Chapter 3: Compliance Audit

URBAN DEVELOPMENT AND MUNICIPAL AFFFAIRS 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 area[62] 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. DPRs[63] 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.

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[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 treatment[64] 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 schemes[65], 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 parameters[66] 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.

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[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 house hold 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

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

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 metres[71], 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 Reservoirs[72] (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:

[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

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

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.

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

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

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

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.

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

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.

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.

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

(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.

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 three[73] 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

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

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 area[75] 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

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

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.*

- 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 Manual[76]. As against the stipulation of 150 m^2, the floor areas of the constructed plant laboratories[77] ranged only between 25 m^2 and 60 m^2.
  - 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 procedure[78], periodical testing of drinking water supplies was to be carried out as per codal provision[79]. A number of recommended tests for chemical[80] and toxic materials[81] were to be conducted. However, only a few tests[82] of the supplied water were conducted on the collected samples from the respective WTPs. Bacteriological and few other chemical tests[83] 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.

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[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 m^2 and Barrackpore – North Barrackpore: 60 m^2*

[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.

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

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 schemes[84]. Likewise,

[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 schemes[85]. 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 components[86]) for each project, had been prepared and 'Administrative Approval & Financial Sanction' was obtained.

KMDA, however, invited the tenders, on turnkey[87] 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.

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

(i) The scope of work in DPRs of two trans – municipal schemes (Titagarh – Khardah and Barrackpore – North Barrackpore) stipulated that bored cast-in-situ piles[88] 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 dimension[89] 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

[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 crore[90] 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		0.1407584for 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*

DPR, a RCC screen[91] worth ₹ 1.20 crore was to be constructed around the bell mouths[92] 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.

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

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 tender[93] included suitable suspended RCC screens (with elaborate specifications) around the bell mouths of Suction Mains for arresting large floating matters.

(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 four[94] 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.

Payment of ₹1.78 crore against the item "miscellaneous works", without specific details, raised doubt about 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: Clause1.1.5 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 lane[95] for rapid movement of buses on a selected stretch of Eastern Metropolitan (EM) Bypass[96], Kolkata Metropolitan Development Authority (KMDA) accorded (December 2010) approval[97] for implementation of 'Bus Rapid Transit System' (BRTS) project at a cost of ₹ 252.91 crore[98] under Jawaharlal Nehru National Urban Renewal Mission (JnNURM). The Roads & Bridges[99] 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 contractors[101] 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 ₹ 374.50[102] per MT.

The admissible rate for Mastic Asphalt (50 mm. thick) should have been ₹ 851.38[103] per square metre (sq. mt.) instead of ₹ 967.93 per sq. mt. as was arrived during analysis of rate[104] 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 ₹ 116.55[105] per sq. mt. Consequently, excess payment of ₹ 1.10 crore[106] was made (July 2016 to April 2017) to two contractors for execution of 1,14,538.81[107] 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 IVRCL[108]. 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 ₹ 89.92[110] per cubic metre as detailed in ***Appendix 3.2***. Consequently, KMDA allowed (September 2013) total excess payment of ₹ 3.52 crore[111] to IVRCL[112] 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 crore[113] to different contractors.

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

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[105] ₹967.93 minus ₹851.38

[106] Excess payment = ₹(116.55 X 21,111.89 m^2 X 83.89/100 paid to M/s Progressive Discon + 116.55 X 93,426.92 m^2 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 m^3 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 improving[114] 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 road[115]. 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 ₹ 12.52 [116] 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 capacity[117] and connecting them to a sewerage network, using pipes of different diameters[118], 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 factors[119]. Out of available fund of ₹ 6.26 crore[120] as first instalment, ₹ 3.13[121] crore had been released (November 2009) to Kurseong Municipality. So far, a total of ₹ 1.24[122] crore has been expended by the Municipality for the scheme[123] but the project, however, has remained a non-starter (October 2018) and the following irregularities relating to its execution were noticed:

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[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 information[125] 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 sites[126] could not be acquired till date, as the owners[127] 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 tank[128], 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 crore[129] out of UIDSSMT fund to a private agency[130] 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 diameter[131]

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[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 agency[132]. 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 1,458[133] pipes costing ₹ 0.43[134] 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 (₹ 0.48[135] 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), engaged[136] (June 2014) an agency[137] 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 78,753[138] square metres (sq. mt.) with the applicable rate being ₹ 88 per sq. mt. per month including taxes[139].

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) building[140] (4,208 sq. mt.). In March 2016, mechanised/ automated cleaning for an additional area measuring 24,183[141] 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 33,304[142] 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 12,436[143] sq. mt. in respect of these three buildings. The details have been elaborated in ***Appendix 3.3***. Consequently, excess payment of ₹ 2.08 crore[144] 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 scheme[146] at an estimated cost of ₹ 8.33 crore[147] (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 main[148] and supply of water through distribution network. After preliminary survey, a plot of 25 cottah[149] of vested land was identified to house the head works[150]. 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 main[151] 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 awarded[152] (July 2014) to an agency[153] 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 crore[154].

As per the Detailed Project Report (DPR), the OHR was to be constructed with pile[155] 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 raft[156] foundation to an agency[157]. 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 suitable[158] 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

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[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 m^3 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 districts[159] 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 seven[160] 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 purposes[161] 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.

Cases[162] 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 DDOs[163] 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.

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[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