



CHAPTER-III COMPLIANCE AUDIT

URBAN DEVELOPMENT AND HOUSING DEPARTMENT

3.1 Development of Sewerage Infrastructure in Patna under Namami Gange Programme

3.1.1 Introduction

Ganga, along with her many tributaries, has been the source of physical and spiritual sustenance of Indian civilisation for millennia and consequently, her well-being is of prime national concern. Increasing population in Ganga basin with haphazard urbanisation and continuous industrial growth has adversely affected the water quality of River Ganga. The primary sources of pollution in Bihar are untreated sewage /domestic waste water from cities located on the bank of river Ganga. As a result, its water is not suitable for drinking purposes and outdoor bathing. Patna is the capital of Bihar and is the second largest urban centre in eastern India, after Kolkata. The city has a very long river line surrounded on three sides by rivers – The Ganga, Sone, and Punpun.

The drainage system of Patna town was laid about 200 years ago and is in bad condition. The system comprises hierarchy of natural and man-made drains that ultimately discharge surface run off and sewage to River Ganga and Punpun. Patna City is partially covered with sewerage system with nearly 20 *per cent* of Patna Municipal Corporation (PMC) area. A new Sewerage network needs to be laid in the left-out area with efficient treatment and disposal system to ensure the health and sanitation issues of the citizens of the city.

The main indicators of pollution of Ganga water in Bihar are Total Coliform (TC) and Faecal Coliform (FC)¹⁵². Due to lack of Sewerage Infrastructure in Bihar, the maximum TC and FC which was measured upto the level of 9000 MPN¹⁵³/100ml and 3100 MPN/100ml in 2016-17 respectively has increased upto 160000 MPN/100ml (for both TC & FC) in 2019-20. This shows the gradual deterioration in water quality during the period.

3.1.2 Initiatives of the Government

Ganga Action Plan (GAP) was constituted (April 1985) by Government of India with the objective of reducing pollution in river Ganga. Again, National Ganga River Basin Authority (NGRBA) was constituted (February 2009) for Comprehensive Planning and Management for abatement of pollution and conservation of river Ganga. Government of India (GoI) has given (November 2008) the status of National River to the Ganga and it launched (May 2015)

Total coliforms are group of bacteria that indicate vulnerability of water to contamination due to wastewater/industrial discharge, agricultural runoff and other anthropogenic factor. Faecal Coliforms are used as indicators to define the microbiological water quality.

¹⁵³ Most Probable Number

Namami Gange Programme to be implemented by National Mission for Clean Ganga (NMCG). A vision of *Nirmal and Aviral Dhara* under "Namami Gange" Mission is to be achieved by ensuring management of municipal sewage, rural sewage, control of industrial discharges and other proposed plans for Ganga Rejuvenation including its all tributaries. It is an umbrella programme for all ongoing schemes as well as the new ones. The major activities to be carried out under Namami Gange are augmentation of existing STPs, creation of new STPs, complete sanitation coverage for gram panchayats, development of model cremation/dhobi ghats, creation of an IT based monitoring center. Consequently, the River Ganga (Rejuvenation, Protection and Management) Authorities Order (2016) was notified for rejuvenation, protection and management of river Ganga. The sanctioned projects for Bihar and expenditure there against are depicted in **Table No. 3.1.1:**

Table no. 3.1.1 Sanctioned cost and expenditure on projects upto December 2020 $(In \notin crore)$

Activities	No. of project	Total sanctioned cost	Total expenditure upto 31 December 2020
Sewerage Infrastructure	30	5487.76	1349.04154
Ghat/Crematoria	10	103.14	55.47
River Front Development	01	336.73	308.52
Bio-remediation	02	3.16	1.06
Afforestation	05	92.33	55.50
Total	48	6023.12	1769.59

(Source: Monthly progress report available on the site of NMCG.)

Institutional Arrangement

Ministry of Environment and Forest, GoI is the nodal agency for the NGRBA programme and had the lead responsibility for programme implementation. State Ganga Rejuvenation, Protection and Management Committee for the State of Bihar is the apex policy and decision making structure at the State level. The NGRBA Programme Management Group (PMG) is responsible to ensure effective implementation of NGRBA programme at the national level. At the State level, Bihar State Ganga River Conservation and Programme Management Society (BGCMS) under Urban Development and Housing Department (UD&HD), GoB is responsible. Execution of the infrastructural projects are being done by the Executing Agency i.e. Bihar Urban Infrastructure Development Corporation (BUIDCO) who is also responsible for preparation of the Feasibility Report and Detailed Project Report (DPR), collaboration and coordination, procurement of works and goods, construction/installation of facilities including contract management, managing program funds etc. The present organisational set-up for implementation of Rejuvenation of River Gange-Namami Gange is depicted in *Appendix-3.1.1*.

Out of which expenditure of ₹1167.04 crore (86 per cent) incurred in Patna on sewerage infrastructure projects.

3.1.3 Audit objectives

The audit was conducted (December 2020 to February 2021) with a view to assess the specific aspects of development of sewerage infrastructure in Patna under the programme and for the purpose whether:

- there was an effective planning to ensure the development of the sewerage networks,
- the implementation of the projects had been done in an efficient, economic, and effective manner;
- financial management and utilisation of funds under the schemes were done in adherence to the guidelines of the NGRBA Programme Framework.

3.1.4 Audit criteria

The following audit criteria was used:

- Office memorandum and guidelines for implementation of schemes by GoI/ GoB including those of Central/State Pollution Control Board.
- Minutes of EC/ ESC of NGRBA and its programme framework. Central Public Health and Environment Engineering Organisation (CPHEEO) manual, River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016.

3.1.5 Audit scope and methodology

As mentioned earlier (**Table no. 3.1.1**), the sanctioned cost of Sewerage Infrastructure is 91 *per cent* (i.e. ₹5487.76 crore) of total sanctioned project cost (*i.e.* ₹6023.12 crore) and expenditure thereon is 76 *per cent* of total expenditure incurred on different projects. The expenditure of ₹1167.04 crore (December 2020) (*i.e.* 86 *per cent*) on Sewerage Infrastructure projects (**Table no. 3.1.3**) was incurred in Patna only. Hence, keeping in view the expenditure, audit covered four ¹⁵⁵ STPs (out of total six STPs) and all five ¹⁵⁶ sewerage networks (707.50 KM) in Patna during 2016-20.

The methodology included scrutiny of records pertaining to Sewerage Infrastructure Projects (under the Namami Ganage Programme) viz. State Ganga Committee (SGC) i.e. Bihar State Ganga River Conservation and Programme Management Society (BGCMS), BUIDCO along with records of Bihar State Pollution Control Board (BSPCB) and Water Resource Department, GoB. Physical verification of three works¹⁵⁷ were also conducted.

Important Audit findings are given in successive paragraphs.

¹⁵⁵ Beur STP, Saidpur STP, Pahari STP and Karmalichak STP.

Beur Sewerage Network (179.74 km), Saidpur Sewerage Network including Saidpur Adjoning Network (227.60 km), Pahari Zone IV A Sewerage Network (87.69 km), Pahari Zone V Sewerage Network (115.93 km) and Karmalichak Sewerage Network (96.54 km).

¹⁵⁷ Saidpur STP and adjoining network, Karmalichak STP and Karmalichak network.

3.1.6 Planning

The National Ganga River Basin Authority (NGRBA) in its 1st meeting held under the chairmanship of Prime Minister on 5 October 2009 decided to ensure that by 2020 no treated/untreated municipal sewage or industrial effluent will be discharged into the river Ganga.

For treatment of the sewage discharge in Patna, total six STPs were sanctioned (July 2014 to August 2017) by the NMCG having capacity of only 350 MLD¹⁵⁸ (Million Litres per Day). However, Bihar State Pollution Control Board (BSPCB) had identified (2020) 19 drains in Patna having discharge of 628.505 MLD (566.505 MLD in river Ganga and 62 MLD in its tributary Punpun river). Some of the drains are very large and they discharge heavy sewage in Ganga and Punpun, which can be seen from the pictures below:





Rajapur Drain

Mahendru Ghat Patna





Bansghat Drain

Antaghat Drain

The large drains opening in river Ganga

Further, it was also noticed that the assessment of sewage discharge was not based on actual discharge (though required under CPHEEO Manual) rather it was based on projected population of the towns. Thus, with present sanctioned capacity of STPs in Patna, it was not possible to treat even the current sewage discharge in Patna.

Beur 43 MLD, Karmalichak 37 MLD, Pahari 60 MLD, Saidpur 60 MLD, Kankarbagh 50 MLD and Digha 100 MLD.

3.1.7 Implementation of schemes

As mentioned earlier, total six STPs and five sewerage networks were to be constructed in Patna (respective decisions were taken in the meetings of Empowered Steering Committee of NGRBA during July 2014 to August 2017). Out of these total 11 works, nine works were to be completed by May 2021. However, respective records revealed that out of these nine works, only four were completed till July 2021 and in remaining five works, progress ranged from 53 to 93 *per cent* (*Appendix-3.1.2*) as on July 2021. Further analysis of records disclosed that M/s V A Tech Wabag Limited, Chennai had been allotted three works (i.e. STPs at Pahari, Digha and Kankarbagh with the respective sewerage networks) and except Pahari STP (where 73 *per cent* work was completed upto December 2020) in remaining two works¹⁵⁹, progress was negligible. The executing agency i.e. BUIDCO had not taken any effective actions in this regard till date (December 2020).

Non-completion of works was mainly attributed to non-availability of land, pending NOC from line departments, inadequate house connections etc. Specific respective issues noticed during audit are being discussed in succeeding paragraphs.

3.1.7.1 Injudicious award of work leading to extra expenditure

During audit of records of Pahari STP, Patna it was found that, the NMCG had accorded (May 2017)Administrative approval and expenditure sanction (AA&ES) in which it was envisaged that the State Government should ensure the availability of land before award of work. Again, as per clause 1.1 (e) of Instructions to Bidders (ITB) for design and build of the STP, BUIDCO shall make available land area for the STP and all appurtenant structures up to the area allocated for this facility. Further, clause 3.3 (a) stipulates that the bidder will be free to offer STP based on a technology of their own choice and indicate in their bid the actual land requirement for setting up treatment facility as offered by them. The clause 3.3 (c) states that the land required for STP, roads, drains and other appurtenant structures shall be indicated by the bidder and the cost of such land requirement as determined on the basis of land price as specified in the Bid Data Sheet shall be added to the bid price for evaluation of the lowest evaluated substantially responsive bidder. The clause 5.6 (d) states that the owner (i.e. BUIDCO) shall compare the evaluated prices of all substantially responsive bids to determine the lowest evaluated bids.

In light of above provisions, the respective bid documents of the two lowest bidders out of the total six bidders (who finally selected for financial evaluation) for the STP was as detailed in **Table no. 3.1.2** below:

¹⁵⁹ Awarded in December 2019

Table no. 3.1.2 Detail of price breakup

(₹ in crore)

	M/s VA Tech WABAG	M/S UEM India Pvt Ltd. in
	Limited, Chennai.	JV Eagle Infra India Ltd.
Design Build Price	84.20	68.50
O&M price with	29.93	33.51
NPV		
Total	114.13	102.01
(Without Land)		
Land Price	35.59	49.12
Total (With Land)	149.72	151.13

On the basis of lower rate (with land), the bid was allotted (April 2018) to M/s VA Tech WABAG Limited, Chennai. However, further analysis of the bid documents disclosed that M/s VA Tech WABAG Limited had proposed ₹35.59 crore for 9600 square meters area of land required for STP, while M/s UEM India Pvt. Ltd. in JV Eagle Infra India Ltd. proposed 13250 square meters area of land worth ₹49.12 crore.

Here, it is pertinent to mention that 29400 square meters land was already available with BUIDCO at the STP site. Hence, if the bid had been finalised in light of provisions mentioned under clause 5.6 (d) that BUIDCO should compare the evaluated prices of all bids to determine the lowest evaluated bids then, selection of the lower bid value (*i.e.* ₹102.01 crore of M/S UEM India Pvt. Ltd. in JV Eagle Infra India Ltd.) could save the extra cost of ₹12.12 crore. The selected agency was paid ₹44.97 crore upto December 2020.

3.1.7.2 Pending NOC from line Departments and non-availability of land for Sewage Pumping Stations (SPS)¹⁶⁰

As per the NGRBA Programme Framework, the State Government has to ensure that all the necessary clearances from various departments, agencies or authorities are provided to the executing agency (i.e. BUIDCO) for successful and timely completion of NGRBA programme.

In case of all five test-checked Sewerage Network projects, audit observed (2020) that due to lackadaisical approach of the State Government, out of total required NOC for 366.07 KMs, NOC for 107.97 KM was still (February 2021) awaited (*Appendix-3.1.3*) from the line departments which resulted in delay in completion of these works. Further, delay¹⁶¹ in identification of land for SPS at different locations including its NOC from concerned departments were observed which further delayed the construction of sewerage network.

¹⁶⁰ Which required for proper functioning of sewerage networks

SPS at Kaumakhoh (Karmalichak Sewerage Network)-during joint physical verification it was found that the proposed site of SPS was encroached and work was not started. Exhibition Road, Pirmuhani, Kadamkuan and Arfabad. (Saidpur Sewerage Network), SPS-A at RMRI and SPS-B at Mehandiganj.

3.1.7.3 Inadequate number of house connection with sewerage networks

As per, NGRBA Framework, connections of all residential/commercial/other establishments with the sewerage networks should be ensured for the flow of all waste water in the networked area so that it is intercepted and conveyed to the treatment systems. AA&ES of this scheme also envisaged that the last mile connection i.e. connectivity of the houses to the manhole was to be ensured otherwise the expenditure on sewerage network becomes infructuous.

Scrutiny (December 2020-February 2021) of records revealed that house connection component was not included in agreement under test-checked six projects¹⁶². Initially, it was decided (August 2017) to get the house connection done by the house owners themselves. However, SPMG observed that the house owners did not turn up satisfactorily for the same. Finally, it was decided (March 2019) to get the house connection done by the concerned contractors of Sewerage Network schemes. Accordingly, supplementary agreements for connectivity of the houses to the manhole was executed (June-July 2019) for the said networking schemes¹⁶³. Audit also observed that household connections were done ranging from four to 28 *per cent* only (December 2020). It is also pertinent to mention that due date of completion of the said schemes is over on May 2021. Thus, the delay in decision to ensure house connection by the contractor affected the overall achievement of the programme.

3.1.7.4 Sub-standard Execution of Work

As per NGRBA Framework, the Executing Agency (EAs) would be responsible for putting in place arrangements for supervision of all contracts. All civil and mechanical works investments would require comprehensive on-site construction supervision, in accordance with international best practice. If required, the EAs may procure and manage supervision consultants to address any capacity gap in the EA for effective construction supervision.

For Third Party Inspection (TPI), IIT, Patna was appointed in November 2018, which observed sub-standard execution of works in different projects. During physical verification (25/1/2021) of STP, Beur, it was observed that following deficiencies were not corrected although the same were also noticed under TPI reports:

• The construction of the STP building (covered under operation and maintenance for 10 years by the contractor) was poor and cracks were observed at many places within one year of construction, which indicated poor construction quality.

Beur, Karmalichak, Pahari Zone IVA South, Pahari Zone V and Saidpur Sewerage Network Schemes, Saidpur STP and adjoining network

Saidpur(25.06.2019/53600 Nos.), Saidpur Adjoining (21.06.2019/21360Nos.), Karmalichak (26.06.2019 / 381668 Nos.), Beur (20.07.2019 / 37400 Nos.), Pahari Zone IV A (19.06.2019 / 21300 Nos.) & Pahari Zone V (18.06.2019 / 41849 Nos.)

• Leakages were found at many places in the stilling basin, grit chamber and Sequential Batch Reactor (SBR) tank.





Damp at Beur STP

Damp and crack at Beur STP

A large portion of concrete road in front of the SBR was found damaged because of the improper compaction of soil before the construction of road.

It was also revealed from the respective correspondence and TPI Report that the quality of the executed work of STP, Pahari was also not satisfactory. Further, in light of TPI report (December 2020), the BGCMS gave several reminders to contractor. The Site Order Book maintained by the technical in-charge at site of STP, Pahari also recorded that the progress and quality of work was very poor and corrective measure was not ensured by the agency even after issuing several directions.

3.1.7.5 Unfruitful expenditure

• Treated water quality deteriorated with raw sewage

An agreement for construction of new STP at Beur and its operation & maintenance (O&M) was executed (March 2017) between BUIDCO and M/s VOLTAS & GAA (JV). As per agreement, the annual O&M charges (*i.e.* ₹200.91 lakh + GST @12 per cent) of STP were to be paid.

The construction of STP was completed (May 2020) and its operation acceptance certificate was issued by BUIDCO in August 2020. Further, as per the agreement, the contractor was paid (May 2021) claim of ₹82.17 lakh as O&M charges for the period August 2020 to February 2021.

Again, a site verification report (January 2021) of NMCG stated that the effluent line (outflow of treated water) till the next lifting station had about 6/7 manholes which was punctured either by the Patna Municipal Corporation or other locals to channelise untreated raw sewage. On being asked, the EE, BUIDCO, Patliputra Division stated that the inflow raw sewage was from nearby households. He further stated that it would be completely stopped once the sewage networking scheme by M/s L&T is completed.

This reflected the pre-mature decision of BUIDCO to enter into agreement for O&M before completion of sewage network.

Thus, though the payment of ₹82.17 lakh was done, the treated effluent water quality had been compromised and the whole purpose of treatment was eventually defeated.

• Re-preparation of DPR for use of treated water

River Ganga (Rejuvenation, Protection and Management) Authorities Notification Order (2016) 6(1) and 6(2) stipulates that for prevention, control and abatement of environmental pollution in River Ganga and its tributaries: (i) no person shall discharge, directly or indirectly, any untreated or treated sewage or sewage sludge into the River Ganga or its tributaries or its banks and (ii) no person shall discharge, directly or indirectly, any untreated or treated trade effluent and industrial waste, biomedical waste, or other hazardous substance into the River Ganga or its tributaries or on their banks.

Public Finance Committee decided (December 2017) to prepare Detailed Project Report (DPR) for optimum utilisation of treated effluent water from five¹⁶⁴ STPs in Patna for agriculture purpose. The work was awarded (November 2017) to consultant (M/s Samarth Infra Tech Services Pvt. Ltd.) at a cost of ₹1.05 crore. Accordingly, an agreement between consultant and Water Resource Department (WRD) was executed (January 2018) and work order was issued (January 2018) to the consultant with a stipulated completion period of six months (July 2018). Later, it was decided (December 2017) by WRD to include Digha STP also in the scope of the work. Accordingly, consultant submitted (February 2018) proposal of ₹42.00 lakh for the additional work for Digha STP (February 2018) and AA&ES for ₹42.00 lakh was accorded (March 2018) for this additional work.

The consultant submitted (April 2019) the final Project Report with a total project cost of ₹307.81 crore for "Optimum utilisation of effluent treated water from the proposed STPs for irrigation purpose using modern techniques mainly through natural drain and existing canal system". The consultant was paid ₹1.47 crore (March 2018 to August 2019) towards preparation of DPR.

Audit further observed (February 2021) that Development Commissioner, Bihar in a meeting (September 2020) resolved that further action on re-use of treated water from STPs would be taken by UD&HD. Accordingly, BUIDCO was directed (October 2020) to engage consultants for preparation of DPR for re-use of treated water in respect of nine¹⁶⁵ STPs and agreement was made with five consultants¹⁶⁶ for the same. However, these nine STPs included four¹⁶⁷ STPs for which DPR had already been prepared (April 2019) by WRD on which no action was taken. As a result, expenditure of ₹1.47 crore made by WRD towards preparation of DPR on these six STPs became infructuous.

¹⁶⁴ Beur, Karmalichak, Saidpur, Pahari and Kankarbagh.

Beur, Saidpur, Karmalichak, Pahari, Mokama Group-5, Mokama Group-6, Sultanganj, Naugachhiya and Sonepur.

Green Design & Engineering Services Pvt. Ltd. (Beur, Saidpur), BLG Construction Services Pvt. Ltd. (Karmalichak, Pahari), Blue Stream Infrastructure Construction Pvt. Ltd. (Mokama Group-5), Shyam Designers and Construction Pvt. Ltd. (Mokama Group-6 and Sultanganj) and Samarth Infratech Services Pvt. (Naugachhiya and Sonepur).

¹⁶⁷ Beur, Karmalichak, Pahari and Saidpur

• Withdrawal of NOC by RCD

Under Saidpur Sewerage Network Scheme, networking was in progress in Bajarangpuri Colony and its adjacent area. As per approved design, the said network was to be connected to a main trunk line which was to pass through Gai Ghat road to reach SPS at Ambedkar Colony and eventually to STP, Saidpur. No Objection Certificate (NOC) was required from Road Construction Department (RCD) for laying main trunk line through Gai Ghat road. It was observed that NOC was not ensured before start (January 2018) of the scheme. However, it was accorded by the RCD in January 2020.

Meanwhile, RCD withdrew (February 2020) NOC stating that construction of a bridge parallel to Mahatma Gandhi Setu has been approved. If sewer pipe line is laid in Kumhrar road and Gai Ghat road, it will be destroyed during construction of proposed bridge. As such, without laying of main trunk line, constructed network of 4.6 km lateral lines in Bajrangpuri Colony and adjacent area would remain disconnected for carrying 1.5 MLD sewerage from 800 households to STP through SPS and continue to be discharged into river Ganga. Thus, an expenditure of ₹8.10 crore incurred in the said networking was to be rendered unfruitful besides defeating objectives of treating 1.5 MLD sewerage from 800 households.

3.1.8 Financial Outlay

Details of sewerage infrastructure projects in Patna along with expenditure thereon till December 2020 is depicted in the **Table no. 3.1.3** below:

Table no. 3.1.3
Project wise approved cost and expenditure

(₹ in crore)

Sl. No.	Name of Project	Approved project cost	Awarded cost	Percentage of work completed	Total expenditure
1	Beur STP	68.16	77.85	100	51.37
2	Beur Sewerage Network	225.77	398.90	74	256.66
3	Karmalichak STP	77.04	73.61	100	50.60
4	Karmalichak Sewerage Network	277.42	253.98	62	116.77
5	Saidpur STP & Adjoining Network	184.93	184.93	96	155.45
6	Saidpur Sewerage Network	268.63	431.21	64	255.79
7	Pahari STP	191.62	147.65	70	44.97
8	Pahari Sewerage Network Zone IVA	184.86	167.80	88	152.76
9	Pahari Sewerage Network Zone V	356.37	364.90	43	81.96
10	Kankarbagh STP & Sewerage Network	578.89	1187.86	0	0.29
11	Digha STP & Sewerage Network	824.00		1	0.42
	Total	3237.69	3288.69		1167.04

(Source: Progress report of NMCG of December 2020)

Further as per the NGRBA programme framework, the PMG transfer funds to the SPMGs on half-yearly basis for implementation of the agreed annual action plan. The PMG has to release the second half-yearly installment to each SPMG only when (i) the SPMG has submitted its Audit Report of previous financial year to the PMG and (ii) on reasonable utilisation of the first installment of the reporting year. The GoB will release its share of funds to the SPMG within two months of receipt of the installment from the PMG.

Audit observed (November 2020) that only 16 to 50 per cent funds were being utilised during the period 2016-17 to 2019-20. The progress of works were also very poor and against sanctioned cost only 35.48 per cent financial progress was achieved till December 2020. In case of Kankarbagh and Digha STPs and Sewerage Networks the financial progress was negligible which denotes poor performance in execution. Further, the NMCG without ensuring the utilisation of previous installments released funds for next installments as a result huge fund of ₹683.10 crore (September 2019) remain parked in the Savings Bank Account of BGCMS and thus were remain idle.

3.1.9 Monitoring

Para 24.3 (a) of the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 envisaged that the State Ganga Committee would be responsible for coordination, implementation and regulation of activities aimed at the prevention, control and abatement of pollution in the River Ganga to maintain its water quality and to take such other measures relevant to river ecology and management in the State concerned.

NGRBA framework envisaged that the Executing Agency i.e. BUIDCO would be responsible for putting in place arrangements for supervision of all contracts. All civil and mechanical works investments would require comprehensive onsite construction supervision, in accordance with international best practice. Further, it has been provided that the SPMG would appoint independent/third-party inspection (TPI) consultants, to supervise the execution of infrastructure investments under the NGRBA program, including timely progress, quality of works and proper documentation.

The lack of effective supervision by the SPMG resulted in inadequate interdepartmental coordination regarding pending/withdrawal of NOC from different departments for works of sewerage networks. Again, though STPs, Beur and Karmalichak were completed, their sewerage networks could not be completed rendering the STPs unutilised and idle expenditure. After incurring substantial expenditure on preparation of DPR for re-use of treated water by the WRD, it was again allotted to BUIDCO, which was yet to be completed.

Audit also observed that TPI consultant was engaged with a delay ranging from six to 19 months from the date of agreement of test-checked schemes. As a result, three to 72 *per cent* work of these schemes were completed without TPI. The supervision of civil and mechanical works was not proper resulting in poor

quality of works as a number of defects were highlighted by the TPI in their reports.

3.1.10 Conclusion

There was inadequate planning for sewage treatment of Patna town as the sanctioned capacities of STPs were only able to treat, half of the total present sewage discharge. Further, the execution of different projects is inordinately delayed due to slow progress by the agencies, non-identification of land for SPSs, puncturing of effluent line of sewerage networks etc. There were issues relating to injudicious award of work leading to extra expenditure, delay in obtaining NOC for execution of work from different departments/authorities, inadequate house connection with sewerage networks etc. Further, no plan has been prepared for re-use of treated water as the preparation of DPR for re-use of water is still in progress. The qualities of works were found sub-standard and substantive funds were parked in bank accounts. The BUIDCO failed to adhere to the stipulated time line for completion of works, as no STP along with sewerage network completed till date and the discharge of sewage in Ganga and its tributaries could not be stopped in Patna as desired. Monitoring mechanism in respect of ensuring timely completion as well as maintenance of proper quality in execution of works was inadequate.

The matter was reported (February 2021) to the Department. Their comment/reply was not received (September 2021).

HEALTH DEPARTMENT

3.2 Unfruitful expenditure

Due to improper planning, intended objective relating to procurement of 455.45 MT DDT and 313.83 MT SP could not be achieved and led to unfruitful expenditure of ₹11.12 crore.

Rule 12 of Bihar Financial Rules stipulates that every controlling officer must satisfy himself that adequate provisions exist within the departmental organisation for systematic internal checks calculated to prevent and detect errors and irregularities in the financial proceedings of his subordinate officers and to guard against waste and loss to public money and stores and to ensure that the prescribed checks are effectively applied.

Audit (July 2019) of records in the office of the Additional Chief Medical Officer (ACMO), Muzaffarpur and information collected in seven¹⁶⁸ districts as well as State Programme Officer (SPO), Vector Borne Disease Control Programme (VBDCP), Bihar, Patna relating to spraying of Dichloro-Diphenyl-Trichloroethane (DDT) and Synthetic Pyrethroid (SP) to curb the vector borne diseases revealed the cases of expired DDT and SP including use of sub-standard SP.

Begusarai, Darbhanga, East Champaran, Gopalganj, Khagaria, Patna and Saharsa

In stock of District Programme Officer (DPO), VBDCP, Muzaffarpur there was total 130.51 MT DDT available (august 2015), out of which, as per direction (March 2016) of the Principal Secretary, Health Department, 40 MT and 27.35 MT were sent to the District Malaria Office, Begusarai and Darbhanga respectively and the remaining 63.16 MT DDT expired (during December 2015 to January 2017 in batches). Further, collection of respective data from above mentioned seven Districts' Malaria Offices revealed that 58.65 MT DDT expired in similar condition.

Further scrutiny revealed that DPO, Muzaffarpur had informed (June 2015) the SPO about 130.514 MT DDT lying idle and going to expire.

On being pointed out, the Department replied (March 2021) that at the instructions of the Director, NVBDCP, spraying of SP was instructed instead of utilising the idle DDT in seven¹⁶⁹ affected districts during June-July 2015. Later, the SP spray coverage was increased to 15 districts w.e.f. first round (March to May 2016) and to all the 33 Kala-azar affected districts of the State w.e.f 2nd round in the year 2016.

Information collected (November 2020) from the SPO, Patna disclosed that altogether 455.45 MT expired (December 2015 to January 2017) DDT valuing ₹8.22 crore was lying in the State warehouse.

This indicated that the SPO had neither properly planned nor implemented the work of spraying/utilising DDT which resulted in loss to the public money in the shape of expiration of 455.45 MT DDT valuing ₹8.22 crore¹⁷⁰ in districts as well as at State level.

Again, the DPO, Muzaffarpur had stopped (August 2018) the spraying of SP for kala-azar control programme after being informed by NVBDCP (August 2018) noticing sub-standard quality of some batches of SP. At that time, total 22.65 MT SP was available in their stock, which expired (November 2018 to July 2019). It is worth mentioning that the National Vector Borne Disease Control Office, New Delhi also identified some batches of SP as substandard and in this light the SPO, Bihar, Patna decided (July 2018) to halt the spraying of SP altogether. However, verification of respective records in aforementioned seven districts disclosed that there were altogether 163.05 MT sub-standard SP and 128.13 MT expired SP (February 2017 2018 to August 2019).

On being pointed out regarding use of sub-standard SP, the Joint Secretary, Health Department, Government of Bihar stated (March 2021)that the work of purchase of SP as well as their quality check before distribution had been carried out by National Vector Borne Disease Control Programme (NVBDCP), New Delhi and no arrangement had been made by the State for this purpose.

¹⁶⁹ Araria, Muzaffarpur, Purnea, Saharsa, Saran, Sitamarhi and Vaishali

¹⁷⁰ Cost of 455.45 MT DDT = 455.45x₹180449/MT = ₹8.22 crore

The reply was not acceptable as the responsible authority spraying substandard SP made the citizens vulnerable to the diseases without ensuring the quality check of SP.

On being asked, the DPOs of other seven districts stated (January, February 2020) that spraying of SP in place of DDT and discontinuing the use of SP were done as per instructions of SPO.

The reply itself showed the improper planning regarding use of DDT (before its expiration) and failure to ensure the utilisation of SP with quality check before spraying.

Thus, due to improper planning of DPOs/ACMOs of the districts concerned including SPO, VBDCP, Patna, intended objective relating to procurement of 455.45 MT DDT and 313.83 MT SP could not be achieved and led to unfruitful expenditure of ₹11.12 crore.

ROAD CONSTRUCTION DEPARTMENT

3.3 Additional burden on State exchequer

Non-adherence of provisions of the IRC in preparation of estimate and unable to take the appropriate decision to raise the height of embankment as pointed out by the contractor's/local residents' resulted in an additional burden of ₹5.60 crore.

Indian Road Congress Manual for surveys, investigation and preparation of road projects¹⁷¹ stipulates that project involving improvement in an existing road or construction of new facilities depends upon condition of the existing road. It is, therefore, necessary to prepare a road inventory and carry out condition survey. Determination of High Flood Level (HFL) governs the grade line of a road and so should also be compared with those for the adjoining sections of the road or nearby railway/irrigation embankments to correct any mistake. Any disregard of this aspect may well lead to unnecessary expenditure, since at a later date the alignment may again have to be improved at a considerable extra cost.

Test-check (March 2020) of records of Executive Engineer (EE), Road Division, Lakhisarai disclosed that Road Construction Department, Bihar (RCD) accorded (October and November 2014) technical approval and administrative approval for Construction/Improvement of Drouk more to Ghatkusumbha via Kamarpur-Bhenpur road. The EE, Lakhisarai entered into (April 2015) an agreement with contractor¹⁷² for ₹42.44 crore to complete (December 2016) the work. Chief Engineer, RCD, South Bihar (Communications) Wing, Patna accorded (June 2015) Technical Sanction for ₹44.05 crore with provision of earthwork of 1.14 lakh M³ for construction of embankment in the aforesaid road.

¹⁷¹ IRC-SP19-2001 (14.1,14.4, 15.1.3 and 15.2)

¹⁷² Kamladitya Construction Pvt. Ltd.

It was further observed that during the execution of work, the contractor had informed (February 2016) the Superintending Engineer, Road Circle, Munger that the estimated quantity of earthwork including GSB (1.58 lakh M³) was lower than the required quantity (3.27 lakh M³) in view of geographical condition where height of water logging was varying from three metres to 3.5 metres. The contractor also mentioned that after start of work, the EE, Assistant Engineer and Junior Engineer had given verbal orders to raise the height of the road in view of earlier functional PWD road constructed by the nearby other Road Divisions. He also stated that even after lapse of 10 months, no such decision from departmental authorities was communicated.

The ongoing road work was damaged (July 2016) due to flood and the flood damage report prepared (June 2017) by the Division revealed that earthwork of 1.13 lakh M³ and Granular Sub Base (GSB) of 8160.6 M³ valuing ₹5.60 crore were damaged. In the report, the EE accepted that local residents also pointed out many times about low level of embankment. The RCD revised (April 2018) the TS for the work at ₹54.73 crore considering the new Finished Road Level in comparison with the HFL of the railway which included provision of earth work of 3.29 lakh M³. The work was completed (July 2018) in the light of the revised estimate.

Thus, non-adherence of provisions of the IRC in preparation of estimate of the roadresulted in an additional burden of $\stackrel{?}{\stackrel{\checkmark}{=}} 5.60$ crore (*Appendix-3.2*) on State exchequer.

On being pointed out, the EE accepted (March 2020) that during the preparation of the feasibility report and prior to DPR such survey was not done. However, during the execution, it was noticed that the height of embankment was low. Further, flood damage report was duly considered in the revised estimate and fixing new HFL as per railway.

The matter was reported (March 2021) to the Government. Reply was not received (September 2021).

ROAD CONSTRUCTION DEPARTMENT

3.4 Avoidable Expenditure

Execution of strengthening work on portion of newly built up road by the Road Construction Department led to avoidable expenditure of $\stackrel{>}{\scriptstyle{\sim}}6.85$ crore.

Indian Road Congress guideline¹⁷³ stipulates that while designing a pavement¹⁷⁴, the road has to be designed for a definitive time span called the design life. The design life is the period during which the pavement will be able to sustain the calculated traffic load and defined in terms of the cumulative number of

¹⁷³ IRC:37-2012, IRC:81-1997 and IRC:64-1990

¹⁷⁴ A pavement consists of different layers of road i.e. sub-grade, sub-base layer, aggregate inter-layer and bituminous layer

million standard axles (MSA) that can be carried before a major strengthening, rehabilitation or capacity augmentation of the pavement is necessary. Pavement should be designed for a design life of 10-15 years. It also provides that the Passenger Car Unit (PCU) is a guiding factor for deciding carriage way of road. Design service volume in 2000 PCU/per day, 6000 PCU/per day and 15000 PCU/per day in plain area will suggest construction of a single (3.75m), an intermediate (5.5m) and a double lane road (7m).

Scrutiny of records (February 2020) of Executive Engineer (EE), Road Division, Sherghati (Division) disclosed that-

- Detailed project reports (DPRs) for three¹⁷⁵ roads under the Division were prepared (July 2014) with the design life of 15 years. These roads were built as single lane road (width 3.75m) with a maintenance contract of five years extending up to March 2024.
- The administrative approvals (AAs) of these roads were accorded (December 2014) for ₹48.84 crore, ₹21.84 crore and ₹43.01 crore respectively by the Road Construction Department (RCD) (₹30.67 crore, ₹1.72 crore and ₹6.26 crore of respectively for HL bridge work, contingency and price neutralisation).
- The construction of these roads started (September 2015 and August 2016) by the respective agencies, after they had entered into agreements¹⁷⁶ and was completed between March 2016 to October 2018 with an expenditure¹⁷⁷ of ₹56.51 crore.

Again, agreements valuing ₹39.03 crore¹⁷⁸ for widening and strengthening (up to 5.5 m width) of these roads were executed (March-August 2019) within three years of completion of earlier work. Further, the RCD accorded (July 2018) AAs of the works for ₹19.30 crore, ₹14.59 crore and ₹31.30 crore respectively. The agreement value included ₹13.73 crore (*Appendix-3.3*), for providing Dense Graded Bituminous Macadam (DGBM)/Bituminous Macadam (BM), Semi Dense Bituminous Concrete (SDBC) and Cement Concrete Pavement (CCP), in the widening and strengthening of already existing 3.75m width of these roads. All these works were completed (September 2021) and the contractors were paid (September 2021) ₹31.75 crore including payment of ₹6.85 crore (*Appendix-3.3*) on DBM, SDBC and CCP of the work.

It was further noticed that with reference to decision taken by Departmental Tender Committee (June2019), RCD directed (March 2020) to limit the DGBM

¹⁷⁵ i. Construction improvement of Dhangai Bazar to GT Road via Shivganj,

ii. Construction improvement of BB Pesara Kumaba-Bhadya-Ladu Road iii. Construction improvement of Gaya-Paraiya-Guraru-Koilwa More Road

Dhangai Bazar agreement ₹17.33 crore (September 2015), Gaya-Paraiya agreement ₹30.75 crore (August 2016), BB Pesara to Kumaba agreement ₹16.39 crore (August 2016)

Dhangai Bazar ₹14.08 crore (March 2016), Gaya Paraiya ₹29.97 crore (October 2018), BB Pesara Kumaba ₹12.46 crore (September 2018)

¹⁷⁸ ₹10.52 crore, ₹9.76 crore and ₹18.75 crore respectively

work for the widening portion of road only, as construction of a single lane road had already been completed (2017-2018) and DGBM work was duly executed in that width in Gaya-Paraiya-Guraru-Koilwa More Road. Accordingly, DGBM work was limited to widening portion only but SDBC and CCP work were executed in full portion (5.50m). As other two roads were of similar nature and were under maintenance contract too, DGBM/BM work should have been limited to widening portion only. However, DGBM/BM was executed in strengthening portion (3.75m) of both the roads including execution of SDBC and CCP in strengthening portion of these two roads.

The EE admitted the facts and replied (February 2020) that the necessary correction in respect of DGBM, SDBC and CCP will be carried out in modified estimate and payment of work will be made accordingly.

However, status (September 2021) of physical/financial progress of these roads showed that an expenditure of ₹6.85 crore had already been made on DGBM/BM, SDBC and CCP on the strengthening of all the three roads in contravention to the directives of the RCD.

Thus, execution of strengthening work on portion of newly built up road by the RCD led to avoidable expenditure of ₹6.85 crore on Government.

The matter was reported to the Government (March 2021). However, the reply was not received (September 2021).

EDUCATION DEPARTMENT

3.5 Idle Expenditure

Non-installation of equipment for development of e-classroom concept in the University resulted in idle expenditure of $\gtrless 1.43$ crore on procurement.

Kameshwar Singh Darbhanga Sanskrit University, Darbhanga (KSDSU) submitted a proposal amounting to ₹1.43 crore (March 2011) to the University Grant Commission (UGC) for creating class rooms of the university with all modern aids and computer awareness under additional assistance grant scheme during 11th plan period. UGC released (July 2012) ₹1.80 crore to the KSDSU.

KSDSU released a short tender notice in a local daily (August 2012) for development of E learning/E classroom concept for which three agencies¹⁷⁹ participated. The work was awarded to L1 and supply order (29 September 2012) was issued to M/s Cognit Semantics Private Limited, Bangalore for supply of materials worth ₹1.78 crore.

¹⁷⁹ Sanskriti Instruments Pvt. Ltd,Patna; Cyber Futuristics (I) Pvt. Ltd., Noida; Cognit Semantics Pvt. Ltd., Bangalore

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The supplier submitted invoices worth ₹1.20 crore (30 September 2012) and ₹0.45 crore (dated nil). The materials pertaining to the invoices were taken into stock register on 30 September 2012 and 9 March 2013 respectively. The KSDSU paid ₹1.43 crore¹⁸⁰ to the agency against these two invoices.

Joint physical verification was conducted (April 2021) by audit along with the University authorities and it was found that while three items¹8¹ worth ₹4.10 lakh were found missing from the store, none of remaining items were put to use/installed and the E-classroom/E-learning was not started at all.

Further scrutiny of records of the KSDSU revealed the following irregularities:

- Though the estimated cost of the project was more than one crore, the tender was not advertised in the leading nationals and was published in a local newspaper. Further, the time allowed for submitting the tender was only seven days against the stipulated 21 days as prescribed under Rule 150 of General Financial Rules, 2005.
- The specifications/detailed information of the equipment required by the KSDSU and the material supplied by the firm were not mentioned either in the tender document or in the invoices of the firm. In the absence of this important information, the authenticity of the equipment purchased by KSDSU cannot be ensured.
- The KSDSU failed to get the technical inspection of the equipment by the firm in spite of repeated requests. As per the entries of the stock register, the firm provided first lot of material on 30 September 2012 and the second lot in March 2013. No justification was found on record regarding the delay in supply of the material. No penalty clause was found for any lapses on the part of the firm.
- The expenditure of ₹1.43 crore out of total grant of ₹1.80 crore was spent during 2012-13. However, the utilisation certificate was submitted to the UGC in January 2018. As per the utilisation certificate, the expenditure was incurred for the intended purpose. However, the same was not true as the E classroom was not created and thus the intended purpose was not fulfilled.
- As per the sanction letter of UGC, the interest earned from the Grant may be treated as additional grant and the same may be incorporated in the Utilisation Certificate. Though, a balance amount of ₹0.37 crore was lying with the KSDSU for about five years (April 2013 to December 2017), details in respect of the interest earned was concealed from the UGC and was not included in the UC submitted to UGC.

¹⁸⁰ ₹97.52 lakh (November 2012)+ ₹45.20 lakh (March 2013) = ₹142.72 lakh

¹⁸¹ Smart Board of Hitachi -01; LCD-Projector of Sony-02 and Lectern system-02

- Equipment worth ₹0.35 crore was issued to non-faculty members and the remaining items valuing ₹1.07 crore was lying idle.
- Utilisation of the equipment and software after nine years of its procurement may not be useful in the changing world of information technology.

Thus, the very concept of developing learning classrooms at KSDSU was defeated as the equipment procured for ₹1.43 crore remained idle till April 2021.

The matter was reported to the Government (September 2018) including subsequent reminders (December 2020 and February 2021). However, no reply received (September 2021).

URBAN DEVELOPMENT AND HOUSING DEPARTMENT

3.6 Less realisation of property tax

Due to non-notification of multiplication factor by the Urban Development and Housing Department, Patna Municipal Corporationrealised less amount of property tax of ₹1.72 crore.

As per Rule 4 of the Bihar Municipal Property Tax (Assessment, Collection and Recovery) Rules 2013, for the purpose of fixing the property tax, the multiplying factor shall be applied to the Annual Rental Value of non-residential holdings. However, the provision in the Rule 4 was to be made effective from a date to be notified separately by Department in due course.

Further, as per Rule 6(1) & 6 (2) the rate of rental value per square feet shall be fixed by the Municipality from time to time with the prior approval of the State Government having regard to the situation, use, type of construction, occupancy of the holdings, type of non-residential use of holdings, or any other factor (s) as decided by the Municipality in future. The Annual Rental Value (ARV)¹⁸² shall be computed as multiple of the carpet area, the rental value per square feet/square meter fixed under sub-rule (1) above, occupancy factor as per Rule 3(d) and the multiplying factor applicable to the type of non-residential use of the property as per Rule 4.

The Department did not notify the related provision of Rule 4 separately as required. Scrutiny of records (September 2019) of Patna Municipal Corporation (PMC) for the period 2017-19 revealed that multiplying factor was not applied in calculation of Annual Rental Value (ARV) in respect of 91 test-checked cases belonging to non-residential holdings. Due to non-application of multiplying factor in fixation of ARV, the Corporation could not realise property tax of ₹1.72 crore as detailed below:-

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 $^{^{182}}$ ARV = carpet area x rental value x occupancy factor (1 or 1.5 as the case may be) x multiplying factor (applicable as per Rule 4).

Name of Circles	Total PIDs test-checked	Amount		
Kankarbagh	52	36,31,426		
New Capital	32	1,18,31,500		
Bankipur	7	17,33,856		
Total	91	1,71,96,782		

It was also observed that the Commissioner, PMC already requested the Department (July 2019) to notify multiplication factor in the light of prescribed provision but, no reply from the Department was found in records of the PMC till the date of audit. Again, the matter was discussed (February 2021) with the Commissioner, PMC, but no reply was furnished to audit.

Thus, due to non-notification of provision relating to multiplication factor by the Department, the PMC was not able to realise property tax of ₹1.72 crore.

The matter was reported (March 2021) to the Government. The reply was not received (September 2021).

ELECTION DEPARTMENT

3.7 Unadjusted advance

Non-adherence to the provisions of Bihar Treasury Code and inaction of authorities of District Election Offices led to accumulation of unadjusted advances of ₹15.19 crore against 4,388 persons for a period ranging from one to 36 years.

Rule 317 of Bihar Treasury Code, 2011 (BTC) stipulates that in case of advances for departmental expenditure, which are ultimately recoverable from private owners, or other parties, the duty of maintaining detailed accounts of such advances or watching their recoveries and of supervision etc., shall rest with the departmental authorities concerned.

Further, Rule 314 (C)(i) read with Rule 318 *ibid* provides that no Government servant disbursing these advances should be allowed to draw a second advance without producing a detailed bill to account for the amounts already disbursed from the last advance.

Scrutiny of records of District Election Officers (DEOs) of the following six districts disclosed (March 2020) that an amount of ₹15.19 crore was given as advance from the Election Fund to 4,388 persons for various election purposes as detailed in table no. 1 below:

Table 3.7.1
District wise unadjusted advances from election fund

Sl.	Districts	Advance for	No. of	Amount involved
No.			persons	(in lakh)
1	Patna	Tour advances, vehicle	855	537.19
2	Muzaffarpur	compensation, Fuel supply, Tents,	273	239.26
3	Bhagalpur	Home guards, drivers, Circuit	1207	329.12
4	Begusarai		1003	155.71
5	Supaul	House repairs etc.	249	47.48
6	Kishanganj		721	209.98
	Total		4388	1518.74

Details of pendency of advances for a period ranging from one to 36 years (upto ₹33.15 lakh against one individual) is shown in the following table:

Table no. 3.7.2 Amount of advance remaining unadjusted

Sl.	Districts	Amount unadjusted				Other than	
No.		Upto fiv	ve years	Five to 36 years		Government staff	
		No. of	Amount No. of An		Amount	No. of	Amount
		persons		persons		persons	
1	Patna	67	76.85	788	460.34	272	266.10
2	Muzaffarpur	41	144.09	232	95.17	13	13.75
3	Bhagalpur	47	38.77	1240	290.35	300	48.27
4	Begusarai	7	32.66	996	123.05	250	48.41
5	Supaul	31	5.59	218	41.89	72	26.28
6	Kishanganj	49	129.01	672	80.97	282	37.21
	Total	242	426.97	4146	1091.77	1189	440.02

There is a little chance of recovery of pending advance from the persons other than government staff as no security for advance was taken from them.

The various other points observed are as under:

- 724 persons were either dead, transferred, superannuated or traceless and chances of adjustment/recovery of advances amounting to ₹61.99 lakh, outstanding against them was negligible. Out of these, 292 persons were other than Government staff with advance of ₹7.22 lakh pending against them.
- 292 persons were given second/subsequent advance of ₹456.13 lakh without adjustment/recovery of first advance of ₹142.29 lakh. Out of these, 76 persons were not Government staff with ₹194.21 lakh advance pending for adjustment/recovery.
- In the last five years, DEO, Supauland Kishanganj adjusted ₹294.37 lakh (including advance of earlier period) and ₹1.40 lakh against outstanding advances of ₹285.36 lakh and ₹130.41 lakh respectively while remaining four¹⁸³ districts did not adjusted any amount at all.
- The cashbook was also not updated timely in five districts, which is against the provisions of BTC.

The DEO, Begusarai, Bhagalpur (April 2021) and Kishanganj (March 2021) replied that considering the importance of election work subsequent advances were given and appropriate action will be taken for adjustment and intimated to audit. The DEO, Supaul (February 2021) and Muzaffarpur (September 2020) replied that letter/notices were issued to the defaulting officials/advance holders for the adjustment of the outstanding amount and reminders would be issued. DEO, Patna replied (December 2020) that verification regarding difference in amount is being done and would be intimated to audit.

Patna, Muzaffarpur, Begusarai, Bhagalpur

The replies were not justified, as the DEOs did not furnish specific replies regarding non-adjustment of huge amount of advances lying unadjusted for such a long period. Even the subsequent advances, which were given citing importance of election work, were given much earlier and are still unadjusted after lapse of five to 30 years.

Thus, failure to adhere to the provisions of BTC and inaction of authorities of DEOs resulted in accumulation of unadjusted advances of ₹15.19 crore against 4,388 persons for a period ranging between one to 36 years. In the absence of timely adjustment of prior advances, chances of misutilisation and misappropriation of Government money cannot be ruled out. The Government should adjust outstanding advances or write off after following due procedure. It is also pertinent to mention that these advances pertain only to the test-checked six districts and if scrutinised at State level, the amount could be much higher.

The matter was reported to the Government (August 2021). The reply is still awaited.