

## **Chapter 3**

### **Audit on Management of the Sewerage and Drainage System in Ranchi city**



## CHAPTER 3 URBAN DEVELOPMENT AND HOUSING DEPARTMENT

### Audit on Management of the Sewerage and Drainage System in Ranchi city

#### Executive summary

*A project for setting up a Sewerage and Drainage System in Ranchi city was planned by the Urban Development and Housing Department, Government of Jharkhand with the objective of intercepting and preventing direct discharge of untreated household septic tank effluents, through the existing street drains, into the ponds, nallahs and rivers around the city. The system, once set-up, was designed to limit contamination and pollution of ground and surface water in the municipal area.*

*In view of the extensive delays in completion of the project and continuous media reports in this regard, audit of the project was taken up, with the objectives of assessing whether: (i) selection and approval of the sewerage and drainage project was done keeping in view the future development of the city (ii) the project was executed economically, as per codal provisions, with due regard to quality, workmanship and timeliness and (iii) monitoring and inspection were conducted at different levels, for effective implementation of the project.*

*Audit was conducted between March 2021 and January 2022 by examination of records in the Urban Development and Housing Department and the Ranchi Municipal Corporation (RMC), covering the period from June 2006 to March 2021.*

#### **Audit findings**

*The Sewerage and Drainage project in Ranchi city, initiated in June 2005, could not be completed in more than 17 years (August 2022) and the timeline for completion was extended from September 2017 to March 2019 and thereafter to January 2023. This defeated the primary objective of the project.*

*Though the survey work had been done in FY 2006-07 and the DPR had been approved in December 2007, the State Government decided (July 2011) to execute the project more than three years later and, that too, without identifying the source of funds. The project approval was given only for Zone-I in September 2014 and the work commenced in September 2015. Thus, the Department took almost eight years from the date of survey, to commence the work in Zone-I.*

*Necessary approvals in phases led to project bottlenecks as in the intervening period the original survey for the project alignments was literally redundant due to construction of new roads, buildings, changes in ground levels, encroachments of right of way of approved alignment by local residents, emergence of new habitations etc. This extended the completion period of the*

project for Zone-I by almost two decades. In the remaining three zones, the project had not been taken up.

Consultancy charges, amounting to ₹ 16.04 crore, paid for preparation of the DPR by the consultant (M/s Meinhardt Singapore Pvt. Ltd.), proved wasteful as the DPR did not serve the intended purpose in Zone-I of the Project, after a fresh survey was conducted to work out new alignments (with new estimates). The DPR had also not been used to take up any work in the remaining three zones and tender for fresh survey/updating the DPR has been called for. The State Cabinet had also accorded financial sanction of ₹ 31.17 crore for selection of consultant for updating/revising the DPR of Ranchi Sewerage and Drainage (2006) Project including integration with Ranchi Sewerage Zone I work.

RMC's tender for the project extended favour to the contractor (JV of M/s Jyoti Build Tech Pvt. Ltd. (Lead Partner) and M/s Vibhor Vaibhav Pvt. Ltd.). The lead partner of the contractor did not have the requisite experience and financial capacity to meet the tender eligibility conditions and had submitted forged and fabricated documents to qualify for the tender. During execution of work, the contractor failed to provide the required manpower and machinery at the work site, made slow progress and stopped the work unilaterally, despite grant of time extension twice (September 2018 and March 2019). RMC terminated the contract in October 2019.

In violation of JMAM 2012, the contractor was paid mobilisation advance at the rate of 15 per cent against the provision of 5 per cent which resulted in excess payment of ₹ 35.93 crore. One instalment of the mobilisation advance amounting to ₹ 18 crore was granted without securing it by Bank Guarantee (BG)/other instrument. The BG for this instalment was submitted by the contractor after 10 months of payment of the advance. The other two instalments amounting to ₹ 36 crore were granted against BGs issued by "Chartered Mercantile MB Ltd, Lucknow". Audit sent the copies of these BGs to RBI for verification. RBI intimated (December 2021) that they do not have any information about this institution which issued the said BGs. Thus, it was neither a scheduled or nationalised bank authorised to issue BG for the project work.

RMC made excess payments to the contractor during the execution phase. These were made without submission of design and drawing of all the components of Sewage Treatment Plant (₹ 4.22 crore), lump-sum payment without adhering to payment milestone for Sewage Pumping Station (₹ 75.40 lakh) and on account of inflated measurement of items of drain work (₹ 1.98 crore).

The expenditure of ₹ 47.93 lakh on partial execution of storm water drains was wasteful as the fragmented sections of constructed drains were not linked to any drain network and found filled with wastewater of septic tanks. The

*construction of these drains was taken up without approval of designs by the competent authority and abandoned since then.*

### **Recommendations**

- 1. The Department may coordinate with all stakeholders to obtain the project appraisal, mandatory clearances and sanctions in a timebound manner.*
- 2. Processing of DPR for Zones II, III and IV and integrating it with the ongoing project in Zone-I should be carried out on high priority.*
- 3. The Department should fix responsibility for the irregularity in processing award of the tender for the work, in favour of the lead partner (M/s Jyoti Build Tech Pvt. Ltd.) of the joint venture, who was otherwise ineligible for the tender.*
- 4. The Department should take legal action against the contractor (M/s Jyoti Build Tech Pvt. Ltd.), for submitting forged and fabricated documents to obtain the tender.*
- 5. The grant of excess mobilisation advance to the contractor, in violation of norms needs to be investigated and responsibility fixed, in this regard.*

*In the exit conference, the Secretary, Urban Development and Housing Department, Government of Jharkhand accepted (August 2022) the audit findings and the audit recommendations.*

## **3.1 Introduction**

Government of Jharkhand (GoJ), Urban Development and Housing Department (Department), invited (June 2005) a tender for selection of consultant for providing project management consultancy (PMC) services, including engineering design and construction supervision, for setting up a Sewerage and Drainage system in Ranchi city. The project envisaged an efficient and effective sewage collection mechanism from households, through a network of trunk and branch<sup>1</sup> sewers, treatment and disposal system, complemented by a grid of storm water drains.

The objective of establishing the system was to intercept and prevent direct discharge of untreated household septic tank effluents, through the existing street drains, into the ponds, *nallahs* and rivers such as *Jumar*, *Harmu*, *Subarnarekha* and their tributaries around the city. The system, once set-up, was designed to limit contamination and pollution of ground and surface water in the municipal area.

In view of the extensive delays in completion of the project and continuous media reports in this regard, audit of the project was taken up, with the objectives of assessing whether: (i) selection and approval of the sewerage and drainage project was done keeping in view the future development of the city

---

<sup>1</sup> Lateral, Collector and Sub-Trunk sewers

(ii) the project was executed economically, as per codal provisions, with due regard to quality, workmanship and timeliness and (iii) monitoring and inspection were conducted at different levels, for effective implementation of the project.

The Secretary of the Department was responsible for overall execution of the project, through the Ranchi Municipal Corporation (RMC). Audit was conducted between March 2021 and January 2022 by examination of records in the Department and RMC, covering the period from June 2006 to March 2021.

An entry conference was held (August 2021) with the Secretary of the Department, in which the audit objectives, criteria<sup>2</sup>, scope and methodology were discussed. An exit conference was held (August 2022) with the Secretary of the Department, in which the audit findings were discussed. The Secretary agreed with the audit findings and accepted all the audit recommendations, except for recommendations relating to punitive actions on the officials involved in award of tender of balance work of the project, on the ground that corrective actions to address the irregularities in disposal of tender had been taken.

A brief outline of the developments that took place in the course of implementation of the project, since it was envisaged, is given in the succeeding paragraphs.

The Department engaged (June 2006) M/s Meinhardt Singapore Pvt. Ltd., for providing Project Management Consultancy (PMC) services, at a consultancy fee of ₹ 21.40 crore<sup>3</sup>, revised<sup>4</sup> (December 2015) to ₹ 17.56 crore, for establishment of the system. Audit could not evaluate the fairness of the tendering process and selection of the consultant, as the tender evaluation documents were not provided to Audit, though called for (July 2021 and December 2021). Audit was informed (December 2021) by the Department that the tender and related files, for selection of the consultant, had been handed over (December 2020) to the Anti-Corruption Bureau (ACB), for investigation into alleged irregularities in the selection of the consultant. The ACB had not submitted (February 2022) any report in this regard.

The consultant submitted (December 2007) a Detailed Project Report (DPR) of the sewerage and drainage system, by dividing it into four zones (I, II, III

---

<sup>2</sup> (i) *Jharkhand Municipal Accounts Manual (JMAM), 2012* (ii) *Jharkhand Public Works Accounts and Department Code* (iii) *Manuals on sewerage and drainage, issued by the Central Public Health and Environment Engineering Organisation (CPHEEO)* (iv) *Guidelines issued under the National River Conservation Plan (NRCP)* and (v) *Instructions issued by Central/ State Pollution Control Boards*

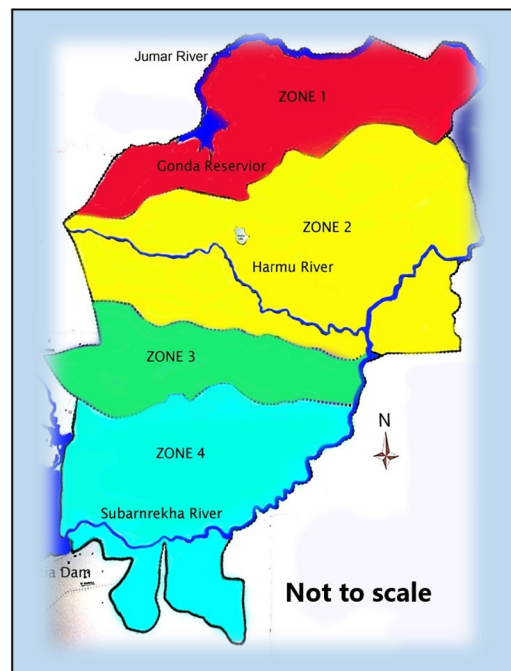
<sup>3</sup> *Consultancy fee for design phase: ₹ 16.04 crore (which included topographical survey, soil investigation, preparation of DPR, detailed engineering designing, cost estimation, bid management work such as preparation of bid document, evaluation of tender etc.) and for construction phase: ₹ 5.36 crore (which included certification of measurement/ quantity, supervision of work, quality assurance and timely execution of project)*

<sup>4</sup> *For providing construction supervision only in Zone-I, instead of in all the four zones*

and IV), based on topographical parameters<sup>5</sup>, at a project cost of ₹ 1,649.82 crore. Based on a cabinet decision (July 2011) to take up construction of the project through the RMC, under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the State Government<sup>6</sup> forwarded (February 2012) the project proposal to the Ministry of Urban Development (MoUD), Government of India (GoI), for approval. In the light of an appraisal note by the Central Public Health and Environment Engineering Organisation (CPHEEO), MoUD, GoI ratified (January 2013) the project for ₹ 1,519.25 crore.

However, GoI sanctioned (January 2014) the project work only in Zone I, at a cost of ₹ 302.26 crore, by keeping it within the funds available under JNNURM for Jharkhand. The State Government decided (January 2014) to take up the project in the remaining three zones (II, III and IV) at a cost of ₹ 1,216.99 crore, through externally aided funds.

Based on the old alignments/surveys conducted in FY 2006-07 and without factoring in the possible effects of rapid urbanisation of the city in about eight years on the prospects of executing the project, the construction work in Zone I was



put (March 2015) to tender and awarded (October 2015) to a contractor (Joint Venture (JV) of M/s Jyoti Build Tech Pvt. Ltd. and M/s Vibhor Vaibhav Infra Pvt. Ltd.), for ₹ 359.25 crore. The work included construction of a sewer network, Sewage Treatment Plant (STP), Sewage Pumping Station (SPS), storm water drains and operation and maintenance of the STP and SPS for five years (**Appendix 3.1**).

An agreement was executed (October 2015) between the Municipal Commissioner, RMC and the JV contractor, for completing the project by September 2017. It was subsequently extended (August 2018) to March 2019. RMC terminated (October 2019) the contract, due to slow progress of work by the contractor. At the time of termination (October 2019) of the contract, only 23 per cent of the work, valued at ₹ 84 crore, had been completed.

The scope of work was reduced and the balance work was awarded (February 2021) to another contractor (M/s LC Infra Pvt. Ltd.), at a cost of

<sup>5</sup> Slope, water bodies and location of treatment/ final disposal point

<sup>6</sup> State Level Steering Committee under JNNURM



₹ 218.87 crore, for completion by March 2023. It was, however, seen that only 11 per cent of work, valued at ₹ 24 crore, had been executed till February 2022.

The supervision of the construction phase of the project was carried out by M/s Meinhardt Singapore Pvt. Ltd., from October 2015 to September 2017, for which RMC made payment of ₹ 1.05 crore. RMC did not extend the PMC service beyond September 2017, on ground of increase in the cost of supervision by the consultant. RMC retendered (December 2017) the construction supervision services and awarded (January 2018) the work to another consultant (M/s WAPCOS Ltd, a Government of India enterprise), for ₹ 1.46 crore<sup>7</sup>, for two years, from February 2018 to January 2020.

### **Audit findings**

## **3.2 Consultancy services**

### **3.2.1 Wasteful expenditure of ₹ 16.04 crore on consultancy services**

M/s Meinhardt Singapore Pvt. Ltd. conducted the project survey in FY 2006-07 and submitted (December 2007) the DPR of the project, by dividing it into four zones (I, II, III and IV). The Chief Engineer of the Department approved (December 2007) the DPR and the State Government forwarded (February 2012) it to GoI, for approval under JNNURM. GoI approved (January 2013) only the Zone I portion of the project.

For execution of the project in Zone I, the Department took almost eight years to commence (October 2015) the work, from the year of survey (done in FY 2006-07). However, the rapid urbanisation of the city (which saw increase in population, emergence of new habitations *etc.*) in these intervening years and the feasibility of executing the project on the basis of old alignments, were not factored in. The Department had also not asked the consultant to conduct any fresh survey of the municipal area and geo-technical investigation, except for revising the population projections, as per Census 2011, on the advice of CPHEEO.

As a result, the contractor, awarded the work of execution of the project, was unable to correlate the DPR data (provided by the consultant- M/s Meinhardt Singapore Pvt. Ltd.) with the actual ground conditions on account of construction of new roads, buildings, changes in ground levels, encroachments of right of way of approved alignment by local residents, emergence of new habitations *etc.* The Department was, therefore, compelled to entrust the contractor with undertaking a fresh survey and redesigning of the sewerage network.

---

<sup>7</sup> Consultancy fee rates of WAPCOS Ltd for PMC services were ₹ 62.95 lakh plus GST (@ 18 per cent) per annum



RMC executed (April 2018) a supplementary agreement, valued at ₹ 1.41 crore, for the revised survey and redesign of the sewer with the contractor (JV of M/s Jyoti Build Tech Pvt. Ltd. and M/s Vibhor Vaibhav Infra Pvt. Ltd.). The contractor was paid (April 2018) ₹ 1.21 crore for the work relating to survey and redesign, which involved, *inter alia*, extension of the sewerage network to 280 km, from the earlier approved length of 192 km.

Though the State Government decided (January 2014) to take up the project in the three remaining zones (II, III and IV) through externally aided funds, tenders for selection of a consultant, for conducting a fresh survey and updating the DPR in these three zones, were invited (December 2021) after almost seven years. No works had been taken up in these zones, till the completion of audit (February 2022).

Thus, the DPR (prepared by M/s Meinhardt Singapore Pvt. Ltd.) had not served the intended purpose in Zone I of the project, since a fresh survey had to be conducted to work out new alignments (with new estimates). The DPR has also not been used for taking up any work in the remaining three zones, and the tender for fresh survey/updation of the DPR was under process (August 2022). The State Cabinet had also accorded (14 September 2022) financial sanction of ₹ 31.17 crore, for selection of consultant for updating/revising the DPR of Ranchi Sewerage and Drainage (2006) Project, including integration with the Ranchi Sewerage Zone I work. Hence, the expenditure of ₹ 16.04 crore, incurred on consultancy charges for preparing the DPR, proved wasteful.

The Department accepted (June 2022) the audit findings and stated that steps were being taken to get the DPR of Zones II, III and IV of the project prepared by another agency of the Department (JUIDCO<sup>8</sup> Ltd.), for integration with Zone I of the project.

***Recommendation 1:*** *The Department may coordinate with all stakeholders to obtain the project appraisal, mandatory clearances and sanctions in a timebound manner.*

### **3.2.2 Preparation of DPR**

#### **(i) Lower estimation of sewage generation**

Estimation of sewage generation is done on the basis of population projections. Para 2.6.2 of the CPHEEO Manual stipulates that the forecast of population can be derived by any suitable method, such as the arithmetic or geometric progression method, graphical projection or incremental increase method. The density/ distribution of the population so arrived at, between different areas, is then worked out on the basis of relative probability of

---

<sup>8</sup> *Jharkhand Urban Infrastructure Development Company Limited (JUIDCO)- a state PSU, under the administrative jurisdiction of the UD&HD*

expansion in each zone, taking into account the Master Plan of the city prepared by the town planning authorities.

In the DPR, the consultant (M/s Meinhardt Singapore Pvt. Ltd.) had worked out<sup>9</sup> (based on Census 2011) generation of 230 MLD sewage, by the year 2046, even though the Ranchi Master Plan, prepared in 2012 (for the period 2012-2037), had projected generation of 391.55 MLD sewage (based on Census 2011), by the year 2037.

Audit scrutiny revealed that the consultant had not mentioned the method adopted for population projection, based on which the sewage generation had been calculated<sup>10</sup>. Further, the DPR had not factored in distribution of the projected population, in different areas, based on the Floor Area Ratio (FAR<sup>11</sup>) for residential and commercial buildings, as mentioned in the Ranchi Master Plan (2012-37), in arriving at the figure for sewage generation. As a result, there was lower projection (by 41 *per cent*) of sewage generation in the DPR, *vis-à-vis* the Master Plan of the city.

The Department did not instruct the consultant to reconcile these differences with the Master Plan, before according Administrative Approval to the project (in Zone I) in September 2014. This is fraught with the risk that the capacity of sewer lines, pumping stations and STP, for Zone I, may not be sufficient to dispose off the sewage generated, even in the intermediate year 2031.

The Department stated (June 2022) that vetting of the design and drawing of the contractor was included in the scope of work of the PMC and the matter would be enquired from the consultant.

The reply is not acceptable, as the Department had not reconciled the differences in the estimated sewage generation, with the data of the Ranchi Master Plan, in line with the CPHEEO Manual, before granting TS and AA to the project and proceeded with the work, based on projection of lower sewage generation.

## **(ii) Sewage pumping station with capacity lower than required**

As per para 2.5 of the CPHEEO Manual, the design period of a sewage pumping station (SPS), from the base year<sup>12</sup>, should be 30 years.

In the DPR, the consultant had recommended (December 2007) setting up of an SPS of 10.2 MLD capacity. RMC executed (September 2015) an agreement with the contractor, for construction of an SPS of 10.2 MLD capacity, at a cost of ₹ 5.80 crore (on turnkey basis). The SPS was to be constructed for lifting

---

<sup>9</sup> In 2013, after CPHEEO instructed the State Government to update the projections, based on Census 2011

<sup>10</sup> 80 per cent of water supply, at the rate of 135 LPCD plus 5 per cent infiltration

<sup>11</sup> FAR refers to the relationship between the area upon which a building is constructed and the building floor area that is usable or is allowed to be used. FAR is calculated as the Total building floor area/ gross plot area. In the Ranchi Master Plan (2012-37), the maximum value of FAR was fixed as 2.5 for municipal areas and 3 for commercial areas.

<sup>12</sup> 'Base year' refers to the year in which the system would become operational

the sewage coming from the municipal areas of Wards 32 to 35, towards the main trunk line.

Audit examination revealed that the required capacity of the SPS should have been at least 14.91 MLD, based on the population projections (done by the consultant) of Ward 32 to 35, as shown in **Tables 3.1 and 3.2**:

**Table 3.1: Population projections for Ward 32 to 35**

| Population     | Year 2016<br>(Base year) | Year 2031<br>(Intermediate year) | Year 2046<br>(Design year) |
|----------------|--------------------------|----------------------------------|----------------------------|
| Wards 32 to 35 | 95,572                   | 1,13,299                         | 1,31,463                   |

The calculation for the required capacity of the SPS is shown in **Table 3.2**.

**Table 3.2: Calculation for required capacity of SPS**

|  |                               |
|--|-------------------------------|
| Design year (30 years from base year 2016)                           | 2,046                         |
| Population   | 1,31,463                      |
| Rate of water supply   | 135 litres per capita per day |
| Total water supply per day (in Wards 32 to 35)                       | 1,77,47,505 litres/ day       |
| Average sewage generated <sup>13</sup> (80 per cent of water supply) | 1,41,98,004 litres /day       |
| Total sewage generated (including infiltration 5 per cent)           | 1,49,07,904 litres/ day       |
| Thus, required capacity of SPS in MLD                                | 14.91 MLD                     |

The contractor completed the civil work of the SPS and received payment of ₹ 3.89 crore (February 2022). Thus, the capacity of the constructed SPS was lower than the required capacity by 4.71 MLD, which may result in malfunctioning of the system whenever it is put to use.

The Department stated (June 2022) that the capacity of the SPS had been kept at 15.776 MLD (Average flow) and 34.496 MLD (Peak flow) in the design report.

The reply is not acceptable, as, in the agreement (February 2021) of the balance work with the contractor, the capacity of SPS was mentioned as 10.2 MLD. Hence, the design report for 15.776 MLD (at average flow) and 34.496 MLD (at peak flow) was irrelevant, as the work of the SPS was taken up for execution only for a capacity of 10.2 MLD.

**(iii) Incorrect layout of the main trunk line in submerged areas**

In the DPR, the consultant (M/s Meinhardt Singapore Pvt. Ltd.) designed the alignment of the main trunk line of 11.736 km<sup>14</sup> alongside the river *Jumar*. The layout of the main trunk and network lines was shown on Government land, in the approved DPR. The Chief Engineer (RMC) did not cross-verify the drawing and design layout of the main trunk and network lines with the work site, before granting TS.

The new consultant (WAPCOS Ltd.) pointed out (May 2020) that the trunk line may get submerged in river water during the rainy season and suggested

<sup>13</sup> In the approved DPR, the per capita wastewater flow was assumed as 80 per cent of the water supply (135 litres per capita per day).

<sup>14</sup> NP3 RCC pipes of diameter 1000 mm and 1200 mm

that a survey needed to be undertaken, for rerouting the trunk line, to avoid water submergence and trunk line bed erosion.

Audit scrutiny revealed that, for rerouting the trunk line, acquisition of private land was required. However, this could not be done, as neither had a provision been made for such acquisition in the approved DPR, nor had action been taken by the Department for acquisition of the required land (as per records produced to Audit).

Audit also conducted (20 October 2021) a joint physical verification of the work sites, with the officials of RMC, and noticed that the main trunk line had not been laid in a stretch of eight km. The pipes were found lying idle at the work site (**Picture 3.1**). Thus, about 115 km (60 per cent of the total network of 192 km) of the sewerage network would not be linked with the STP.



**Picture 3.1: Incomplete main trunk line near Lem-Bergain bridge- Jumar river (20 October 2021)**

The Department accepted (June 2022) the audit observation and stated that the land required for laying the remaining trunk line, along with estimation of the additional structures to counter the submergence of trunk line, was being worked out.

**(iv) Inadequate survey by the consultant**

In the DPR, some scattered areas/ pockets of Ranchi had been identified as being low-lying. The ground levels of these areas were reported as being lower (varying up to even four to five metres) than the proposed level of the main sewer lines. The consultant mentioned that these small clusters would not be linked to the main sewer lines, to avoid excessive deepening of the sewer line or putting multiple intermediate pumping stations (IPS) to counter the depth of the sewer.

Audit observed that the consultant did not mention the exact location of these low-lying areas and the number of households that would be excluded from the proposed sewerage network. The DPR proposed onsite sanitation (septic tanks with soak pits) for the households in these areas, excluding them from the coverage of the sewerage system.

Further, during execution of work (August 2021), the contractor had pointed out the requirement of additional six IPSs. Details regarding their location,

capacity, hydraulic design, area of land required *etc.*, were not furnished to Audit, despite requisition (December 2021).

Thus, the DPR, prepared with riders, limited the overall objective of setting up the sewerage and drainage system for the entire city.

The Department stated (June 2022) that the project had been initiated on the basis of an old DPR (2006-07) and, during execution, resurvey was done and IPS was provided. The fact, however, remains that details of the low-lying areas of Ranchi and the methodology for connecting households in these areas to the sewerage system of Zone I was not included in the DPR.

**Recommendation 2:** *Processing of DPR for Zones II, III and IV and integrating it with the ongoing project in Zone-I should be carried out on high priority.*

### **3.2.3 Implementation of the Project**

#### **3.2.3.1 Tendering**

As per the tender documents, contractors, either single or having joint venture (JV), who wish to bid for the project, were required to, *inter alia*, (i) possess experience in laying sewerage/storm water pipelines in a minimum length of 150 kms (ii) have done similar works, of minimum value of ₹ 100 crore in a single contract (iii) possess experience in designing, constructing and commissioning of STP, of 30 MLD capacity, in a single contract and (iv) have average financial turnover of ₹ 302 crore, in the last three financial years.

The tender was to be evaluated by the Procurement Committee<sup>15</sup> (PC), comprising the Mayor as chairperson and the Municipal Commissioner, Chief Engineer, Deputy Municipal Commissioner and Chief Accounts Officer, as members.

The PC held (April 2015) a pre-bid meeting with 10 willing bidders, in which the threshold limit of average financial turnover, in the last three financial years, was reduced from ₹ 302 crore to ₹ 242 crore.

Audit observed that four<sup>16</sup> firms participated in the tender. The Committee opened (May 2015) the technical bids and forwarded them to the PMC (M/s Meinhardt Singapore Pvt. Ltd.) for evaluation and preparation of comparative statements. The PMC opined (May 2015) that all the four firms were technically qualified, but noted that one firm<sup>17</sup> had not disclosed mandatory information on the status of black-listing by any Government organisation or public sector undertaking. The PC disqualified (June 2015) the said firm and declared the remaining three firms (all JVs) as being technically compliant.

<sup>15</sup> Set up as per the Jharkhand Municipal Act, 2011/ JMAM, 2012

<sup>16</sup> (1) M/s L&T- Eco Protection Engineers (JV) (2) M/s Simplex-GECPL (JV) (3) M/s Jyoti Build Tech-Vibhor Vaibhav Infra Pvt. Ltd (JV) and (4) M/s SSG Infratech-Abhyudaya Housing (JV)

<sup>17</sup> M/s Simplex-GECPL (JV)

Audit further observed that the PC forwarded the documents of these three firms to the Department, for obtaining approval for opening of financial bids. The technical cell of the Department disqualified one<sup>18</sup> of the three firms on the ground of absence of one year's experience in operations and maintenance. Resultantly, only two firms remained in the tender.

**(i) Award of tender to an ineligible and inexperienced contractor**

The PC opened (July 2015) the financial bids of the two firms and the rate quoted by M/s Jyoti Build Tech Pvt. Ltd. and M/s Vibhor Vaibhav Pvt. Ltd. (JV) was reported as the lowest. The Municipal Commissioner, RMC, awarded (July 2015) the tender at ₹ 359.25 crore (18.85 *per cent* above the BOQ) to the JV and executed (September 2015) an agreement for completion of the work in 24 months (*i.e.*, by September 2017).

Audit examination of the tender files revealed the following:

- M/s Vibhor Vaibhav Pvt. Ltd. (JV partner) informed (August 2019) the Municipal Commissioner, RMC that M/s Jyoti Build Tech Pvt. Ltd. (Lead Partner) had obtained the tender in the name of the JV by submitting forged and fabricated documents of their firm, as they had neither participated in the tender for the work, nor did they have any connection with the sewerage and drainage project for Ranchi.
- The lead partner of the JV had submitted a joint venture agreement (dated 25 April 2015) with M/s Vibhor Vaibhav Infra Pvt. Ltd. to participate in the tender for the work. In the said agreement papers, the General Managers (GMs) of both the individual firms had signed. Audit noticed that the signature of the Director of M/s Vibhor Vaibhav Infra Pvt. Ltd., who reportedly had issued an authorisation letter to its GM for signing the joint venture agreement, did not match with his signature recorded in the balance sheets (for the financial years 2011-12 to 2013-14) of the firm. These papers were found attached with the bid documents, but were ignored by the PC/PMC, while evaluating the tender.
- After award of work in the name of the JV, neither the registered copy of the JV agreement, nor of the incorporation of the JV as a company under the Companies Act, 2013, was submitted by the firms. RMC had also not insisted upon the production of these documents before execution of the agreement.
- Though the tender was awarded to the JV, the bid guarantee of ₹ 3.02 crore, in the form of bank guarantee (BG), was submitted (April 2015) by M/s Jyoti Build Tech Pvt. Ltd., instead of the JV. Further, the performance securities, valued at ₹ 14.94 crore, in the form of BGs, were also submitted in the name of M/s Jyoti Build Tech Pvt. Ltd. instead of the JV.

---

<sup>18</sup> M/s SSG Infratech-Abhyudaya Housing (JV)



- Identification documents (such as the Employee Id-Card, Aadhar Card, Voter Card, Driving License, Passport *etc.*) of the GM of M/s Vibhor Vaibhav Infra Pvt. Ltd., who had purportedly signed the JV agreement, were not found attached with the bid documents. Thus, the identity of the person who had signed the JV agreement was not ascertainable from Government records.
- M/s Jyoti Build Tech Pvt. Ltd. did not possess the requisite experience in designing, constructing and commissioning an STP of 30 MLD capacity in a single contract, whereas M/s Vibhor Vaibhav Infra Pvt. Ltd. had set up a 56 MLD STP. Thus, M/s Jyoti Build Tech Pvt. Ltd. became eligible in the technical evaluation, on the strength of the JV partner.
- As against the requirement of average financial turnover of ₹ 242 crore, in the last three financial years, in civil engineering works, the average financial turnover of M/s Jyoti Build Tech Pvt. Ltd. was only ₹ 157.11 crore. The firm had qualified in the tender on the strength of the average financial turnover of M/s Vibhor Vaibhav Infra Pvt. Ltd., which was ₹ 88.32 crore in the last three financial years (as both put together became ₹ 245.43 crore).
- The agreement for execution of the project was signed (September 2015) by the Municipal Commissioner, RMC, with a purported representative of the JV contractor. However, neither was any authorisation for this person, for signing the agreement on behalf of the JV, found in the tender files of the work, nor was it produced to Audit.

These deficiencies were visible upfront in the bid documents submitted by the lead partner of the JV. However, the PC and PMC did not flag these issues, for the Department to take an informed decision of and to dispose the tender fairly. Hence, the tender seems to have been managed on the strength of fake documents in favour of the contractor, who was otherwise ineligible, inexperienced and had not complied with tender requirements.

During the execution phase, the contractor failed to provide required manpower and machinery at the work site, made slow progress and stopped the work, despite grant of time extension twice (September 2018 and March 2019). Consequently, RMC terminated (October 2019) the contract with the contractor.

The Department stated (June 2022) that preparation of the bid documents, bid evaluation report and agreement documents, was the responsibility of the PMC (M/s Meinhardt Singapore Pvt. Ltd.) and PC had accordingly, awarded it the work.

The reply is not correct, as the PMC and members of the PC jointly decided the tender, in favour of an ineligible and inexperienced contractor, on the strength of the tender documents of his partner, who had denied submission of such papers. Hence, the members of the PC cannot be absolved of their



responsibility in deciding upon the tender in a manner that was not in accordance with rule provisions.

**Recommendation 3:** *The Department should fix responsibility for the irregularity in processing award of the tender for the work, in favour of the lead partner (M/s Jyoti Build Tech Pvt. Ltd.) of the joint venture, who was otherwise ineligible for the tender.*

**Recommendation 4:** *The Department should take legal action against the contractor (M/s Jyoti Build Tech Pvt. Ltd.), for submitting forged and fabricated documents to obtain the tender.*

**(ii) Unfair award of tender for balance work**

RMC approved (April 2020) the estimate for the balance work of the project, for ₹ 209.05 crore<sup>19</sup> and put it to tender in May 2020. As only a single bid was received, the work was tendered again in September 2020.

As per the tender document, any contractor (single or JV) applying for the tender was to: (i) possess experience in designing, constructing and commissioning a 30 MLD capacity STP in a single contract and (ii) have successfully operated and maintained STP of minimum 20 MLD based on any modern technology, for at least one year. In the event of the participating contractor being a JV firm, the lead member should have held the required experience for an STP, failing which the partner of the JV should have had the required experience in a single contract.

Audit noticed that two contractors (one as JV- M/s LC Infra-SNET Ranchi JV and the other- M/s Eagle Infra Pvt. Ltd.) had participated in the tender. The PC (comprising of the Municipal Commissioner, Dy. Municipal Commissioner, Chief Engineer and Chief Accounts Officer of RMC) evaluated (December 2020) the technical bids and declared both of them as being technically qualified. Audit scrutiny of documents, attached with the bids of these two contractors, revealed the following:

- M/s LC Infra Project Pvt. Ltd., Ahmedabad had participated in the tender as a JV<sup>20</sup> with a firm *namely*, M/s SN Enviro Tech Pvt. Ltd., New Delhi, on the basis of a JV agreement (September 2020), having the JV name- M/s LC Infra-SNET Ranchi JV.
- The bid security of ₹ 2.10 crore (by BG) had been submitted in the name of M/s LC Infra-SNET Ranchi JV.
- Neither did the lead partner of the JV (M/s LC Infra Pvt. Ltd.) have experience in designing, constructing and commissioning an STP of 30 MLD capacity in a single contract nor had it successfully operated and maintained

---

<sup>19</sup> Excluding the balance work of storm water drains

<sup>20</sup> In the joint venture, the first party M/s LC Infra Pvt. Ltd. was the lead partner, with 80 per cent stake and the second party, M/s SN Enviro Tech Pvt. Ltd., was a JV member, with 20 per cent stake.

an STP of minimum 20 MLD capacity. The other JV partner had the required experience, making it eligible, in terms of the tender conditions.

- In the comparative statement (CS) prepared (15 October 2020) by the PC, both the contractors (M/s LC Infra-SNET Ranchi JV and M/s Eagle Infra Pvt. Ltd.) were stated as having qualified. However, in the minutes (December 2020) of the technical evaluation, the PC recorded the name of the lead partner of the JV alone i.e., M/s L C Infra Project Pvt. Ltd., as having qualified for the tender, along with M/s Eagle Infra Pvt. Ltd.
- RMC forwarded (21 December 2020) the misleading details (*i.e.*, the lead partner having qualified, instead of the JV), to the Director, State Urban Development Authority (SUDA<sup>21</sup>), UD&HD, GoJ, for approval.
- Though these irregularities (CS papers; application of JV for the tender, but only the name of lead partner being forwarded) were apparent from the attached records, Director, SUDA, approved (December 2020) the technical evaluation carried out by RMC.
- RMC opened (December 2020) the financial bids and found the rate quoted by the JV (M/s LC Infra-SNET Ranchi JV) as being the lowest. However, in the minutes of the financial evaluation report, RMC recorded the name of only the lead partner (M/s L C Infra Project Pvt. Ltd.) of the JV, as having quoted the lower price.
- RMC recommended (December 2020) the tender in favour of the lead partner of the JV, to the Director, SUDA, for approval.
- Director, SUDA, who claimed to have examined and verified the financial evaluation report of RMC, approved (January 2021) the selection of the lead partner (M/s LC Infra Project Pvt. Ltd.) as the successful bidder, instead of the JV (M/s LC Infra-SNET Ranchi JV) which had participated in the tender.
- RMC executed (February 2021) an agreement with M/s LC Infra Project Pvt. Ltd. (instead of with the JV), for ₹ 218.87 crore.
- The performance guarantee of ₹ 4.38 crore, in the form of BG, was submitted in the name of the lead partner alone and not of the JV.

Thus, the tender of the balance work of the project was awarded to favour the ineligible lead partner of the JV, and not the JV itself, which was eligible, in terms of the tender conditions.

On this being reported by Audit (December 2021), RMC issued (March 2022) a corrigendum, stating that the name of M/s LC Infra Projects Pvt. Ltd. (lead partner) in the agreement (February 2021) was corrected as M/s LC Infra SNET Ranchi (JV). Based on this, the Department stated that the name of only

---

<sup>21</sup> Established (May 2008) under a Resolution of the Department, to provide policy inputs to the State Government, for various programmes of the Central/State Government.

the lead partner, instead of the JV, had been mentioned in the tender committee proceedings, due to typing error, which stood corrected.

Audit, however, noted that:

- (i) the name of only the lead partner had been mentioned in all the documents, such as the technical evaluation, financial evaluation, work order and the agreement with the contractor.
- (ii) on the date (February 2021) of the agreement, the JV was not in existence, as it had been incorporated only on 25 March 2022, after one year of the agreement and after being flagged by Audit. Hence, issue of a mere corrigendum, to justify (on the pretext of error) the award of work to a non-existent entity, with retrospective effect, was not in order.
- (iii) GST registration and PAN of the JV were obtained after Audit had flagged the issue.

In the exit conference (August 2022), the Secretary of the Department assured that a circular will be issued immediately, at the Government level, for regulating tenders given to JV contractors. The Secretary also assured that the circular will direct all the Heads of Departments/ Heads of Office/ Tender disposal committees/ Officers signing agreements, to ensure that JVs are duly incorporated and registered in all respects, as well as properly documented, before agreements are signed for tenders awarded.

### 3.2.3.2 Execution of agreement with contractors

As per Rule 89 of the JMAM<sup>22</sup> 2012, the terms of the contract must be precise and definite and there must be no room for ambiguity or misconstruction therein. Standard forms of contracts (such as F-2 contract, SBD) are to be adopted, wherever possible, else, legal and financial advice is to be taken in drafting contracts, before they are finally entered into.

#### Agreement favouring the contractor

Audit compared the agreement clauses of the project with the provisions of JMAM, 2012 and noticed significant departure from norms favouring the contractor as detailed in **Table 3.3:**

**Table 3.3: Comparison between provisions of JMAM, 2012 and agreement clauses**

| Sl. No. | Clauses of JMAM 2012   | Clauses of agreement dated 30 September 2015  | Audit comments  |
|---------|--|---|---|
| 1.      | <b>Para 4.8.6 (c) Performance security deposit</b><br>The amount of performance security shall be five <i>per cent</i> of contract price in the form of bank guarantee from a scheduled bank in favour of Municipal Commissioner valid up to 28 days after the date of | <b>General condition of contract</b><br>Initial security deposit at the rate of two <i>per cent</i> to be paid in the form of DD/pay order/bank guarantee of nationalised bank drawn in favour of Ranchi Municipal Corporation payable at Ranchi. | Three <i>per cent</i> less provision of initial security deposit favoured the contractor. |

<sup>22</sup> Implemented in all ULBs of Jharkhand, vide notification 604 dated 08 October 2012, of UDD, GoJ

|    |   |   |  |
|----|---|---|--|
|    | expiry of the defect liability period as applicable.  |   |  |
| 2. | <p><b>Para 4.8.6 (d) Retention money</b><br/>This shall be deducted at the rate of six <i>per cent</i> from each bill subject to a maximum of five <i>per cent</i> of the final contract price. 50 <i>per cent</i> of the amount retained shall be paid to the contractor on completion of the whole work and the balance 50 <i>per cent</i> on expiry of defect liability period, provided the engineer has certified that all defects notified by the engineer have been corrected.</p> | <p><b>General condition of contract</b><br/>Security deposit at the rate of three <i>per cent</i> of tender value to be deducted from subsequent bills.</p>   | <p>Less provision of security deposit by two <i>per cent</i> from the bills favoured the contractor.</p>   |
| 3. | <p><b>Para 4.8.6 (h) Mobilisation advance</b><br/>In respect of contracts above ₹ 45 lakh, mobilisation advance at the rate of five <i>per cent</i> of the contract price for equipment and materials was payable for civil works against bank guarantee of similar amount from a scheduled bank.</p>   | <p><b>General condition of contract</b><br/>The employer will pay mobilisation advance at the rate of 15 <i>per cent</i> of the tendered value, interest free, to the contractor to assist in defraying the initial expenses that will necessarily be incurred by the contractor for mobilisation and design, on submission of an unconditional and irrevocable bank guarantee of nationalised or scheduled bank in amounts equal to the advance payment.</p> | <p>Excess provision of mobilisation advance by 10 <i>per cent</i> resulted in undue favour to the contractor.</p>  |
| 4. | <p><b>Para 4.8.6 (i) Liability on Termination</b><br/>In the event of termination because of fundamental breach of contract by the contractor, provision for additional cost for completion of works shall be 20 <i>per cent</i> of unexecuted works to be adjusted from the final payment of the contractor.<br/><b>Rule 86 of JMAM, 2012</b><br/>In the event of rescission of the contract, the whole security deposit shall stand forfeited.</p>                                      | <p>In the event of termination of contract, provision was made only for forfeiture of security deposit. No provision was made for recovery of additional cost for completion of the balance work.</p>   | <p>Provision of recovery of additional cost for completion of work was not included in the contract, though it was necessary for safeguarding the interest of RMC/ Government, in the event of breach of contract by the contractor. This diluted the failure clause and resulted in undue favour to the contractor.</p> |

As a result of dilution of the JMAM clauses, Audit observed that:

- Mobilisation advance of ₹ 35.93 crore was paid in excess over that admissible to the contractor, in disregard of the codal provisions, as discussed in *paragraph 3.2.3.3*.

- An amount of ₹ 73.81 crore could not be recovered (detailed in **Appendix 3.2**) from the defaulting contractor, upon execution of another contract for the balance work (after termination of original contract). Of these, the escalated cost of ₹ 69.40 crore<sup>23</sup> could have been adjusted by RMC, had a provision for recovery of additional cost, for completion of work in the event of termination of the contract, been included in the terms and conditions of the contract.

The Department stated (June 2022) that the DPR had been approved by the State Cabinet and the draft agreement had been vetted by the legal cell of RMC.

The reply is not acceptable, as the agreement clauses were drafted in favour of the contractor in a significant departure from the provisions made in JMAM, 2012, which were mandatorily to be complied with by all ULBs in the State.

### **3.2.3.3 Inadmissible grant of mobilisation advance**

Para 4.8.6 (h) of JMAM, 2012, stipulates payment of mobilisation advance at the rate of five *per cent* of the contract price, against submission of Bank Guarantee (BG) of similar amounts (equivalent to the value of mobilisation advance), from a scheduled bank, for contracts above ₹ 45 lakh.

Further, the Central Vigilance Commission, had also issued (April 2007) guidelines for grant of mobilisation advance to contractors. These are as under:

- Interest free mobilisation advance should be discouraged, but, if the management feels its necessity in specific cases, it should be clearly stipulated in the tender document and its recovery should be time-bound and not linked with the progress of work.
- BGs, equivalent to the amount of each instalment of recovery of the advance should be taken in parts, against the mobilisation advance.
- Mobilisation advance should preferably be given in instalments and subsequent instalments should be released after getting satisfactory utilisation certificates from the contractor for the earlier instalments.
- The amount of mobilisation advance, interest to be charged, if any, its recovery schedule and any other relevant details, should be explicitly stipulated in the tender document, upfront.
- The relevant format for submitting the BGs should be provided in the tender document and should be enforced strictly. Authenticity of such BGs should invariably be verified from the issuing bank, confidentially and independently, by the concerned organisation.

---

<sup>23</sup> Agreed cost of work excluding drain work = ₹ 230.15 crore; Actual work done by the contractor = ₹ 80.68 crore; Cost of balance work, excluding drain work = ₹ 149.47 crore; Agreed value of balance work with new contractor = ₹ 218.87 crore; Escalated cost of balance work= ₹ 69.40 crore

The agreement executed (September 2015) by RMC, with the contractor, provided for (i) payment of interest free mobilisation advance to the contractor, at the rate of 15 *per cent* of the tendered value, for defraying the mobilisation and design expenses and (ii) submission of BG, equal to the amount of mobilisation advance, issued from a nationalised/ scheduled bank located at Ranchi.

Audit observed that RMC had flouted the provisions of JMAM, 2012, CVC guidelines and agreement clauses, in granting mobilisation advance to the contractor, as detailed below:

(i) Contrary to the admissible provisions, RMC had paid mobilisation advance at the rate of 15 *per cent*, amounting to ₹ 53.89 crore (between October 2015 and December 2015), in three instalments<sup>24</sup>, to the contractor, without obtaining utilisation certificates for the previous instalments. This resulted in excess payment of mobilisation advance of ₹ 35.93 crore to the contractor.

(ii) As per agreement with the contractor, the time frame for recovery of the advance was linked to the progress of work done by the contractor. The recovery was to begin only after the execution of 15 *per cent* of work and end by the time 70 *per cent* of the work was completed (*i.e.*, by January 2017). As of January 2017, however, mobilisation advance of only ₹ 10 lakh had been adjusted against payment of the first Running Account (RA) bill to the contractor.

- RMC did not liquidate the BGs, although this was to be done in terms of the agreement, to recover the unadjusted balance of advance amounting to ₹ 53.79 crore, in January 2017.

- In October 2019, RMC terminated the agreement due to fundamental breach of contract by the contractor. Till then, mobilisation advance of ₹ 17.88 crore, out of ₹ 53.89 crore, had been recovered from the contractor. The balance mobilisation advance of ₹ 36.01 crore could not be adjusted/ recovered.

(iii) RMC took BGs from the contractor, to secure the mobilisation advance, as shown in **Table 3.4:**

**Table 3.4: BGs for securing mobilisation advance**

| Sl. No.      | Issuing Bank                                   | BG No.           | Amount (in ₹)       | Date of issue |
|--------------|--|------------------|---------------------|---------------|
| 1.           | Chartered Mercantile M B Ltd. Lalbagh, Lucknow | 2745/CMB/2016-17 | 18,00,00,000        | Not mentioned |
| 2.           | Chartered Mercantile M B Ltd. Lalbagh, Lucknow | 2746/CMB/2016-17 | 18,00,00,000        | Not mentioned |
| 3.           | Indian Overseas Bank, New Delhi                | 274571116000021  | 18,00,00,000        | 25/11/2016    |
| <b>Total</b> |  |                  | <b>54,00,00,000</b> |               |

<sup>24</sup> ₹ 18 crore on 16 October 2015, ₹ 18 crore on 4 December 2015 and ₹ 17.89 crore on 31 December 2015



Audit examination revealed the following:

- A BG of ₹ 18 crore was issued by the Indian Overseas Bank, New Delhi in November 2016, *i.e.* after more than 10 months of payment of the mobilisation advance. Thus, RMC had granted the advance, without securing it by any BG, in violation of JMAM 2012, CVC guidelines and the agreement clause.

- Two BGs for a total amount of ₹ 36 crore, submitted by the contractor and accepted by RMC, had not been issued by any nationalised/scheduled bank, but by an institution *viz.*, “Chartered Mercantile M B Ltd. Lalbagh, Lucknow”. Examination of these BGs by Audit revealed that:

- ✓ The designation and identification number of the authorised signatory who had issued the BGs was not mentioned;
- ✓ The issue date of the BGs was not mentioned;
- ✓ The name and contact details of the controlling office, for verification of BGs, were not mentioned;
- ✓ The official email id and telephone number of the issuing branch were not mentioned; and
- ✓ RMC had not verified the BGs from the bank which had reportedly issued these, before admitting them, in violation of codal provisions and instructions of the State Government in this regard.

Audit sent copies of the BG to the Reserve Bank of India (RBI) to verify their authenticity. The RBI intimated (December 2021) Audit that they did not have any information about the entity which had issued the BGs, as per their records.

Thus, “Chartered Mercantile M B Ltd Lalbagh, Lucknow”, not being a bank or financial institution, as per RBI records, was not authorised to issue any BGs and, hence, the BGs shown as having been issued by the entity were fake. As a result of submission of fake BGs by the contractor and their acceptance by RMC, ₹ 6.30 crore (after adjustment of all deposits of the contractor) could not be recovered from the contractor, upon termination (October 2019) of the contract (*Appendix 3.2*).

The Department stated (June 2022) that the BGs of Chartered Mercantile MB Ltd. had been returned to the contractor and six other BGs, issued by M/s Bombay Mercantile Cooperative Bank Ltd., were submitted by the contractor, which RMC had verified (December 2015), through email. The Department also stated that interest free mobilisation advance, though provided in the agreement, was offset by recovery of an additional amount of ₹ 5.74 crore, retained as keep back against interest of the mobilisation advance, for delays in execution of the project.



The reply is not acceptable, in view of the following:

- Copies of these six BGs were neither provided to Audit, nor were they attached with the reply. This was also conveyed to the Secretary of the Department, during the exit conference (22 August 2022).
- Scrutiny of payment files of the work revealed that RMC, while making payments (RA bills) (February 2018) to the contractor against work done, had mentioned about the BGs issued by Chartered Mercantile MB Ltd. Lucknow, as a security for payment of the mobilisation advance.
- On termination of the contract by RMC, the contractor (Jyoti Build Tech Pvt Ltd.) moved the National Company Law Tribunal, for relief. Notes of the reply petition (March 2020), prepared by RMC, bear reference to the submission of BGs issued by Chartered Mercantile MB Ltd., Lucknow.
- Recovery of the mobilisation advance was to be completed by January 2017. Due to delay in the execution of work, the Municipal Commissioner (RMC) imposed (May 2017) interest, at the rate payable by banks on term deposits, and recovered ₹ 5.74 crore from the bills paid to the contractor. This interest amount was the revenue of the RMC and cannot be treated as an adjustment against the outstanding principal amount of mobilisation advance.

Hence, payment of mobilisation advances to the contractor, on fake BGs and the subsequent stand of RMC of replacing those BGs with new ones, without any documentary evidence, needs further investigation.

***Recommendation 5:*** *The grant of excess mobilisation advance to the contractor, in violation of norms needs to be investigated and responsibility fixed, in this regard.*

#### **3.2.3.4 Execution of work**

As per the agreement, the construction work commenced in September 2015 and was terminated by RMC in October 2019. The following deficiencies were noticed in the execution of work:

##### **(i) Excess payment of ₹ 4.97 crore on STP and SPS works**

Scrutiny of the project documents, relating to the agreement between RMC and the contractor<sup>25</sup>, revealed that the work, *inter alia*, included construction of one STP of 37 MLD capacity and one SPS of 10.2 MLD capacity, on turnkey basis, as detailed in **Table 3.5**:

---

<sup>25</sup> *JV of M/s Jyoti Build Tech Pvt. Ltd. and M/s Vibhor Vaibhav Infra Pvt. Ltd.*

**Table 3.5: Components to be executed under the sewerage and drainage project**

| Sl. No. | Component  | Total agreement value ( ₹ ) | Remarks       |
|---------|--|-----------------------------|---------------|
| 1       | Designing, supply, construction, erection and commissioning of Sewage Treatment Plant (STP) of 37 MLD capacity, based on modern technology | 42.00 crore                 | Turnkey basis |
| 2       | Five years operation & maintenance of STP  | 4.21 crore                  | Turnkey basis |
| 3       | Designing, supply, construction, erection, commissioning Sewage Pumping station (SPS) of 10.2 MLD capacity                                 | 5.80 crore                  | Turnkey basis |
| 4       | Five years operation & maintenance of SPS  | 0.28 crore                  | Turnkey basis |

RMC terminated (October 2019) the agreement, after payment of ₹ 18.08 crore (43 per cent) for execution of work relating to the STP and ₹ 3.89 crore (67 per cent) for execution of work relating to the SPS, without recording detailed measurements in the MBs. These outflows also included payments for survey and soil investigation, as well as submission and approval of designs of the STP and SPS.

The PMC (M/s Meinhardt Singapore Pvt. Ltd.) had recommended (September 2017) a payment milestone, based on which RMC had made payments to the contractor, as detailed in **Table 3.6**.

**Table 3.6: Comparison between the provisions and the actual payments made to the contractor**

| Component                                    | Recommended schedule of payment by PMC (In per cent) | Amount paid to contractor as per MB till October 2019 |                     |
|--|--|---|---------------------|
|  |  | In per cent   | Amount in ₹         |
| <b>Sewage Treatment Plant</b>                |  |   |                     |
| Submission of survey and soil testing report | 5  | 12.5  | 5,25,00,000         |
| Submission and approval of design            | 5  |   |                     |
| On supply of item                            | 25   | Nil   | Nil                 |
| Completion of excavation                     | 5  | 5   | 2,10,00,000         |
| Lean concrete and foundation                 | 25   | 24.75   | 10,39,50,000        |
| Walls casting                                | 20   | 0.8   | 33,60,000           |
| Roof level                                   | 5  | Nil   | Nil                 |
| On testing and commissioning                 | 5  | Nil   | Nil                 |
| After 1 month of commissioning               | 5  | Nil   | Nil                 |
| <b>Total</b>                                 | <b>100</b>   | <b>43.05</b>  | <b>18,08,10,000</b> |

Audit examination revealed the following:

- As against the recommendation (by the PMC), lump sum payment of 10 per cent of the total agreement value, for submission and approval of the design for the STP, RMC paid 12.5 per cent, amounting to ₹ 5.25 crore.
- The PMC did not mention the price breakup for designing of each component of the STP, which involved civil work (hydraulic as well as structural design for main pumping station, primary treatment unit, SBR basin, chlorine contact tank, chlorination room, sludge pump house, sludge sump,

centrifuge house, blower room, internal roads, compound wall *etc.*) and electro-mechanical works.

- The contractor only submitted the hydraulic flow diagram, plant layout and piping/ instrumentation diagram. These were approved (May 2017) by the Chief Engineer, RMC.
- The contractor did not submit the design and drawings of civil works<sup>26</sup> (except in regard to the SBR basin) or of the electro-mechanical works. This fact had also been pointed out (April 2020) by M/s WAPCOS Ltd. (PMC), at the time of preparation of BOQ for the left out work, upon termination of the contract. RMC again awarded (February 2021) the design work, to the new contractor<sup>27</sup>.
- In the agreement for the balance work, M/s WAPCOS Ltd. (PMC) mentioned (May 2021) the component-wise price breakup (in *per cent*) for execution of work relating to the STP (including design work) on turnkey basis.
- Though the contractor (M/s Jyoti Build Tech. Pvt. Ltd.) had submitted designs for a few components of the STP and received payments thereagainst, Audit could not work out the excess payments made under the original agreement, as the PMC had not mentioned the component-wise price breakup for designing of the STP. However, applying the percentage fixed for designing the same STP by WAPCOS in the earlier agreement, Audit worked out that the defaulting contractor (M/s Jyoti Build Tech. Pvt. Ltd.) was eligible for only ₹ 1.03 crore, for designing of one component (SBR basin), instead of ₹ 5.25 crore for designing the STP (**Appendix 3.3**). Thus, ₹ 4.22 crore was paid in excess to the contractor, which stands recoverable. Further, the role of the officials involved in passing the bills and releasing payments to the contractor, needs to be investigated.
- For the execution of SPS works, the payment milestones prepared by the PMC and the actual payments made to the contractor, are shown in **Table 3.7**.

**Table 3.7: Payment milestones *vis-à-vis* the actual payments to the contractor**

| Component                                    | Recommended schedule of payment by PMC<br>(In <i>per cent</i> ) | Amount paid to contractor as per MB till October 2019 |             |
|--|---|---|-------------|
|  |   | In <i>per cent</i>                                    | Amount in ₹ |
| <b>Sewage Pumping Station</b>                |   |   |             |
| Submission of survey and soil testing report | 5   | 7   | 40,60,000   |
| Submission and approval of design            | 5   |   |             |
| Completion of excavation                     | 5   | 2   | 11,60,000   |
| On supply of item                            | 25  | Nil   | Nil         |
| lean concrete and raft                       | 20  | 24  | 1,39,20,000 |

<sup>26</sup> For the main pumping station, primary treatment unit, chlorine contact tank, chlorination room, sludge pump house, sludge sump, centrifuge house, blower room, internal road, compound wall *etc.*

<sup>27</sup> M/s LC Infra Pvt. Ltd.

| Component                        | Recommended schedule of payment by PMC<br>(In per cent) | Amount paid to contractor as per MB till October 2019 |                    |
|----------------------------------|---|---|--------------------|
|                                  |   | In per cent   | Amount in ₹        |
| Construction walls up to top     | 25  | 34  | 1,97,20,000        |
| On casting of Slab               | 5   | Nil   | Nil                |
| On testing and commissioning     | 5   | Nil   | Nil                |
| After one month of commissioning | 5   | Nil   | Nil                |
| <b>Total</b>                     | <b>100</b>  | <b>67</b>   | <b>3,88,60,000</b> |

Audit noticed that RMC paid 24 per cent, instead of 20 per cent, for 'lean concrete and raft' works, to the contractor. Similarly, for 'construction of walls up to top', 34 per cent, instead of 25 per cent of the total lump sum cost, was paid, without any measurement and justification. This resulted in excess payment to the contractor, amounting to ₹ 75.40 lakh.

The Department stated (June 2022) that, for turnkey projects, there are no provisions for recording measurements for making payments. The bills for STP and SPS were paid on the basis of the percentages of different components, provided in letter no. MSPL/S&D/RAN 47 dated 01 December 2016, after verification by PMC.

The reply is not acceptable, as, in the MB, letter<sup>28</sup> no. MSPL/S&D/RAN 231 dated 06 September 2017, had been recorded, for making payments in regard to different components. This letter mentioned 20 per cent of the total lump sum cost for the component 'lean concrete and raft' and 25 per cent of the total lump sum cost for the component 'construction of walls up to top', as pointed out by Audit. Hence, the excess payment stands recoverable.

**(ii) Excess payment of ₹ 1.98 crore on drain works**

In regard to construction of the storm water drain, provision had been made in the estimate for execution of 'PCC M15 in normal mix in foundation for drain and culvert with approved quality of stone chips and clean coarse sand including shuttering, etc.'

Audit observed that the contractor had executed drain works in a length of 1.49 kms, which involved 99.38 cubic metres of this item, at the rate of ₹ 5,000 per cubic metre. Against this, 3,957.59 cubic metres of the item had been recorded (in RA bill nos. 11 to 14 and 17) in the measurement book, without any justification or approval of the competent authority.

Recording of inflated measurement of 3,957.59 cubic metres (over the approved quantity of 99.38 cubic metres) of the drain item resulted in excess payment of ₹ 1.98 crore to the contractor which stands recoverable. The role of the officials involved in passing the bills and releasing payments to the contractor needs to be investigated.

<sup>28</sup> PMC (M/s Meinhardt Singapore Pvt Ltd) had issued (September 2017) this letter, to RMC, for setting payment milestones for different components of the STP and SPS. While making payments to the contractor, RMC engineers made reference to this letter, in the measurement books.

The Department stated (June 2022) that all payments had been approved by the CE, RMC, who was competent to sanction the deviations under the project.

The reply is not acceptable as: (i) the section of storm water drain where these excess quantities were utilised, was not mentioned, nor was it provided to Audit and (ii) file approval of the excess quantity, by the competent authority, if any, was not provided to Audit.

**(iii) Wasteful expenditure of ₹ 47.93 lakh on storm water drains**

As per the agreement, 207 km of storm water drains, along with culverts, was to be constructed at a cost of ₹ 129.10 crore<sup>29</sup>. Audit observed that:

- The contractor submitted (November 2018) L section drawing of only 1.49 km out of 207 km, at seven<sup>30</sup> locations, which was also not approved by the CE, RMC. No reason for keeping the approval on hold was available in record, or intimated to Audit.
- The contractor constructed (November 2018) the storm water drain in a total length of 1.49 km at seven locations and received payment of ₹ 47.93 lakh from the RMC. These fragmented sections of drains, which ranged between 34.5 metres and 596 metres at different locations, were not connected to any bigger drain network and, thus, served no purpose.

- Audit conducted (October 2021 and November 2021) joint physical verification (with the officials of RMC) of the drains, in 956 metres (out of the total constructed length of 1490 metres), at two<sup>31</sup> out of seven locations and noticed the following:

- At Harihar Singh road, the pre-casted drain, in a length of 360 metres, was dismantled (October 2021), as a new work of improvement and construction of drains, costing ₹ 1.35 crore, was



**Picture 3.2 Dismantled storm water drain at Harihar Singh Road (20 October 2021)**

being done by RMC, at the same site. On enquiry by Audit, the contractor of the said new drain work stated that the earlier constructed pre-casted drain (length 360 metres) was of no use in the new work.

<sup>29</sup> For construction of storm water drains: ₹ 120.38 crore, storm pipes: ₹ 1.65 crore and culverts: ₹ 7.07 crore

<sup>30</sup> Radha Nagar (Panchsil Nagar)-194 m; Indira Nagar-76.15 m; Tetad Toli, Bariyatu-34.5 m; Ekta Nagar-178 m; Booty Basti-596 m; Harihar Singh Road-360 m and Vidyapati Nagar-49.5 m

<sup>31</sup> Harihar Singh Road and Booty Basti



➤ At Booty Basti, no pre-screening arrangement for solid wastes was found in the storm water drain and water logging was noticed at the drain ends. Moreover, this drain was not connected to any drain network and waste water from septic tanks was flowing into the open storm water drains, making them polluted. Thus, the drain was not only a waste of public resources but also a health hazard.



Picture 3.3 and 3.4: Storm water drain structure in Booty Basti and scattered solid wastes along the sides of the drain (22 November 2021)

- After termination (October 2019) of the contract, RMC executed (February 2021) a fresh agreement, with a new contractor, for execution of the balance work under the sewerage and drainage project, but the unexecuted part of the storm water drain work was not included.

Thus, expenditure of ₹ 47.93 lakh, incurred on partial execution of storm water drains, was wasteful, as the fragmented sections of constructed drains were not linked to any drain network and they were found filled with the wastewater of septic tanks. The construction of these drains had been taken up without approval of the designs by the competent authority and they had been abandoned since then.

The Department stated (June 2022) that, due to construction of drains by other departments (such as Road Construction, Zila Parishad *etc.*), RMC had decided to construct the drains only in places affected by water logging.

The reply is not acceptable, as the drains taken up for construction in the entire stretch were in seven fragmented sections and were subsequently not included in the agreement entered into for execution of the balance work. Further, there was nothing on record regarding the execution of any such drain works by other departments.

#### (iv) Deficiencies in the hydraulic design of the sewer network

As per para 3.15 of the CPHEEO Manual, the velocity in the sewer should be such that the suspended materials in the sewage are not silted, *i.e.* the velocity should cause automatic self-cleaning effect. If depositions take place and are not removed, free flow will get obstructed, causing further deposition leading to complete blocking of the sewer. Details of the design velocities, to be ensured in the gravity sewer, are shown in **Table 3.8**:

**Table 3.8: Design velocities for gravity sewer**

| Sl. No. | Criteria                               | Values            |
|---------|--|-------------------|
| 1       | Minimum velocity at initial peak flow  | 0.6 meter/ second |
| 2       | Minimum velocity at ultimate peak flow | 0.8 meter/ second |
| 3       | Maximum velocity                       | 3.0 meter/ second |

A pilot networking project, in a 3.8 km stretch in Zone I was done in April 2016. Audit scrutiny of hydraulic design of this 3.8 km stretch revealed that in 3.173 km (out of 3.8 km stretch), involving DWC pipes of diameter 150 mm, 200 mm and 250 mm connecting 124 manholes, the actual velocity of sewage was between 0.42 m/sec and 0.58 m/sec, which was less than the minimum velocity of 0.6 m/sec required to cause automatic self-cleaning of the sewer.

Moreover, RMC could not produce any evidence (such as site order book *etc.*) of any hydraulic test, conducted after completion of networking of this pilot project. Thus, silting of suspended materials and blockage of sewer flow in this stretch could not be ruled out, as the self-cleaning sewage velocity was not attained.

Audit observed that the total length of sewer network in the project was revised to 280 km. RMC provided drawings of the manhole number and distance, pipe diameter and slopes, invert levels and ground levels, along with the alignment of network, as approved (August 2016) by CE, RMC. However, the hydraulic design of the entire network of 280 km (except the pilot stretch of 3.8 km), which was essential to examine adherence to the provisions of the CPHEEO manual, for attaining the minimum self-cleaning velocity, was not produced to Audit, though requisitioned between July 2021 and October 2021. Thus, RMC could not produce any evidence to prove that the hydraulic design of the project network is CPHEEO compliant and will attain self-cleaning sewage velocity.

The Department stated (June 2022) that investigation in this regard was being conducted by WAPCOS Ltd. (PMC).

**(v) Other project irregularities**

Audit noticed the following other irregularities in the implementation of the project:

- For laying of network pipes and manholes under the project, no objection certificates (NOCs) was required from various authorities such as NHAI and Road Construction Department (RCD), for roads falling in their jurisdiction. The details of these roads are shown in **Table 3.9**.

**Table 3.9: Roads for which NOCs were required**

| Sl. No.      | Name of the authority | Name of road stretch       | Approximate Length (in km) |
|--------------|-----------------------|----------------------------|----------------------------|
| 1            | NHAI                  | Ratu to Pandra             | 6.25                       |
| 2            |                       | Piska More to Katahal More |                            |
| 3            | RCD                   | Karamtoli to Borya         | 12.46                      |
| 4            |                       | Karamtoli to Booty More    |                            |
| 5            |                       | Ratu road to Kanke block   |                            |
| 6            |                       | Booty to Zumar bridge      |                            |
| <b>Total</b> |                       |                            | <b>21.40</b>               |



Audit noticed that EE, RMC, had issued letters to these authorities, between May 2021 and October 2021, for providing NOCs, but the same were still pending from these authorities (as of August 2022). Pending NOCs may delay execution of the balance work. The Department, therefore, needs to coordinate with NHAI and RCD, for obtaining the NOCs.

The Department stated (June 2022) that steps were being taken to get the required NOCs.

- At the time of termination (October 2019) of the agreement, a total of 3,049 manholes had reportedly been constructed at a cost of ₹ 11.80 crore. After execution of agreement for balance work, the new contractor informed (August 2021) RMC that 272 out of 3,049 manholes were not found during survey of the sewerage network. The contractor requested for a joint survey, with RMC and PMC officials, to ascertain the existence of these manholes.

However, the joint survey report, if any, had not been furnished to Audit till the date of the exit conference (August 2022). During joint physical verification (November 2021), along with RMC and M/s WAPCOS (PMC) authorities, it was observed that, in a stretch of 200 metres at Booty Basti, Ranchi, four out of six manholes were not visible, as these were reported to have been covered up by newly constructed PCC roads.

No reply was furnished by the Department in this regard.

**(vi) Delayed acquisition of land for STP**

Rule 132 of the JPWD code stipulates that no work should be initiated on land which has not been duly made over by the responsible civil officer.

Audit observed that construction of the STP, in Zone I at Kishunpur, required acquisition of private land in the Bargain circle. The Department accorded (May 2015) administrative approval for acquisition of the land and released ₹ 50.40 crore to RMC. However, the said land at Kishunpur could not be acquired, due to refusal of the concerned land owners to part with their private agricultural land.

RMC identified (June 2016) another land, measuring 8.89 acre, in Lem village, which involved acquisition of 4.09 acre of private land. RMC transferred (June 2017 and October 2018) the compensation amount of ₹ 26.75 crore to the District Land Acquisition Officer, Ranchi, and the land was acquired and handed over to RMC in August, 2020. This delayed commencement of the civil work of the STP by two years.

The Department accepted (June 2022) that acquisition of land for construction of STP was delayed.