of such Committees/ dates of meetings convened, Minutes of all such meetings convened, *etc.* were, however, not provided.

Supervision and monitoring by the BMW Committees in HCFs found inadequate.

2.1.10.5 Slippage in monitoring and reporting systems at HCF level

As per BMWM Rules 2016, every BMW generator was supposed to establish a monitoring committee, which was to meet in every six months. The record of the minutes of the meetings of this committee along with the annual report was required to be uploaded to WBPCB. The healthcare establishments having less than 30 beds were required to designate a qualified person to review and monitor the activities relating to bio-medical waste management within that establishment and submit the annual report.

Out of the 39 test-checked Government HCFs, however, 16 HCFs did not form any committee to monitor and oversee the management of BMW. Though committees existed, 12 HCFs could not furnish any records regarding convening of meetings and minutes thereof. The remaining 11 HCFs though convened a few⁵⁷ meetings no deliverable milestones were achieved. Moreover, minutes of

⁵⁷ one to three against minimum requirement of four meetings from April 2016 to March 2018.

none of the 70 test-checked (including 31 private units) HCFs were uploaded with the Annual Reports of WBPCB. This indicated absence of an effective and adequate internal control mechanism to manage BMW.

WBPCB/ Department of Environment stated (December 2018/ February 2019) that on its part it was following up with the HCFs for ensuring compliance. Reply of Directorate of Health Services only mentioned (November 2019) formation of District Level Monitoring Committees (DLMCs), but remained silent about formation of Committees at HCF level.

2.1.10.6 Lack of monitoring by Central Pollution Control Board

The Central Pollution Control Board (CPCB) acted as the nodal authority to oversee implementation of the BWM Rules across the country. WBPCB was required to compile, review and analyse the information received in the Annual Reports by 30 June every year from all the Occupiers and Operators in the State and send this information to the Central Pollution Control Board on or before the 31st July of every year. The Annual Reports were also to be available online on the websites of Occupiers, State Pollution Control Boards and Central Pollution Control Board. The CPCB was to compile, review and analyse the information received and send this information, along with its comments or suggestions or observations to the Ministry of Environment, Forest and Climate Change on or before 31st August every year. The BMW data with regard to West Bengal hosted on the web-site of CPCB, however, contained various anomalies impacting on its reliability and highlighted monitoring failure on the part of CPCB.

- The BMW management data submitted by WBPCB and published in the website of CPCB for the period 2010 to 2016 is in **Table 2.11**:

Table 2.11: Generation and Treatment of BMW

Particular/ Year	2010	2011	2012	2013	2014	2015	2016
BMW generated (kg/ day)	29,599	27,236 (-7.98)	31,397 (15.28)	40,407 (28.70)	42,237 (4.53)	32,823 (-22.29)	26,859 (-18.17)
BMW treated (kg/ day)	16,928	16,209 (-4.25)	19,535 (20.52)	22,970 (17.58)	22,737 (-1.01)	23,556 (3.60)	26,859 (14.02)
Un-treated BMW (kg/ day)	12,671	11,027 (-12.97)	11,862 (7.57)	17,437 (47.00)	19,500 (11.83)	9,267 (-52.48)	0 (-100)
Number of beds	92,315	94,649 (2.53)	96,035 (1.46)	99,075 (3.16)	1,03,174 (4.14)	1,03,378 (0.20)	1,06,193 (2.72)

Source: WBPCB and CPCB records; Figures in parentheses indicate percentage change over previous year

It may be seen from the above table that though there is a steady increase in bed-strength over the years, the reported quantity of waste generation (in kg per day) is actually showing a decline from 2015 onwards when it was (-)22.29 per cent and in 2016 it decreased further by 18.17 per cent.

- What is even more startling is that in the database of CPCB, the data of West Bengal (as well as in case of some other States) showed that the BMW treated was equal to or more than the quantity generated. In the website of CPCB, under status of BMW management in 2016, while

eight⁵⁸ states showed the quantity of BMW treated was less than the quantity generated, four⁵⁹ states had actually shown the treated BMW to be more than the quantity generated.

- The waste shown as generated in 2016 when compared with the bed-strength of the State was far below the average generation.
- The status with reference to issue of Authorisation for BMW management to HCFs reported by WBPCB and hosted by CPCB in its website was a gross overstatement, when compared with the basic documents test-checked in Audit, which revealed that as many as 3,118 (74.88 per cent) out of 4,164 HCFs, were operating without valid authorisation (*already discussed in Paragraph 2.1.10.3*).

Credible and reliable numbers are critical, in fact they constitute the core, for quantifying pollution, assessing its impact and verifying compliance with all applicable Rules and Standards. It is evident that the data with regard to BMW management being made available leaves much to be desired. Further, monitoring by CPCB to ensure the accuracy of the information provided was found grossly lacking.

Conclusion: *Clinical Establishment licences were issued to 390 HCFs without valid BMW authorisation. Under test-checked WBPCB Regional Offices and Circle Offices jurisdiction, 74.88 per cent of 4,164 HCFs were operating without valid authorisation. Supervision and monitoring by the BMW Committees in HCFs was found to be inadequate.*

The BMW data with regard to West Bengal hosted on the website of CPCB, however, contained various anomalies impacting on its reliability and highlighted monitoring failure on the part of CPCB.

Recommendation:

Strict enforcement and strong control mechanisms need to be in place with better inter-departmental co-ordination.

2.1.11 Manpower and Accountability

2.1.11.1 Lack of human resource

WBPCB had staff shortage in excess of the normal average of 25 per cent. The vacancy in the cadre of Junior Environment Engineer (JEE) was as high as 92.86 per cent and in that of Assistant Environment Engineer (AEE) it was 45.28 per cent as depicted in **Table 2.12**:

Table 2.12: Vacancy position in WBPCB

Name of post	Sanctioned Strength	Present Strength (as on 01.09.17)	Vacant Post (per cent)
Assistant Environment Engineer (AEE)	53	29	24 (45.28)
Junior Environment Engineer (JEE)	14	1	13 (92.86)

Source: Records of the WBPCB

The above cadres which were mainly responsible for carrying out inspections of HCFs were grossly insufficient for the requirement of WBPCB. This had

⁵⁸ Assam, Goa, Jharkhand, Jammu & Kashmir, Odisha, Rajasthan, Sikkim and Uttar Pradesh

⁵⁹ Chhattisgarh, Haryana, Puducherry and Tripura

impacted the efficiency and effectiveness of the inspection of HCFs, which were found to be grossly non-compliant of the Rules and Standards.

2.1.11.2 Lack of legal action by WBPCB against defaulters

As per Rule 18 of BMWM Rules, the Occupiers or Operators of common bio-medical waste treatment facilities are liable for all the damages caused to the environment or public due to improper handling of BMW. WBPCB was supposed to take legal action against the defaulters under Section 5 and Section 15 of Environment Protection Act, 1986 as below:

- Issue directions under Section 5 for closure, prohibition or regulation of any operation or process, supply of electricity or water, and any other service and
- Arrange punishment through court of law under Section 15 as imprisonment up to five years or fine up to ₹ one lakh or both.

In spite of widespread violations of the Rules and Standards by the HCFs and the CBMWTFs across the State, no punitive actions, as mentioned above, were found to have been taken by WBPCB to enforce compliance. The numbers of hearings held and directions issued by WBPCB during 2013-14 to 2017-18 with respect to the HCFs and CBMWTFs were meagre as shown in **Table 2.13**:

Table 2.13: Status of Hearings and Directions by WBPCB

Year	No. of hearings and issue of directions to HCFs	No. of hearings and issue of directions related to CBMWTFs
2013-14	10	04
2014-15	14	01
2015-16	08	02
2016-17	04	02
2017-18	04	01
TOTAL	40	10

Source: Records of the WBPCB

Closure notices to HCFs were issued for operating without consent and/ or authorisation of WBCPB, irregular segregation, *etc.* only in four case of which three were subsequently revoked. In respect of CBMWTFs, issue of 'authorisation' was delayed and 'Pollution Costs'⁶⁰ were imposed on the facilities for non-compliance. WBPCB has recently, however, lodged cases against three⁶¹ of the CBMWTFs in the courts of law for continuous violation of norms under the Act.

2.1.11.3 Responsibility and accountability of various agencies/ functionaries

Successful enforcement of any rules like Bio-Medical Wastes Management Rules depends on the clarity of the accountability regime of the functionaries involved in implementation. The BMW Management Rules, 2016 elaborated on duties and responsibilities of various organisations like GoI Ministry, Central and State PCBs, various State Government Departments, *etc.* The State Government/ WBPCB, however, did not issue any order further delineating the

⁶⁰ ₹ 21.50 lakh was collected as pollution costs from four CBMWTFs on seven occasions between March 2010 and May 2018

⁶¹ Greenzen Bio Pvt. Ltd. Siliguri, M/s Medicare Environmental Management (P) Ltd., Kalyani and Greentech Environmental Pvt. Ltd., Mograhat

duties and responsibilities at various levels of the organisational hierarchy either under the WBPCB or under various Departments. Despite gross and widespread irregularities and violations of BMW Rules 2016, no responsibility was fixed at any level of the organisational hierarchy in the absence of orders clearly delineating the duties and responsibilities of the various functionaries.

Recommendation:

WBPCB and H&FW Department may necessarily delineate the duties and responsibilities at various levels of the organisational hierarchy so that accountability can be fixed and rules enforced.

The matter was referred to the Government in October 2018; replies of Environment Department (February 2019), WBPCB (December 2018) and Director of Health Services (November 2019) have been received and incorporated in the Report. Reply of the Department of Health and Family Welfare is still awaited (November 2019).

Chapter 3

Compliance Audit

Chapter 3: Compliance Audit

URBAN DEVELOPMENT AND MUNICIPAL AFFAIRS DEPARTMENT (KOLKATA METROPOLITAN DEVELOPMENT AUTHORITY)

3.1 *Implementation of Water Supply Schemes by Kolkata Metropolitan Development Authority*

3.1.1 Introduction

Under the Town and Country Planning Act, 1979, Kolkata Metropolitan Development Authority (KMDA as Authority) is mandated to carry out major infrastructure development works in and around Kolkata. Creation of water supply infrastructure for supply of hygienic potable water in an economical manner was one such major infrastructural work implemented by the KMDA. KMDA implemented water supply schemes in the urban agglomeration area⁶² around Kolkata excluding the area covered under the Kolkata Municipal Corporation.

Water Supply Schemes implemented with the Central assistance under Jawaharlal Nehru National Urban Renewal Mission (JnNURM), envisaged round the clock (24X7) supply of drinking water.

The Central Public Health and Environmental Engineering Organisation (CPHEEO), a technical wing affiliated to Ministry of Housing and Urban Affairs, Government of India (GoI), supports in policy formulation and also handholds the States by way of technical advice, guidelines, scrutiny and appraisal of schemes and propagation of new technologies in the field of water supply and sanitation. Though water supply and sanitation is a State subject, CPHEEO acts as an Advisory body at Central level to advise the concerned State agencies and Urban Local Bodies (ULBs) in implementation, operation & maintenance of urban water supply, sanitation and solid waste management projects and helps to adopt latest technologies in these sub-sectors. Its manual on Water Supply and Treatment, 1999 (Manual) provides guidelines to the Public Health Engineering Departments, Water Boards and Municipal Bodies on the basic norms and standards in this field.

In terms of the Annexure 1 of the JnNURM Detailed Project Report (Preparation Toolkit), the Detailed Project Reports (DPRs) for Water Supply Projects were to be prepared as per the Manual. DPRs⁶³ for these Water Supply Schemes were prepared based on the Manual and schemes were implemented with the financial support of Government of India under JnNURM. Further, as per the Code of Basic Requirements of Water Supply, Drainage and Sanitation (IS:1172-1983) as well as the National Building Code, availability of a minimum of 135 LPCD (litres *per capita* per day) water was to be ensured.

⁶² This area is also referred to as Kolkata Metropolitan Area (KMA). The KMA spreads from 'Budge Budge Municipality' (in the south) to Kalyani Municipality (in the north).

⁶³ Bally: Page 12; Budge Budge: Page 12; Dum Dum, North Dum Dum and South Dum Dum: Page 11; Titagarh and Khardah: Page 1 and 98; Panihati: Page 3, 39 and 40 and Barrackpore and North Barrackpore: Page 10, 62 and 65.

Water supply schemes involve collection/ lifting of surface water, its treatment⁶⁴ through water treatment plants and creation of distribution network for delivery of safe potable water among the end users. After installation and operationalisation of the water supply schemes, KMDA was, however, to hand over the same to the respective urban local bodies (*i.e.*, Municipalities/ Municipal Corporations) for subsequent operation and maintenance.

During the period 2013-14 to 2017-18 KMDA and KMW&SA together implemented 19 Water Supply Schemes (13 under JnNURM) spending ₹1,242.57 crore for supplying safe drinking water

Till March 2017, Kolkata Metropolitan Water and Sanitation Authority (KMW&SA), a sister organisation under KMDA, also implemented water and sanitation schemes within the KMA. KMW&SA was, however, merged into KMDA with effect from April 2017.

During the period 2013-14 to 2017-18, ₹ 1,242.57 crore (KMDA: ₹ 856.69 crore and KMW&SA: ₹ 385.88 crore) was spent on implementation of various water supply schemes. Records of the KMDA and KMW&SA showed that 19 water supply schemes (12 under KMDA and seven under KMW&SA) were completed during 2013-18 covering 23 Municipalities in North 24 Parganas, South 24 Parganas, Howrah, Hooghly and Nadia districts. Of the 19 schemes, 13 schemes were funded out of JnNURM.

The audit was conducted between February and May 2018 covering the period from 2013-14 to 2017-18. Out of 19 schemes completed during 2013-18, records in respect of six schemes⁶⁵, funded out of JnNURM, in 10 Municipalities were test-checked, covering a base year population of 19.10 lakh (*i.e.*, population targeted to be covered when the schemes had been taken up). These six schemes accounted for an expenditure of ₹ 1,022.14 crore (KMDA: ₹ 637.63 crore and KMW&SA: ₹ 384.51 crore), *i.e.*, 82 per cent of the total expenditure incurred during the audit period.

Records of the UD&MA Department, KMDA and erstwhile KMW&SA (pertaining to the pre-merger period) were scrutinised in course of audit. Besides, Audit also conducted joint physical verification of sites with the KMDA officials. Further, to ascertain potability of treated water at user end, Audit arranged for testing of different water quality parameters⁶⁶ under the coverage area of two water supply schemes at Panihati, Barrackpore and North Barrackpore Municipalities through a laboratory accredited with the National Accreditation Board for Testing and Calibration Laboratories (NABL)⁶⁷.

The KMDA gave its replies to the draft Audit observations in January 2019, which was endorsed by the UD&MA Department. The views have been incorporated at the relevant places of the report.

⁶⁴ Through aeration, filtration, disinfection and softening. Softening is the process of removing the dissolved calcium and magnesium salts that cause hardness in water.

⁶⁵ Taking three schemes each from KMDA: (i) 24 X 7 water supply project for Dumdum, South Dumdum and North Dumdum; (ii) 24 X 7 water supply scheme for Panihati Municipality, Kolkata urban agglomeration area and (iii) water supply scheme for Bally Municipality and KMW&SA: (i) Surface water scheme at Barrackpore and North Barrackpore; (ii) Trans municipal water supply project for municipal towns of Titagarh and Khardah Municipality and (iii) 24 X 7 water supply scheme for Budge Budge Municipality. Incidentally, all the selected schemes were funded under JnNURM.

⁶⁶ pH level, turbidity, total dissolved solids, total hardness, chloride, chlorine residual, total coliform and fecal coliform. The parameters were prescribed by technical experts.

⁶⁷ NABL is a Constituent Board of Quality Council of India. NABL gives accreditation through third-party assessment of the technical competence of testing.

3.1.2 An overview of the Performance of the test-checked schemes vis-à-vis normative targets

In five out of six test-checked schemes, there were substantial shortfall in water production even compared to the targeted supply of base year

Scrutiny in audit of the six water supply schemes by KMDA, operationalised between July 2014 and December 2016 showed that in these six schemes, there were shortfalls in achievements in terms of water yield, daily duration of operation of plants, daily duration of supply to end-users, timeliness in completion of schemes, etc. as detailed below:

3.1.2.1 Overall production of treated water

Water Treatment Plants (WTPs) were designed and established to cater to the water demand of all inhabitants of the concerned Municipal areas. It was to be operated for 23 hours per day. The WTPs were, however, not being operated as per rated capacity. Audit observed that out of the test-checked six water schemes covering 10 municipalities, in five schemes under seven Municipalities, there was substantial shortfall ranging between 17.47 and 89.25 per cent in water production compared to the base year targeted supply.

Table 3.1: Project showing sub-optimal performance vis-à-vis targets

Name of the project	Name of the Municipality	Total targeted Supply in Million Gallon per Day (MGD)			Actual Supply in March 2018 (MGD)	Hours of operation of the water treatment plant	Percentage of shortfall in Supply with respect to base year
		Base year ⁶⁸	Intermediate year ⁶⁹	Design Year ⁷⁰			
Trans Municipal Water Supply Plant for Titagarh & Khardah Municipalities	Titagarh Municipality	5.21	5.92	6.52	0.56	10 hours	89.25
	Khardah Municipality	6.14	8.15	9.55	3.13		49.02
Trans Municipal Water Supply Plant for Dum Dum, North Dum Dum, South Dum Dum Municipalities	North Dum Dum Municipality	9.24	11.00	13.20	7.41	19.5 hours	19.91
Water Supply for Barrackpore & North Barrackpore Municipality	Barrackpore Municipality	5.53	6.56	7.35	3.00	15.5 hours	45.75
	North Barrackpore Municipality	5.16	6.42	7.99	3.40		34.11
Surface Water Scheme for Bally Municipality	Bally Municipality	7.04	10.56	14.96	5.81	15.5 hours	17.47
Surface Water Scheme for Budge Budge Municipality	Budge Budge	4.99	5.25	5.37	3.20	Not available	35.87

Source: Records of the KMDA and respective Municipalities

⁶⁸ Targeted year of commencement of the project as per DPR

⁶⁹ After 15 years of span from the base year as per DPR

⁷⁰ After 30 years of span from the base year as per DPR

Audit observed that such shortfall in water production was mainly attributable to limited hours of running of the plants, transmission loss, shifting of intake point (at Barrackpore), *etc.*

In reply, the KMDA stated (January 2019) that the water treatment plants are operated to produce potable water as per the demand of the local municipalities. It is, however, a fact that the municipalities continued to depend on ground water going against the basic tenet of the JnNURM norms. It was, however, intimated by the KMDA in reply that production from Water Treatment Plant (WTP) would be increased in phases. The issue needs to be prioritised by the Department from the view-point of environment.

3.1.2.2 Duration of daily water supply

Though JnNURM had envisaged round the clock (24X7) water supply, none of the schemes achieved the target as of date of audit (May 2018). Actual duration of water supply under these schemes varied from four hours a day (Budge Budge Municipality) to 10.5 hours a day (in Titagarh Municipality).

In reply, the KMDA attributed (January 2019) the same to not having household water meters for recording of supply and equitable distribution of water within municipal area. It was further intimated that supply system of treated water has been synchronised with the intermittent supply system of the municipality.

3.1.2.3 Water pressure of supplied water at end-user points

Under Section 2.2.8.3 (e) of the Manual, the minimum pressure of water at the remotest user-level delivery point should enable water to reach a height of 7 metres⁷¹, 12 metres and 17 metres in case of one, two and three storeyed buildings respectively. No flow meters/ bulk water meters were, however, installed at the respective Elevated Service Reservoirs⁷² (ESRs) to monitor and regulate water pressure. Maintaining requisite water pressure in the entire distribution network through operation of supply valves was, therefore, not possible. The water pressure was higher in the adjacent area of ESRs and gradually reduced at the furthest point. Audit observed from the records of the test-checked Municipalities that water pressure was much less than the minimum requirement of 7 metres. Data in respect of water pressure (*i.e.* the height to which water would reach) was available only in respect of three Municipalities, namely, Barrackpore (2.13 metres), Bally (2 metres) and Budge Budge (5 metres). Remaining Municipalities, without quoting any figure in terms of vertical reach of water, termed the water pressure as poor/ very poor.

An analysis of *per capita* availability of water *vis-à-vis per capita* supply of surface water showed that barring Budge Budge Municipality, inhabitants of all other test-checked Municipalities were supplied with lesser quantities of surface water than what had been envisaged in the Manual as under:

The per capita supply of surface water was below the minimum requirement of 135 LPCD

⁷¹ The height at which water should reach without pumping

⁷² An elevated structure supporting a water tank constructed at a height sufficient to pressurize a water distribution system for the distribution of potable water.

Table 3.2: Quantity of water supplied in test-checked Municipalities vis-à-vis targets laid down in the Manual

Name of the Municipality	Targeted supply of surface water	Total water supplied (including all sources)	Surface water supplied	Quantity of ground water used	Percentage of ground water in total water supplied
Litres per capita per day (LPCD)					
Titagarh Municipality	135	135	17	118	87.41
Khardah Municipality	135	191	87	104	54.45
Dum Dum Municipality	135	159	127	32	20.13
North Dum Dum Municipality	135	156	100	56	35.90
South Dum Dum Municipality	135	110	44	66	60.00
Barrackpore Municipality	135	150	68	82	54.67
North Barrackpore Municipality	135	160	91	69	43.13
Bally Municipality	135	98	96	2	2.04
Panihati Municipality	135	113	82	31	27.43
Budge Budge Municipality	135	135	135	Nil	Nil

Source: records of concerned Municipalities

As seen above, with the exception of Budge Budge Municipality:

- In all the Municipalities supply of surface water was far lesser than the required norm.
- Percentage of ground water in the total water supplied was high and ranged from 87.41 per cent to 2.04 per cent.
- Bally Municipality was the only one to keep ground water usage to the minimum but total water supplied by it was only 98 LPCD against the norm of 135 LPCD.
- The following municipalities Khardah, Dum Dum, North Dum Dum, Barrackpore and North Barrackpore supplied total water in excess of the norm but this was done at the expense of ground water.

In reply, the KMDA stated (January 2019) that some valve operations were needed for equitable supply to the consumer end to restore pressure in all secondary mains.

3.1.2.4 Discontinuation of abstraction of ground water

DPRs and its Technical Appraisal Note had an objective that with the implementation of the surface water based water supply schemes in these Municipalities under JnNURM, use of ground water was to be discontinued. With the exception of Budge Budge Municipality none of the other test-checked Municipalities could achieve the same and continued to depend on ground water sourced from bore well to supply requisite quantum of water (*i.e.*, 135 LPCD), as per *Appendix 3.1*.

In reply, the KMDA stated that an attempt is being made to restrict the abstraction of underground water through efficient valves operation system by the Local Bodies.

Desired discontinuation of abstraction of ground water remained largely unfulfilled as 39 per cent of the total demand of the test-checked Municipalities was still being met through ground water

3.1.2.5 Non-taking over of the schemes by the Municipalities from KMDA

It was observed that though the schemes were to be handed over to the respective Municipalities after their operationalisation, KMDA continued to run all the six schemes (January 2019) without handing them over to the respective Municipalities. When enquired by Audit, the respective Municipalities attributed the same to the following:

- inadequate supply of water;
- lack of water pressure in the distribution line;
- inordinately long time required for filling up of the overhead reservoirs;
- inadequate loading of overhead tanks (only once in a day) and
- insufficient distribution network, *etc.*

All these factors were indicative of unsatisfactory and sub-optimal performance of the schemes. Besides, some Municipalities also cited their internal deficiencies like lack of technical manpower, paucity of funds for operation and maintenance of the plants, *etc.*

In its reply the KMDA accepted (January 2019) that the Municipalities expressed their inability to takeover due to their poor infrastructure to operate and maintain the Water Treatment Plants. The fact, however, remains that non-taking over of the maintenance of the Water Treatment Plants adversely affected the water delivery.

3.1.3 Observations relating to planning and execution of the schemes

Audit observed that the reasons for the under-performance of the water supply schemes as detailed in the preceding paragraphs was due to various instances of planning deficiencies (like improper survey, absence of site clearance, *etc.*) leading to delay in implementation, abandonment of work, *etc.* Besides, there were cases of deviations from Detailed Project Report (DPR) compromising on capacity utilisation of the plants and consequential yield of treated water. Moreover, there were cases of excess/ avoidable spending and other lacunae in tender/ contract management, *etc.* compromising the aspect of economy in execution.

Issues relating to planning

3.1.3.1 Timeliness in completion of the schemes

Timeliness in completion of the water supply schemes has been accorded highest priority under the guidelines of the JnNURM, as expeditious completion of the schemes would result in percolation of the intended benefits to the targeted population. It was, however, observed that none of the six test-checked schemes was completed within the stipulated timeframe as shown below:

Table 3.3: Project-wise position of time overrun in execution

Project name	Year of sanction of DPR	Target date of operationalisation	Date of completion	Time overrun
Trans Municipal Water Supply Plant for Titagarh and Khardah Municipalities	December 2011	February 2015	December 2016	22 months

None of the six test-checked schemes was completed within the stipulated time frame

Project name	Year of sanction of DPR	Target date of operationalisation	Date of completion	Time overrun
Trans Municipal Water Supply Plant for Dum Dum, North Dum Dum and South Dum Dum Municipalities	December 2008	July 2011	August 2014	25 months
Water Supply for Barrackpore and North Barrackpore Municipalities	January 2008	December 2010	July 2016	67 months
Surface Water Scheme for Bally Municipality	February 2010	February 2012	July 2014	29 months
Surface Water Scheme for Panihati Municipality	September 2010	March 2012	September 2015	42 months
Surface Water Scheme for Budge Budge Municipality	January 2009	December 2010	February 2016	62 months

Source: Records of the KMDA

Audit observed that such delays were attributable to factors like defective site selection/ planning, non-availability of statutory clearances/ permissions, lackadaisical execution by the contractors, etc. As a result of such delays, percolation of the intended benefits to the inhabitants of these Municipalities was delayed.

The water treatment plants (excepting for Budge Budge), though designed and established to cater to the water demand of all the inhabitants of their respective command areas, they were being operated well below their rated capacity (23 to 85 per cent) (*Appendix 3.1*). The reasons for operating the plants below their rated capacity were not clarified to Audit. It was, however, observed in audit that unsatisfactory flow of water through the suction pipe was one of the reasons in case of Barrackpore – North Barrackpore water supply project.

3.1.3.2 Absence of site clearance resulting in delay/ abandonment of works

(i) Stoppage of construction of a reservoir due to non-availability of clearance from Ministry of Defence: Rule 193 of West Bengal Public Works Department Code stipulated that for works or buildings intended to be erected in the neighbourhood of any fort or cantonment, the opinion of the Local Military Works Officer should be obtained.

A work order was issued (March 2009) to the agency (J N construction) for construction and commissioning of 0.17 Million Gallon capacity Elevated Service Reservoir (ESR) at Hindu Burial ground for Barrackpore – North Barrackpore project. Though the construction site was situated in the neighbourhood of Air Force area, no prior permission of the local Air Force authority (Barrackpore) for the same had been obtained. According to intimation (February 2010) given by the agency to the Executive Engineer (EE), the work was stopped on 05.02.2010 by officials of police and Air Force. Consequently, the concerned EE applied (on 19.04.2010) to the local Air Force authority (Barrackpore) for permission for the said ESR *inter alia* indicating the maximum proposed height (30.50 metres) and exact location of the ESR. The Ministry of Defence, Government of India (GoI) informed (May 2012) the EE that the proposed maximum height of the ESR was not recommended as the structure fell within the restricted zone. The local Air Force office (Barrackpore) informed (October 2012) the Superintending Engineer, KMW&SA that maximum possible height of the structure should not exceed 7.49 metres.

Imprudent approach of KMDA in obtaining site clearance led to premature termination of construction work of ESR resulting in unfruitful expenditure of ₹ 72.89 lakh

Thereafter, the Director (Operations), Air Traffic Service Headquarters, New Delhi accorded (January 2017) No Objection Certificate (NOC) for construction of ESR subject to the condition that NOC from nearest Indian Air Force unit at Barrackpore was to be obtained prior to commencement of construction. Subsequently, Air Force authority Barrackpore ordered (July 2017) for immediate stopping of construction of the ESR on the ground that the actual co-ordinates of the reservoir differed from those indicated in the NOC (January 2017). As a result, the construction work of ESR remained suspended after partial completion (up to fifth bracing) rendering an expenditure of ₹ 72.89 lakh incurred unfruitful.

In the absence of ESR, it was decided that the command zone of the ESR was to be catered by direct supply from main delivery. Hence, in absence of adequate water head, the supply water pressure (minimum seven metre) at user end envisaged in the DPR could not be maintained in the Command Zone.

In reply the KMDA intimated (January 2019), albeit without any corroborative documentary evidence, that Indian Air Force authority had accorded permission for the construction of ESR up to the prescribed height as per DPR based on positional survey (latitude & longitude) of the land by the Survey of India. It was also pointed out by KMDA that the work was started only after receiving NOC and after construction of a part of the reservoir, the Defence authority again raised their objection. The reply was, however, silent on the fact that the ESR was being constructed at a location different from that for which NOC was issued by the Air Force in January 2017.

(ii) Non-availability of site clearance for raw water pump house: As per DPR of Barrackpore – North Barrackpore project, raw water was to be collected from the river Hooghly through a suction pipe and was to be sent to the raw water pump house, through 100 metre long pipeline. Before the tender was floated, however, the site for raw water pump house was shifted almost half a kilometre further without any recorded reason. This necessitated increase in length of pipeline to 462 metre in deviation from DPR. The excess work caused time and cost overrun of 43 months and ₹ 1.49 crore respectively. The KMDA did not obtain fresh/ revised approval from the CPHEEO in this regard.

It was observed that shifting of the water pumping station and consequent increase in length of pipeline adversely affected the flow and pressure of raw water. Audit physically inspected the pump site as well as the intake point at river Hooghly jointly with the Executive Engineer, Civil and Assistant Engineer, Mechanical (March 2018) and observed that the suction pipe for allowing water to flow in was above the water level during low tide. In the absence of any check valve installed in the bell mouth to ensure water tightness, sufficient raw water was not available during low tide of the river reducing the efficiency of the plant.

Shifting of site for raw water pump house without any recorded reason led to time and cost overrun of 43 months and ₹1.49 crore

Lack of co-ordination between KMDA and Municipalities led to water wastage

Issues relating to operation of the schemes and impacts thereof

3.1.3.3 Wastage of treated water

There were variations between the generation and receipt of treated water in respect of three⁷³ treatment plants. These Municipalities (*Appendix 3.1*) could

⁷³ Dum Dum-North Dum Dum-South Dum Dum; Panihati and Bally.

be supplied only 35.81 million gallons per day (MGD) water against generation of 42.00 MGD, resulting in short supply of 6.19 MGD water on an average per day. KMDA, however, did not take any initiative to detect the pilferage, leakage or otherwise for such short supply. There was no co-ordination between KMDA and Municipalities to reconcile and stop the wastage.

Such transmission losses may be viewed in the light of the fact that none of these schemes was taken over by the Municipalities as already discussed earlier in this report. Had the schemes been taken over by the Municipalities, such unaccounted transmission loss of treated water could have been monitored more closely and hence avoided.

In reply, the KMDA stated (January 2019) that there may be some cases of leakages in pipeline which accounted for losses of treated water. The fact remains that 14.74 *per cent* of the treated water was either being pilfered or lost in leakage, which requires investigation.

3.1.3.4 Execution of distribution network less than DPR

Treated water was to be stored in Elevated Service Reservoir (ESR) and distributed to the respective command areas through the secondary distribution networks. It was observed that, in respect of the test-checked schemes (Barrackpore – North Barrackpore and Bally), the Authority was to execute 193.04 km. of secondary distribution network as per the DPR. The actual network executed was for 172.127 km. which was 20.913 km.⁷⁴ (10.83 *per cent*) less than the projections in the DPR. Such less execution of distribution network coupled with feeble water pressure kept portions of command area⁷⁵ out of coverage.

In reply, the KMDA stated (January 2019) that the length of secondary grid was fixed by actual necessity/ demand placed by the municipalities. Subsequently, through separate schemes under State funding, the distribution grid has been extended to the fringe areas of North Barrackpore Municipality to meet up the demands of the locality. The reply was, however, silent on non-coverage of 20.749 km. distribution network of Barrackpore (14.801 km.) and Bally (5.948 km.).

3.1.4 Quality control of the supplied water

As per the Manual (clause no.15.3.4 read with clause 2.2.9 (b)), bacteriological tests on the supplied water were to be conducted at pumping stations, treatment plants, reservoirs, booster pumping stations as well as distribution system. There should not be any bacteriological contamination in the supplied water. This aspect assumed further significance as ground water mixed with treated water in the distribution pipelines. The DPR for each project stipulated setting up of one water testing laboratory at the site of every WTP for monitoring the quality of water. However, Audit observed the following:

⁷⁴ 14.97 km. for Barrackpore - North Barrackpore project and 5.95 km. for Bally project.

⁷⁵ 2,400 holdings under Barrackpore Municipality, Purbasha (Ward No. 1), Mayapally (Ward No. 2) and Sodlapara (Ward No. 4) under North Barrackpore Municipality, 40 per cent of municipal area covering 10 wards (nos. 18 – 20 and 29 – 35) under South Dum Dum Municipality, 40 per cent of municipal area covering 18 wards (nos. 1 – 8, 11 – 13, 17, 26 – 28, 30, 31 and 34) under North Dum Dum Municipality, 10 per cent of municipal area covering 11 wards (nos. 5, 15, 19 – 22, 24 – 27 and 31) under Panihati Municipality.

Less execution of distribution network by 20.92 km. in Barrackpore- North Barrackpore and Bally schemes coupled with feeble water pressure kept portion of command area out of coverage

Absence of proper quality control mechanism of the treated water left open the possibilities of health hazards

- Though water testing laboratories were set-up at all WTPs, there was no system of collection and testing of the water at the user end (*i.e.*, distribution line) in any of the test-checked schemes; the respective Municipalities didn't have any arrangement for quality checking of distributed water.
- Audit arranged for quality tests of the supplied water in Panihati and Barrackpore-North Barrackpore municipal areas. In three out of ten samples collected in Panihati, presence of total and faecal coliform was noticed.
- The laboratories set-up at WTP sites also had deficiencies in terms of infrastructure.
 - Water quality should be tested by an independent agency/ third party at plant laboratory, but it was done by the agency conducting Operation and Maintenance (O&M) of the plant. There was no segregation of duties.
 - Plant laboratories were not constructed as per guidelines given in the Manual⁷⁶. As against the stipulation of 150 m², the floor areas of the constructed plant laboratories⁷⁷ ranged only between 25 m² and 60 m².
 - There were no Bacteriologist, Laboratory Technician, Sample Collector, Laboratory Cleaner or Sweeper posted in the Laboratories, though stipulated in the Appendix 15.1 of the Manual. Only one agency-appointed Chemist was posted in each plant Laboratory. To check the risk of specific pathogens and to define proper control procedure⁷⁸, periodical testing of drinking water supplies was to be carried out as per codal provision⁷⁹. A number of recommended tests for chemical⁸⁰ and toxic materials⁸¹ were to be conducted. However, only a few tests⁸² of the supplied water were conducted on the collected samples from the respective WTPs. Bacteriological and few other chemical tests⁸³ of the WTP water were conducted by authority through PHE Department, West Bengal on monthly basis.

With the function of 'Quality Control' merged in the same agency managing the 'Operations & Maintenance', the above drawbacks were the consequences of the lack of segregation of duties. Health epidemics in these concerned Municipalities were a strong possibility.

In reply, the authority accepted (January 2019) the need of conducting routine and periodic tests of water through O&M contractor as per tender clause; but, they remained silent about deficiencies in frequency of tests, infrastructure as well as manpower point of view, as discussed above, regarding conduction of stipulated tests as per norms. The fact that testing of treated water was made part of the responsibilities of the O&M Contractor was a dilution of the standards at the tender stage itself.

⁷⁶ In terms of Para 15.6.2 of the Manual, Category-I, is suitable for the generation capacity above 7.5 million litres per day (MLD).

⁷⁷ Titagarh – Khardah: 25 m² and Barrackpore – North Barrackpore: 60 m²

⁷⁸ Drinking water should comply with bacteriological, virological and biological requirements.

⁷⁹ As per Table 15.1 of the Manual frequency of water testing for population over one lakh should be one sample per day per 10,000 people.

⁸⁰ Total dissolved solids, hardness, fluoride, sulphate, nitrate, calcium, magnesium, manganese, copper, aluminium, alkalinity, zinc, phenolic compound, anionic detergent, arsenic, iron, mineral oil, etc.

⁸¹ Arsenic, cadmium, chromium, cyanides, lead, selenium, mercury, poly nuclear aromatic hydrocarbons, pesticides, etc.

⁸² Temperature, pH, turbidity (on raw and clear water), residual chlorine (at clarifier and clear water).

⁸³ Total dissolved solid, total hardness, iron, nitrate, chloride and residual free chlorine.

3.1.5 Financial Management

Para 17.1 of the Manual stipulates that the aim of any water supply undertaking was to provide safe and adequate supplies of potable water at the lowest practicable cost. Test-check of selected schemes, as discussed below, indicated lack of efficiency in implementation leading to excess burden on the State exchequer.

3.1.5.1 Delayed execution of water supply schemes leading to excess burden on the State exchequer

Consequent upon inordinate delay in execution of the schemes by KMDA, all the schemes were left out of AMRUT coverage on termination of JnNURM, which deprived the State of Central Assistance of ₹150.79 crore

Financing of schemes under the JnNURM would be shared between Centre, State and Urban Local Body (ULB) or Parastatal in the ratio of 35:15:50 for the cities/ Urban Agglomerations (UAs) with population of more than 4 million as per 2001 census. Release of Central assistance would be directly linked with the progress of work upon receipt of Utilisation Certificates and subject to achievement of milestones. Government of India introduced (June 2015) a separate Mission namely 'Atal Mission for Rejuvenation and Urban Transformation (AMRUT)' after termination of JnNURM. In pursuance of para 17.1 of the AMRUT Guidelines, incomplete schemes of JnNURM sanctioned upto 31 March 2012 would be covered for funding under AMRUT. A list of 102 incomplete JnNURM schemes was prepared by the GoI for incorporation under AMRUT. But, the same did not contain the KMDA schemes under review.

Audit observed that in six test-checked schemes, GoI had released a sum of ₹ 235.34 crore against its committed share of ₹ 386.13 crore. There was, however, inordinate delay ranging between 22 and 67 months in the implementation of these schemes. Since, the Government of West Bengal (GoWB) had lost Central assistance of ₹ 150.79 crore, the shortfall was met by funds released out of State Plan funds.

In reply the KMDA stated that the delay in implementation of the project was not solely on account of the execution. The State Government sanctioned additional amount duly considering the reasons for delay.

The reply may be viewed in the light of the fact that under JnNURM, the release of Central assistance was directly linked with physical progress in execution. Hence, delayed implementation of schemes, especially in respect of those cases where delay was attributable to deficient planning and ground works, led to the State being unable to use the total quantum of committed GoI assistance. Moreover, GoI not only withdrew its allotted share but also excluded the incomplete JnNURM schemes from AMRUT.

3.1.5.2 Undue favour to the contractors and extra expenditure

In terms of JnNURM, the DPR is to be prepared with sufficient details to ensure appraisal, approval and subsequent project implementation in a timely and efficient manner. In accordance, in respect of the selected six schemes, KMW&SA prepared the DPR for three of the test-checked schemes⁸⁴. Likewise,

Contractors were allowed to prepare detailed architectural and structural drawings of works in contravention of codal provisions which resulted in the financial and technical autonomy being compromised

⁸⁴ KMW&SA- (i) Surface water scheme at Barrackpore and North Barrackpore- DPR prepared in January 2008, (ii) Trans municipal water supply project for Municipal towns of Titagarh and Khardah Municipalities- DPR prepared in December 2011 and (iii) 24 X 7 water supply scheme for Budge Budge Municipality- DPR prepared in February 2009.

KMDA prepared the DPR for the other three test-checked schemes⁸⁵. DPRs were to be appraised from the technical angle by the CPHEEO. In respect of all the six DPRs, CPHEEO while according technical appraisal, had specified that any change in scope/ objective/ design was to be ratified by the CPHEEO. Based on these DPRs, specific cost estimate, component-wise (for major components⁸⁶) for each project, had been prepared and 'Administrative Approval & Financial Sanction' was obtained.

KMDA, however, invited the tenders, on turnkey⁸⁷ basis and did not incorporate therein detailed design and drawing and item-wise rates for major components as was specified in the DPRs. Instead through clauses 54 and 55 of the general conditions of the contract, KMDA stipulated submission of item-wise detailed breakup of the quantity and cost of works to be executed for all components by the participating contractors. The participating contractors though submitted financial bids on lump sum basis and selection of contractors was done accordingly. Only thereafter, the work of preparation of detailed design and drawing of these components of the test-checked schemes was entrusted to the selected contractors. This resulted in financial as well as technical control over execution of the works being compromised by both KMW&SA and KMDA. Moreover, it was essential that execution of the components was properly followed up by KMW&SA and KMDA. This was to be ensured through comprehensive scrutiny of necessary documents relating to actual execution of work which is a basic requirement of normal financial prudence. Test-check of records relating to the execution of these six schemes revealed the following.

(i) The scope of work in DPRs of two trans – municipal schemes (Titagarh – Khardah and Barrackpore – North Barrackpore) stipulated that bored cast-in-situ piles⁸⁸ were to be installed for different components of the schemes. Details of piles (in respect of their number, dimension, specification and strength) to be constructed for each component of work were also prescribed in DPR. Any change in the technical specification should require prior approval of CPHEEO before execution of the work. The tender stipulated the grade as well as cement content of concrete for construction of all types of Reinforced Cement Concrete (RCC) piles and the diameter of the bored cast-in-situ piles of intake jetties. The number and dimension⁸⁹ of piles to be constructed in respect of intake jetties and other components of works were, however, not mentioned in the tender. The work orders issued to the contractors also remained silent in this regard. This indicated poor tender/ contract management apart from compromise on quality of work executed.

Audit observed huge variations in number as well as specification of piles during construction by contractors, when compared to DPRs, as detailed in **Table 3.4**. Prior approval as required in the DPR was also not obtained from

Absence of justified rate analysis of the executed item of works led to excess payment of ₹10.19 crore

⁸⁵ KMDA- (i) 24 X 7 water supply project for Dum Dum, South Dum Dum and North Dum Dum- DPR prepared in December 2008, (ii) 24 X 7 water supply scheme for Panihati Municipality - DPR prepared in September 2010, (iii) Water supply scheme for Bally Municipality- DPR prepared in February 2010.

⁸⁶ Intake Jetty with raw water suction main, raw water pump house with raw water delivery main, water treatment plant, underground water reservoir, clear water pump house with clear water distribution mains.

⁸⁷ Of or involving the provision of a complete product or service that is ready for immediate use.

⁸⁸ Cast-in-situ piles are those piles, which are cast in position inside the ground.

⁸⁹ It was assigned to the concerned contractors as per the design to be submitted by them at the time of execution of the respective work.

CPHEEO for such variation. Thus the result of variation of load bearing capacity was not technically vetted by CPHEEO. Further, there was nothing on the record to indicate that KMW&SA had carried out any exercise to assess the impact of the variations on the structure constructed.

Scrutiny revealed that KMW&SA also allowed payment against claims preferred by the contractor towards construction cost of piles without undertaking any rate analysis of the executed quantity. Audit analysed the cost of the executed quantities of piles and compared with the cost actually paid to the contractors and found that the Authority had made excess payment of ₹ 10.19 crore⁹⁰ for construction of piles as detailed in the table below:

Table 3.4: Statement of excess expenditure incurred during construction of piles

Name of Schemes	Item of work	Details of piles to be constructed as per DPR			Details of piles actually constructed			Payment made against cost of piles (₹ in lakh)	Rate of construction of piles, per metre, as per audit analysis (₹ in lakh)	Actual cost of construction of piles, based on audit analysis (₹ in lakh)
		No.	Length (in mt.)	Diameter (in mm.)	No.	Length (in mt.)	Diameter (in mm.)			
Titagarh – Khardah	Intake jetty	77	30	1,200	8	18.775	750	982.80	0.1024631 for 750 mm. dia	198.79
					39	25.44	1,000		0.1407584 for 1,000 mm. dia	
	Steel liner for pipes	6 mm. thick (164 mt.)			8 mm. thick (65.66 mt.)				0.6663716 for 8 mm. steel liner	
	Clear water reservoir	112	30	500	115	18.42	500	216.26	0.043663 for 500 mm. dia	92.49
Barrackpor - North Barrackpore	Clear water reservoir	63	20	450	156	23.68	500	235.62	0.0337643 for 500 mm. dia	124.73
Total								1,434.68		416.01

Source: records of KMDA and KMW&SA

In reply, the KMDA stated (January 2019) that the DPR was prepared to ascertain the cost of the schemes and as per prevailing practice, while Tender Inviting Authority was supposed to invite tender for design, drawing and construction as per actual requirement/ actual site conditions. It was added that the actual requirement might vary from the DPR provision and the cost of pile, as determined by the audit team, was based on PWD Schedule of Rates (SoR) on the solid ground, which was not applicable on the riverbed piles as it requires special technology and infrastructure arrangement.

The reply is, however, not acceptable as (a) Audit calculated the actual cost of piles on the basis of rate analysis, as submitted by the KMDA, in terms of DPR provision as well as actual execution and (b) PWD SoRs were applicable for riverbed piles also (as constructed for bridge works) and there were no separate rates/ provisions for riverbed piles and piles on solid ground.

(ii) As a part of normal financial prudence, KMW&SA was to effect proportionate deduction towards non-executed items of work. In terms of the

⁹⁰ ₹1,434.68 lakh minus ₹416.01 lakh = ₹1,018.67 lakh, i.e., about ₹10.19 crore

Non-effecting proportionate deduction against non-executed item (RCC Screen) led to excess expenditure of ₹1.20 crore

DPR, a RCC screen⁹¹ worth ₹ 1.20 crore was to be constructed around the bell mouths⁹² of ‘Suction Mains’ for intake jetty and jetty mounted pump house of Titagarh – Khardah project. It was, however, observed in audit that construction of RCC screen around the bell mouth was included in the accepted tender *vide* Clause 1.1.5. Accordingly, the contractor submitted his rate considering this item. This item was, subsequently, excluded at the execution level without corresponding reduction in tendered cost. This led to an excess expenditure of ₹ 1.20 crore being incurred by the Authority.

In reply, the KMDA stated (January 2019) that RCC screen around the bell mouth was not included in the scope of work of the Intake Jetty Tender.

The reply is not acceptable as it was observed by Audit that the accepted tender⁹³ included suitable suspended RCC screens (with elaborate specifications) around the bell mouths of Suction Mains for arresting large floating matters.

Payment of ₹1.78 crore against the item “miscellaneous works”, without specific details, raised doubt about bonafides of such transactions

(iii) The bills submitted by contractors for construction of water treatment plants, *inter alia* included a sub-item- ‘miscellaneous works’ which was not specified in the Tender. Even the selected contractor did not provide details of any such item to be executed, while submitting the price break-up schedule for payment. Scrutiny of bills with relevant Measurement Books (MBs) showed that an amount of ₹ 1.78 crore was paid to the contractors for four⁹⁴ of the selected schemes (Barrackpore-North Barrackpore, Titagarh-Khardah, Budge Budge and Dum Dum-North Dum Dum-South Dum Dum) towards ‘miscellaneous works’. No specific details of executed miscellaneous works were recorded in the MBs violating the terms and conditions of the contract. Absence of specific details relating to the nature of such expenditure raised doubt about the bonafides of such transactions.

In reply, the KMDA stated (January 2019) that the minor items of work were clubbed under a single broad item. Detailed specification of such minor executed items was not even recorded in the MBs. This matter calls for attention of the Department as substantial amount being clubbed under “miscellaneous works” goes against the idea of transparency in Government expenditure.

3.1.6 Conclusion

Audit of six water supply schemes implemented by KMDA covering 10 municipal areas around Kolkata showed that the basic objective of supplying round the clock treated surface water envisaged under the JnNURM guidelines remained a distant goal.

Water Treatment Plants (WTPs) were not operated for the required 23 hours per day resulting in substantial shortfall in water production compared to the base year targeted supply. The shortfall ranged between 17.47 and 89.25 *per cent* in five schemes under seven Municipalities. Though JnNURM had envisaged round the clock (24X7) water supply, none of the schemes achieved the target as of date of audit (May 2018). Actual duration of water supply under these

⁹¹ M.S Flat screen 50 X 10 mm. at 50 mm. cubic centimeter for 6 mm. depth.

⁹² Bell mouths are an enlarged end, attached to suction pipes/ mains, which ensure that the entering liquid accelerates gradually to the pipe velocity, thus reducing friction losses.

⁹³ “SECTION F: GENERAL TECHNICAL SPECIFICATION FOR INTAKE JETTY, SUCTION MAINS: Clause 1.1.5 and also Clause-7 of same section elaborately specified the scope of this screen.

⁹⁴ ₹112.85 lakh for Barrackpore-North Barrackpore, ₹45.10 lakh for Titagarh-Khardah, ₹3.72 lakh for Budge Budge project and ₹16.09 lakh for Dum Dum, North Dum Dum and South Dum Dum project.

schemes varied from four hours a day (Budge Budge Municipality) to 10.5 hours a day (in Titagarh Municipality).

An analysis of *per capita* availability of water *vis-à-vis per capita* supply of surface water showed that barring Budge Budge Municipality, inhabitants of all other test-checked Municipalities were supplied with lesser quantities of surface water than the norm. With the exception of Budge Budge Municipality, all the other test-checked Municipalities continued to depend on ground water sourced from bore well to supply requisite quantum of water.

Though the schemes were to be handed over to the respective Municipalities after their operationalisation, none of the test-checked projects were taken over by the Municipalities on the grounds of sub-optimal supply, operation and maintenance. KMDA, therefore, continued to run all the six schemes (January 2019) without handing them over to the respective Municipalities.

Audit observed that the reasons for the under-performance of the water supply schemes were due to various instances of planning and execution deficiencies like improper survey, absence of site clearance, *etc.*, leading to delay in implementation, abandonment of work, *etc.* Besides, there were cases of deviations from Detailed Project Report (DPR) compromising on capacity utilisation of the plants and consequential yield of treated water. Moreover, there were cases of excess/ avoidable spending and other lacunae in tender/ contract management, *etc.* compromising the aspect of economy in execution.

There were also substantial deficiencies in the mechanism of quality checking of water at the delivery points. While the laboratories set-up under the schemes lacked in infrastructure and manpower and were unable to conduct all types of quality check, there was no established system of quality check at the user points in any of the test-checked Municipalities.

URBAN DEVELOPMENT & MUNICIPAL AFFAIRS DEPARTMENT (KOLKATA METROPOLITAN DEVELOPMENT AUTHORITY)

3.2 *Excess payment to contractors*

Erroneous consideration of rates by the Kolkata Metropolitan Development Authority (KMDA), for various components of the work of Bus Rapid Transit System (BRTS), led to excess payment of ₹ 4.62 crore to the contractors.

With a view to constructing a dedicated lane⁹⁵ for rapid movement of buses on a selected stretch of Eastern Metropolitan (EM) Bypass⁹⁶, Kolkata Metropolitan Development Authority (KMDA) accorded (December 2010) approval⁹⁷ for implementation of ‘Bus Rapid Transit System’ (BRTS) project at a cost of ₹ 252.91 crore⁹⁸ under Jawaharlal Nehru National Urban Renewal Mission (JnNURM). The Roads & Bridges⁹⁹ sector, KMDA (executing sector) was entrusted with the implementation of the BRTS project in Kolkata.

⁹⁵ To avoid traffic congestion

⁹⁶ Between Metropolitan Bridge (Ultadanga) and Garia station covering a distance of 15.5 km.

⁹⁷ Administrative Approval & Financial Sanction (AA&FS)

⁹⁸ Government of India (35%), Government of West Bengal (35%) and KMDA (30%)

⁹⁹ Earlier Traffic & Transportation sector

For preparation of estimates for works, KMDA followed the Schedule of Rates (SoR)¹⁰⁰ of the Public Works Department (PWD).

In a progress meeting (December 2014) of the BRTS project, KMDA was directed to convert the surface topping of bituminous carriageway into Mastic Asphalt for durability. The extra cost involved was to be met out of the State budget, as the same was not included in the original Detailed Project Report (DPR).

Audit observed, however, that KMDA had allowed higher rate for Mastic Asphalt works (Notice Inviting Tenders (NIT) dated 20.11.2015) to two contractors¹⁰¹ for different stretches of EM Bypass under BRTS as detailed below:

- (i) The rate of mastic asphalt work was analysed as per provisions of 8th addenda & corrigenda (effective from 01.07.2015) of PWD (Roads) SoR, 2014 considering cost of Bitumen (packed) 10/20 as ₹ 45,150.00 per Metric Tonne (MT). The rate of Bitumen (packed) 10/20 had, however, been revised downward to ₹ 36,223.00 per MT as per the 13th addenda and corrigenda of PWD (Roads) SoR, 2014 made effective from 29.10.2015 (i.e., before the date of NIT). KMDA, however, had failed to take note of the revised amount while issuing the NIT. Similarly, higher Rate (₹ 38,160.20 per MT) of Bitumen (packed) 60/70 was considered instead of the rate (₹ 36,162.00 per MT) admissible under 13th addenda.
- (ii) Carriage cost of Bitumen (packed) 10/20 from the manufacturers' Outlet at Dhulagarh Junction (on National Highway (NH)-6) to EM Bypass, was also inflated by ₹ 374.50¹⁰² per MT.

The admissible rate for Mastic Asphalt (50 mm. thick) should have been ₹ 851.38¹⁰³ per square metre (sq. mt.) instead of ₹ 967.93 per sq. mt. as was arrived during analysis of rate¹⁰⁴ and as detailed in the table below:

Table 3.5: Rate Analysis for Mastic Asphalt 50 mm. thick considering one sq. mt. area

Sl. No.	Particulars	Rate analysed by KMDA (in ₹)	Rate admissible as per SoR (in ₹)	Rate inflated by (in ₹)
1	Labour rate	235.000	235.000	-
2	Cost of materials			
	i) Bitumen (packed) 10/20	564.362	447.839	116.523
	ii) Bitumen (packed) 60/70	0.596	0.565	0.031
3	Coarse aggregate			
	5.60 mm. chips (50 %)	22.030	22.030	-
	11.20 mm. chips (50 %)	26.200	26.207	(-)0.007
4	Fine aggregate			
	Stone dust	28.720	28.722	(-)0.002
	Lime powder	90.112	90.112	-
	13.20 mm. chips	0.907	0.907	-
	TOTAL	967.927	851.382	116.545

Source: Records of the KMDA

¹⁰⁰ With addenda & corrigenda issued from time to time

¹⁰¹ M/s. Progressive Discon (JV) and M/s. Aditya Enterprise

¹⁰² For considering the distance as 100 km. instead of distance of 35 km.

¹⁰³ As admissible under SoR of PWD (Roads) 2014 read with 13th addenda & corrigenda

¹⁰⁴ As per SoR of PWD (Roads) 2014 read with 8th addenda & corrigenda

As such, the rate of mastic asphalt work included in the tender was inflated by ₹ 116.55¹⁰⁵ per sq. mt. Consequently, excess payment of ₹ 1.10 crore¹⁰⁶ was made (July 2016 to April 2017) to two contractors for execution of 1,14,538.81¹⁰⁷ sq. mt. of mastic asphalt work by KMDA.

It was further observed that the work of “Construction of embankment for widening of EM Bypass (Both sides) throughout the entire stretch” under BRTS project was awarded (December 2010) to one M/s IVRCL¹⁰⁸. Scrutiny, however, disclosed that the analysed rate of ₹ 335.49 per cubic metre for ‘Earthwork in road embankment’¹⁰⁹ put to tender was higher due to erroneous consideration of rates of various components over the admissible rate of ₹ 245.57 per cubic metre due to the following reasons.

- (i) As per tender specification the contractor had to use ordinary soil excavated from borrow pit for earth work. The rate applicable for mixed soil (@ ₹ 40.80 per cubic metre) was, however, taken into consideration instead of that for ordinary soil (@ ₹ 36.70 per cubic metre) for the base rate of earthwork.
- (ii) Carriage cost applicable for Darjeeling Hill area @ ₹ 172 per cubic metre was taken into consideration instead of ₹ 110 per cubic metre applicable for Kolkata and South 24 Parganas.
- (iii) Compaction factor of 0.87 was allowed instead of 0.92 as per SoR of PWD for compacting 100 cubic metre borrow pit earth leading to enhancement of final rate of earthwork.
- (iv) Rate of compaction of mixed soil @ ₹ 17.90 per cubic metre for labour, machinery, etc., was considered instead of ₹ 17.10 per cubic metre applicable to that of the ordinary soil.

As such, rate of earth work included in the tender was inflated by ₹ 89.92¹¹⁰ per cubic metre as detailed in **Appendix 3.2**. Consequently, KMDA allowed (September 2013) total excess payment of ₹ 3.52 crore¹¹¹ to IVRCL¹¹² for execution of 3.26 lakh cubic metre of earth work.

Thus, erroneous consideration of rates for various components of the work over the rates admissible as per SoR of PWD and failure on the part of KMDA to monitor the same led to excess payment of ₹ 4.62 crore¹¹³ to different contractors.

The matter was referred to Government in July 2018; reply had not been received (November 2019).

¹⁰⁵ ₹967.93 minus ₹851.38

¹⁰⁶ Excess payment = ₹(116.55 X 21,111.89 m² X 83.89/100 paid to M/s Progressive Discon + 116.55 X 93,426.92 m² X 82.20/100 paid to M/s Aditya) after factoring in the percentage reduction obtained on finalisation of tender

¹⁰⁷ M/s Progressive Discon 21,111.89 sq. mt. (1st RA Bill) and Aditya Enterprise 93,426.92 sq. mt. (5th RA Bill)

¹⁰⁸ IVRCL Infrastructures & Projects Ltd.

¹⁰⁹ Tender Item No.4

¹¹⁰ ₹335.49 minus ₹245.57

¹¹¹ Excess payment = ₹89.92 X 3,26,299.640 m³ X 119.80/100 after factoring in the percentage increase consequent upon finalisation of tender

¹¹² 13th Running Account & Final bill

¹¹³ ₹3.52 crore + ₹1.10 crore

**URBAN DEVELOPMENT & MUNICIPAL AFFAIRS DEPARTMENT
(SILIGURI JALPAIGURI DEVELOPMENT AUTHORITY)**

3.3 Unfruitful expenditure on construction of a bridge in Jalpaiguri

Construction of a bridge over Karala river at Samajpara, Jalpaiguri without ensuring availability of land for approach road led to the bridge remaining non-functional even after five years of its construction. The avowed target of direct connectivity of a prime residential area of Jalpaiguri town with the District Hospital did not materialise rendering an expenditure of ₹ 1.01 crore infructuous.

Rule 258 of the West Bengal Public Works Department Code (PWD Code) provides that except in the case of emergent works such as repair of breaches, etc., no works should be started on land which has not been duly made over by the responsible civil officers.

With a view to ensuring direct connectivity of a prime residential area at Samajpara situated in east side of the Karala River (which flows through the Jalpaiguri Town) with the Jalpaiguri District Hospital, situated in the west side of the river, Siliguri Jalpaiguri Development Authority (SJDA) decided (February 2009) to construct a concrete bridge over the river. The scope of work also included construction of approach roads on both sides of the bridge by improving¹¹⁴ existing narrow non-motorable roads. While the responsibility of execution of the work was with SJDA, the Jalpaiguri Municipality was to arrange for the land.

Records of the SJDA showed that in October 2009, the Sabhadhipati, Jalpaiguri Zilla Parishad endorsed a mass petition (July 2009) to SJDA. In the petition, the local residents of the hospital side of the proposed bridge had requested for change in the location of the bridge expressing their concern on viability of widening of approach roads, as this would involve dismantling of a number of dwelling houses. Nothing was, however, on records to show if SJDA authority took the issue into account before issuing the work order in February 2010 to a private agency for construction of the bridge at a cost of ₹ 1.04 crore. The construction work of the bridge was completed (November 2013) at a cost of ₹ 1.01 crore. Thereafter, SJDA, without ensuring availability of land, issued further work orders (May 2015) to another agency for construction of the approach roads for ₹ 1.89 crore (west side) and ₹ 1.15 crore (east side). The decision of the SJDA was thus in violation of the Rule 258 of the PWD Code.

Scrutiny of records (May 2018) of the SJDA showed that at neither side of the bridge the works of approach roads could be taken up due to non-availability of land required for widening of the road¹¹⁵. Consequently, the bridge remained unused even after almost five years since its construction. Physical inspection (May 2018) of the bridge conducted by Audit jointly with the

¹¹⁴ Included conversion of existing 3.5 metres (mt.) to 3.7 mt. wide roads to a 7.0 mt. wide road including drains, construction of approach slabs, mastic asphalt wearing course, retaining wall, etc.

¹¹⁵ 7.00 mt. (5.00 mt. width black top and 2 X 1.00 mt. for drain) were required, while 3.2 mt. to 3.5 mt. were available. Major portion of additional land required for widening work was within the boundary of road side houses.

Executive Engineer, SJDA revealed that the bridge could not be used even by the pedestrians as would be corroborated from the photographs below.

Present status of the bridge over Karala river at Samajpara, Jalpaiguri (May 2018)



Pic 3.1: West side of the bridge



Pic 3.2: East side of the bridge

Thus, the avowed objective of better connectivity of some localities of Jalpaiguri town with District Hospital remained unachieved.

The matter was referred to Government in August 2018; reply had not been received (November 2019).

**URBAN DEVELOPMENT & MUNICIPAL AFFAIRS DEPARTMENT
(STATE URBAN DEVELOPMENT AGENCY)**

3.4 Unfruitful expenditure of ₹ 1.20 crore for sewerage treatment scheme under Kurseong Municipality

Lackadaisical approach of Kurseong Municipality, Municipal Engineering Directorate and West Bengal State Urban Development Agency in implementing the Sewerage Scheme led to the scheme remaining non-starter even after 10 years of its sanction and thereby rendering the expenditure of ₹ 1.20 crore incurred thereon unfruitful. Besides, the objective of providing improved sewerage system in the town also did not materialise.

With a view to improving the sewerage facilities of Kurseong town, the Sewerage Treatment Scheme within Kurseong Municipality was sanctioned (March 2008) by Government of India (GoI) at an approved cost of ₹ 12.52¹¹⁶ crore under Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT). The implementation of the scheme was entrusted to Kurseong Municipality and West Bengal State Urban Development Agency (SUDA) was vested with the overall responsibility for implementation of the project. The scope of work *inter alia* included construction of six Sewerage Treatment Plants (STPs) of different capacity¹¹⁷ and connecting them to a sewerage network, using pipes of different diameters¹¹⁸, spread over 27.35 km.

Scrutiny of records revealed that though the Detailed Project Report (DPR) was prepared in 2007, tender was invited in 2008 and work order was issued in 2009, the implementation of the scheme started only in 2012-13 due to various factors¹¹⁹. Out of available fund of ₹ 6.26 crore¹²⁰ as first instalment, ₹ 3.13¹²¹ crore had been released (November 2009) to Kurseong Municipality. So far, a total of ₹ 1.24¹²² crore has been expended by the Municipality for the scheme¹²³ but the project, however, has remained a non-starter (October 2018) and the following irregularities relating to its execution were noticed:

¹¹⁶ GoI's share: ₹ 10.14 crore, State's share: ₹ 1.19 crore and Kurseong Municipality's share: ₹ 1.19 crore. Component-wise cost: Supply of pipe (₹ 2.05 crore), Laying of pipe (₹ 4.06 crore), Construction of Manholes (₹ 1.15 crore), Road restoration Water Bound Macadam (₹ 0.24 crore), Road restoration Concrete (₹ 0.10 crore), Sewerage Treatment Plant (₹ 4.45 crore), Utility Service (₹ 0.11 crore) and Contingencies at the rate of three per cent (₹ 0.36 crore).

¹¹⁷ Six STPs with outfall capacity viz. 0.51 Million Liters per Day (MLD), 0.56 MLD, 2.145 MLD, 1.79 MLD, 2.91 MLD and 0.38 MLD

¹¹⁸ such as 150 mm. dia Stoneware (SW), 225 mm. dia SW, 300 mm. dia SW, 400 mm. dia Cast Iron (CI), 450 mm. dia CI, etc.

¹¹⁹ non-availability of land, public objection for the construction of STP, political agitation, absence of elected board, closure of National Highway (NH) 55 and Rohini Road.

¹²⁰ GoI's share ₹ 5.01 crore and State & Municipality's share ₹ 1.25 crore

¹²¹ GoI's share ₹ 2.50 crore and State & Municipality's share ₹ 0.63 crore

¹²² Purchase of HDPE pipes: ₹ 0.45 crore; payment of mobilisation advance: ₹ 0.50 crore; civil work for construction of 0.51 MLD capacity STP: ₹ 0.07 crore; retrofit work of existing imhoff tank: ₹ 0.11 crore and DPR preparation: ₹ 0.11 crore

¹²³ The scheme was to be completed by 365 days (one year) from the date of issue of the work order.

- The DPR for the project prepared by Centre for Social and Environmental Centre (CSE)¹²⁴ lacked credible information¹²⁵ required for taking up the works. Further, as per DPR for the project, SW (Stoneware) and CI (Cast Iron) pipes were to be used for the project. The pipes, however, were not found suitable for hilly region in consideration of its vulnerability in transportation. Accordingly, Kurseong Municipality proposed (January 2011) to change the pipes for the project which was acceded to after delay of two years in January 2013 by the Municipal Engineering Directorate (MED). For preparation of the faulty DPR an expenditure of ₹ 0.11 crore, had been incurred.
- Out of the six STPs to be constructed, the work of the STP with 0.51 Million Liters per Day (MLD) capacity was stopped since March 2014 as construction drawings for the project were not submitted by the agency *ibid* for approval of the MED. The expenditure incurred for civil works was ₹ 0.07 crore.
- The STP with 0.56 MLD capacity could not be taken up as no provision was kept for site development in the original estimate of the work.
- In deviation from the Appraisal Report of the project, the Kurseong Municipality did not acquire the required land before the project was sanctioned. Even, the earmarked land for two sites¹²⁶ could not be acquired till date, as the owners¹²⁷ of the lands were not willing to hand over the plots of land. Hence, the construction of STP at these two locations could not commence, as of date.
- The STPs with 2.91 MLD and 0.38 MLD capacity were substituted by a 3.6 MLD capacity STP by means of retrofitting of an existing Imhoff tank¹²⁸, which however, could not be made operational as of date. The expenditure on account of retrofitting was ₹ 0.11 crore.
- Despite absence of any provision in the agreement, Kurseong Municipality paid mobilisation advance of ₹ 0.50 crore¹²⁹ out of UIDSSMT fund to a private agency¹³⁰ without prior approval from Siliguri Division, MED. Out of ₹ 0.50 crore, only ₹ 1.70 lakh was recovered from the private agency till date, though there was no progress of work beyond March 2014.
- In terms of Rule 35 of the West Bengal Financial Rules, expenditure should not be *prima facie* more than the occasion demands. In this regard it was also observed that even though the pipes were not immediately required for the project, Kurseong Municipality procured (May 2013) 1,523 High-density polyethylene (HDPE) pipes of different diameter¹³¹

¹²⁴ CSE prepared the DPR at a cost of ₹ 0.11 crore

¹²⁵ Contour Map was not sufficient. Detailed drawing of nodes and pipe was not available in the DPR and there was no provision for Electrical Connection in the DPR

¹²⁶ STPs with 2.145 MLD and 1.79 MLD capacity

¹²⁷ Casselton Tea Estate and Montiviot Tea Estate

¹²⁸ Imhoff is a chamber suitable for reception and processing of sewage

¹²⁹ ₹ 0.40 crore in June 2011 and ₹ 0.10 crore in January 2013

¹³⁰ M/s Unitech Water Technologies Private Limited

¹³¹ 170 mm. (1,221 pieces), 250 mm. (260 pieces) and 400 mm. (42 pieces)

valued at ₹ 0.45 crore from a private agency¹³². The pipes could not be put to use and were lying under open sky for more than 27 months at Municipal Kanya Pathsala Ground without any security till November 2015 when 1,458¹³³ pipes costing ₹ 0.43¹³⁴ crore were completely burnt out in fire.

- Meanwhile, in October 2014, Ministry of Urban Development, GoI stopped funding the project due to failure of the concerned authorities to finish the work within 31 March 2014. Further, in October 2018, the MED communicated that the Kurseong Municipality had diverted a significant amount, leaving a balance of only ₹ 0.36 lakh out of ₹ 3.13 crore. The MED attributed such diversion of fund as the reason for the project remaining non-starter.
- As per para 10.2 of the UIDSSMT guidelines, SUDA was responsible for monitoring the implementation of the scheme. It was evident from the above project deficiencies that SUDA had failed in monitoring the implementation of the scheme.

Thus, failure on the part of Kurseong Municipality in implementing the project and lack of monitoring of the project implementation by SUDA resulted in the project remaining a non-starter even after ten years of its sanction. Besides, cost of preparation of faulty DPR (₹ 0.11 crore), damaged pipes (₹ 0.43 crore), idle civil works (₹ 0.07 crore), retrofitting of tank (₹ 0.11 crore) and unrecovered mobilisation advance to the private agency (₹ 0.48¹³⁵ crore) led to infructuous expenditure of ₹ 1.20 crore. The objective of providing improved sewerage system to the town also remained unachieved.

The matter was referred to Government in July 2018; reply had not been received (November 2019).

HEALTH AND FAMILY WELFARE DEPARTMENT

3.5 Excess expenditure of ₹ 2.08 crore

Award of a contract by the hospital authority to an agency for the mechanised/ automated cleaning of the non-existent floor area of 12,436 square metres, in three buildings of Seth Sukhlal Karnani Memorial Hospital, led to excess payment of ₹ 2.08 crore.

Medical Superintendent-cum-Vice-Principal (MSVP), Seth Sukhlal Karnani Memorial (SSKM) Hospital and Director, Institute of Post Graduate Medical Education and Research (IPGMER), engaged¹³⁶ (June 2014) an agency¹³⁷ for mechanised/ automated cleaning in different parts of the hospital campus.

¹³² Alom Poly Extrusion Limited

¹³³ 170 mm. (1,160 pieces), 250 mm. (256 pieces) and 400 mm. (42 pieces)

¹³⁴ 1,160 pipes (₹ 0.25 crore), 256 pipes (₹ 0.14 crore) and 42 pipes (₹ 0.04 crore)

¹³⁵ ₹ 0.50 crore minus ₹ 0.02 crore

¹³⁶ For one year and extendable thereafter upto two years, in terms of Notice Inviting Tender.

¹³⁷ M/s Reliable Hospitality Services

The area to be covered was 78,753¹³⁸ square metres (sq. mt.) with the applicable rate being ₹ 88 per sq. mt. per month including taxes¹³⁹.

The scope of work *inter alia* included mechanised/ automated cleaning of an area of 9,121 sq. mt. This included parts of Urology-Nephrology building (two floors: 1,563 sq. mt.), Academic building (two floors: 3,350 sq. mt.) and Neo-natal Intensive Care Unit (NICU) building¹⁴⁰ (4,208 sq. mt.). In March 2016, mechanised/ automated cleaning for an additional area measuring 24,183¹⁴¹ sq. mt. for these three buildings was also entrusted to the same agency on the same terms and conditions. Thus, the total area included in the scope of work for these three buildings was calculated by the hospital authority as 33,304¹⁴² sq. mt. Scrutiny in audit, however, disclosed that the total area of these three buildings (Urology-Nephrology, Academic and NICU), based on measurements of PWD, was only 20,868 sq. mt. against 33,304 sq. mt. This resulted in work orders being issued for a non-existent area of 12,436¹⁴³ sq. mt. in respect of these three buildings. The details have been elaborated in **Appendix 3.3**. Consequently, excess payment of ₹ 2.08 crore¹⁴⁴ was made to the agency from March 2016 to December 2017 as detailed in **Appendix 3.4**.

Such award of contract by the hospital authority to an agency for the mechanised/ automated cleaning of the non-existent floor area of 12,436 square metres, in three buildings of Seth Sukhlal Karnani Memorial Hospital, not only led to an excess payment of ₹ 2.08 crore but was tantamount to extending undue benefit to the agency also.

The matter was referred to Government in September 2018; reply had not been received (November 2019).

PUBLIC HEALTH ENGINEERING DEPARTMENT

3.6 Objective of a Water Supply Project remaining largely unachieved

Absence of a proper survey by the Public Health Engineering Directorate, prior to selection of site for construction of an Over Head Reservoir (OHR) for a Water Supply Project in the district of Burdwan, resulted in the OHR not being constructed. This resulted in non-realisation of the objective of the project despite incurring an expenditure of ₹ 1.14 crore on laying rising main even after more than three and half years of its construction.

With a view to supplying safe drinking water to the population of Rayan and

¹³⁸ Measured by Executive Engineer, Public Works Department (PWD) (Civil), Suburban Division, New Secretariat Building, Kolkata in January 2014 at the request of IPGMER.

¹³⁹ Service Tax/ Goods and Services Tax.

¹⁴⁰ Neonatal Intensive Care Unit.

¹⁴¹ Urology-Nephrology building: five floors, 7,815 square metres (sq. mt.); Academic building: three floors, 10,050 sq. mt. and NICU building: three floors, 6,318 sq. mt.

¹⁴² 9,121 sq. mt. plus 24,183 sq. mt.

¹⁴³ Total area brought under mechanised/ automated cleaning (33,304 sq. mt.) through first and second work order for Urology-Nephrology, Academic and NICU buildings less actual area (20,868 sq. mt.) available for those buildings as per measurement of PWD.

¹⁴⁴ Excluding service tax and GST.

two adjoining *mouzas*¹⁴⁵ of the Burdwan district, Public Health Engineering (PHE) Department sanctioned (March 2012) a ground water based piped water supply scheme¹⁴⁶ at an estimated cost of ₹ 8.33 crore¹⁴⁷ (civil works: ₹ 7.09 crore and electrical/ mechanical works: ₹ 1.24 crore). The scope of work *inter alia* included abstraction of ground water by tube wells, transmission of abstracted water to Over Head Reservoir (OHR) through rising main¹⁴⁸ and supply of water through distribution network. After preliminary survey, a plot of 25 cottah¹⁴⁹ of vested land was identified to house the head works¹⁵⁰. The other five tube wells were to be housed at different locations in Rayan and Nari *mouzas*.

The PHE Directorate invited (June 2014) e-tender for laying 5,400 metres of rising main¹⁵¹ at an estimated cost of ₹ 1.28 crore (material cost ₹ 1.18 crore and labour cost ₹ 0.10 crore). As the material for the work was to be supplied by the PHE Department, the work was awarded¹⁵² (July 2014) to an agency¹⁵³ at a tendered rate of ₹ 0.10 crore for labour cost only. The work of laying of rising main was completed (October 2015) at a total cost of ₹ 1.14 crore¹⁵⁴.

As per the Detailed Project Report (DPR), the OHR was to be constructed with pile¹⁵⁵ foundation. It was, however, observed that the PHE Directorate, in disregard to the provision of the DPR, awarded (October 2015) the work for construction of OHR with raft¹⁵⁶ foundation to an agency¹⁵⁷. Reasons for deviation from provisions of the DPR were not put on record.

The work, however, could not commence due to obstruction of an overhead electric high tension line passing through the selected site. Accordingly, the site for OHR was shifted to another location. The work at the new location also could not be taken up as the condition of the site was not suitable¹⁵⁸ for raft foundation. The Directorate failed to provide any other suitable location for the OHR and consequently, had to terminate (June 2018) the agreement for the

¹⁴⁵ *Sadhanpur and Nari (Mouza is synonymous to village in legal parlance. It has a fixed well defined boundary)*

¹⁴⁶ *Rayan Water Supply Scheme*

¹⁴⁷ *Construction of OHR: ₹1.44 crore; Laying of Rising Main: ₹1.09 crore; Laying of Distribution system: ₹2.72 crore and others including contingency: ₹3.08 crore*

¹⁴⁸ *A pipe line connecting the tube wells to the OHR*

¹⁴⁹ *as envisaged in the Detailed Project Report (Cottah is a unit of area mostly used for measuring land parts. It is also spelled as katha or kattha. One cottah may vary from state to state in India. In West Bengal one cottah is equal to 720 sq. ft.)*

¹⁵⁰ *Head works site was to have one tube well, OHR, pump house, etc.*

¹⁵¹ *six tube wells were to be connected to the OHR*

¹⁵² *The Executive Engineer, Burdwan Division, PHE Directorate*

¹⁵³ *Super Cooperative Labour Contract & Construction Society Ltd., Burdwan*

¹⁵⁴ *Labour cost: ₹9.42 lakh; and Material cost: ₹104.73 lakh, departmentally supplied*

¹⁵⁵ *Pile foundation means construction of piles for structures in accordance with the details shown on engineering drawings and conforming to relevant technical specifications or as directed by the engineer. This foundation transmits the load to the soil by resistance developed either at the pile tip by end bearing or along the surface of the shaft by friction or by both.*

¹⁵⁶ *Raft foundation is a substructure supporting an arrangement of columns or walls in a row or rows and transmitting the loads to the soil by means of a continuous slab with or without depressions or openings. Such types of foundations are useful where soil has low bearing capacity.*

¹⁵⁷ *Manges Industrial Corporation*

¹⁵⁸ *Both side of the site was surrounded with deep pond and a big ditch was on the other side and as such construction of 100 m³ OHR over raft foundation was very critical at the site.*

work of construction of OHR. The facts clearly indicated that absence of a proper survey while selecting the site for OHR was the attributable reason for cancellation of the agreement and consequent non-erection of the OHR.

In the meanwhile, the water supply project was commissioned (June 2015) and owing to absence of the OHR, the rising main could not be put to any use and water was being supplied directly through the distribution network.

In reply, PHE Department accepted (June 2019) the fact of shifting of location of the site for OHR but stated that water was supplied to the entire project area through direct pumping by way of connecting the intake tube wells with distribution network and that the OHR was yet to be constructed. To ascertain the veracity of the reply, a Joint Physical Verification (JPV) was conducted (July 2019) by an Audit team along with Executive Engineer, Burdwan Division, PHE Directorate. In JPV, it was noticed that either water was not flowing from the tap/ end point or the flow of water was very feeble. This showed that absence of OHR hindered the adequacy of flow of water and clearly contradicted the claim of the Department that the entire project area was being catered. This lack of adequacy of flow of water was also accepted (July 2019) by Executive Engineer, Burdwan Division, PHE Directorate.

Thus, taking up the construction of the OHR without proper survey of site and with raft foundation disregarding the provision of DPR, resulted in the construction of OHR remaining a non-starter. Consequently, despite incurring expenditure of ₹ 1.14 crore on laying rising main, the benefit of the water supply project could not be extended to the entire project area thereby frustrating the intended objectives of the project even after more than three and half years of construction of the rising main.

GENERAL

3.7 Cash management in Government Departments

Deficient cash management by Drawing & Disbursing Officers led to cash amounting ₹ 1.74 crore not being physically available during verification, though included in the cash balance. The practice was fraught with the risk of misappropriation of public money.

West Bengal Treasury Rules (WBTR), *inter alia*, provide that:

- No money is to be drawn from the treasury unless it is required for immediate disbursement;
- All financial transactions are to be recorded in the cash book as soon as they occur under proper attestation by the Drawing & Disbursing Officer (DDO);
- Cash book is required to be closed every day and the head of the office is required to physically verify the cash balance at the end of each month and record a certificate to that effect;

- Bill-wise and date-wise analysis in respect of closing balance is to be recorded; and
- DDOs authorised to draw money from the Government Account, are to disburse the same for the purpose for which it has been sanctioned.

Scrutiny of records of 11 DDOs in seven districts¹⁵⁹ disclosed that there were instances of unauthorized utilization of cash balances, advances from cash balances remaining unadjusted as well as retention of heavy cash balance by the DDOs as detailed below:

Physical verifications of cash available in the cash chests were carried out by 11 DDOs under seven¹⁶⁰ Departments, at the instance of Audit, on various dates during April 2017 to May 2018. On these dates, aggregate Cash Book balance with these DDOs stood at ₹ 3.46 crore. Physical verification of cash, however, revealed that only ₹ 1.72 crore was available in the cash chests of these DDOs. Thus, there was a cash shortage of ₹ 1.74 crore as detailed in the *Appendix 3.5*. Of this shortage,

- Vouchers and undisbursed cheques not produced before Audit accounted for ₹ 0.15 lakh,
- Advances unauthorisedly given from cash balances for various purposes¹⁶¹ was ₹ 1.17 lakh ,
- Lapsed cheques/ demand drafts were of ₹ 68.22 lakh.
- An amount of ₹ 104.19 lakh was attributable to theft/ defalcation/ unexplained cash shortage.

Cases¹⁶² of non-adherence to the provisions of financial rules by DDOs have been pointed out repeatedly by Audit in earlier years. Out of the aforesaid 11 DDOs and the respective controlling officers, five DDOs¹⁶³ effected partial recovery/ replenishment of ₹ 0.44 lakh towards adjustment/ settlement of the reported amount, which was a small percentage (0.25 per cent) compared to the total shortage reported upon (₹ 1.74 crore) (May 2018). Thus the irregularities continued, indicating lack of control and monitoring by the DDOs.

¹⁵⁹ 1. Bankura (one office), 2. Kolkata (four offices), 3. Malda (one office), 4. Jalpaiguri (one office), 5. Nadia (two offices), 6. South 24 Parganas (one office) and 7. Darjeeling (one office).

¹⁶⁰ 1. Health & Family Welfare Department (five offices), 2. Judicial Department (one office), 3. Minority Affairs & Madrasah Education Department (one office), 4. Finance Department (one office), 5. Land & Land Reforms and Refugee Relief & Rehabilitation Department (one office), 6. Women & Child Development & Social Welfare Department (one office) and 7. Home & Hill Affairs Department (one office).

¹⁶¹ Transport fare, purchase of stationery, cost of tiffin, labour charges, repairing charges, contingency expenses, etc.

¹⁶² Paragraph nos. 3.11, 3.18 and 3.17 of C&AG's Audit Reports for the period of 2013-14, 2014-15 and 2015-16 respectively

¹⁶³ Principal, Bankura Sammilani Medical College; The Registrar, High Court, Original Side, Kolkata; Principal Secretary, Minority Affairs and Madrasah Education Department; Chief Medical Officer of Health (CMOH), South 24 Parganas and CMOH, Krishnanagar, Nadia.

Thus, non-adherence to the provisions of WBTR and inadequate internal control over drawal and disbursement of cash by the DDOs continued to be a matter of concern. This entails the risk of possible misappropriation and fraud of public money in the concerned Departments.

The matter was referred to Government in December 2018; reply had not been received (November 2019).

Kolkata
The 24th July, 2020


(SARAT CHATURVEDI)
Principal Accountant General (Audit-I)
West Bengal

Countersigned

New Delhi
The 28th July, 2020


(RAJIV MEHRISHI)
Comptroller and Auditor General of India

Appendices

Appendix 1.1
(Refer Paragraph 1.2)

Audit jurisdiction of Principal Accountant General (General and Social Sector Audit), West Bengal

	Departments	Autonomous Bodies¹⁶⁴
1	Backward Classes Welfare	Under Section 19 (2)
2	Correctional Administration	West Bengal Human Rights Commission
3	Disaster Management and Civil Defence	State Legal Services Authority, West Bengal
4	Food & Supplies	19 District Legal Services Authorities
5	Finance	West Bengal Building and Other Construction
6	Fire & Emergency Services	Workers' Welfare Board
7	Health & Family Welfare	Under section 19 (3)
8	Higher Education, Science & Technology and Bio-Technology	West Bengal Comprehensive Area Development Corporation
9	Home and Hill Affairs	West Bengal Commission for Women
10	Housing	West Bengal Heritage Commission
11	Information & Cultural Affairs	West Bengal Commission for Backward Classes
12	Judicial	West Bengal Housing Board
13	Labour	Kolkata Metropolitan Development Authority West Bengal Unorganised Sector workers' Welfare Board
14	Law	Under section 20 (1)
15	Land & Land Reforms and Refugee Relief & Rehabilitation	Siliguri Jalpaiguri Development Authority Shriniketan Santiniketan Development Authority
16	Mass Education Extension & Library Services	Asansol Durgapur Development Authority
17	Minorities Affairs and Madrasah Education	Digha Shankarpur Development Authority
18	Panchayats & Rural Development ¹⁶⁵	Haldia Development Authority
19	Parliamentary Affairs	Jaigaon Development Authority
20	Personnel & Administrative Reforms and e-Governance	Burdwan Development Authority Bhangore Rajarhat Development Authority ¹⁶⁶
21	Planning, Statistics and Programme Monitoring	New Town Kolkata Development Authority
22	Public Health Engineering	Midnapur Kharagpur Development Authority
23	School Education	West Bengal State Council of Technical Education
24	Self Help Group & Self Employment	West Bengal NGRBA Programme Management Group
25	Technical Education, Training & Skill Development	West Bengal Central School Service Commission West Bengal Regional School Service Commission (Eastern)
26	Tribal Development	West Bengal Regional School Service Commission (Western)
27	Urban Development & Municipal Affairs	West Bengal Regional School Service Commission (Northern)
28	Women & Child Development and Social Welfare	West Bengal Regional School Service Commission (Southern)
29	Youth Services & Sports	West Bengal Regional School Service Commission (South Eastern)

Besides above, Principal Accountant General (General and Social Sector Audit), West Bengal is also responsible for audit of Chief Minister's Office, Legislative Assembly Secretariat and Governor's Secretariat, etc.

¹⁶⁴ Excluding 63 bodies/ authorities substantially financed by the State Government and audited under Section 14 and 18 commercial/ quasi-commercial organisations

¹⁶⁵ P&RD though under Economic Sector, retained with Pr. AG for functional contiguity with PRI audit

¹⁶⁶ Wound up and merged with West Bengal Housing Infrastructure Development Corporation Limited since 2011-12, however, closing accounts is yet to be received and audited.

Appendix 1.1 (Contd.)

**Government Companies/ Corporations under the audit jurisdiction of
Principal Accountant General (General and Social Sector Audit),
West Bengal**

1	West Bengal Police Housing & Infrastructure Development Corporation Limited ¹⁶⁷ (under section 19(1))
2	West Bengal Essential Commodities Supply Corporation Limited (under section 19(1))
3	West Bengal Film Development Corporation Limited (under section 19(1))
4	West Bengal Women Development Undertaking (under section 19(1))
5	West Bengal Housing Infrastructure Development Corporation Limited (under section 19(1))
6	West Bengal Medical Services Corporation Limited (under section 19(1))
7	Basumati Corporation Limited (under section 19(1))
8	West Bengal Swarojgar Corporation Limited (under section 19(1))
9	The Electro Medical and Allied Industries Limited (under section 19(1))
10	West Bengal Minority Development and Finance Corporation (under section 19(3))
11	West Bengal Scheduled Castes and Scheduled Tribes Development and Finance Corporation (under section 19(3)) and West Bengal Backward Classes Development and Finance Corporation (under section 19(3))
12	West Bengal State Warehousing Corporation (under section 19(3))

¹⁶⁷ Since Kolkata State Police Housing Corporation Limited merged with West Bengal Police Housing & Infrastructure Development Corporation Limited w.e.f. 01.04.2015

Appendix 1.2
(Refer Paragraph 1.5.1)

**Statement showing Department-wise and Year-wise list of outstanding
Inspection Reports (IRs) and Paragraphs**

Year	Food & Supplies		Judicial		Information & Cultural Affairs		Housing		Total	
	IRs	Paras	IRs	Paras	IRs	Paras	IRs	Paras	IRs	Paras
2000-01	0	0	1	1	0	0	0	0	1	1
2001-02	0	0	0	0	0	0	0	0	0	0
2002-03	0	0	0	0	0	0	1	1	1	1
2003-04	1	1	1	2	0	0	0	0	2	3
2004-05	0	0	0	0	0	0	0	0	0	0
2005-06	1	1	0	0	0	0	1	1	2	2
2006-07	0	0	0	0	1	1	1	4	2	5
2007-08	0	0	0	0	1	1	1	3	2	4
2008-09	3	4	1	1	1	1	1	4	6	10
2009-10	2	2	0	0	3	5	0	0	5	7
2010-11	0	0	0	0	1	4	1	4	2	8
2011-12	3	4	8	16	1	3	2	2	14	25
2012-13	1	5	8	17	5	10	25	34	39	66
2013-14	3	9	4	8	7	15	9	28	23	60
2014-15	10	31	19	53	9	21	3	8	41	113
2015-16	11	36	25	62	4	10	4	11	44	119
2016-17	13	51	8	41	6	20	4	12	31	124
2017-18	16	59	11	43	11	48	2	16	40	166
TOTAL	64	203	86	244	50	139	55	128	255	714

Appendix 1.3
(Refer Paragraph 1.5.2)

Statement showing Department-wise details of vouchers in support of expenditure incurred which were not produced to audit

Sl. No.	Name of the Department	No. of Auditee Entities	No. of vouchers not produced before Audit	Amount (in ₹)
1	Correctional Administration	01	26	11,63,420.00
2	Disaster Management and Civil Defence	02	05	4,22,240.00
3	Food & Supplies	02	32	49,00,247.00
4	Health & Family Welfare	14	420	7,56,08,891.00
5	Higher Education, Science, & Technology and Bio-Technology	02	08	31,92,000.00
6	Housing	02	56	1,02,75,350.00
7	Judicial	06	148	1,19,20,676.00
8	Labour	04	40	35,46,587.00
9	Land & Land Reforms and Refugee Relief & Rehabilitation	05	46	2,17,84,657.00
10	Panchayats & Rural Development	13	257	6,37,92,850.00
11	School Education	02	08	24,07,940.00
12	Urban Development & Municipal Affairs	04	152	26,90,13,900.00
13	Women & Child Development and Social Welfare	04	152	4,39,76,564.00
14	Youth Services & Sports	02	27	15,16,661.00
	TOTAL	63	1377	51,35,21,983.00

Source: Relevant Inspection Reports of the auditee units

Appendix 1.4
(Refer Paragraph 1.7)

**Departments which did not submit suo-motu replies with number of paragraphs/
reviews involved**

Sl. No.	Name of the Department	Number of Paras/ reviews involved in reports for the years					Total
		Upto 1997-98	1998-2013	2013-14	2014-15	2015-16	
1	Backward Classes and Welfare	01	03	-	-	02 ^s	06
2	Correctional Administration	-	-	-	-	-	-
3	Disaster Management and Civil Defence	-	02*	-	01	-	03
4	Finance	04	03	01	03 [£]	-	11
5	Fire & Emergency Services	-	01	-	-	-	01
6	Food & Supplies	-	02	-	01	-	03
7	Health and Family Welfare	26	26 [#]	03	03	03	61
8	Higher Education, Science & Technology and Bio-Technology	-	-	01	01 [¥]	-	02
9	Home and Hill Affairs	-	19	01	-	-	20
10	Housing	-	06	-	-	01	07
11	Information and Cultural Affairs	-	05	01	-	-	06
12	Labour	-	05	-	01	-	06
13	Land & Land Reforms and Refugee Relief & Rehabilitation	-	01	-	-	-	01
14	Mass Education Extension & Library Services	-	02*	-	-	-	02
15	Minority Affairs and Madrasah Education	-	01	01	-	01	03
16	North Bengal Development	-	-	-	01	-	01
17	Panchayats and Rural Development	04	10 [#]	01	02	-	17
18	Planning, Statistics and Programme Monitoring (erstwhile Planning)	-	01	-	-	-	01
19	Public Health Engineering	-	05	01	01	-	07
20	School Education	-	07 [#]	02	-	01	10
21	Technical Education, Training and Skill Development	-	02	-	-	-	02
22	Tribal Development	-	-	-	-	-	-
23	Urban Development & Municipal Affairs	14	24 [#]	02	04	-	44
24	Women & Child Development and Social Welfare	02	05	-	-	01	08
25	Youth Services & Sports	-	03	-	01	-	04
Total		51	133	14	19	09	226

♣ Includes observations relating to Home (Police) (now Home & Hill Affairs); Civil Defence (now Disaster Management and Civil Defence); Health & Family Welfare; Irrigation & Waterways and Public Health Engineering Departments also.

£ Includes observations on Public Health Engineering; Health & Family Welfare and Agricultural Marketing Departments also.

* Includes Paragraph No. 2.1 of Civil Audit Report No. 2 of 2010-11 on District Centric Audit of Dakshin Dinajpur involving Health & Family Welfare; School Education; Development & Planning (now Planning, Statistics and Programme Monitoring); Women & Child Development and Social Welfare; Panchayats & Rural Development; Public Health Engineering; Irrigation & Waterways; Power (now Power and Non-Conventional Energy Sources) and Urban Development (Urban Development & Municipal Affairs) Departments.

Includes Paragraph No. 4.1, 4.2, 5.3, 5.5, 5.6 & 6.2 of the Audit Report on Malda district for the year 2011-12.

¥ Includes observations on Urban Development (now Urban Development & Municipal Affairs) Department also.

♠ Includes observations on Library Services (now Mass Education Extension & Library Services) and Municipal Affairs (now Urban Development & Municipal Affairs) Departments also.

♦ Includes observations on Municipal Affairs (now Urban Development & Municipal Affairs) and Finance Departments also.

B Includes observations on Land & Land Reforms (now Land & Land Reforms and Refugee Relief & Rehabilitation); Transport and Irrigation & Waterways Departments also.

€ Includes observations on School Education and Health & Family Welfare Departments also.

§ Includes observations on Tribal Development and Minority Affairs & Madrasah Education Departments also.

Appendix 1.5
(Refer Paragraph 1.7)

**Statement showing significant recommendations of PAC against which
Action Taken Notes were outstanding from Departments**

Year of Audit Report with para number	PAC Report number and year	Name of the department(s)	Gist of the Audit Para	Recommendations of PAC
3.2.1 of AR 2010-2011	12 th PAC Report 2014-15 & 2015-16	Home (Police)	Procurement of unsuitable police vehicles for extremist affected areas	<p>The Committee <i>inter alia</i> recommended the following :</p> <p>The Department must meticulously examine the various operational requirements of the police forces from every essential aspect with careful consideration of the vulnerability and topography of the areas where the vehicles are required to be deployed and gather views of all concerned before finalisation of any plan before proceeding on any such procurement in future.</p> <p>In similar cases in future, before going ahead with the procurement of such heavy vehicles, various operational aspects of the vehicles are required to be put to field test. Purchase of vehicles on ‘trial basis’ without sufficient tests regarding their suitability should not normally be resorted to.</p>
3.4.2 of AR 2009-2010	13 th PAC Report 2009-10	Health and Family Welfare	Medical equipment lying idle	<p>The Committee <i>inter alia</i> recommended the following :</p> <p>Purchase of highly sophisticated medical equipment should be made only after proper and thorough assessment of requirements and availability of requisite infrastructure and trained manpower both at the doctors’ and technician level.</p> <p>The department should take prompt and appropriate administrative/disciplinary actions against the defaulting officials after fixation of responsibilities for occurrence of incidents of procurement of sophisticated medical equipment at the Burdwan Medical College and Hospital without arranging for requisite infrastructure and manpower. Necessary steps may also be taken to ensure non-recurrence of such incidents.</p>

Source: PAC Reports

Appendix 2.1
(Refer Paragraph 2.1.1)

Statement showing list of Prescribed Authorities and the Corresponding Duties

Sl. No.	Authorities	Corresponding duties
1	State Ministry of Health and Family Welfare, or State Department of Animal Husbandry and Veterinary.	<p>(i) Grant of licence to health care facilities or nursing homes or veterinary establishments with a condition to obtain authorisation from the prescribed authority for bio-medical waste management.</p> <p>(ii) Monitoring, Refusal or Cancellation of licence for health care facilities or nursing homes or veterinary establishments for violations of conditions of authorisation or provisions under these Rules.</p> <p>(iii) Publication of list of registered health care facilities with regard to bio-medical waste generation, treatment and disposal.</p> <p>(iv) Undertake or support operational research and assessment with reference to risks to environment and health due to bio-medical waste and previously unknown disposables and wastes from new types of equipment.</p> <p>(v) Coordinate with State Pollution Control Boards for organizing training programmes to staff of health care facilities and municipal workers on bio-medical waste.</p> <p>(vi) Constitution of Expert Committees at State level for overall review and promotion of clean or new technologies for bio-medical waste management.</p>
2	State Government of Health or Administration	<p>(i) To ensure implementation of the rule in all health care facilities or occupiers.</p> <p>(ii) Allocation of adequate funds to Government healthcare facilities for bio-medical waste management.</p> <p>(iii) Procurement and allocation of treatment equipments and make provision for consumables for bio-medical waste management in Government health care facilities.</p> <p>(iv) Constitute State or District Level Advisory Committees under the District Magistrate or Additional District Magistrate to oversee the bio medical waste management in the Districts.</p> <p>(v) Advise State Pollution Control Boards or Pollution Control Committees on implementation of these Rules.</p> <p>(vi) Implementation of recommendations of the Advisory Committee in all the health care facilities.</p>
3	State Pollution Control Boards	<p>(i) Inventorisation of Occupiers and data on bio-medical waste generation, treatment & disposal.</p> <p>(ii) Compilation of data and submission of the same in annual report to Central Pollution Control Board within the stipulated time period.</p> <p>(iii) Grant and renewal, suspension or refusal cancellation or of authorisation under these rules (Rule 7, 8 and 10).</p> <p>(iv) Monitoring of compliance of various provisions and conditions of authorisation.</p>

Sl. No.	Authorities	Corresponding duties
		<p>(v) Action against health care facilities or common bio-medical waste treatment facilities for violation of these rules (Rule 18).</p> <p>(vi) Organizing training programmes to staff of health care facilities and common bio-medical waste treatment facilities and State Pollution Control Boards or Pollution Control Committees Staff on segregation, collection, storage, transportation, treatment and disposal of bio-medical wastes.</p> <p>(vii) Undertake or support research or operational research regarding bio-medical waste management.</p> <p>(viii) Any other function under these rules assigned by Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.</p> <p>(ix) Implementation of recommendations of the Advisory Committee.</p> <p>(x) Publish the list of Registered or Authorised (or give consent) Recyclers.</p> <p>(xi) Undertake and support third party audits of the common bio-medical waste treatment facilities in their State.</p>
4	Central Pollution Control Board	<p>(i) Prepare Guidelines on bio-medical waste Management and submit to the Ministry of Environment, Forest and Climate Change.</p> <p>(ii) Co-ordination of activities of State Pollution Control Boards or Pollution Control Committees on bio-medical waste.</p> <p>(iii) Conduct training courses for authorities dealing with management of bio-medical waste.</p> <p>(iv) Lay down standards for new technologies for treatment and disposal of bio-medical waste (Rule 7) and prescribe specifications for treatment and disposal of bio-medical wastes (Rule 7).</p> <p>(v) Lay down Criteria for establishing common bio-medical waste treatment facilities in the Country.</p> <p>(vi) Random inspection or monitoring of health care facilities and common bio-medical waste treatment facilities.</p> <p>(vii) Review and analysis of data submitted by the State Pollution Control Boards on bio-medical waste and submission of compiled information in the form of annual report along with its observations to Ministry of Environment, Forest and Climate Change.</p> <p>(viii) Inspection and monitoring of health care facilities operated by the Director General, Armed Forces Medical Services (Rule 9).</p> <p>(ix) Undertake or support research or operational research regarding bio-medical waste.</p>

Source: BMWM Rules, 2016

Appendix 2.2
(Refer Paragraph 2.1.4)
Entire gamut of sample test-checked in audit (selected units in Bold)

Sl. No.	WBPCB approved CBMWTFs	Districts catered by CBMWTFs	Covering Cos & ROs	Units covered at District level
1	M/s Greenzen Bio Private Ltd. Siliguri	Coochbehar, Jalpaiguri and Darjeeling	Siliguri RO	Chief Medical Officer of Health (CMOH), Darjeeling, Gorkha Territorial Administration, North Bengal Medical College and Hospital (MCH), Darjeeling District Hospital (DH), Kurseong Sub-Divisional Hospital (SDH), Sukhiapokhri Block Primary Health Centre (BPHC), Matigara BPHC, Phansidewa BPHC, Mother Care Centre, Mitra's Clinic Nursing Home (NH), Dy. Director Animal Resources Development (ARD) Department, Siliguri, State Animal Health Centre (SAHC), Siliguri and Block Livelihood Development Officer (BLDO), Kharibari, Darjeeling.
2	M/s West Bengal Waste Management Ltd., Purba Medinipur	Malda, Uttar Dinajpur and Dakshin Dinajpur Purba Medinipur and Paschim Medinipur	Malda RO Haldia RO	-- CMOH, Paschim Medinipur, CMOH, Jhargram, Midnapore MCH, M.R. Bangur T.B. Sanatorium, Ghatal SDH, Belda Rural Hospital (RH) & Multi Speciality Hospital (MSH), Debra RH & MSH, Hijli RH, Chandrakona RH, Garbeta RH, Jhargram DH & SSH, Belpahari RH, Chilkigarh BPHC, Spandan Advanced Medicare Central Nursing Home, Panchanan Maternity cum NH, Kaushalya NH, Jhargram NH, Medinipur Police Hospital, Medinipur Central Correctional Home and Jhargram Special Correctional Home.
3	M/s Medicare Environmental Management Private Ltd., Raniganj, Burdwan	Purba Burdwan, Bankura, Birbhum and Purulia Paschim Burdwan (Asansol Sub-Division) and Purulia	Durgapur RO Asansol RO	CMOH Bankura, CMOH, Bishnupur, Bankura Sammilani MCH, Gouripur Leprosy Hospital, Onda Super Speciality Hospital (SSH), Onda BPHC, Chatna SSH & BPHC, Barjora SSH & BPHC, Bishnupur DH & SSH, Sonamukhi RH, Kotulpur RH, Dr. R. B. Sarkar Memorial NH, Swastha Suraksha NH, Maa Mahamaya Hospital, Anamoy Polyclinic & Hospital, Jeebandeep NH, New Biswarupa Maternity NH, Shristi Diagnostic Centre, Sree Sarbaramgala Clinic, Bishnupur NH, Life line NH, Bankura District Correctional Home, Bankura Police Hospital, ARD & Parishad Officer, Bankura, BLDO Onda, Poultry Multiplication Centre, Bankura and SAHC, Bankura.

Sl. No.	WBPCB approved CBMWTFs	Districts catered by CBMWTFs	Covering Cos & ROs	Units covered at District level
4	M/s Medicare Environmental Management Private Ltd., Kalyani, Nadia	Murshidabad Nadia and North 24 Pargana Hooghly	Malda RO Barrackpore RO* and Salt Lake RO Kankinara CO, Hooghly RO	-- -- CMOH Hooghly, Imambara DH, Arambag SDH, Shreerampore Walsh SDH, Shreerampore Gourhati T.B. Hospital, Khanakul RH, Singur RH, Jangipara RH, Tarakeshwar RH, Pandua RH, Swasti NH, Rotary Hooghly Eye Hospital, Kanak NH, Sur Clinic NH, Chinsura Medicare NH, Amala NH, Mid Land NH, Bina Diagnostic Centre, Dy. Director Animal Resources Development Department & Parishad Officer, District Veterinary Hospital, Additional Block Animal Health Centre (ABAHC), Polba, Hooghly, Hooghly Jail Hospital and Hooghly Police Hospital.
5	M/s Medicare Environmental Management Private Ltd., Howrah	Howrah Kolkata (R. G. Kar MCH, Kolkata MCH, Nil Ratan Sarkar MCH and Lady Dufferin Victoria Hospital) Kolkata (School of Tropical Medicine, Abinash Dutta Maternity Home, North Suburban and Indira Matri and Shishu Sadan)	Howrah RO WMC, WBPCB HQ Camac Street CO	-- R. G. Kar MCH, Peerless Hospital and Research Centre Ltd. and B.P. Poddar Hospital and Medical Research Ltd. Abinash Dutta Maternity Home
6	M/s Greentech Environ Management Private Ltd., Mograhat, South 24 Pargana	South 24 Pargana Kolkata (Calcutta National MCH, SSKM MCH, Sambhu Nath Pandit Hospital, Chittaranjan Seva Sadan, B. C. Roy, Beliaghata ID Hospital and Pavlov Hospital) Kolkata (Institute of Psychiatry, Bangur Institute of Neurosciences and Lumbini Park Mental Hospital)	Salt Lake RO & Alipore RO WMC, WBPCB HQ Camac Street CO	-- SSKM Hospital Bangur Institute of Neurosciences (BIN), Kalidas Mallik Sebayatan, Upkar Nursing Home and Drs. Tribedi & Roy Diagnostic Laboratory.

* Since office of Barrackpore RO housed in the same buildings of Kankinara CO, records of Barrackpore RO were also checked.

MCH: Medical College & Hospital, DH: District Hospital, SDH: Sub-Divisional Hospital, SSH: Super-Speciality Hospital, RH: Rural Hospital, BPHC: Block Primary Health Centre, NH: Nursing Home, BLDA: Block Livestock Development Officer and SAHC: State Animal Health Centre

Appendix 2.3
(Refer Paragraph 2.1.6.4)

Analysis showing under-reporting of BMW generation

1.	Total No. of bedded HCFs actually existed as per H& FW Department	:	2,879
2.	Bed strength as per Departmental statistics	:	1,47,401
3.	Minimum assessed BMW generation (@ 0.231 kg./ bed/ day (in kg./ day)	:	34,050
4.	No. of bedded HCFs as per WBPCB's inventory	:	2,477
5.	Bed-strength as per WBPCB's inventory	:	1,06,193
6.	Minimum assessed generation of BMW as per bed-strength of WBPCB (kg./ day)	:	24,531
7.	BMW generation shown in Annual Report 2016 against bedded HCFs (kg./ day)	:	17,190
8.	Under assessment of BMW generation with reference to WBPCB data (Sl. 6 – 7) (kg./ day)	:	7,341 (29.93 per cent)
9.	Under assessment of BMW generation with reference to H&FW data (Sl. 3 – 7) (kg./ day)	:	16,860 (49.52 per cent)

Source: Records of the H&FW Department and Annual Report of the WBPCB

Appendix 2.4
(Refer Paragraph 2.1.7.2)
Gap analysis between incinerable BMW received vis-à-vis capacity of incinerators of CBMWTFs

SL. No.	CBMWTFs with date of inception	Incinerator Capacity	No. of HCFs		No. of beds covered	Generation of Incinerable BMW kg./ per day as per Annual Reports	Capacity (kg./ day) Incineration*	Quantity received beyond capacity (kg./ day)	Overrun of capacity per annum (kg.)
			Bedded	Non-bedded					
2013									
1	WBWML Haldia	1,500 kg./ hr.	NA	NA	729	766	36,000	0	0
2	Medicare Raniganj	200 kg./ hr.	NA	NA	887	2,629	4,800	0	0
3	Medicare Kalyani	200 kg./ hr.	NA	NA	1,568	4,479	4,800	0	0
4	Medicare Belgachia	250 kg./ hr.	NA	NA	1,829	8,414	6,000	2,414	8,81,110
5	Greenzen Bto Siliguri	150 kg./ hr.	NA	NA	725	2,547	1,800	747	2,72,655
2014									
1	WBWML Haldia	1,500 kg./ hr.	NA	NA	729	840	36,000	0	0
2	Medicare Raniganj	200 kg./ hr.	433	424	857	4,628	4,800	0	0
3	Medicare Kalyani	200 kg./ hr.	713	770	1,483	4,733	4,800	0	0
4	Medicare Belgachia	250 kg./ hr.	706	987	1,693	6,676	6,000	676	2,46,740
5	Greenzen Bto Siliguri	150 kg./ hr.	NA	NA	725	1,770	1,800	0	0
6	Greentech, Mograhat	250 kg./ hr.	NA	NA	40	317	6,000	0	0
2015									
1	WBWML Haldia	1,500 kg./ hr.	NA	NA	773	849	36,000	0	0
2	Medicare Raniganj	200 kg./ hr.	412	383	795	5,172	4,800	372	1,35,780
3	Medicare Kalyani	200 kg./ hr.	651	709	1,360	5,118	4,800	318	1,16,070
4	Medicare Belgachia	250 kg./ hr.	601	746	1,347	6,420	6,000	420	1,53,300
5	Greenzen Bto Siliguri	150 Kg./ hr.	NA	NA	1,091	2,139	1,800	339	1,23,735
6	Greentech Mograhat	250 kg./ hr.	NA	NA	94	778	6,000	0	0
2016									
1	WBWML Haldia	1,500 kg./ hr.	NA	NA	445	890	36,000	0	0
2	Medicare Raniganj	200 kg./ hr.	417	493	910**	5,736	4,800	936	3,41,640
3	Medicare Kalyani	200 kg./ hr.	683	882	1,565**	6,118	4,800	1,318	4,81,070
4	Medicare Belgachia	250 kg./ hr.	638	980	1,618	6,780	6,000	780	2,84,700
5	Greenzen Bto Siliguri	150 kg./ hr.	331	601	932**	1,568	1,800	0	0
6	Greentech, Mograhat	250 kg./ hr.	NA	NA	211	1,556	6,000	0	0
Total:							8,320	8,320	30,36,800

Source: Records of the WBPCB and CBMWTFs * Considering 24 hours of run per day except Greenzen Bto Siliguri which runs 12 hours per day; ** arrived at from list of HCFs submitted during inspection of the facilities;

Appendix 2.5
(Refer Paragraphs 2.1.8.2 and 2.1.9.1 (C))

Statement relating to Training, Immunisation, Health Check-up conducted by HCFs and Non-lifting by CBMWTFs

Sl. No.	District	HCFs	No. of trainings actually imparted out of five	Percentage of staff trained	Percentage of staff remained un-trained	No. of staff immunised	No. of staff-health checked-up	Personal Protective Equipment procured	Range of days of lifting of BMW/ month
1.	Kolkata	SSKM MCH	1	NA	NA	209	209	X	30
2.	Kolkata	R. G. Kar MCH	3	X	NA	X	X	X	30
3.	Bankura	Bankura Sammilani MCH	X	X	100	X	X	✓	28-31
4.	Hooghly	Imambara District Hospital Hooghly	2	97	3	X	X	✓	24-28
5.	Paschim Medinipur	Medinipur MCH	1	8	92	X	X	X	20-25
6.	Darjeeling	North Bengal MCH	1	16	84	80	X	✓	20-25
7.	Bankura	Gouripur Leprosy Hospital	X	X	100	X	X	X	24-28
8.	Darjeeling	Darjeeling DH	X	X	100	X	X	X	20-25
9.	Paschim Medinipur	Ghatal SDH & SSH	1	65	35	X	X	X	9-24
10.	Paschim Medinipur	M.R. Bangur T.B. Sanatorium, Dighri	X	X	100	X	X	X	X
11.	Paschim Medinipur	Debra MSH & RH	X	X	100	X	X	X	12-18
12.	Jhargram	Jhargram DH & SSH	2	27	63	156	X	X	16-27
13.	Bankura	Onda SSH	X	X	100	X	X	X	18
14.	Bankura	Chatna SSH & BPHC	X	X	100	X	X	X	20-25
15.	Bankura	Barjora SSH & BPHC	X	X	100	NA	NA	NA	21-30
16.	Bishnupur	Bishnupur DH & SSH	1	5	95	286	X	✓	17-31
17.	Hooghly	Arambag SDH cum SSH	2	16	84	X	X	✓	21
18.	Hooghly	Serampore Walsh SD Hospital	X	X	100	X	X	✓	24
19.	Kolkata	Bangur Institute of Neurosciences	1	11	89	X	X	X	30

Sl. No.	District	HCFs	No. of trainings actually imparted out of five	Percentage of staff trained	Percentage of staff remained un-trained	No. of staff immunised	No. of staff- health checked-up	Personal Protective Equipment procured	Range of days of lifting of BMW/ month
20.	Darjeeling	Kurseong SDH	X	X	100	X	X	X	12 - 16
21.	Kolkata	Abinash Dutta Maternity Home	X	X	100	X	X	X	24
22.	Paschim Medinipur	Belda MSH & RH	1	100	0	NA	X	X	20 - 25
23.	Paschim Medinipur	Hijli RH	X	X	100	17	X	X	20 - 25
24.	Paschim Medinipur	Chandrakona RH	5	91	9	53	53	✓	4 - 28
25.	Paschim Medinipur	Garbeta RH	2	95	5	X	X	X	3 - 27
26.	Jhargram	Belpahari RH	1	100	0	X	X	X	7 - 23
27.	Bishnupur	Kotulpur RH	X	X	100	X	X	X	14 - 31
28.	Hooghly	Khanakul RH	1	100	0	X	X	✓	1 - 8
29.	Hooghly	Singur RH	X	X	100	NA	NA	✓	20
30.	Hooghly	Jangipara RH	2	67	33	28	10	✓	16
31.	Hooghly	Tarakeswar RH	28	100	0	44	42	✓	24
32.	Hooghly	Serampore Gourhati TB Hospital	X	X	100	X	X	X	15
33.	Darjeeling	Phansidewa BPHC	X	X	100	X	X	X	7 - 31
34.	Bishnupur	Sonamukhi RH	X	X	100	X	X	X	20 - 24
35.	Darjeeling	Sukhiapokhri BPHC	2	31	69	X	28	X	3 - 13
36.	Darjeeling	Matigara BPHC	X	X	100	X	X	X	14 - 28
37.	Bankura	Onda BPHC	X	X	100	X	X	X	18
38.	Hooghly	Pandua RH	1	X	100	X	X	X	8
39.	Jhargram	Chilkiagarh BPHC	1	100	0	X	X	✓	8 - 20
		Total:	59			873	342		

Source: Records of the test-checked HCF

Appendix 2.6
(Refer Paragraph 2.1.9.2 (A) (i))

BMW retained in wards beyond 48 hours

Name of Government HCFs	Test-checked period	No. of days of zero lifting
Gouripur Leprosy Hospital	March 2015 to November 2017 (1,006 days)	362 days (35.98%)
Chhatna SSH and BPHC	January 2016 to November 2017 (700 days)	68 days (9.71%)
Bishnupur DH	January 2014 to June 2017 (1,277 days)	35 days (2.74%)
Kotulpur RH	January 2015 to July 2017 (943 days)	54 days (5.73%)

Source: Records of the test-checked HCFs

Appendix 2.7
(Refer Paragraph 2.1.9.2 (A) (ii))

Statement of excess payments made to CBMWTFs against days of non-collection

Sl. No.	District	Government HCFs	BMW Register maintained	Range of days of lifting/ month	Period of calculation	Excess Payment for non-lifting (in ₹)
1	Paschim Medinipur	Ghatal SDH & SSH	April 2015 to November 2017	9 to 24 days	April 2015 to November 2017	4,84,654.00
2	Paschim Medinipur	Belda MSH & RH	April 2017 to November 2017	20 to 25 days	April 2017 to November 2017	17,578.00
3	Paschim Medinipur	Debra MSH & RH	October 2016 to May 2017	12 to 18 days	October 2016 to May 2017	10,350.00
4	Paschim Medinipur	Chandrakona RH	Maintained	4 to 28 days	November 2016 to February 2017	4,820.00
5	Paschim Medinipur	Garbeta RH	April 2015 to March 2017	3 to 27 days	April 2015 to March 2017	1,35,964.00
6	Jhargram (Paschim Medinipur)	Jhargram DH & SSH	Yes, w.e.f. August 2016	16 to 27 days	August 2016 to November 2017	2,00,920.00
7	Jhargram (Paschim Medinipur)	Chilkigarh BPHC	Yes, w.e.f. June 2017	8 to 20 days	July 2017 to November 2017	6,604.00
8	Jhargram (Paschim Medinipur)	Belpahari RH	Yes, w.e.f. June 2016	7 to 23 days	June 2016 to November 2017	37,950.00
9	Darjeeling	Darjeeling DH	Maintained	20 to 25 days	January 2014 to November 2017	10,96,177.00
10	Darjeeling	Kurseong SDH	Maintained	12 to 16 days	July 2013 to November 2017	3,01,712.00
11	Darjeeling	Sukhiapokhri BPHC	January 2014 to March 2018	3 to 13 days	April 2013 to August 2017	2,12,313.00

Sl. No.	District	Government HCFs	BMW Register maintained	Range of days of lifting/ month	Period of calculation	Excess Payment for non-lifting (in ₹)
12	Darjeeling	Phansidewa BPHC	December 2013 to March 2018	7 to 31 days	December 2013 to March 2018	58,689.00
13	Darjeeling	Matigara BPHC	April 2013 to May 2015 and February 2018 to April 2018	14 to 28 days	April 2013 to May 2015 and February 2018 to March 2018	8,991.00
14	Bankura	Gouripur Leprosy Hospital	Yes, w.e.f. January 2015	24 to 28 days	January 2015 to November 2017	3,46,096.00
15	Bankura	Chhatna SSH & BPHC	January 2016 to May 2018 (not maintained from August 2016 to December 2016)	20 to 25 days	January 2016 to December 2017	84,167.00
16	Bankura	Barjora SSH & BPHC	July 2016 to May 2017	21 to 30 days	July 2016 to May 2017	10,343.00
17	Bankura	Bishnupur DH & SSH	April 2013 to June 2017	17 to 31 days	January 2014 to June 17	1,11,838.00
18	Bankura	Kotulpur RH	January 2015 to July 2017	14 to 31 days	January 2015 to July 2017	32,378.00
19	Hooghly	Khanakul RH	Not maintained	1 to 8 days	January 2014 to February 2018	3,61,694.00
20	Hooghly	Singur RH	January 2015 to May 2017	20 days	January 2015 to May 2017	78,560.00
21	Hooghly	Tarakeswar RH	December 2015 to June 2018	24 days	December 2015 to March 2018	19,376.00
		Total:				36,21,174.00

Source: Records of the test-checked HCFs;

Appendix 2.8

(Refer Paragraph 2.1.10.3)

Test-checked WBPCB Circle Office and Regional Office-wise status of BMW authorisation

Sl. No.	Units Test-checked	No. of HCFs			No authorisation		
		Bedded	Non-bedded	Total	Bedded	Non-bedded	Total
1	WM Cell	135	0	135	102	0	102
2	Camac St. CO	108	0	108	28	0	28
3	Kankinara CO	79	0	79	20	0	20
4	Haldia RO	360	348	708	207	348	555
5	Siliguri RO	201	417	618	81	272	353
6	Durgapur RO	399	744	1,143	250	741	991
7	Hooghly RO	230	422	652	83	420	503
8	Barrackpore RO	298	423	721	199	367	566
	Total:	1,810	2,354	4,164	970	2,148	3,118
	Percentage				53.59	91.25	74.88

Source: Records of the WBPCB and allied ROs/ COs

Appendix 3.1
(Refer Paragraphs 3.1.2.4, 3.1.3.1 and 3.1.3.3)

Statement showing the status of generation and supply of water from the selected treatment plants

Name of the treatment plant/ project	Production/ Rated capacity (In Million Gallon per day-MGD)	Hours of operation	Name of the municipality representing the command area	Current water demand (MGD)	Daily average generation (MGD) (in per cent)	Quantum of surface water supplied to the concerned Municipalities through WTP (in MGD)	Sources of water supply (MGD) in these municipalities				Hours of supply
							Through dedicated treatment plant	Through bore-well (% against current demand)	Through other sources ¹⁶⁸	Total	
Barrackpore-North Barrackpore	15	15 – 16	Barrackpore	5.948	6.40 (43)	6.40	3.0	3.62 (61)	Nil	6.62	8.5
			North-Barrackpore	5.16		6.40	3.40	1.66 (32)	0.96	6.02	8.0
Titagarh-Khardah	15.4	10 – 11	Khardah	4.632	3.685 (23)	3.685	3.13	3.57 (77)	Nil	6.70	7.0
			Titagarh	4.531		3.685	0.555	3.974 (88)	Nil	4.529	10.5
Dum Dum, North Dum Dum and South Dum Dum	30	19 - 20	South Dum Dum	37.00	25.38 (85)	22.30	10.0	9.0 (24)	6.0	25.0	5.5
			North Dum Dum	10.06		22.30	7.41	4.19 (42)	Nil	11.60	8.5
			Dum Dum	6.23		22.30	4.89	1.22 (20)	Nil	6.11	7.0
Panihati	13	16	Panihati	14.17	9.68 (75)	7.70	7.70	3.30 (23)	0.88	11.88	8.5
Bally	10.56	15 – 16	Bally	8.19	6.94 (66)	5.81	5.81	Nil	0.12	5.93	6.5
Budge Budge	Supplied from the Garden Reach Water Works		Budge Budge	3.195	3.2 (100)	3.2	3.2	Nil	Nil	3.2	4.0

Source: Records of the KMDA and concerned Municipalities

¹⁶⁸ Water supplied by the Kolkata Municipal Corporation, Indira Gandhi Water Treatment Plant (Palta), Kamarhati Water Supply Project and hand tubewell.

Appendix 3.2
(Refer Paragraph 3.2)

Statement showing analysis of rates of earthwork

Sl. No.	Particulars	Rate analysed by the executing sector (₹)	Rate admissible as per SOR (₹)
1	Earthwork done using ordinary soil excavated from borrow pit, rate charged for mixed soil	40.80	36.70
2	Add extra over the rate of Earth Work for land owned arranged by the contractor	20.00	20.00
3	Carriage cost of earth over <i>pucca</i> road above 4 km. up to 5 km.	172.00	110.00
4	Loading & unloading from truck destination Less for non-stacking 25% of ₹ 58/-	58.00 - 14.50	58.00 - 14.50
	Total	276.30	210.20
5	15 m ³ embankment earth = 100 m ³ borrow pit, <i>i.e.</i> , compaction factor 0.87276.30/0.87	317.59	228.47
6	Earthwork in road embankment in flank to correct profile	17.90	17.10
	Total	335.49	245.57
			Difference ₹ 89.92

Source: Records of the KMDA

Appendix 3.3
(Refer Paragraph 3.5)

Statement showing details of area for which work orders were issued *vis-à-vis* area actually available in respect of mechanised/ automated cleaning for Academic, Urology-Nephrology and NICU buildings of SSKM Hospital

Name of the building	Area as per work order June 2014 (square meters)			Additional area as per Work order March 2016 (square meters)			Total area as per two work orders (in square meters)	Actual Area available (in square meters)			Excess area for which work orders were issued (in square meters)
	Floor	Area/ floor	Total	Floor	Area/ floor	Total		Floor	Area/ floor	Total	
1	2	3	4	5	6	7	8	9	10	11	12 (8-11)
Urology-Nephrology building	2	NA	1,563	5	1,563	7,815	9,378	7	921.76	6,452	2,926
Academic building*	2	NA	3,350	3	3,350	10,050	13,400	3	1,803.00	5,409	3,189
NICU building/ New floors of NICU building	NA	NA	4,208	3	2,106	6,318	10,526	4	1,200.55	4,802	6,321
Total			9,121			24,183	33,304			20,868	12,436

NB: Total figure of Column 11 & 12 rounded off to the nearest whole number

* The Academic building has altogether seven floors. Though the work order issued to the contractor was for five floors in total, for the purpose of calculation of "Actual area available", area of seven floors were taken into consideration.

NA: Not Available

Source: Records of the hospital authority

Appendix 3.4
(Refer Paragraph 3.5)

Statement showing excess payment made to the agency in respect of mechanised/ automated cleaning for Academic, Urology-Nephrology and NICU buildings of SSKM Hospital

Month/ Year	Area for which payment actually made (square meters)	Area actually available (square meters)	Excess area billed for (square meters)	Admissible Base Rate ¹⁶⁹ (₹)	Excess payment made (rounded in ₹)
1	2	3	4	5	6
March 2016	33,304	20,868	12,436	76.86	9,55,830.96
April 2016	33,304	20,868	12,436	76.86	9,55,830.96
May 2016	33,304	20,868	12,436	76.86	9,55,830.96
June 2016	33,304	20,868	12,436	76.52	9,51,602.72
July 2016	33,304	20,868	12,436	76.52	9,51,602.72
August 2016	33,304	20,868	12,436	76.52	9,51,602.72
September 2016	33,304	20,868	12,436	76.52	9,51,602.72
October 2016	33,304	20,868	12,436	76.52	9,51,602.72
November 2016	33,304	20,868	12,436	76.52	9,51,602.72
December 2016	33,304	20,868	12,436	76.52	9,51,602.72
January 2017	33,304	20,868	12,436	76.52	9,51,602.72
February 2017	33,304	20,868	12,436	76.52	9,51,602.72
March 2017	33,304	20,868	12,436	76.52	9,51,602.72
April 2017	33,304	20,868	12,436	76.52	9,51,602.72
May 2017	33,304	20,868	12,436	76.52	9,51,602.72
June 2017	33,304	20,868	12,436	74.58	9,27,476.88
July 2017	33,304	20,868	12,436	74.58	9,27,476.88
August 2017	33,304	20,868	12,436	74.58	9,27,476.88
September 2017	33,304	20,868	12,436	74.58	9,27,476.88
October 2017	33,304	20,868	12,436	74.58	9,27,476.88
November 2017	33,304	20,868	12,436	74.58	9,27,476.88
December 2017	33,304	20,868	12,436	74.58	9,27,476.88
		Total			2,07,79,063.68

Source: Records of the hospital authority and corresponding vouchers

¹⁶⁹ worked out by deducting the service tax/ goods and services tax.

Appendix 3.5
(Refer Paragraph 3.7)

Statement showing details of mismanagement of cash as of November 2018

Sl. No.	Name of the Office	Date of Verification by DDO at the instance of Audit	Book balance as per Cash Book on the day of verification	Cash actually found on physical verification	Total shortage	Unadjusted vouchers/ undischursed cheques	Unauthorised advance from undischursed cash	Unexplained cash/ shortage/ theft/ defalcation	Lapsed Cheques/ Drafts/ Banker's cheque
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Health & Family Welfare Department									
01	Principal, Bankura Sammilani Medical College	03.05.2018	31,468.00	22,848.00	8,620.00	0.00	8,620.00	0.00	0.00
02	Superintendent, M.R. Bangur Hospital	05.04.2018	21,569.00	16,529.00	5,040.00	0.00	0.00	5,040.00	0.00
03	Chief Medical Officer of Health (CMOH), Malda	22.08.2017	11,443.00	343.00	11,100.00	0.00	0.00	11,100.00	0.00
04	Chief Medical Officer of Health (CMOH), South 24 Parganas	26.10.2017 ¹⁷⁰ , 28.10.2017 ¹⁷¹ , 09.11.2017 ¹⁷²	8,55,634.00 ¹⁷³	6,990.00 ¹⁷⁴	8,48,644.00 ¹⁷⁵	0.00	0.00	8,45,686.00	2,958.00
05	Chief Medical Officer of Health (CMOH), Krishnanagar, Nadia	17.08.2017 04.09.2017	43,751.65	30.00	43,721.65	0.00	0.00	43,721.65	0.00
Judicial Department									
06	The Registrar, High Court, Original Side, Kolkata	08.11.2017	7,44,563.85	7,28,638.85	15,925.00	40.00	15,885.00	0.00	0.00

¹⁷⁰ Basanti Rural Hospital (Rogi Kalyan Samiti).

¹⁷¹ Basanti Rural Hospital (Block Health & Family Welfare Samiti)

¹⁷² Amtala Rural Hospital

¹⁷³ Basanti RH: RKS (₹ 75,773); Basanti RH: BH&FWS (₹ 7,76,903) and Amtala RH: ₹ 2,958

¹⁷⁴ Basanti RH: RKS (₹ 3,343); Basanti RH: BH&FWS (₹ 3,647) and Amtala RH: Nil

¹⁷⁵ Basanti RH: RKS (₹ 72,430); Basanti RH: BH&FWS (₹ 7,73,256) and Amtala RH: ₹ 2,958

Sl. No.	Name of the Office	Date of Verification by DDO at the instance of Audit	Book balance as per Cash Book on the day of verification	Cash actually found on physical verification	Total shortage	Unadjusted vouchers/undisbursed cheques	Unauthorised advance from undisbursed cash	Unexplained cash/ shortage/ theft/ defalcation	Lapsed Cheques/ Drafts/ Banker's cheque
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Minority Affairs and Madrasah Education Department									
07	Principal Secretary to Government of West Bengal (GoWB), Minority Affairs and Madrasah Education Department (MA&MED)	06.04.2018	18,007.00	10,000.00	8,007.00	0.00	0.00	8,007.00	0.00
Finance Department									
08	Principal Secretary to GoWB, Finance Department	04.04.2017	2,26,37,571.38	69,04,699.75	1,57,32,871.63	0.00	0.00	89,13,512.63	68,19,359.00
Land & Land Reforms and Refugee Relief & Rehabilitation Department									
09	District Magistrate & Collector, Jalpaiguri	01.08.2017	24,18,954.28	19,77,758.28	4,41,196.00	0.00	92,743.00	3,48,453.00	0.00
Women & Child Development and Social Welfare Department									
10	Child Development Project Officer (CDPO), Krishnanagar-I	16.11.2017	21,502.00	520.00	20,982.00	14,622.00	0.00	6,360.00	0.00
Home & Hill Affairs Department									
11	Superintendent of police, Darjeeling	30.05.2018	78,02,072.00	75,64,683.00	2,37,389.00	0.00	0.00	2,37,389.00	0.00
Total			3,46,06,536.16	1,72,33,039.88	1,73,73,496.28	14,662.00	1,17,248.00	1,04,19,269.28	68,22,317.00

Source: Physical Cash verification report of the respective DDOs

LIST OF ABBREVIATIONS USED IN THE REPORT

Abbreviations	Full Form
AA&FS	Administrative Approval & Financial Sanction
AAP	Annual Audit Plan
ABAHC	Additional Block Animal Health Centre
ACS	Additional Chief Secretary
AEE	Assistant Environment Engineer
AIDS	Acquired Immune Deficiency Syndrome
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
ARD	Animal Resources Development
BH&FWS	Block Health & Family Welfare Samiti
BIN	Bangur Institute of Neurosciences
BLDO	Block Livelihood Development Officer
BMA	Bio Medical Waste 'authorisation'
BMOH	Block Medical Officer of Health
BMW	Bio-Medical Waste
BMWM Rules	Bio-Medical Waste Management Rules
BMW (M&H)	Bio-Medical Waste (Management and Handling)
BOD	Biological Oxygen Demand
BPHC	Block Primary Health Centre
BRTS	Bus Rapid Transit System
CA	Correctional Administration
CAG	Comptroller and Auditor General
CBMWTF	Common Bio-Medical Waste Treatment Facility
CDPO	Child Development Project Officer
CE	Clinical Establishment
CEMS	Continuous Emission Monitoring System
CI	Cast Iron
CMOH	Chief Medical Officer of Health
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO	Circle Office
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
CPHEEO	Central Public Health and Environment Engineering Organization
CSE	Centre for Social and Environmental Centre

Abbreviations	Full Form
DDO	Drawing and Disbursing Officer
°C	Degree Celsius
DH	District Hospital
dia	Diameter
DLMC	District Level Monitoring Committee
DM	District Magistrate
DO	Demi Official
DPC	Duties, Powers and Conditions of Service
DPR	Detailed Project Report
EE	Executive Engineer
EM	Eastern Metropolitan
ESR	Elevated Service Reservoir
ETP	Effluent Treatment Plant
GoI	Government of India
GoWB	Government of West Bengal
GPS	Global Positioning System
GST	Goods and Services Tax
H&FW	Health and Family Welfare
H&HA	Home and Hill Affairs
HCF	Health Care Facility
HCL	Hydrogen Chloride
HDPE	High-Density Polyethylene
Hg	Mercury
HQ	Headquarter
hr	Hour
IPGMER	Institute of Post Graduate Medical Education and Research
IR	Inspection Report
JEE	Junior Environment Engineer
JnNURM	Jawaharlal Nehru National Urban Renewal Mission
JPV	Joint Physical Verification
kg/ kg.	Kilogram(s)
km/ km.	Kilometre(s)
KMA	Kolkata Metropolitan Area
KMDA	Kolkata Metropolitan Development Authority
KMW&SA	Kolkata Metropolitan Water and Sanitation Authority
LPCD	Litres <i>per capita</i> per day
lt	Litre(s)

Abbreviations	Full Form
MA&MED	Minority Affairs and Madrasah Education Department
MB	Measurement Book
MCH	Medical College and Hospital
MED	Municipal Engineering Directorate
mg	Milligram
MGD	million gallons per day
MLD	million litres per day
mm.	Millimetre(s)
MSH	Multi Speciality Hospital
MSVP	Medical Superintendent- <i>cum</i> -Vice-Principal
mt.	Metre(s)
MT	Metric Tonne
MW	Municipal Waste
NA	Not Available
NABL	National Accreditation Board for Testing and Calibration Laboratories
NGRBA	National Ganga River Basin Authority
NH	National Highway
NH	Nursing Home
NICU	Neonatal Intensive Care Unit
NIT	Notice Inviting Tenders
Nm ³	Normal Cubic Metre
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
NOC	No Objection Certificate
O ₂	Oxygen
O&M	Operation and Maintenance
OHR	Over Head Reservoir
PAC	Public Accounts Committee
PAG	Principal Accountant General
P&RD	Panchayats and Rural Development
PHC	Primary Health Centre
PHE	Public Health Engineering
PPE	Personal Protective Equipment
PRI	Panchayati Raj Institution
PWD	Public Works Department
RA	Running Account

Abbreviations	Full Form
RCC	Reinforced Cement Concrete
RH	Rural Hospital
RKS	Rogi Kalyan Samiti
RO	Regional Office
SAHC	State Animal Health Centre
SDH	Sub-Divisional Hospital
SJDA	Siliguri Jalpaiguri Development Authority
SLAC	State Level Advisory Committee
SoR	Schedule of Rates
SPCB	State Pollution Control Board
sq. mt.	Square Metres
SSH	Super Speciality Hospital
STP	Sewerage Treatment Plant
SUDA	State Urban Development Agency
SW	Stoneware
TB	Tuberculosis
TSS	Total Suspended Solids
UA	Urban Agglomeration
UD&MA	Urban Development and Municipal Affairs
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
ULB	Urban Local Body
WBPCB	West Bengal Pollution Control Board
WBTR	West Bengal Treasury Rules
WBWML	West Bengal Waste Management Limited
WCD&SW	Women & Child Development and Social Welfare
WHO	World Health Organisation
WMC	Waste Management Cell
WTP	Water Treatment Plant

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